

**REMEDIAL INVESTIGATION REPORT
for the
NIAGARA FALLS STORAGE SITE**

Prepared for:
**U.S. Army Corps of Engineers
Buffalo District**

Prepared by:
**Science Applications International Corporation
Dublin, Ohio
and
Tetra Tech, Inc.
Collinsville, IL**

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ACRONYMS

AEC	Atomic Energy Commission
amsl	above mean sea level
ANL	Argonne National Laboratory
ANOVA	Analysis of Variance
ARAR	Applicable or Relevant and Appropriate Requirement
ATV	All Terrain Vehicle
bgs	below ground surface
BNA	Base-Neutral Acids
BNI	Bechtel National, Inc.
BRA	Baseline Risk Assessment
CDQAR	Chemical Data Quality Assurance Report
CEC	Cation-Exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Ci	curie
CLP	Contract Laboratory Program
CME	Central Mining Equipment
cm/sec	centimeters per second
COC	Chemical of Concern
COPC	Chemical of Potential Concern
cpm	counts per minute
CQAR	Chemical Quality Assurance Reports
DCE	Dichloroethene
DERP-FUDS	Defense Environmental Restoration Program - Formerly Used Defense Sites
DNAPL	Dense Non-Aqueous Phase Liquids
DNT	Dinitrotoluene
DO	Dissolved Oxygen
DOE	Department of Energy
DOH	Department of Health
DOT	Department of Transportation
DQI	Data Quality Indicators
DQO	Data Quality Objectives
EA	EA Engineering, Science, Technology
EDD	Electronic Data Deliverable
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPDM	Ethylene Propylene Diene Monomer
ERDA	Energy Research and Development Administration
EU	Exposure Unit
FGR	Federal Guidance Report
FS	Feasibility Study
FSP	Field Sampling Plan
FUSRAP	Formerly Utilized Sites Remedial Action Program
GEL	General Engineering Laboratories
GPR	Ground Penetrating Radar
GPS	Global Positioning System

ACRONYMS (continued)

HELP	Hydrologic Evaluation of Landfill Performance
HGL	HydroGeoLogic Inc.
HMX	cyclotetra methylene tetranitramine
IDW	Investigative Derived Waste
IUC	International Uranium Corporation
IWCS	Interim Waste Containment Structure
KAPL	Knolls Atomic Power Laboratory
L	liter
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOOW	Lake Ontario Ordnance Works
LWBZ	Lower Water - Bearing Zone
Maxim	Maxim Technologies, Inc.
MCL	Maximum Contaminant Level
mCOPC	Migration Chemical of Potential Concern
MDL	Method Detection Limit
MED	Manhattan Engineer District
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NaI	Sodium Iodide
NFSS	Niagara Falls Storage Site
NGS	National Geodetic Survey
NGVD	National Geodetic Vertical Datum
NORM	Naturally Occurring Radioactive Materials
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
NTS	Nuclear Technology Services
NTU	Nephelometric Turbidity Units
ORP	Oxidation Reduction Potential
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
pCi/g	picocuries per gram
PID	Photo-Ionization Detector
PSRC	Preliminary Site Related Constituent
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RDL	Reporting Detection Limit
RME	Reasonable Maximum Exposure
RI	Remedial Investigation
ROC	Radionuclides of Concern
ROPC	Radionuclide of Potential Concern

ACRONYMS (continued)

RPD	Relative Percent Difference
SAIC	Science Applications International Corporation
SCA	Service Corporation of America Services, Inc
SDG	Sample Delivery Group
SESOIL	Seasonal Soil Compartment
SI	Site Inspection
SERA	Screening-Level Ecological Risk Assessment
SOP	Standard Operating Procedure
SOW	Statement of Work
SRC	Site-Related Constituents
STL	Severn-Trent Laboratories
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
TNT	Trinitrotoluene
TOC	Top of Casing
TPP	Technical Project Planning
TWP	Temporary Well Point
U.S.	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UST	Underground Storage Tank
UTL	Upper Tolerance Limit
UWBZ	Upper Water - Bearing Zone
VCP	Vitrified Clay Pipes
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WOE	Weight-of-Evidence
WWII	World War II
WWTP	Waste Water Treatment Plant
yd ³	cubic yards

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GLOSSARY

ACTIVITY - A measure of the rate at which radioactive material is undergoing radioactive decay; usually given in terms of the number of nuclear disintegrations occurring in a given quantity of material over a unit of time. The special unit of activity is the curie (Ci).

AQUIFER - A water-bearing layer of permeable rock or soil that will yield water in usable quantities to wells. Confined aquifers are bounded on top and bottom by less-permeable materials. Unconfined aquifers are bounded on top by a water table.

BACKGROUND CONCENTRATION (soil, groundwater, surface water, or sediment) – A background concentration is a concentration that occurs in an area that is not impacted by site activities and contains characteristics similar to site conditions. Background concentrations for both chemical and radiological constituents were used in the identification of SRCs presented in this RI and in the evaluation of human health risk presented in the BRA. The determination of background concentrations involved the establishment of a background data set for each medium and the calculation of a background value for each analyte within each medium. The background concentration is often expressed using an upper tolerance limit (UTL) that is statistically derived from the background data set.

BACKGROUND RADIATION - In this RI, background radiation includes both the natural and man-made (e.g., fallout) radiation in the human environment. It includes cosmic rays and radiation from the naturally radioactive elements that occur both outside and inside the bodies of humans and animals. For persons living in the United States, the individual dose from background radiation ranges from about 80 to 200 millirems per year.

BASELINE RISK ASSESSMENT (BRA) - The BRA evaluates current and potential future risks to human health and the environment from site contamination. It is a decision-making tool for use in determining the need for further investigation or site cleanup based upon present site conditions.

BEDROCK - A solid rock formation usually underlying one or more other loose formations.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) - CERCLA was put into place in 1980. It is also known as Superfund. This act concerns releases of hazardous substances into the environment, and the cleanup of these substances and hazardous waste sites.

CONTAINMENT - Confining the radioactive wastes within prescribed boundaries, e.g., within a waste containment structure.

CHEMICAL OF CONCERN (COC) – A chemical parameter that has been identified as posing unacceptable risk to human health and the environment.

CHEMICAL OF POTENTIAL CONCERN (COPC) - SRCs exceeding PRGs, evaluated quantitatively in the BRA.

CURIE (Ci) - A measure of the rate of radioactive decay. One curie is equal to 37 billion disintegrations per second (3.7×10^{10} dis/s), which is approximately equal to the decay of one gram of radium.

CUTOFF WALL - A low-permeability, engineered subsurface structure designed to minimize groundwater flow in a direction perpendicular to the wall.

DECAY CHAIN (DECAY SERIES) - The nuclides in the sequence of radioactive decay from one nuclide to another until a stable (nonradioactive) nuclide is reached. The uranium-238 decay chain starts with naturally radioactive uranium-238 and ends with stable lead-206. The term "decay" is also referred to as "disintegration" or "transformation."

DETECT – An analytical result reported above analytical thresholds that is not assigned a rejected (R) or undetected (U) flag, noting that estimated (J-flagged) results are typically accepted as detects.

DISTRIBUTION COEFFICIENT (K_d) - Ratio of the concentration of a constituent absorbed on soil particles to the concentration of the dissolved constituent in water.

DOSE - Total radiation delivered to a specific part of the body, or to the body as a whole.

EXPOSURE UNIT (EU) - A geographic area in which a receptor is assumed to work or live, and where a receptor may be exposed to SRCs detected during the RI.

FEASIBILITY STUDY (FS) – An FS develops, screens, and compares remedial alternatives for a site. The FS incorporates conclusions from the RI, BRA, and groundwater fate and transport modeling.

GROUNDWATER - Usually considered to be the water within the zone of saturation below the soil surface.

GROUNDWATER FATE AND TRANSPORT MODEL – A groundwater fate and transport model simulates the flow of groundwater and the movement of dissolved constituents present in an aquifer system.

HYDRAULIC CONDUCTIVITY - The quantity of water that will flow through a unit cross-sectional area of porous material per unit of time under a hydraulic gradient of 100 at a specific temperature.

LEACH - To remove or separate soluble components from a solid by contact with water or other liquids.

PERMEABILITY - The relative ease with which a porous medium can transmit a liquid under a hydraulic gradient. In hydrology, the capacity of rock, soil, or sediment for allowing the passage of water.

PIEZOMETRIC SURFACE - The surface defined by the levels to which groundwater will rise in tightly cased wells that tap an artesian aquifer.

PLUME - A line or column of water containing chemicals moving from the source to areas further away.

RADIONUCLIDE - An unstable nuclide that undergoes radioactive decay.

RADIONUCLIDE OF CONCERN (ROC) – A radionuclide that has been identified as posing unacceptable risk to human health and the environment.

RADIONUCLIDE OF POTENTIAL CONCERN (ROPC) - SRCs exceeding radiological screening levels, evaluated quantitatively in the BRA.

RADIATION - A very general term that covers many forms of particles and energy, from sunlight and radio waves to the energy that is released from inside an atom. Radiation can be in the form of electromagnetic waves (gamma rays, X-rays) or particles (alpha particles, beta particles, protons, neutrons).

RADIOISOTOPE - An unstable isotope of an element that spontaneously loses particles and energy through radioactive decay.

RADIUM-226 - A radioactive solid produced by the decay of thorium-230. It is an alpha emitter and is hazardous when it gets into the body. Radium-226 has a half-life of 1,600 years and can accumulate in certain parts of the body such as bone.

RADON-222 - A radioactive gas produced by the decay of radium-226. It is hazardous mainly because its solid decay products can be deposited in the lungs where they decay in a matter of minutes, emitting alpha radiation that irradiates nearby tissue. Radon-222 has a half-life of 3.8 days.

REMEDIAL INVESTIGATION (RI) – An RI is a site investigation consisting of a records search, environmental sampling, risk assessment, and groundwater flow modeling to define the identity, amount, and location of contaminants at a site.

RESIDUES - For this RI, the K-65, L-30/F-32, and L-50 residues that resulted from the processing of uranium ores.

RUNOFF - All rainfall and snowmelt that does not soak into the ground, does not evaporate immediately, or is not used by vegetation, and hence flows over the land surface.

SECULAR EQUILIBRIUM - In a radioactive decay series, the state that prevails when the ratios between the amounts of successive members of the series remain constant over time.

SITE-RELATED CONSTITUENT (SRC) - Chemicals or radionuclides that were present in a given medium and EU at concentrations statistically greater than the corresponding background concentrations. SRCs were determined for soil (0 to 10 feet bgs), surface soil (0 to 0.5 feet bgs), sediments, surface water, groundwater, pipeline/utility sediments, and pipeline/utility water.

SOURCE TERM - The quantity of radioactive material (or other pollutant) released to the environment at its point of release (source).

SPECIFIC ACTIVITY - The activity per unit volume of a pure substance (see ACTIVITY).

THORIUM-230 - A radioactive solid produced by the decay of uranium-238. It has a half-life of 77,000 years.

TILL - Unstratified glacial deposits consisting of clay, sand, gravel, and boulders intermingled

URANIUM - A naturally occurring radioactive element that consists of 99.2830% by weight uranium-238, 0.7110% uranium-235, and 0.0054% uranium-234.

VICINITY PROPERTY - Vicinity properties are those properties that were designated by DOE as eligible properties in the FUSRAP and located within the boundaries of the former LOOW but outside the boundaries of what is now the NFSS. Vicinity properties include B, C', D, F, G, N/N' North, P, T, W, E and E'.

WASTES - For this RI, all contaminated materials (primarily soils) not defined as residues.

METRIC CONVERSION CHART

To Convert to Metric			To Convert from Metric		
If You Know	Multiply By	To Get	If You Know	Multiply By	To Get
Length					
inches	2.54	centimeters	centimeters	0.3937	inches
feet	30.48	centimeters	centimeters	0.0328	feet
feet	0.3048	meters	meters	3.281	feet
yards	0.9144	meters	meters	1.0936	yards
miles	1.60934	kilometers	kilometers	0.6214	miles
Area					
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092903	square meters	square meters	10.7639	square feet
square yards	0.8361	square meters	square meters	1.196	square yards
acres	0.40469	hectares	hectares	2.471	acres
square miles	2.58999	square kilometers	square kilometers	0.3861	square miles
Volume					
fluid ounces	29.574	milliliters	milliliters	0.0338	fluid ounces
gallons	3.7854	liters	liters	0.26417	gallons
gallons	0.00378	cubic meters	cubic meters	264.55	gallons
cubic feet	0.028317	cubic meters	cubic meters	35.315	cubic feet
cubic yards	0.76455	cubic meters	cubic meters	1.038	cubic yards
Weight					
ounces	28.3495	grams	grams	0.03527	ounces
pounds	0.4536	kilograms	kilograms	2.2046	pounds
Temperature					
Fahrenheit	Subtract 32 then multiply by 5/9ths	Celsius	Celsius	Multiply by 9/5ths then add 32	Fahrenheit
Radiation					
picocurie	0.037	Becquerel	Becquerel	27.027027	Picocuries
curie	3.70E+10	Becquerel	Becquerel	2.703E-11	Curies
rem	0.01	sievert	sievert	100	rem
RAD	0.01	Gray	Gray	100	RADs

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EXECUTIVE SUMMARY

ES.1 Introduction

A multi-phase remedial investigation (RI) was conducted at the federally-owned Niagara Falls Storage Site (NFSS) located at 1397 Pletcher Road in the township of Lewiston, Niagara County, New York. The 191-acre parcel is part of the former Lake Ontario Ordnance Works (LOOW) that was used by the War Department beginning in 1942 for the production of trinitrotoluene (TNT). In 1944, the Manhattan Engineer District (MED) began using the site for storage of radioactive residues that resulted from the processing of uranium ores during the development of the atomic bomb. The MED and its successor agencies continued to periodically ship radioactive residues and materials to the NFSS for storage through 1950.

Environmental investigation and remediation activities at the NFSS are managed by the United States Army Corps of Engineers (USACE), Buffalo District, under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The site previously passed through the governmental reorganizations of the MED to the Atomic Energy Commission (AEC), the Energy Research and Development Administration (ERDA) and the United States (U.S.) Department of Energy (DOE). In October 1997, the Energy and Water Development Appropriations Act for Fiscal Year 1998, PL 105-62, was signed into law, transferring responsibility for the administration and execution of FUSRAP from DOE to the USACE. The Energy and Water Development Appropriations Act for Fiscal Year 2000, Public Law 106-60, requires that USACE comply with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code 9601 et seq., as amended (CERCLA), in conducting FUSRAP cleanup work. Therefore, USACE is conducting FUSRAP cleanups in accordance with CERCLA.

ES.2 Purpose and Objectives

DOE performed various remedial activities at the NFSS prior to transfer of site management to USACE. However, the change in management impacted the regulatory authority and the range of alternatives for the NFSS. Subsequently, as required by law for execution of FUSRAP, USACE selected the CERCLA RI/Feasibility Study (FS) process to reach a decision for the completion of remedial activities at the NFSS. The RI/FS process will consider new alternatives for the site, regulatory changes, stakeholder comments, and additional data which have been generated since alternatives were initially proposed for the site in an Environmental Impact Statement (EIS) issued by DOE in 1986.

This RI was conducted to define the identity, amount, and location of chemicals of concern (COC) and radionuclides of concern (ROC) at the NFSS, and to provide primary data for the FS, which will be used to identify and evaluate various remedial action alternatives and assist in the development of a protective and cost-effective remedy for the site. The long-term objective of this project is to clean up contamination resulting from work related to the Nation's early atomic energy program administered under MED/AEC in a manner that satisfies the requirements of the CERCLA. While chemical contamination is normally addressed only when collocated with radioactive contamination under FUSRAP, USACE will remediate both radioactive and chemical contamination because NFSS is a federally-owned property. An adjacent property, the Niagara-Mohawk property, was also investigated in this RI to determine if radiological constituents have migrated west of the NFSS property boundary. A Baseline Risk Assessment (BRA) and a fate and transport groundwater flow model were completed in support of RI objectives.

ES.3 RI Approach

The RI began with a records review in order to gain an understanding of historic site operations and how these operations may have contributed to potential contamination. Following the records review, site reconnaissance was conducted to identify areas potentially impacted by site operations. Field activities then proceeded in a phased approach in order to refine the understanding of the nature and extent of contamination at the NFSS and their relationships to exposures, risks, and remedial alternatives.

The RI was conducted in three phases. Fieldwork for Phase I occurred from November 1999 until January 2000 and consisted of a wide investigation of the site, involving the collection of groundwater, surface water, sediment, and soil samples that were analyzed for radiological and chemical parameters.

Phase 2 sampling activities were conducted from August through October 2000. Phase 2 of the investigation was guided by sampling results obtained during Phase I and focused on areas that appeared to be adversely impacted by past activities at the site. A sitewide gamma walkover and geophysical survey were conducted during the summer of 2001 to evaluate the presence of surficial gamma-emitting radionuclides and subsurface features that could allow contaminant migration, respectively.

Phase 3 was conducted from May 2001 until October 2003 and focused on the following activities.

- Further characterization of areas that exhibited elevated radioactivity during the gamma walkover survey,
- Further characterization of pipelines and sewers at the site that could serve as sources of contamination and mechanisms of contaminant transport,
- Excavation of exploratory trenches to investigate anomalies identified during a geophysical survey conducted in the summer of 2001,
- Collection of background surface water, sediment, and groundwater samples,
- Collection of soil samples required to support the BRA,
- Sampling and disposal of abandoned drums identified during previous field activities,
- Collection of confirmatory samples from wells and manholes,
- Collection of soil and groundwater samples to further delineate and characterize areas of suspect contamination identified during earlier phases of the RI,
- Collection of samples from the floor drains, the concrete floor slab and below the floor slab of Building 401, and
- Collection of radiological samples from the neighboring Niagara-Mohawk property.

Additional geophysical surveys on the Interim Waste Containment Structure (IWCS) were conducted concurrently with the Phase 3 sampling activities. Resistivity surveys were conducted in May-June 2001 and seismic surveys were conducted in June 2001. Follow-up geophysical investigations, including seismic refraction and electrical imaging/induced polarization were conducted in September 2003.

Since the completion of Phase 3 activities of the RI in October 2003, project work has continued for review and presentation of the RI results. Continued RI activities include: quality review and electronic management of analytical data, preparation of figures and tables to visually summarize environmental sampling results, formulation of a computerized groundwater flow model, performance of human health risk calculations in development of the BRA, and multi-tiered review in preparation of final compilation of this RI report.

In addition to sampling performed during the RI at NFSS, regular sampling of air, surface water, groundwater, and streambed sediment is conducted to support the ongoing environmental surveillance program. Environmental surveillance results are compared to local background conditions and regulatory criteria to determine if radioactive waste stored on-site poses a threat to human health and the environment. By further defining the nature and extent of site-related constituents (SRC) at the site during the RI, goals and objectives of the environmental surveillance program will be better directed to ensure continued safety to human health and the environment.

ES.4 Site Description

Figure ES-1 shows the NFSS and the current surrounding land use. The NFSS is bordered on the north and northeast by the CWM Chemical Services, LLC. hazardous waste disposal facility, on the east and south by the Modern Landfill, Inc. solid waste disposal facility, on the west by a transmission corridor owned by Niagara-Mohawk Power Corporation, and on the northwest by the village of Lewiston (the former LOOW wastewater treatment plant). All of the aforementioned properties were once part of the original LOOW.

The surrounding area land use consists primarily of row-crops and orchards, abandoned agricultural fields, and second-growth forests. The Lewiston-Porter public school property is approximately 1.5 miles northwest of the site and a public campground is approximately 0.5 miles west of the site. The nearest residences are located on Pletcher Road approximately 0.5 miles west-southwest of the site.

Drainage at the NFSS is poor because of the flat terrain and the relatively impermeable nature of surface soils. Much of the NFSS property has the potential to collect and hold standing water for lengthy periods. However, several ditches on site collect surface water runoff. Over most of the site, surface water is conveyed through east-west ditches that empty into the Central Ditch. The Central Ditch flows north and joins Four Mile Creek about 1.5 miles north of the NFSS. Four Mile Creek, in turn, empties into Lake Ontario. Surface water runoff from the western periphery of the site and from the Baker-Smith area in the northwest corner of the site flows to the West Ditch. The West Ditch flows north and joins the Central Ditch approximately 0.5 miles north of the NFSS.

Unconsolidated geologic units present at the NFSS consist mainly of glacial tills containing clay, silt, sand, and gravel. These unconsolidated materials are approximately 40 feet thick at the NFSS and include, in order of shallowest to deepest: surficial soils and fill, the Brown Clay Unit, the Gray Clay Unit, the Middle Silt Till Unit, the Sand and Gravel Unit, and the Red Silt Unit. The

Queenston Formation forms the bedrock at the site and consists of brownish red shale, siltstone, and mudstone. The Queenston Formation is over 1,200 feet thick and is typically encountered 32 to 49 feet below ground surface (bgs) (BNI 1994b, Acres American, Inc. 1981a). A geologic column is shown in Figure ES-2.

Within 100 feet of the ground surface, there are two water-bearing zones at the NFSS and surrounding vicinity. The upper water-bearing zone (UWBZ) is present in the Brown Clay Unit. The lower water-bearing zone (LWBZ) is associated with the Queenston Formation and the unconsolidated materials immediately above the bedrock (Red Silt and Sand and Gravel Units). The Gray Clay Unit acts as an aquitard between the UWBZ and the LWBZ. A regional groundwater divide exists approximately two miles south of the NFSS. Regional groundwater flow north of the divide is toward the northwest, whereas groundwater flow south of the divide is toward the southwest (BNI 1982b).

Former production facilities located on the portion of the LOOW that later became the NFSS included the acid area where nitric acid was known to have been stored; the shops area where machine shops and storage areas were located; an administrative area referred to as the Baker-Smith area; the Power Area which housed the original steam plant for the LOOW; and the Freshwater Treatment Plant which included circular clarifiers and several water storage reservoirs.

Currently, the IWCS is the dominant site feature, occupying approximately 10 acres in the southwest portion of the site. During the 1980's, the DOE performed various remedial activities at the site and consolidated the radioactive wastes and contaminated materials at the NFSS into the IWCS, which was engineered to retard radon emissions, infiltration from precipitation, and migration of contamination to groundwater. The base of the IWCS consists of naturally occurring clay. A clay dike, which was keyed 1.5 to 2 feet into the underlying gray clay, surrounds the stored radioactive materials. The IWCS is covered with an interim clay cap consisting of three layers. The bottom layer includes three feet of compacted clay keyed into the dike followed by a one foot layer of fill. The upper layer is a 6-inch topsoil vegetative cover. The cap is considered 'interim' because it does not include a barrier layer (typically a riprap layer at least three feet thick) and the side slopes of the structure, currently 3:1, were not constructed with a slope of 5:1. Also, the side slopes do not have a riprap covering, which is required for a long-term cap (BNI, 1994a).

ES.5 Determination of Exposure Units and Site-Related Constituents

To facilitate accurate estimation of exposure and dose in the BRA, the NFSS was divided into 18 exposure units (EU). An EU is the geographic area in which a receptor is assumed to work or live, and where a receptor may be exposed to SRCs detected during the RI. These EUs provided the geographical framework for the determination of SRCs. SRCs are defined as those compounds that exceed background screening levels in their respective EUs.

The area of investigation considered by this RI, consisting of the NFSS and the neighboring Niagara-Mohawk property, was divided into 14 distinct physical EUs, numbered 1 through 14 as shown on Figure ES-3. These EUs formed the basis for the evaluation of surface soils, subsurface soils, and some of the sediment and surface water samples. SRCs were determined for each EU for soil (0 to 10 feet bgs), surface soil (0 to 0.5 feet bgs), sediments, surface water, groundwater, pipeline/utility sediments, and pipeline/utility water. An additional four EUs (EUs 15 through 18) were created to accommodate special circumstances of the site or needs of the BRA. Throughout

the RI report, references may be made to 14 physical EUs or 18 risk EUs depending on the topic of discussion.

For the purpose of discussing RI results in this document, EUs 1 through 14 were grouped with respect to site features or former site operations. The following EU groupings were identified: Baker-Smith Area and Vicinity, Acid Area and Vicinity, Panhandle Area, IWCS and Vicinity, Shops Area, Niagara-Mohawk Property, and Building 401 and Vicinity. A brief description of each EU, including its grouping, follows.

EU 1 (Baker-Smith Area and Vicinity)

EU 1 is located in the northwest corner of the NFSS. The West Ditch flows to the north through EU 1. During the operation of the LOOW, a pipe shop, machine shop, welding shop, and a store house were located in EU 1 near a rail line that ran roughly parallel to the West Patrol Road. Except for the West Ditch, the ditches in EU 1 are typically dry and carry water only after storm events. During operation of the NFSS by AEC, K-65 and Knolls Atomic Power Laboratory (KAPL) wastes were stored in buildings located in this area. The KAPL wastes were later transferred to Oak Ridge National Laboratory and the K-65 wastes were moved to a silo in EU 6. The DOE performed remedial actions in the Baker-Smith area in 1981.

EU 2 (Baker-Smith Area and Vicinity)

EU 2 is located along the northern boundary of the NFSS property east of EU 1. A small portion of the New Naval Waste Area, where construction debris was stored, was also located in EU 2. The DOE performed remedial actions in the New Naval Waste Area in 1983.

EU 3 (Acid Area and Vicinity)

EU 3 is located along the northern boundary of the NFSS property and is bordered by EU 2 on the west and EU 4 on the east. The major portion of the New Naval Waste Area, where building debris was stored, was located within EU 3. Building 433, also known as the former radium storage vault used to store sealed radium sources, was located in EU 3. The exact location of this building is not known with certainty and during sampling efforts for this RI, areas in both EUs 2 and 3 were investigated as potential former locations of the building.

EU 4 (Acid Area and Vicinity)

EU 4 is located along the northern boundary of the NFSS property and is bordered by EU 3 on the west and EU 5 on the east. During the operation of the LOOW, nitric acid and other materials related to the manufacture of TNT were stored in EU 4. During the 1950's, uranium rods from several uranium metal production facilities in the New York area were stored in Buildings 431 and 432. These buildings, formerly located near the boundary between EU 3 and EU 4, were decontaminated and demolished by the DOE in 1986. Several subsurface pipelines used to transfer acids north to the former TNT production facilities remain in the EU.

EU 5 (Panhandle Area)

EU 5 is located in the northeastern portion of the site property along the northern property boundary and is bordered by EU 4 on the west and EU 6 on the east. It is bordered to the north by CWM Chemical Services Inc. Landfill and Modern Landfill to the south. Ammonia storage facilities were present in EU 5 during operation of the LOOW and some foundation material was found in the EU. In 1953, an explosion and fire that was not related to the storage or use of ammonia occurred immediately south of the Panhandle Area. The cause of the fire is unknown. The pipeline that transferred K-65 slurry from EU 6 to the IWCS passed through EU 5 along O Street.

EU 6 (Panhandle Area)

EU 6 is located in the northeastern corner of the site property and is bordered by EU 5 on the west, CWM Chemical Services Inc. Landfill to the north and east, and Modern Landfill to the south. Building 434, a water tower during the operation of the LOOW and later a storage facility for the K-65 residues, was located in EU 6. In the 1980's under direction of the DOE, the K-65 residues were slurry transferred to the IWCS through a temporary transfer pipeline and the water tower was removed.

EU 7 (IWCS and Vicinity)

EU 7 is a large grassy area north of the IWCS (EU 10). In a 1944 oblique, a large building was located in EU 7; however, no buildings currently exist in this EU. During the remedial actions performed by the DOE in the 1980's, several large temporary ponds, principally used for the management and storage of stormwater, were located in this area. EU 7 is also the location of the former DOE Organic Burial Area where roofing timbers, wooden debris, and organic material from clearing activities were disposed.

EU 8 (Shops Area)

EU 8 is located in the east-central portion of the NFSS, north of Building 401. It is bordered to the north by the acid area, to the south by the Building 401 Area, to the east by Modern Landfill, and to the west by Campbell Street. This area once contained a parking garage, equipment maintenance garage, material shed, general storehouse, combined shops, millwright shop, and riggers shop. None of these buildings remain although some concrete building foundations are still present. Radioactive residues were stored in several of the former buildings and corroded uranium billets were cut into smaller sections in the riggers shop. A debris pile is present in the southeastern portion of the EU.

EU 9 (Niagara-Mohawk Property)

The Niagara-Mohawk property is adjacent to the western boundary of the NFSS. The West Ditch is the principal site feature of the Niagara-Mohawk property. Impacted soils in the West Ditch were removed during a previous removal action.

EU 10 (IWCS and Vicinity)

EU 10 is located along the western border of the NFSS property boundary south of EU 7. The predominant feature in EU 10 is the IWCS. Prior to the construction of the IWCS, the LOOW freshwater treatment plant was located at the southern end of the EU. The Middlesex Sands, F-32, L-30, L-50, and K-65 residues are currently stored in the remnants of the freshwater treatment plant, which are now contained in the IWCS. Likewise, the R-10 pile, formerly unprotected and stored in the open north of the freshwater treatment plant, is also contained in the IWCS.

EU 11 (IWCS and Vicinity)

EU 11 is 'L' shaped and located both east and south of EU 10. During the operation of the LOOW, a fire house was located in the central portion this EU and a parking lot was located in the southern portion. Later, during the remedial actions performed by the DOE in the 1980's, a water treatment plant and several temporary ponds used to hold treated slurry water, decontamination water and stormwater prior to release were located here.

EU 12 (Building 401 and Vicinity)

EU 12 is a vacant wooded tract located between the shops area (EU 8) and Building 401. No production or storage activities are known to have occurred in EU 12. The Building 401 Ditch flows north through the EU where it joins the South 16 Ditch, which continues to the west joining the Central Ditch in EU 10.

EU 13 (Building 401 and Vicinity)

EU 13 is surrounded by EUs 11, 12, and 14. The main feature in EU 13 is Building 401, a large structural steel building. During the operation of the LOOW, Building 401 was a power house, generating steam for use in the TNT production facilities. Later, the building housed a boron-10 (a nonradioactive isotope) separation process. During active use of the NFSS as well as during previous remedial activities, the building was used to temporarily store and stage radioactive waste.

EU 14 (Building 401 and Vicinity)

EU 14, bounded on two sides by Modern Landfill, is a wooded tract. Both the South 31 Ditch and the Modern Ditch flow through the area and join near the northwest corner of the EU. The South 31 Ditch continues to the west joining the Central Ditch in EU 10. No production or storage activities are known to have occurred in EU 14.

EU 15 (Interconnected Drainageways)

EU 15 consists of the Central Ditch, South 16 Ditch, South 31 Ditch, and Modern Ditch. All sediment and surface water samples collected from these ditches were evaluated in EU 15. Sediment and surface water samples collected from ditches other than those in EU 15 were evaluated in the EUs from which they were collected.

EU 16 (Pipelines and Subsurface Utilities)

EU 16 contains on-site subsurface pipelines used in former site operations. These pipelines include acid lines, water lines, sanitary sewers, and storm sewers. All sediment and water samples collected from these pipelines were evaluated in EU 16.

EU 17 (Sitewide Media)

EU 17 is a site-wide EU and includes all areas and media within the property boundary of NFSS. This includes all soil, sediment, surface water, and pipeline material in EUs 1 through 16. In addition, it contains site-wide groundwater, including both the UWBZ and the LWBZ.

EU 18 (Background Samples)

EU 18 consists of all background samples that were used for the determination of SRCs in EUs 1 through 17.

ES.6 Nature and Extent of SRCs

For the purpose of discussing the nature and extent of SRCs in soil within each EU, surface soil samples were considered to be samples collected from 0 to 0.5 feet bgs and subsurface soil samples were considered to be samples collected from 0.5 to 10 feet bgs. Soil samples collected at depths greater than 10 feet bgs were addressed separately. This approach to the discussion of the nature and extent of soil SRCs corresponds to figures presented in Section 4 of this report that show the horizontal and vertical distribution of SRCs in soil within each EU. Additionally, for the purposes of determining nature and extent of SRCs, water and sediment samples included in EUs 15 and 16 are presented in the discussion of the EU from which they were collected.

Table ES-1 provides a summary of SRCs of significance for each media within each EU. SRCs of significance were identified for each media. The criteria used to determine significance of SRCs included, but was not limited to:

- high frequency of detection,
- high magnitude of observed concentrations,
- widespread occurrence,
- multiple depth occurrences in soil,
- clustered concentrations,
- constituent of an identified groundwater plume, and
- high probability of media interaction.

The BRA evaluated soils to depths of 10 feet to remain consistent with reasonable exposure scenarios; however, the RI considered soil samples from depths greater than 10 feet bgs to evaluate SRCs of significance and to define nature and extent of contaminants. General conclusions concerning SRCs developed from the evaluation of RI data collected from EUs 1 through 14 are summarized in this section for each media of concern.

Surface and Subsurface Soil

EUs 4 and 8 appear to be impacted by the most types of SRCs. SRCs of significance identified for the two EUs include radionuclides, volatile organic compounds (VOCs), pesticides, polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), and boron. Metals and semi-volatile organic compounds (SVOCs) were also identified as SRCs of significance in EU 8.

Radionuclides impacted soils in all 14 physical EUs. Radionuclides exceeded the background upper tolerance limits (UTLs) by factors of 100 or greater in EUs 1, 5, 6, 7, 8, 11, 13, and 14. Exceedances of the background UTLs by a factor greater than 100 occurred approximately 10 times or less in each of these EUs. In decreasing order, radium-226, thorium-230, uranium-238, and cesium-137 were the four radionuclides with the highest frequency of detection above the background UTLs in surface soil. However, uranium-234 and uranium-238 exhibited some of the highest exceedances above background UTLs (greater than 4,000 times) in surface soil samples. Several surface soil samples also exhibited concentrations of radium-226 and thorium-230 that exceeded background UTLs by factors greater than 100. Likewise, thorium-230, uranium-238, radium-226, and uranium-234 were the four radionuclides with the highest frequency of detection above the background UTLs in subsurface soil. Radium-226 and thorium-230 exhibited the highest exceedances above background UTLs (greater than 100 times) in subsurface soil samples.

Radionuclides detected above background UTLs may be related to radioactive waste storage operations (EUs 1, 8, and 13), activities conducted at the former radium storage vault (EU 3), activities conducted and waste stored at the New Naval Waste Area (EU 3), wind erosion of the uncovered R-10 pile (sitewide), the storage of K-65 residues in Building 434 (EU 6), dewatering of slurried residues (EU 11), and general transportation and storage practices employed at the NFSS prior to remedial activities in the 1980's. Residual radionuclide contamination could be the result of difficulties encountered during historical cleanup activities. In addition, the soils may have been cleaned up to standards deemed appropriate by DOE at the time; however, technology improvements and the conservative screening criteria used during this RI indicate that further evaluation of contaminants in soil may be warranted. The widespread presence of radionuclides in subsurface soil at the NFSS may also be partly attributed to the migration of constituents along subsurface utility lines. Cracks or leaks in the subsurface utility lines may provide a pathway for constituents to reach subsurface soil where further migration can occur via infiltration of precipitation and interaction with shallow groundwater.

It should be noted that migration of contaminants along subsurface utilities is limited to those outside of the IWCS. During construction, the pipes, culverts, and canals within the footprint of the IWCS were excavated and/or sealed to close pathways for possible migration of radionuclides out of the IWCS (BNI, 1986c). Those pipelines utilities that extended off-site have also been sealed to prevent any contamination from migrating across the site boundary.

VOCs were considered to be SRCs of significance in all 14 physical EUs except EUs 9 and 11. Acetone was the most frequently detected VOC in surface and subsurface soils. However, roughly 75% of all acetone detections in surface and subsurface soil samples were at concentrations less than 20 µg/kg. Chlorinated solvents (i.e. TCE, cis/trans-1,2-dichloroethene (DCE), PCE, 1,1,1-trichloroethane, and 1,1-DCE), benzene, toluene, methylene chloride, carbon disulfide, and 2-butanone were also commonly detected in soils. VOCs were frequently detected below a depth of 10 feet bgs. The source of VOCs in soils at the NFSS is most likely associated with activities conducted at former LOOW buildings. Transportation of supplies and chemicals along haul roads and inappropriate disposal of drums and debris could also have contributed to releases of VOCs in soil.

Pesticides, PCBs, PAHs, and metals were identified as SRCs of significance in soil in several EUs. SVOCs were infrequently identified as SRCs of significance in soil. Pesticides may have been used for insect control across most of the NFSS, especially near building and former work areas. However, no specific pesticide storage facility could be identified in historical documents. PCBs may be the result of spills during transportation, disposal of debris as observed in excavation trenches, or from PCB-containing oil that may have been used for dust control on the site roads. Pesticides, PCBs, PAHs, SVOCs, and metals may also be related to general site activities conducted at the NFSS, including storage of chemicals and materials within some of the buildings.

Groundwater

Over 200 groundwater samples were collected from temporary and permanent wells at the NFSS. Groundwater plumes containing radionuclides, metals and organic compounds were identified in the UWBZ; however, no groundwater plumes were identified in the LWBZ because the nature and extent of SRCs detected in the LWBZ did not warrant the identification of a plume. Most of the plumes are geographically associated with past site uses or activities. There are some site areas where materials were buried or where drums were found that may have contained the constituents identified in groundwater plumes. In some cases, there appears to be a relationship between buried utilities and groundwater concentrations of SRCs; infiltration of precipitation that can promote the migration of constituents to shallow groundwater or the interaction of utility lines with shallow groundwater may allow utility lines to act as preferential pathways for constituent migration.

Groundwater plumes were identified for dissolved total uranium, thorium-230, manganese, boron, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-DCE, trans-1,2-dichloroethene, vinyl chloride, and bis(2-ethylhexyl)phthalate. The plumes are briefly described in the following paragraphs.

Dissolved total uranium groundwater plumes impact ten EUs and were located in the following areas:

- In EUs 1 and 2 extending from the west-central portion of EU 2 through the northwest portion of EU 1,

- In the north-central portion of EU 4 near the former nitric acid concentrator,
- In the northwest corner of EU 7 near the West Ditch,
- In the southeastern portion of EU 8 near the area of the former storehouse Buildings 420 and 421 and the debris pile and in the southwestern portion of EU 8 between Buildings 422 and 423,
- On the west and north sides of the IWCS in EU 10,
- In the southern portion of EU 10 and in areas of EU 11, and extending along the water line that cuts diagonally across the southeastern corner of EU 10,
- In EUs 10 and 11 in the vicinity of some former dewatering ponds,
- Just north of Building 401 in EU 13 and across the northwest corner of EU 12, and
- In EU 13 covering the entire southwestern portion of the EU from Building 401 to the EU boundary.

Other groundwater plumes identified at the NFSS include:

- A dissolved manganese plume in the central portion of EU 3,
- A dissolved boron plume in the central portion of EU 4,
- A dissolved boron plume in the central portion of EU 13,
- A dissolved thorium-230 plume spanning the boundary between EUs 7 and 10,
- A small dissolved thorium-230 plume in the north central portion of EU 4,
- A dissolved thorium-230 plume extending from EU 11 into EU 10 in the area south of the IWCS,
- PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride groundwater plumes in EU 4 at a depth of approximately 10 to 15 feet bgs where PCE and TCE (dense non-aqueous phase liquids (DNAPL)) sources may exist, and
- A small bis(2-ethylhexyl)phthalate groundwater plume along the east side of the IWCS.

Other SRCs of significance were identified in groundwater for several EUs as shown on Table ES-1; however, groundwater plumes for these SRCs were not identified.

Sediment

Samples collected from locations that are inundated at least 50% of the year were considered to be representative of sediment.

EU 5 was the only physical EU where SRCs of significance were identified for sediment. Cesium-137 and total uranium exceeded the background UTLs in sediment by factors less than

10. Radionuclides may be present in EU 5 due to transportation and storage practices employed at the NFSS prior to the remedial activities in the 1980's. Also, because the R-10 pile was uncovered and unprotected for a number of years, wind erosion of the pile and the subsequent downwind deposition and migration of constituents to surface water and sediment likely account for some of the wide-spread low-level radionuclide SRCs observed here and elsewhere on the site.

Surface Water

SRCs of significance in surface water were only identified for EUs 7 and 9, and in the interconnected drainageways (EU 15). General conclusions concerning SRCs of significance in surface water include:

- Thorium-228 and thorium-230 were identified in surface water at EU 7 at concentrations greater than 40 times their respective background UTLs.
- Uranium-234, uranium-235 and uranium-238 exceed the background UTL in the dissolved phase at several locations along the West Ditch in EU 9.
- Several metals were found in the Central Drainage Ditch at levels approximately 2 times the background UTL. Dissolved silver was detected at levels approximately 20 times the background UTL at one location just inside the site boundary in the Modern Ditch and at the next three samples downstream in the South 31 Ditch. The three samples collected from the South 16 Ditch also exhibited dissolved silver at these levels.
- Thorium-232 was detected at five locations, three in the Central Ditch and two in the South 31 Ditch. Radium-226 was also detected at levels slightly above the background UTL at two of these locations. However, the fact that radionuclide concentrations do not exceed background UTLs at sampling locations near the northern boundary of the property suggests that radiological SRCs are not migrating off-site (i.e. radionuclide concentrations near the northern boundary of the property are within the expected range of naturally occurring concentrations suggesting that radiological impacts from the site have not extended beyond the northern property boundary).
- Two VOCs, 4-methyl-2-pentanone and benzene, were detected in an isolated sample collected at the conjunction of the South 31 Ditch and the Modern Ditch.

Although metals were not identified as an SRC of significance in surface water in any other EUs, dissolved silver was detected at levels 20 times greater than the background UTL in EUs 5 and 8. No known source for the silver was identified in the historical review.

- Dissolved silver was detected at levels 20 times greater than the background UTL in four samples collected from the O Street North Pond and a pond in the northern portion of the EU 5.
- Dissolved silver was detected at levels 20 times greater than the background UTL in three samples collected from small ditches in the northern and eastern portions of EU 8.

The elevated concentrations of thorium and uranium isotopes in surface water in EUs 7 and 9 can likely be attributed to runoff from surface soil. Metals and radionuclides in the interconnected drainageways may be the result of past activities including the construction and filling of the

IWCS. Metals, specifically dissolved silver, may also be entering the site from surface water to the east and south. The VOCs are likely a result of the nearby AEC sludge pit as surface and subsurface soil samples near this location also exhibited concentrations of VOCs above the background UTL.

Metal SRCs in surface water and sediment within the interconnected drainageways are likely migrating offsite at concentrations above background levels. SRCs in groundwater could migrate to surface water and sediment in drainageways where the groundwater table is above the elevation of the bottom of the drainageway. This likely occurs in the Central Ditch, which appears to be hydraulically connected to the UWBZ. SRCs in surface water have the potential to migrate to groundwater only when surface water in the drainageways is flowing above the elevation of the groundwater table.

Sediment and Water in Pipelines and Subsurface Utilities

Pipelines and subsurface utilities are present on the majority of the NFSS property, particularly in EUs 3, 4, 8, 10, 11, 12 and 13, and to a lesser extent in EUs 2, 5 and 6. SRCs of significance were identified for EUs 2, 4, 8, 10, 11, and 13; however, EUs 4, 8 and 13 exhibited the most frequent and widespread occurrence SRCs of significance in pipelines and subsurface utilities. Most of the SRCs identified in EU 13 occurred in floor drain samples from beneath Building 401. Background UTLs for sediment and water in pipelines and subsurface utilities are based on sediment and surface water background samples.

- Radionuclides were identified as SRCs of significance in sediment in subsurface utility lines in EUs 2, 4, 8, 10, and 13. Radiological SRCs were detected above the background UTLs in several water samples collected from pipelines and subsurface utilities in EUs 4, 8 10, 11, and 13.
- Three metals (boron, cadmium and mercury) in subsurface utility sediments from EU 13 exceeded their respective background UTLs by more than a factor of 100. A number of others metals exceeded their respective background UTLs by a factor of 10 to 100 in EU 13. Several metals in water samples collected from the subsurface utility lines in EU 11 exceeded their respective background UTLs by factors of up to 27. Numerous metals exceeded the background UTL in both the dissolved and total phase in four drain samples from Building 401 and two samples outside the building in EU 13.
- PAHs were identified as SRCs of significance in sediment in subsurface utility lines in EUs 2, 4, 8, 11, and 13. Several PAHs were detected in water from the subsurface utilities within EU 4 at concentrations up to approximately 280 times the background UTL.
- VOCs were detected in multiple locations in sediment from the drain samples in Building 401 within EU 13. VOCs were also detected above the background UTL at four locations in the EU 8 subsurface utilities. VOCs were detected in water from the subsurface utilities within EU 4 with two locations having concentrations of PCE greater than 20 times the background UTL.
- Several pesticides were found in six subsurface utility samples in EU 4 with concentrations exceeding the background UTL by as many as 600 times. Pesticides were also found in the floor drains in Building 401 at concentrations up to approximately 27,000 times the background UTL.

- PCBs in sediment from the drains in Building 401 in EU 13 exceeded their background UTLs by factors ranging from 14 to approximately 1,400. Aroclor-1260 concentrations exceeded the background UTL in 5 locations in EU 4 by factors ranging from 14 to 100 times.

Radionuclides may exist in the pipeline and subsurface utility line sediments and water as a result of residues being stored and staged in various buildings onsite, primarily in EUs 4, 10, and 13. Constituents found in subsurface utilities in the EU 8 shops area, including metals, SVOC, VOCs, PCBs and PAHs, are likely from historical operations conducted in these buildings. Pesticides may be present in the pipelines and subsurface utilities as a result of a possible spill in a storage area or surface drainage into manholes. It is possible that the pipelines/subsurface utilities and surrounding gravel-fill provide a pathway for SRCs to travel between EUs and may explain the existence of constituents in many of the areas. Some of the results, especially in EU 4, are very high but not wide-spread. Also, many manholes are damaged and allow surface water to enter the sewer system. Finally, given the age and generally poor repair of the system, infiltration and exfiltration are likely occurring.

ES.7 Identification of COCs and ROCs

The process of identifying SRCs, COCs, and ROCs is outlined in the BRA. SRCs are initially identified in the BRA using a series of statistical methods to consider whether a chemical is site-related or naturally occurring including a comparison to background. Chemicals and radionuclides that are determined to be site-related are identified as SRCs. Further screening against preliminary remediation goals (PRG) or site-specific radiological risk-based screening levels, as appropriate, is performed to eliminate SRCs that pose negligible risk to human health. SRCs exceeding PRGs or radiological screening levels are identified as chemicals of potential concern (COPC) or radionuclides of potential concern (ROPC), respectively and are evaluated quantitatively in the BRA. COCs and ROCs are constituents (COPCs and ROPCs) that were determined in the BRA to pose unacceptable risk.

Table ES-1 summarizes the COCs and ROCs identified for each media within each EU for the subsistence farmer scenario, only. Due to the extensive number of risk scenarios evaluated in the BRA, only the most conservative risk scenario generating the highest number of COCs is discussed here. It should be noted that the subsistence farmer land use scenario is overly conservative for the NFSS and is highly unlikely due to proximity of the site to surrounding landfills and poor yield and quality of on-site groundwater resources. A more detailed evaluation of COCs for each risk scenario that will provide the basis for identifying COCs and remedial action objectives (RAO) in the FS is presented in the BRA. Table ES-1 also identifies constituents considered to be risk drivers in the exposure pathways. The subsistence farming scenario includes the development of a working farm with livestock for meat and dairy products plus cultivated land for grains, fruits, and vegetables. It is assumed that a subsistence farmer could be exposed to contaminated surface soil, surface water/sediment, impacted home-grown produce, impacted meat and dairy products, and upper and lower groundwater while on site. Carcinogenic COCs and ROCs are constituents that exceed the 10^{-5} risk level. A risk of 10^{-5} is defined as the probability that one additional person in a population of 100,000 people may develop cancer as a result of exposure to contaminants at NFSS. Non-carcinogenic COCs are constituents that show risks exceeding a hazard index (HI) of one. A HI greater than one is defined as the level of concern for potential adverse non-carcinogenic health effects. Risk was determined for the following media pathways: surface soil (0-0.5 feet), soil (0-10 feet), sediment,

surface water, groundwater, and food. COCs identified for the food pathway correspond to soil samples collected from 0-0.5 feet.

The majority of COCs and ROCs identified for the adult/child subsistence farmer pose risk in soil only; however, COCs and ROCs were also identified for the groundwater and food pathways. No COCs or ROCs were identified in sediment or surface water in any of the 14 physical EUs. Sediment and surface water COCs and ROCs also were not identified for pipelines and subsurface utilities (EU 16) or for interconnected drainageways (EU 15). No COCs or ROCs were identified for EU 16 because the BRA assumes that the subsistence farmer will not be exposed to the subsurface utilities. However, the high concentrations of constituents found in both the sediment and water in pipelines and subsurface utilities could remain a potential source for groundwater migration. Additionally, no COCs or ROCs were identified for EU 10 in the BRA because the subsistence farmer will not be exposed to the constituents in or around the IWCS.

COCs were identified as posing risk in soil at EUs 2, 4, 8, and 12. Several PAHs, arsenic, boron, and Aroclor-1260 were identified as soil COCs in one or more of these EUs. Of these soil COCs, arsenic, benzo(a)anthracene, benzo(a)pyrene, and Aroclor-1260 were identified as risk drivers in soil at one or more EUs. ROCs were identified as posing risk in soil at EUs 1 through 9, 11, 12, 13, and 14. Radium-226 was identified as a risk driver in soil at all of these EUs. Additionally, uranium was identified as a soil risk driver to the child subsistence farmer in EUs 8 and 11.

COCs were identified for the food pathway in EUs 2, 4, 8, 11, 12, 13, and 14. PAHs, arsenic, boron, copper, zinc, Aroclor-1254 and -1260, PCE, di-n-octylphthalate, carbazole, and heptachlor epoxide were identified as posing risk in the food pathway at one or more of these EUs. ROCs were identified in the food pathway at EUs 1 through 9, 11, 12, 13, and 14. Actinium-227, protactinium-231, lead-210, radium-226 and -228, thorium-230 and -232, and uranium-234 and -238 were identified as food ROCs in one or more of these EUs.

Groundwater COCs and ROCs were identified for EUs 4, 13, and 17. Several metals, bis(2-ethylhexyl)phthalate, and several VOCs were identified as groundwater COCs in one or more of these EUs. Of the groundwater COCs, arsenic was identified as a risk driver in EU 13, while PCE was identified as a risk driver in EUs 4 and 17. Cesium-137, lead-210, radium-226 and -228, thorium-228, and uranium-234 and -238 were identified as groundwater ROCs in one or more of these EUs. Of the groundwater ROCs, radium-226 was identified as a risk driver in EUs 4 and 17.

ES.8 Groundwater Fate and Transport Modeling

The fate and transport of groundwater at the NFSS is detailed in the modeling report prepared by HydroGeoLogic, Inc. (HGL 2007). The groundwater flow and transport model indicates that organic and metal plumes located outside the area of the IWCS exhibit only minor dispersion due to low infiltration rates. VOCs in groundwater will continue to degrade and maximum concentrations of metals are not expected to increase above the current concentrations of the plumes.

Within 1,000 years, the maximum concentrations of uranium isotopes are predicted to occur in the Brown Clay Till beneath the IWCS, near Building 411. Additionally, model results indicate that the screening levels for uranium-234 and uranium-235 will be exceeded in even the deepest of the aquifers (the upper Queenston Formation) within 1,000 years. This is likely the result of potential leaching of residues within Building 411 in the IWCS. Groundwater modeling also

predicts that metals that may leach from within the IWCS will not migrate offsite in groundwater at concentrations above screening levels.

Uranium isotopes are predicted to migrate offsite within 1,000 years at concentrations that exceed the screening levels in EUs 1 and 11. This offsite migration is due to continued migration of existing groundwater contamination, contributions predicted from SESOIL modeling, or a combination of both. However, the conclusions made regarding the fate and transport of uranium isotopes in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils. The results of a sensitivity analysis for the uranium K_d value are discussed later in this report in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

ES.9 Recommendations

The presence of COCs and ROCs identified in the BRA as posing risk in soil for the adult/child subsistence farmer are recommended to be further addressed in the FS at each EU in which they were identified. There are soil COCs and ROCs that are recommended to be addressed in the FS at all 14 physical EUs.

Groundwater modeling results support the conclusion that no further action or evaluation is needed for COCs and ROCs in groundwater in EUs 3, 5, 6 and 14. Further evaluation of COCs and ROCs in the FS is recommended for all of the other 14 physical EUs, with the exception of EU 9 where no groundwater samples were collected. Additionally, further evaluation of COCs and ROCs in sitewide groundwater (EU 17) is recommended.

No human health COCs or ROCs were identified for sediment or surface water at any of the 14 physical EUs or in interconnected drainageways (EU 15) due to the short duration of exposure for individuals who may come in contact with surface water or sediment at NFSS.

The presence of SRCs in sediment and water within pipelines and subsurface utilities is recommended for further consideration in the FS as it pertains to groundwater plume and soil remediation. As mentioned previously, high concentrations of constituents found in both the sediment and water in pipelines and subsurface utilities could remain a potential source for groundwater migration..

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Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 1	SRCs	Radionuclides VOCs Pesticides	NA	Radionuclides	See Footnote 7	See Footnote 7	NA
	COCs	None	None	None	See Footnote 7	See Footnote 7	NA
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226*, 228 Thorium -230, 232 Uranium-234, 235, 238	Actinium-227 Protactinium-231 Lead-210 Radium-226, 228 Thorium -230, 232 Uranium-234, 238	None	See Footnote 7	See Footnote 7	NA
EU 2	SRCs	Radionuclides VOCs PAHs PCBs Pesticides	NA	Radionuclides	See Footnote 7	See Footnote 7	Radionuclides PAHs
	COCs	Benzo(a)anthracene Benzo(a)pyrene* Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Boron	Benzo(a)anthracene Benzo(a)pyrene* Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Boron	None	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226*, 228 Thorium-230, 232	Actinium-227 Protactinium-231 Lead-210 Radium-226, 228 Thorium-232	None	See Footnote 7	See Footnote 7	None

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 3	SRCs	Radionuclides VOCs PCBs Pesticides	NA	Manganese	NA	NA	None
	COCs	None	None	None	NA	NA	None
	ROCs	Actinium-227 Protactinium-231 Lead-210 Radium-226*	Actinium-227 Protactinium-231 Lead-210 Radium-226	None	NA	NA	None
EU 4	SRCs	Radionuclides Boron VOCs PAHs PCBs/ Pesticides	NA	Radionuclides Metals SVOCs VOCs	NA	See Footnote 7	Radionuclides VOCs PAHs PCBs Pesticides
	COCs	Arsenic Aroclor-1260* Benzo(a)pyrene	Arsenic Boron Aroclor-1254 Aroclor-1260* Benzo(a)pyrene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene Tetrachloroethene	Arsenic Barium Boron Copper Lead ⁶ Manganese Nickel Vanadium Bis(2-ethylhexyl)phthalate cis-1,2-Dichloroethene Methylene Chloride Tetrachloroethene* Trichloroethene Vinyl Chloride	NA	See Footnote 7	None
	ROCs	Cesium-137 Lead-210 Radium-226*	Lead-210 Radium-226	Lead-210 Radium-226*, 228 Thorium-228 Uranium-234, 238	NA	See Footnote 7	None

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 5	SRCs	Radionuclides VOCs PCBs	NA	None	Radionuclides ⁷	See Footnote 7	None
	COCs	None	None	None	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226*, 228 Thorium-232	Actinium-227 Protactinium-231 Lead-210 Radium-226, 228 Thorium-232	None	See Footnote 7	See Footnote 7	None
EU 6	SRCs	Radionuclides VOCs PCBs Pesticides	NA	None	See Footnote 7	See Footnote 7	NA
	COCs	None	None	None	See Footnote 7	See Footnote 7	NA
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226* Thorium-230 Uranium-234, 235, 238	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium-230 Uranium-234, 238	None	See Footnote 7	See Footnote 7	NA
EU 7	SRCs	Radionuclides VOCs	NA	Radionuclides	See Footnote 7	Radionuclides ⁷	NA
	COCs	None	None	None	See Footnote 7	See Footnote 7	NA
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226* Thorium -230	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium -230	None	See Footnote 7	See Footnote 7	NA

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs ¹	Soil	Food ²	Groundwater	Sediment	Surface Water ⁵	Utilities ³
EU 8	SRCs	Radionuclides Metals VOCs SVOCs PAHs PCBs Pesticides	NA	Radionuclides	See Footnote 7	See Footnote 7	Radionuclides VOCs PAHs
	COCs	Benzo(a)anthracene* Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Total Uranium* ⁴	Aroclor-1260 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Carbazole Dibenz(a,h)anthracene Heptachlor Epoxide Indeno(1,2,3-cd)pyrene	NA	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226* Thorium -230 Uranium 234, 235, 238	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium -230 Uranium 234, 238	NA	See Footnote 7	See Footnote 7	None
EU 9	SRCs	Radionuclides	NA	NA	See Footnote 7	Radionuclides ⁷	NA
	COCs	None	None	NA	See Footnote 7	See Footnote 7	NA
	ROCs	Lead-210 Radium-226*, 228 Thorium -230, 232	Lead-210 Radium-226 Thorium -232	NA	See Footnote 7	See Footnote 7	NA

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 10	SRCs	Radionuclides Metals VOCs PAHs Pesticides	NA	Radionuclides Metals SVOCs	See Footnote 7	See Footnote 7	Radionuclides
	COCs	None	None	None	See Footnote 7	See Footnote 7	None
	ROCs	None	None	None	See Footnote 7	See Footnote 7	None
EU 11	SRCs	Radionuclides SVOCs PAHs	NA	Radionuclides Metals	See Footnote 7	See Footnote 7	Radionuclides
	COCs	Total Uranium ^{*,4}	Benzo(a)pyrene* Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	None	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Protactinium-231 Lead-210 Radium-226*, 228 Thorium-230, 232 Uranium-234, 235, 238	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium-230, 232 Uranium-234, 235, 238	None	See Footnote 7	See Footnote 7	None

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 12	SRCs	Radionuclides Metals VOCs PAHs	NA	Radionuclides Metals	See Footnote 7	See Footnote 7	None
	COCs	Arsenic* Benzo(a)pyrene	Arsenic Benzo(a)pyrene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	None	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226*, 228 Thorium-230, 232 Uranium-238	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium-230, 232 Uranium-238	None	See Footnote 7	See Footnote 7	None

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 13	SRCs	Radionuclides Metals VOCs	NA	Radionuclides Metals SVOCs VOCs	See Footnote 7	See Footnote 7	Radionuclides Metals VOCs SVOCs Pesticides PCBs PAHs
	COCs	None	Aroclor-1254 Boron Copper Zinc	Arsenic* Boron Copper Manganese Lead Vanadium Bis(2-ethylhexyl)phthalate Cis-1,2-dichloroethene Trichloroethene	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Protactinium-231 Lead-210 Radium-226* Thorium-230 Uranium-238	Actinium-227 Protactinium-231 Lead-210 Radium-226 Thorium-230	Cesium-137 Lead-210 Radium-226 Uranium-234, 238	See Footnote 7	See Footnote 7	None

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs¹	Soil	Food²	Groundwater	Sediment	Surface Water⁵	Utilities³
EU 14	SRCs	Radionuclides Metals VOCs	NA	Radionuclides	See Footnote 7	See Footnote 7	None
	COCs	None	Di-n-octylphthalate Boron*	None	See Footnote 7	See Footnote 7	None
	ROCs	Actinium-227 Cesium-137 Protactinium-231 Lead-210 Radium-226*	Actinium-227 Protactinium-231 Lead-210 Radium-226	None	See Footnote 7	See Footnote 7	None
EU 15	SRCs	NA	NA	NA	See Footnote 7	Radionuclides ⁷ Metals VOCs	NA
	COCs	NA	NA	NA	See Footnote 7	See Footnote 7	NA
	ROCs	NA	NA	NA	See Footnote 7	See Footnote 7	NA
EU 16	SRCs	NA	NA	NA	NA	NA	<u>Sediment/Water</u> Radionuclides Metals VOCs PAHs <u>Sediment Only</u> PCBs Pesticides.
	COCs	NA	NA	NA	NA	NA	See Footnote 3.
	ROCs	NA	NA	NA	NA	NA	See Footnote 3.

Table ES-1. Summary of SRCs of Significance, COCs, and ROCs for Exposure Units 1 through 17

Exposure Unit	SRCs/COCs/ROCs ¹	Soil	Food ²	Groundwater	Sediment	Surface Water ⁵	Utilities ³
EU 17 Groundwater	SRCs	NA	NA	Radionuclides Metals SVOCs VOCs	NA	NA	NA
	COCs	NA	None	Arsenic Boron Manganese Vanadium Bis(2-ethylhexyl)phthalate Tetrachloroethene* Methylene Chloride	NA	NA	NA
	ROCs	NA	None	Lead-210 Radium-226*, 228 Uranium-234, 238	NA	NA	NA

NA – Not applicable

* - Constituent has been identified as a risk driver in the BRA. Total uranium identified as a risk driver applies to the child subsistence farmer only (see EUs 8 and 11).

1. The COCs and ROCs identified in the BRA represent the RME cancer risk for the conservative adult/child subsistence farmer scenario. The carcinogenic COCs are constituents that exceed the 10^{-5} risk level. For ROCs, if total cancer risk exceeds 10^{-4} , only the ROCs exceeding 10^{-5} risk levels are identified. ROCs included on this table are in secular equilibrium with other isotopes that may not exceed a risk level of 10^{-5} . For example, uranium-234, -235, and -238 are always present with one another, but there are occurrences where only one or two of these isotopes are identified as a ROC in any given EU medium. Similarly, thorium-228 will be present whenever radium-228 is present; however, thorium-228 may not exceed risk levels even when radium-228 has been identified as a ROC.

2. Food represents a risk pathway only and corresponds to a plant root depth of 0-0.5 feet in soil. No SRCs of significance were identified for the food pathway.

3. No COCs or ROCs were identified for individual physical EUs (1 through 14) or for EU 16 (pipelines and subsurface utilities) because the BRA assumes that the subsistence farmer will not be exposed to the subsurface utilities. However, the high concentrations of constituents found in both the sediment and water in these utilities could remain a potential source for soil and groundwater contamination due to cracks in the utility lines. Therefore, the presence of SRCs identified in sediment and water in subsurface utilities should be further addressed in the FS.

4. Total uranium is listed as a COC based on its chemical toxicity; however, for presentation purposes in this RI, total uranium is included as a radionuclide in the Section 4 figures and in the nature and extent discussions in Sections 5 and 7.

5. Surface water SRCs for interconnected Drainageways (Central Ditch, South 16 Ditch, South 31 Ditch, and Modern Ditch) are evaluated in EU 15, not in the individual physical EUs.

6. Lead was retained as a COC because the EPC exceeds the drinking water action level.

7. No human health COCs or ROCs were identified for sediment or surface water in any of the 14 physical EUs or in the interconnected Drainageways (EU 15) due to the short duration of exposure for individuals who may come in contact with surface water or sediment at NFSS.

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1.0 PROJECT INTRODUCTION

1.1 INTRODUCTION

The Niagara Falls Storage Site (NFSS), which is owned by the United States (U.S.) Government, is located at 1397 Pletcher Road, in the township of Lewiston, Niagara County, New York. The 191-acre parcel is part of the former Lake Ontario Ordinance Works (LOOW) that was used by the War Department beginning in 1942 for the production of trinitrotoluene (TNT). In 1944, the Manhattan Engineer District (MED) began using the site for storage of radioactive residues that resulted from the processing of uranium ores during the development of the atomic bomb. The site, consisting of open grassy areas and forested areas, is fenced and access is limited. Several man-made ditches, installed during the construction of the LOOW, drain the site. The site and vicinity are shown on Figures 1-1 and 1-2.

1.2 AUTHORITY, PURPOSE, AND CONTRIBUTORS TO THE REMEDIAL INVESTIGATION

Environmental investigation and remediation activities at the site are managed by the U.S. Army Corps of Engineers (USACE), Buffalo District, under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The site previously passed through the governmental reorganizations of the MED to the Atomic Energy Commission (AEC), the Energy Research and Development Administration (ERDA) and the U.S. Department of Energy (DOE). In October 1997, the Energy and Water Development Appropriations Act for Fiscal Year 1998, PL 105-62, was signed into law, transferring responsibility for the administration and execution of FUSRAP from DOE to the USACE. The Energy and Water Development Appropriations Act for Fiscal Year 2000, Public Law 106-60, requires that USACE comply with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code 9601 et seq., as amended (CERCLA), in conducting FUSRAP cleanup work. Therefore, USACE is conducting FUSRAP cleanups in accordance with CERCLA.

USACE conducted this Remedial Investigation (RI) to define the identity, amount, and location of chemicals of concern (COC) and radionuclides of concern (ROC) at the NFSS. COCs and ROCs are parameters that have been identified as posing risk to human health and the environment. The overall strategy for the site is to clean up radiological and chemical contamination to meet the requirements of the CERCLA, within the scope required by FUSRAP. The RI, and its associated documents, will provide primary data for the Feasibility Study (FS), which will be used to identify and evaluate various remedial action alternatives and assist in the development of a protective and cost-effective remedy for the site.

The long-term objective of this project is to clean up contamination resulting from work related to the Nation's early atomic energy program administered under MED/AEC in a manner that satisfies the requirements of the CERCLA. While chemical contamination is normally addressed only when collocated with radioactive contamination under FUSRAP, USACE will remediate both radioactive and chemical contamination because NFSS is a federally-owned property. The FS for NFSS shall also include the Niagara-Mohawk utility right-of-way, located to the west of the NFSS property.

RI planning and field activities were conducted by Maxim Technologies, Inc. (Maxim) under contract with the USACE. During the course of the RI, Maxim was acquired by Tetra Tech. Thus, this report contains references to both Maxim and Tetra Tech. Science Applications International Corporation, Inc. (SAIC) conducted radiological health physics activities during the RI. Maxim

and SAIC then shared responsibilities for completion of the RI report. In addition, this RI report is accompanied by the Baseline Risk Assessment (BRA) report (SAIC 2007), the Chemical Data Quality Assurance Report (USACE, 2006), and the Groundwater Flow and Contaminant Transport Modeling Report (HydroGeoLogic Inc. [HGL] 2007).

1.3 RI OBJECTIVES AND SCOPE

Through a series of scopes of work (SOW) which governed the RI tasks and the Technical Project Planning (TPP) process which guided the program, the following items were identified as project objectives:

- Conduct a historical records search;
- Describe site physical features and characteristics and determine the manner in which they may impact or govern the fate and transport of COCs and ROCs;
- Define the nature and extent of chemical and radiological site-related constituents (SRC) at the NFSS;
- Evaluate field and analytical data to verify or disprove USACE surveillance data that indicates there has been no release of chemical or radionuclide SRCs from the Interim Waste Containment Structure (IWCS) or other sources at the NFSS to groundwater or other media;
- Evaluate groundwater data and the construction details of the IWCS to determine the potential for groundwater to infiltrate into or out of the IWCS;
- Determine the presence or absence of radionuclide SRCs at the neighboring Niagara-Mohawk property;
- Conduct a gamma walk-over survey to evaluate surficial gamma-emitting radionuclides and a geophysical investigation using non-intrusive methods to evaluate subsurface features that could allow contaminant migration;
- Conduct a baseline human health risk assessment and a screening-level ecological risk assessment (SERA) to estimate potential human health, ecological, and environmental impacts of chemical and radiological constituents at NFSS;
- In support of the SERA, characterize the ecological setting of the NFSS through an ecological reconnaissance; and
- Predict the migration of SRCs of concern through solute transport modeling.

1.4 REPORT ORGANIZATION

The RI for the NFSS was conducted using a phased approach in order to refine the understanding of the nature and extent of contamination at the NFSS and the subsequent relationship to exposures, risks, and remedial alternatives. This RI report collectively presents the results of the three investigation phases and includes information from other studies conducted concurrently with the RI. The RI report is organized as follows:

- Section 1, Project Introduction, includes an overview of the RI project including a brief site description, responsible parties, project objectives, project organization, surrounding land use, operational history, and previous investigations and remedial activities.
- Section 2, Project Description, discusses the RI approach and provides site background information from record reviews including topography, physiography, surface water features, geology, hydrogeology, groundwater usage, and meteorology. The achievement of data quality objectives (DQO) are also addressed in this section.
- Section 3, Remedial Investigation Activities, includes a summary of the phases of investigation; site surveys (topographic, inspection and reconnaissance, gamma radiation, and landfill); characterization of surface soil, subsurface soil, surface water, sediment, groundwater, pipelines, railroad ballasts, and road/pad cores; and well and exploratory trench installation.
- Section 4, Results of Field Activities and Determination of SRCs, provides summaries of background sample analytical results and SRCs for soil, surface water, sediment, and groundwater.
- Section 5, Nature and Extent of SRCs, summarizes the operational history of each exposure unit (EU- a geographic area in which a receptor is assumed to work or live, and where a receptor may be exposed to SRCs detected during the RI); describes the occurrence of SRCs in soil, surface water, sediment, and groundwater within each EU; and provides observations of media interactions as well as sources and effects of past site use.
- Section 6, Fate and Transport, discusses the fate and transport of SRCs from a multi-media perspective. Contaminant transport routes, media interactions, and groundwater modeling results are discussed.
- Section 7, Conclusions and Recommendations, summarizes the overall impact of contaminants within each EU at the NFSS and provides recommendations as to which constituents within each EU should be addressed in the FS.

1.5 SITE HISTORY

During World War II (WWII), the USACE built several facilities across the U.S. to manufacture munitions for the military effort. To this end, the USACE acquired 7,500 acres of agricultural land in northwestern New York State which became the LOOW site, where a plant was constructed to produce TNT (Miscellaneous Property Information circa 1942-1981). Beginning in 1942, six TNT production lines, several storage facilities for raw materials and finished products, and several miscellaneous shops and support facilities were built on the 2,500-acre operations area located in the east-central portion of the LOOW. The LOOW produced TNT for only about eight months before the government determined that there was excess TNT production capacity in the U.S. TNT production ceased at the LOOW at the end of July 1943. During the eight months of operation, the LOOW produced approximately 41,656,000 pounds of TNT (NY State Assembly 1979).

In February 1944, the USACE's MED was granted use of a portion of the LOOW for the storage of radioactive residues generated through the processing of uranium ore (BNI 1990). With this

action, the NFSS was created. Figures 1-3 and 1-4 are aerial photos from 1944 showing the main features of the NFSS at that time. The first residues to be shipped to the site, designated as “L-50” and “R-10” (see Section 1.5.2 for residue descriptions), were from the Linde Air Products facility in Tonawanda, New York. The L-50 residue was transported to the site in bulk and was stored in buildings near the southwest corner of the NFSS. The R-10 residue was placed on the site in a pile on open ground north of the water treatment plant (Aerospace Corporation 1982). The MED and its successor agencies continued to periodically ship radioactive residues and materials to the NFSS for storage through the early 1950’s. The USACE MED transferred control of the radioactive residues at the NFSS to the AEC in 1946.

A 1970 investigation by AEC resulted in a 1972 action to remove impacted soil from the current NFSS site and adjacent properties. In 1975, the AEC was dissolved and the responsibility of the site was transferred to the ERDA. The ERDA was abolished in 1977 and the responsibility for the site was then transferred to the DOE. In 1979, the Battelle Columbus Laboratory performed a radiological characterization of the NFSS (Battelle 1980). The following year, in 1980, a geological investigation of the site was conducted. Beginning in 1981, a yearly monitoring program was initiated to assess the radon emissions from the NFSS and the potential for transport of the radiological contaminants to the surface water, sediment, and groundwater. Radioactively contaminated soil from a vicinity property was excavated and placed on the R-10 pile in 1981. Other remedial actions were performed through the 1980’s, culminating with the construction of the IWCS from 1982 to 1986.

The IWCS is the dominant site feature, occupying approximately 10 acres in the southwest portion of the site, and was built over the locations of the former water treatment plant and the R-10 pile. During the 1980’s, the DOE consolidated the radioactive wastes and contaminated materials at the NFSS into the IWCS, which was engineered to retard radon emissions, infiltration from precipitation, and migration of contamination to groundwater.

The base of the IWCS consists of naturally occurring clay. A clay dike, which is keyed 1.5 to 2 feet into the underlying gray clay, surrounds the stored radioactive materials. The IWCS is covered with an interim clay cap consisting of three layers. The bottom layer includes three feet of compacted clay keyed into the dike followed by a one foot layer of fill. The upper layer is a 6-inch topsoil vegetative cover. The residues containing low levels of radioisotopes (K-65, L-30, and F-32) were placed into the IWCS in the reinforced concrete basement of Building 411, which was designed to securely hold liquids as it was part of the original freshwater treatment plant. Before placing the materials in the basement of Building 411, drains, pipes, and openings in the basement were sealed (BNI 1990).

The cap is considered ‘interim’ because it does not include a barrier layer (typically a riprap layer at least three feet thick) and the side slopes of the structure, currently 3:1, were not constructed with a slope of 5:1. Also, the side slopes do not have a riprap covering, which is required for a long-term cap (BNI 1994a). In September 1986, DOE issued a Record of Decision (ROD) for remedial actions at NFSS that provided for the construction of a long-term cap over the IWCS; however, regulatory agencies expressed concerns over the DOE plan for long-term management of the residues so construction of the final cap did not occur.

In 1988, isolated areas of residual radioactivity from across the NFSS site were excavated and placed into temporary storage on the slab of former Building 430 and in 1990, a limited chemical characterization was performed at the NFSS. The materials placed in temporary storage were incorporated into the IWCS in 1991 (BNI 1994a). With the exception of annual monitoring and maintenance, no other activities took place at the NFSS until 1997, when the DOE transferred

control of the site back to the USACE. The USACE at that time instituted its own operations and maintenance plan for the site, which included continuation of the environmental surveillance program, for which data is collected and reported on an annual basis. From 1997 to 1999, USACE transitioned tasks from Bechtel and prepared a report to Congress that provided major scoping and costing of the program at the NFSS. In February of 1999, USACE issued the first SOW directing the performance of this RI, and from 1999 to 2000, characterization and removal of a portion of DOE legacy waste was completed. Building 403, originally a laboratory and office building, was decontaminated and demolished in 2000. Differences in documentation of position and amount of radiological contamination in Building 401, a building used for boron-10 manufacturing and radiological waste storage, was resolved and in 2003 the building underwent asbestos abatement in preparation for radiological decontamination and demolition. While demolition and disposal of Building 401 is not planned until post-2009, the asbestos was friable enough that its removal in 2003 was advisable. Additional work performed by the USACE includes continued maintenance of the IWCS and installation of fencing around the IWCS, an automatic front gate at the NFSS perimeter, and new power poles with upgraded electrical service.

The IWCS currently contains approximately 240,000 yd³ (183,000 m³) of residues, wastes, and debris. Material stored within the IWCS contains approximately 2,278 Ci of radium-226 and thorium-230. This material also contains several uranium isotopes and other radionuclides. Figure 1-5 shows the plan view of the IWCS and residue storage locations and Figure 1-6 shows a cross section of the IWCS.

Previous investigations and remedial activities at the NFSS are discussed in more detail in Section 1.5.3.

1.5.1 Historic Operational Areas

Former production facilities located on the portion of the LOOW that later became the NFSS (shown on Figure 1-2) included the following locations.

Acid Area

This area is located in the north central portion of the site, north of O Street and east of Campbell Street. Remnants of several above ground tank cradles are still evident. A separate area called the “T.N.T Mix Storage” was contained within the acid area (Reconstruction Finance Corporation circa 1945). Nitric acid is known to have been stored in this area, as was fuel oil. Anhydrous ammonia may also have been stored in this area (Industrial Research Corporation 1948).

Shops Area

The shops area is located south of O Street, between Campbell Street and Castle Garden Road, north of Building 401. Several building slabs and foundations are still present. During the operation of the LOOW, a supervisor’s office, several change houses, undefined storage buildings, a paint storage building, a garage and repair shop, a ‘combined’ shop, and a Millwright shop were also located in the area. An acetylene storage building, a fuel oil storage tank and a gasoline station building may also have been located in the area (Industrial Research Corporation 1948).

Baker-Smith Area

During the operation of the LOOW, administration buildings were located in the Baker-Smith area (Industrial Research Corporation 1948). Several foundations are still evident in the area.

Power Area

Building 401, located in the center of the NFSS, was the original steam plant for the LOOW. This building was modified and used for production of the nonradioactive isotope Boron-10 during 1953-1959 and 1965-1971. Boron-10 is a strong neutron absorber frequently used in control rods and boric acid to control the rate of nuclear fission in nuclear reactors. The raw materials used in the Boron-10 enrichment process were reported to be methanol, boron trifluoride, potassium fluoride, ethanol, potassium chloride and nitrogen. Mercury was not used as part of this Boron-10 production process (BNI 1994a). After 1971, the facility was gutted and the instrumentation and hardware were disposed of as surplus materials (Battelle 1981a). Building 401 still exists on the site, though it is currently slated for demolition. Building 403 (the Main Fire Headquarters), which formerly housed fire protection services, was also located in this area (Industrial Research Corporation 1948) but was demolished in 2000.

Freshwater Treatment Plant

The Freshwater Treatment Plant, included circular clarifiers and several water storage reservoirs, and was located approximately 800 feet west of Building 401, in the southern portion of the NFSS (Industrial Research Corporation 1948). Water from the Niagara River was pumped to the treatment plant. Water from this facility was used for fire protection, steam generation, process water for TNT production and process cooling. Three separate treatment trains were used at the plant. Fire protection water was subjected to primary settling prior to storage in the Fire Protection Storage Reservoir, located immediately south of the treatment plant. Process and cooling water was softened. Cooling water was routed through the recarbonation pit and stored in the 4,000,000-gallon reservoir north of the treatment plant. Water to be used in the boilers was further treated using Zeolite filters and then sent to Building 401.

Starting in 1944, the Freshwater Treatment Plant was used to store radioactive wastes and residues. The Freshwater Treatment Plant was shut down in 1944, prior to the start of storage of radioactive wastes and residues at the site. In the 1980's, the IWCS was built over these facilities (EA Engineering, Science, Technology [EA] 1999, BNI 1994a).

Subsurface Pipelines and Utilities

Subsurface pipelines and utilities were installed at the NFSS in association with many of the historical areas at the site, particularly the TNT production facility constructed by the War Department in the early 1940's. Pipelines and utilities were most likely associated with the boiler plant, freshwater treatment plant, acid concentration area, shops area, and the administrative buildings. Many of these pipelines and utility lines are still present at the NFSS, although those at the northern and southern site boundary have been sealed.

1.5.2 Storage of Radioactive Wastes and Residues

In 1944, the USACE-MED was granted use of Building 411, a large (200 feet long by 180 feet wide, 19 feet deep) fresh water storage reservoir that was part of the former LOOW freshwater treatment plant, located on the north side of Building 410 as shown in Figure 1-4. The USACE-MED request stated that the reservoir was to be used for storage of "semi-solid material" and that the material must be contained in a watertight structure for "security and health" reasons. In addition, the USACE-MED was granted use of 25 acres known as the Baker-Smith area in the northwest portion of what became the NFSS. This property was used for the storage of low-grade radioactive residues from the Linde Air Products facility in Tonawanda, New York. In December 1946, the responsibility for government activities related to the use and storage of radiological materials stored within the former LOOW was placed under the jurisdiction of the AEC. Due in part to the radioactive contamination at the site, AEC requested and was granted

ownership of 1,511 acres of the TNT production area within the original 7,500 acre LOOW site. All but approximately 212 acres of the 1511-acre site were determined to be in excess of needs beginning in 1955. Disposal of the excess acreage was effected at various times by the General Services Administration. In 1974, an additional area of approximately 22 acres, including the original sewage treatment plant facilities, was transferred to the Town of Lewiston. The NFSS consists of the remaining 191 acres (National Lead Company 1979, EA 1999). The one-acre discrepancy in the reported areas ($212 - 22 = 190$) is attributable to rounding errors in the reference documents. The current configuration of the NFSS, along with land use of nearby properties, is shown in Figure 1-7.

From 1949 through the early 1950's, several different types of radiologically contaminated wastes and residues were shipped to the NFSS. For security purposes, the residues were assigned a code name based on the place of origin, uranium content (U_3O_8) and extraction process. For example, the K-65 residues originated from Q-11 high-grade (35 – 60% uranium) pitchblende ores purchased under Contract TAB No. 2 (Rev.) originally obtained from the Katanga Province of the Congo (Aerospace Corporation 1982). The volumes of contaminated soil, rubble, and residues at the NFSS, shown in Table 1-1 and discussed in the following paragraphs, resulted from extensive document review. However, it is important to note that volumes given in other documents varied and that the volumes given here are estimates based on this review and site knowledge. Table 1-2 is an operational time line for the NFSS. The storage locations for wastes, after the remedial actions of the 1980's, are shown on Figure 1-5. The Ci inventories presented in the following descriptions are only for the isotopes measured and do not include contributions from decay products.

K-65

The K-65 residues currently located in the IWCS originated from the processing of Belgian Congo 'pitchblende' ores of very high uranium concentration (35-60% U_3O_8). The digestion of these high-grade uranium ores provided the feed material (uranium) required for the WWII Manhattan Project. After most of the uranium had been removed, the waste stream contained uranium progeny (thorium and radium) and was dubbed K-65

Prior to 1949, residues of these processes were returned to Africa. The material was considered a "resource" due to the radium and other metals in the residue. African Metals, Inc., the owner of the subject ore, ceased accepting the residues and it became necessary to locate storage sites in the U.S. Beginning in 1949, the NFSS was selected as a storage site based on its location near appropriate transportation routes, its situation in an area of low population density, and the availability of concrete structures for storage. Approximately 3,200 yd³ of K-65 residues (BNI 1986a) were transported to the site in drums. Some of these were stored outdoors along existing roads and rail lines. Others were stored in Building 410. From 1950 to 1952, the K-65 residues were transferred to Building 434 (a renovated concrete water tower) in the northeast corner of the NFSS (BNI 1986b). The K-65 residues account for only about two percent, by volume, of the wastes and residues stored at the NFSS; however, they contain 2,076 Ci of radium-226 and thorium-230 of the total of 2,278 Ci of those isotopes present in all the wastes and residues. This represents approximately 91% of radium-226 and thorium-230 activity, with these two constituents being the primary contributors of the radioactivity present at the site (DOE 1996). The volume of K-65 residues cited here (3,200 yd³) differs from the volume reported in the 1986 Environmental Impact Statement (EIS) (DOE 1986), but is based on internal Bechtel correspondence issued after the EIS was prepared (see Appendix A).

R-10

The R-10 residues resulted from the processing of ore containing approximately 3.5% U_3O_8 at the Linde Ceramics Plant, in Tonawanda, New York (Battelle 1981a). Approximately 9,400 yd³ of these residues and an iron cake associated with the same extraction process were shipped to the site sometime between 1944 and 1949 and were stored in a pile on open ground north of Building 411. This location is referred to as the “R-10 pile” (EA 1999, BNI 1986b). In 1964, the R-10 pile was covered with soil and seeded (BNI 1994a).

Later, soil resulting from off-site cleanups was added to the R-10 pile. It was estimated that prior to the incorporation of the R-10 materials into the IWCS, the R-10 pile contained approximately 59,500 yd³ of contaminated soils and residues. These soils and residues were estimated to contain five Ci of radium-226 and five Ci of thorium-230 (DOE 1996).

L-30

The L-30 residue resulted from the extraction of African pitchblende ore containing approximately ten percent U_3O_8 . The ore was extracted at the Linde Ceramics Plant in Tonawanda, New York, from December 1943 to October 1944 (Battelle 1981a). The L-30 residues were transported to the NFSS in 1944 and were stored in the east and west bays of Building 411 (Battelle 1981a, EA 1999). Approximately 7,960 yd³ of L-30 residues, containing an estimated 87 Ci of radium-226 and 87 Ci of thorium-230, were stored in Building 411. In addition to these radiological constituents, the L-30 residues also contained 10,000 mg/kg or more of lead, barium, iron, cobalt and nickel (Battelle 1981a).

F-32

This residue resulted from the Linde Ceramics’ extraction of Q-20 pitchblende ore from the Belgian Congo. Approximately 440 yd³ of material was stored in the recarbonation pit west of Building 411 (Battelle 1981a). This residue contained approximately 0.2 Ci of radium-226 and 0.2 Ci of thorium-230 (DOE 1996).

L-50

The L-50 residues resulted from uranium extraction of African pitchblende ores, containing approximately seven percent U_3O_8 , at the Linde Ceramics Plant in Tonawanda, New York (Battelle 1981a). Approximately 2,150 yd³ of these residues were transported to the NFSS starting in 1944 and stored in clarifier tanks at the water treatment plant (Buildings 413 and 414) (EA 1999, BNI 1994a). This residue contained approximately 6 Ci of radium-226 and 6 Ci of thorium-230 (DOE 1996).

Middlesex Sands

Inventory records show approximately 230 yd³ of sands resulting from sand blasting activities at the Middlesex Sampling Plant, located in New Jersey, were transported to the NFSS sometime prior to 1953 and were stored in a bin in Building 410. The sands were eroded from the bin by precipitation entering through holes in the roof and were spread through a significant portion of the lower floor of Building 410. The original concentration of uranium was reported to be three percent. Measurements made in 1979 showed that the sands contained less than 100 mg/kg of uranium and less than 0.01 µg/kg of radium-226 (Battelle 1981a).

Contaminated Rubble

In the late 1940’s, contaminated metal, concrete, lumber and reduction slag from other wartime plants were shipped to the NFSS and stored adjacent to Building 409. These materials were removed in the late 1950’s and transferred to the Y-12 Plant at Oak Ridge, Tennessee (National Lead Company 1979).

Other Wastes

In the period from 1952 to 1954, wastes generated at the Knolls Atomic Power Laboratory (KAPL) were shipped to the NFSS. Records indicate that the shipments consisted of approximately 700,000 pounds of contaminated wastes including 676 wooden boxes and 394 slurry drums. The contaminated materials included combustible and noncombustible solids stored in wooden crates and processing wastes stored in 55-gallon drums. The processing wastes contained some residual plutonium and fission product radioactivity (Ce-137, Sr-90) from a low-level processing plant at Schenectady. It is estimated that 408 Ci of mixed fission products and 0.63 Ci of plutonium were shipped to the site during this time period. The KAPL residues were originally stored near a railroad spur north of NFSS. Later, the wastes were moved to Buildings 443, 444, 445, 446, 447 and 448 in the Baker-Smith area. Some of the waste was also stored in Building 401. These materials were transferred to the Oak Ridge Burial grounds during the late 1950's and most of the storage buildings were later destroyed (EA 1998).

1.5.3 Previous Investigations and Remedial Activities

Several investigations and remedial actions have been performed at the NFSS and vicinity. These previous investigations and remedial activities are summarized in the following sections.

1.5.3.1 AEC Radiological Survey and Removal Action

In 1970, the AEC performed a radiological survey of the former LOOW site. Field screening was performed using hand-held survey meters and soil samples were collected at locations where radioactivity was detected at higher than "background" concentrations (defined to be 10 $\mu\text{R}/\text{Hr}$, measured with a sodium iodide (NaI) gamma detector at a height of one meter above the ground). These samples were analyzed for "radiological parameters". The available documentation does not specify the analytical parameters or sample locations. Based on this survey, offsite removal actions at vicinity properties (locations within the boundaries of the former LOOW but outside the boundaries of what is now the NFSS) began in 1972 to address radiologically impacted soil. Removal actions were performed in the Central Ditch, in Six Mile Creek, and several other parcels of the LOOW property. During these remedial actions, approximately 15,000 yd^3 of contaminated soils and sediments were removed and stored on the R-10 pile located north of the NFSS water treatment area (National Lead Company 1979).

1.5.3.2 DOE Investigations and Remedial Actions

Before 1979, no accurate records were maintained on waste characterization, inventories, or exact locations of stored wastes (BNI 1994a). To fill this data gap, Battelle Columbus Laboratory, under the direction of the DOE, performed a "radiological characterization" of the NFSS in 1979. This characterization was designed to 'provide the DOE with accurate information on which to base a cost-effective remedial action plan' (Battelle 1981a). Battelle reported "significant" radiological contamination in seven buildings and nine areas of the site. The locations of these buildings and areas are shown on Figure 1-8.

The report also contained the following statement about the subsurface piping at the NFSS:

"Manholes near the firehouse and in the southwest, northwest, and northeast quadrants showed no contamination in the interiors or on valves by smear or meter survey techniques. Sediment taken from these manholes showed no significant radionuclide contamination. "

In the 1980's the DOE and its contractor BNI performed remedial actions at the site and vicinity properties. NFSS vicinity properties are radioactively contaminated areas located adjacent to or near the NFSS that were once part of the former LOOW and were designated by the DOE as being radiologically impacted by past government activities. The cleanup criteria for DOE sites including the NFSS and the vicinity properties, as described in the DOE's Cleanup Criteria/Decision Document database (which is described at http://www.ead.anl.gov/project/images/pa/15_CleanupCriteriaDocDatabase.pdf), are as follows:

- Cesium-137: 33 pCi/g
- Radium-226: 5 pCi/g
- Uranium-natural: 90 pCi/g

It should be noted that only the Ra-226 criterion was used to guide cleanup decisions at the NFSS and vicinity properties prior to 1988, as the uranium and cesium-137 values were not developed until that time. Later remedial actions addressed the cleanup criteria for cesium-137 and natural uranium given above, which were developed in 1988 (Yu et al. 1988, Landis 1988). A chronology of the DOE remediation of the NFSS follows:

In 1981, 450 yd³ of radiologically impacted material were excavated from an adjacent offsite property located to the east of the NFSS. This material was brought to the NFSS and placed on the R-10 pile (BNI 1986b). This soil is included in the 59,500 yd³ of R-10 soils on Table 1-1. In order to 'protect the public from radon levels' the site perimeter fence was relocated approximately 500 feet to the west, creating an exclusion zone (BNI 1994a).

In 1982, two interim remedial actions were performed (Battelle 1981a; BNI 1990):

- The R-10 residue pile was stabilized as part of the initial construction of the IWCS. Stabilization included clearing and grubbing the surrounding area, moving approximately 15,700 yd³ of contaminated soil near the R-10 pile onto the cleared pile, and constructing a clay dike and cutoff wall around the R-10 pile. The clay cutoff wall was keyed into the underlying gray clay. The top of the pile was graded and covered with an ethylene propylene diene monomer (EPDM) liner which was removed during construction of the IWCS.
- Buildings 413 and 414 were sealed to reduce emissions of radon from L-50 residues stored in these buildings. Roof materials were removed and the troughs that encircled the inside of the buildings near the top of the residues were filled with concrete. The residues were covered with a multi-layered cap consisting of:
 - Sand,
 - Hypalon (a synthetic rubber),
 - Clay,
 - EPDM,
 - another clay layer,
 - another Hypalon layer, and
 - pea gravel.

In 1983, interim remedial actions included cleanup of 4,800 feet of the West Ditch and cleanup of 6,900 feet of the Central Ditch from where it entered the site to Balmer Road, generating 54,000 yd³ of contaminated soils and sediments. Also, 27,900 yd³ of contaminated soil were

excavated from vicinity properties and some onsite areas. These materials were stored north of Building 411 and later placed in the IWCS. Also in 1983, work was completed on the southward extension of the dike/cutoff wall, except for a portion of the west and south walls left open to allow for clean water drainage and access. The extended dike/cutoff wall was keyed into the underlying gray clay (BNI 1990).

In 1984, decontamination was completed on 11 vicinity properties and some on-site areas of localized contamination. These 11 vicinity properties were divided into discrete parcels and designated by letters as a means of tracking the identification and remediation of contamination. These vicinity properties included: A, L, M, N/N' North and N/N' South, Q, R, S, U, and V (DOE 1985). An additional 6,900 feet of the Central Ditch, from Balmer Road to 1,500 feet north of Lutts Road, was decontaminated. These cleanups generated approximately 29,385 yd³ of contaminated soil and rubble, which was placed in the IWCS (Berger 1990).

Also in 1984, the final section of the cutoff wall around the IWCS was completed. Building 410 and the upper portion of Building 415 were demolished, clearing the way for the final development and use of the southern portion of the IWCS. A three-foot thick clay layer was placed over the northern portion, about 40%, of the IWCS (BNI 1994a, BNI 1990).

Other major work in 1984 centered on the activities required to turn Building 411 into an interim storage area for the L-30, F-32, and K-65 residues. This work included residue transfer and dewatering activities within Building 411 and slurry transfer of the K-65 residues from Building 434 to Building 411. This work consisted of the following:

- The F-32 residues in Bay A, the F-32 residues in Bay B, and the L-30 residues in Bay C of Building 411 were transferred to Bay D.
- A 12-inch under-drain system consisting of slotted polyvinyl chloride (PVC) pipe covered with sand was installed in the bottom of Bays A, B, and C in Building 411. This under-drain system was put in by Bechtel to aid in dewatering of the residues. After the residues were dewatered the under-drain system remained in place and contaminated soils were placed above the residues.
- Workers began transferring the K-65 residues from Building 434 to Bay C of Building 411. Working first on top of Building 434, and later from scaffolding erected along the side, openings were cut into Building 434 to allow hydraulic mining equipment to be inserted. The residues were hydraulically mined and slurry-transferred to Building 411 through a four-inch above-ground steel pipeline. Through the end of 1984 and into early 1985, approximately 75% of the K-65 residues were transferred in this manner (BNI 1994a, BNI 1990).

In 1985, starting in May, the K-65 residues remaining in Building 434 (about 25%) were slurry transferred to Building 411. Figure 1-9 shows Building 411 during residue placement and construction activities taking place in 1985. The K-65 residues were hydraulically excavated from the building, mixed with water, and the resultant slurry was pumped through a pipe to the IWCS. Following the removal of the K-65 residue, Building 434 was demolished and the rubble was transferred to the IWCS (BNI 1990). Figures 1-10 and 1-11 show Building 434 before residue removal activities took place and after residue slurring was complete and the building was being demolished.

Water treatment ponds lined with impermeable membranes were constructed east of the IWCS along Campbell Street and in the area north of the IWCS. A water treatment system consisting of chemical treatment and sedimentation was installed east of the Central Ditch near the IWCS. The chemical treatment included pH adjustment to 2 using hydrochloric acid, followed by adding cationic polymer, coagulant, and calcium chloride. The pH was then adjusted to 11 using sodium hydroxide to precipitate the contaminants which were allowed to settle out. The treated water was tested and discharged in accordance with the New York State Pollution Discharge Elimination System permit. Both stormwater that had come in contact with waste materials in the IWCS and slurry water used to transport the K-65 residues were treated. Treating the slurry water allowed it to be re-circulated back through the K-65 transport system, thereby minimizing the amount of water required to move the K-65 residues from Building 434 to the IWCS. Water treatment proceeded slowly during the summer. The rate at which water could be treated limited the rate at which residues could be placed and dewatered in Building 411. In order to allow the placement and dewatering of residues to proceed without delay, Ponds 3 and 4 were constructed east of the IWCS. These ponds were designed to contain a total of 4.8 million gallons of water prior to treatment and release. After the water was treated and cleared for release, it was discharged to the Central Ditch. Ponds 1 and 2 immediately north of the IWCS were cleaned and restored to original grade (BNI 1990). A video tape made by the DOE provides limited details concerning the cleanup of Pond 3 in June and July of 1986. The pond was dewatered by pumping and bentonite was added to consolidate the sediment slurry. A track-mounted excavator then simultaneously removed the liner and accumulated solids. The materials were placed in dump trucks and placed in the IWCS. No specific information was found in the historical record concerning the cleanup of Ponds 1 and 2 in 1985.

After Building 434 was demolished, approximately 1,900 yd³ of soil, contaminated rubble and other materials were excavated and transported to the IWCS. Remedial actions were also performed on Buildings 409 and 401. The superstructure, basement walls and floor slab of Building 409 were decontaminated after treated water that had been stored in the building was pumped to a surface impoundment. Three beams in Building 401 were decontaminated and removed (BNI 1990).

Approximately 9,300 yd³ of contaminated materials were excavated from onsite and offsite areas and transferred to the IWCS (BNI 1986c).

In 1986, several off-site areas were decontaminated and contaminated materials resulting from these remedial actions were placed in the IWCS. Virtually all on-site contaminated areas were also cleaned up by the end of 1986; the contaminated materials were placed in the IWCS. Building 401 was used to store 32 drums of material removed from Vicinity Property G. These drums contained a mixture of polynuclear aromatics known to be contaminated with radium-226 (BNI 1990). Forty-five areas on the Vicinity Property G were remediated in 1986 (BNI 1989) and one drum was excavated from Vicinity Property G (Ahrends 1987). This drum was removed and "placed in the interim storage external to the encapsulation cell." Other drums were discovered on Vicinity Property G 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.

During 1985 and 1986, ten other vicinity properties, several areas along Pletcher Road and three small off-site anomalies along the haul route between Tonawanda and the NFSS were the subject of remedial actions. Vicinity properties included in the remedial actions were: B, C', D, F, N/N' North, P, T, W, and parts of E and E' (Berger 1990).

The dike and cutoff wall forming the IWCS around Building 410 was completed. The K-65 and F-32 wastes were moved from their original onsite storage locations and placed in Building 411 in specific bays so that their storage location could be documented (BNI 1994a). Figure 1-5 shows the plan view of the IWCS and residue storage locations and Figure 1-6 shows a cross section view of the IWCS.

In August 1986, an exposed drum was excavated at Vicinity Property G. During further investigation of this area in 1987, additional drums were discovered including a drum labeled “K-65”. A total of 32 drums (including the one removed in 1986) containing a sludge-like material were excavated from this area. Radiological survey of these drums indicated that radiological residue was limited to the bottom of the drums and it was hypothesized that the drums were K-65 drums that had been reused following removal of the K-65 residues. Most of the drums were found without lids, some were ruptured and contents had been spilled. Forty-nine additional drums of soil contaminated with spilled “sludge” were removed. The 31 drums containing sludge were transported to the NFSS. Only 25 of the soil-filled drums were transported to the NFSS at this time. The remaining 24 soil-filled drums were left adjacent to the excavation awaiting analytical results (Ahrends 1987). Another historical record (BNI 1989) indicates that in 1987, 31 drums were removed from Vicinity Property G and placed in overpacks and that 90 drums of soil contaminated with material from the original drums were also removed and transported to the NFSS.

In 1988, offsite localized areas of elevated radioactivity, identified following the 1983 to 1986 offsite interim remedial actions, were excavated and removed (the locations of these hotspots were not identified in the available historical documents). The 3,200 yd³ of contaminated material thus generated were removed and placed on the foundation of the former Building 430. The material was encapsulated with an impermeable membrane (BNI 1990). No details of the type of membrane installed or how the encapsulation was constructed were reported. In 1991, this material was consolidated into the IWCS.

In 1990, BNI performed a limited chemical characterization of the site (BNI 1991). This characterization included soil, sediment, surface water, and groundwater sampling. The samples were analyzed for metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). None of the samples were analyzed for radiological parameters. A soil gas survey was also performed. Because only summary tables of analytical results from this study are available, the data cannot be validated or evaluated and for this reason is not included in the RI analytical database. The data set was evaluated by the RI team and was used, to a limited extent, to plan sampling locations.

As part of the limited chemical characterization, Target Environmental Services, Inc. performed a soil gas survey (BNI 1991, Kapoor 1996a), which included 167 sampling locations over most of the NFSS exclusive of the IWCS area. All samples were collected at depths less than four feet below ground surface (bgs). The parameter list for the soil gas analysis was restricted to methylene chloride, trans-1,2-dichloroethene (DCE), cis-1,2-DCE, trichloroethene (TCE), tetrachloroethene (PCE), benzene, and toluene. The results of the soil gas survey are summarized below:

- TCE was detected in seven sampling locations surrounding Building 401 at concentrations ranging from 0.3 µg/L to 44.5 µg/L.

- Cis-1,2-DCE was detected in two sampling locations just north and south of Building 401 at concentrations of 2.52 µg/L and 9.0 µg/L respectively.
- PCE was detected at minimal concentrations (< 2.0 µg/L) in five sampling locations surrounding Building 401, in one location 200 feet north of O Street and another location 650 feet east of Campbell Street.
- Confirmatory soil samples were collected in one-foot increments to four feet bgs at the four locations that exhibited TCE or 1,2-DCE in the soil gas samples. TCE concentrations ranging from 7 to 440 µg/kg were found in all four sampling locations. One soil sample contained cis-1,2-DCE.
- Trans-1,2-DCE, methylene chloride, benzene, and toluene were not detected.

In 1991 and 1992, one localized onsite area approximately 100 m² was remediated. The location of this area was not definitively identified (BNI 1995), though the Preliminary Assessment for NFSS (BNI 1990) suggests that this area may have been located north of O Street. This material, the material generated in 1988-89, and 60 drums of radioactively contaminated materials (generated by remedial activities performed in 1987) were consolidated into the IWCS (BNI 1994a). The Failure Analysis Report, from which this information is excerpted, does not further identify the source of the material in the 60 drums. The source of these drums was not found in a review of the available historical documents.

In 1998, as part of the Defense Environmental Restoration Program – Formerly Used Defense Sites (DERP-FUDS), EA, on behalf of the USACE Baltimore District, conducted a Phase 1 RI of the entire former LOOW in 1998 (EA 1999).

For the LOOW RI, EA collected 121 soil, groundwater, surface water, and sediment samples from locations on the NFSS. Most of these samples were field screened for polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), TCE and nitroaromatics. No screening for radiological contamination was performed during this investigation. Thirty-two samples were submitted to a laboratory for metals, VOC, SVOC, PCB, and nitroaromatics analysis. The laboratory results for these 32 samples were incorporated into the NFSS analytical database

Figure 1-12 is a 2002 aerial photo of the site showing the current IWCS and Building 401.

2.0 PROJECT DESCRIPTION

This section discusses site history, previous investigations, and project objectives.

2.1 PROJECT APPROACH

This RI Report provides results of records review, visual site walkover inspections, radiation and topographic surveys, site investigations, sampling and analysis, data analysis and other activities performed to evaluate the nature and extent of radiological and chemical contamination at the NFSS. The RI began with a records review in order to gain an understanding of historic site operations and how these operations may have contributed to potential contamination. Following the records review, site reconnaissance was conducted to identify areas potentially impacted by site operations. Field activities then proceeded in a phased approach in order to refine the understanding of the nature and extent of contamination at the NFSS and their relationships to exposures, risks, and remedial alternatives.

Phase 1 fieldwork occurred from November 1999 until January 2000 and consisted of a wide investigation of the site, involving the collection of groundwater, surface water, sediment, and soil samples. These samples were analyzed for a broad range of radiological and chemical parameters. After the analytical results for this task were evaluated, a TPP meeting, attended by representatives from the USACE, SAIC, and Maxim, was convened and the Phase 1 data set was further assessed. This meeting resulted in general guidance for Phase 2 of the investigation, which focused on areas that appeared to be adversely impacted (both chemically and radiologically) by past activities at the site. The Phase 2 sampling period lasted from August 2000 until October 2000. Table 2-1 summarizes the samples used for evaluation during these two phases.

After the Phase 2 data set was evaluated, another TPP meeting was convened and several distinct data gaps and areas requiring further investigation were identified. Data generated by limited gamma walkover surveys of the site (see Appendix B), performed during the summer of 2000, were also included in this evaluation. It was determined that additional soil samples were needed to further characterize areas of elevated radioactivity found by the limited gamma walkover surveys. It was also determined that the various pipelines and sewers at the site could serve as sources of contamination and mechanisms of contaminant transport and warranted further investigation. Several other areas and media were also identified as meriting further investigation. These field efforts, along with the collection of radiological samples from the neighboring Niagara-Mohawk property, were performed in the summer and fall of 2001. Phase 3 included this and several other field efforts, shown on Table 2-1, occurring from May 2001 until October 2003.

During the summer of 2001, a sitewide gamma walkover survey was conducted to identify areas of surficial gamma-emitting radionuclides. In addition, a geophysical survey of the site was performed to locate buried debris, utilities, and geologic features, such as fractures/faults that could allow contaminant migration (SAIC 2003b). The results of this survey are presented in Appendix C. After the data set generated by the geophysical survey was evaluated, exploratory trenches were excavated to investigate the anomalies identified. Exploratory trenches were also excavated to further investigate elevated or suspected areas of radiological or chemical contamination and to identify potential underground storage tanks (UST), burial areas, and former pond areas. This field effort was performed during the summer of 2002.

A suitable background groundwater data set was necessary to fully evaluate the groundwater samples collected on the NFSS. A suitable data set, either in the public domain or in the site historical documentation, was not found. To fill that need, groundwater samples were collected in

March of 2003. Wells on the adjacent Modern Landfill site were selected for background groundwater sampling. All of the Modern Landfill wells that were designated as background wells are upgradient of the Modern Landfill disposal cell.

In late 2002, several additional soil samples required to support the BRA were identified. These samples were collected in the spring of 2003. As part of this field effort, background surface water and sediment samples were collected. Also as part of this effort, several abandoned drums on the NFSS, which had been discovered during previous field tasks, were sampled, placed in overpack drums and subsequently shipped off site for disposal.

In the summer of 2003, confirmatory samples were collected from several NFSS wells and manholes. Samples collected from these wells during previous sampling events had contained elevated concentrations of radionuclides and chemicals. Several wells near the IWCS that had not been previously sampled were also sampled at this time.

The final field effort for this RI was performed during the autumn of 2003. Soil and groundwater samples were collected to further delineate and characterize areas of suspect contamination found during earlier phases of the project. Also included in this final task was the collection of samples from the floor drains in Building 401, the collection of samples of the concrete floor slab in the building, and the collection of soil samples below the floor slab. Concurrent with this sampling effort were additional geophysical investigations of the IWCS. In September 2003, seismic refraction and electrical imaging/induced polarization investigative methods (SAIC 2004) were used to further support earlier seismic and resistivity surveys (SAIC 2003b) conducted on the IWCS.

Since the completion of Phase 3 activities of the RI in October 2003, project work has continued for review and presentation of the RI results. Continued RI activities include: quality review and electronic management of analytical data, preparation of figures and tables to visually summarize environmental sampling results, formulation of a computerized groundwater flow model, performance of human health risk calculations in development of the BRA, and multi-tiered reviews in preparation of final compilation of this RI report.

2.2 RECORDS REVIEW

The following sections describe the investigations and remedial actions performed at the NFSS as reported in available historical documents and records. This review was performed in accordance with Task 1 of the Statement of Work (USACE 1999).

2.2.1 Objective

Significant data exists on site history, geology, and the nature and quantities of radiological wastes stored at the NFSS. Historical and recent documents and records were reviewed and the results of that review are summarized in the subsequent sections.

2.2.2 Sources

Four hundred forty-four documents and records were reviewed during the performance of this task. Most of these documents were prepared by the DOE (or DOE contractors) and its predecessor agencies. Documents authored by the U.S. Environmental Protection Agency (EPA), USACE and other governmental entities were also reviewed. The documents reviewed are listed and summarized in Appendix D.

2.2.3 Significant Findings of Records Reviewed

The review of the historical record provided the information that is presented in Sections 1.5.3 and 2.3. Particularly germane documents are summarized in this section.

A Comprehensive Characterization and Hazard Assessment of the DOE-Niagara Falls Storage Site (Battelle 1981a)

This report provides a detailed characterization and hazard assessment of the NFSS prior to the construction of the IWCS and was prepared to provide the DOE with information to guide decisions concerning future remedial actions. Descriptions of the wastes and residues present at the site and a characterization of contaminated areas at the site are included in the report. Among the significant findings, it was reported that:

- The following ‘pitchblende-residue’ (a catch-all term for K-65, L-30, L-50, F-32, Middlesex sands, and R-10 wastes and residues) storage buildings were identified: Buildings 434 (a former water tower also known as the ‘Silo’), 411, 413, 414, and 410. Buildings 411, 413, and 414 were described as ‘highly contaminated’.
- Fifteen non-residue storage buildings were surface grid-surveyed for residual radioactivity. Buildings 403, 423, and 430 were described as ‘Contaminated’. The other twelve buildings surveyed were described as ‘Uncontaminated/Minimally Contaminated’.
- An extensive on-site environmental survey for radioactive contamination revealed that there were nine distinct contaminated areas on the site. The report concluded, “The R-10 residue storage and spoil pile area is the major contaminated area within the Site.”
- A total length of 19,650 feet of primary on-site and adjacent off-site drainage ditches were found to contain 28,600 yd³ of sediments in excess of the 5 pCi/g radium-226 action limit.

The contaminated areas identified in this report were subsequently remediated by the DOE. These remedial actions are described in Section 1.5.3.2. The value of this report to this project phase is in locating samples outside of the IWCS in areas that were previously identified as contaminated, to ensure that adequate remediation was completed.

Draft Chemical Characterization Report for the Niagara Falls Storage Site, Lewiston, New York, (BNI 1991)

In an effort to ready the NFSS for eventual land disposition, BNI performed a limited chemical characterization of the site for the DOE. The executive summary of the report states:

“The primary objective of the chemical characterization was to augment available information by identifying nonradioactive contaminants that are present on and potentially migrating from the site. Characterization activities included sampling and analysis of soil, sediment, surface water and groundwater and conducting a soil gas survey.”

The report concludes that:

Although results indicate that metals, volatile organics and base-neutral acids (BNA) are present in isolated areas, the average concentrations are low with metals only slightly above background levels. The levels at which these constituents are present are not indicative of onsite contamination with material managed under the Resource Conservation and Recovery Act (RCRA).

Preliminary Assessment for Niagara Falls Storage Site, Lewiston, New York (BNI 1990)

This document presents the findings of the preliminary assessment completed for the NFSS. Included as part of the assessment is a summary of all remedial actions performed at the site between 1972 and 1988. As a result of the preliminary assessment, the DOE concluded that the site was being addressed by the FUSRAP and “the vast majority of the hazards at the site have already been mitigated via extensive remedial actions conducted from 1981 through 1988”. From these conclusions, the DOE proposed to the EPA that “site inspection, hazard ranking scoring, and placement on the National Priorities List (NPL) are not necessary to protect human health and the environment surrounding NFSS.” The EPA response, which was appended to the document reviewed for this RI report, did not agree that the preliminary assessment supported the DOE recommendation. The EPA stated that “further evaluation of this site is warranted and therefore, a SI must be conducted.”

Failure Analysis Report (BNI 1994a)

The *Failure Analysis Report* was prepared to assess the impact that maximum credible natural phenomena could have on the proposed final waste containment structure and to determine whether an exposure pathway for the surrounding public would ensue. The following eight hypothetical failure scenarios were analyzed: erosions of the cap, earthquake, tornado, precipitation floods, floods from dam breaks, rising of Lake Ontario, glaciation, and intruder/exploratory drilling. The analysis overall showed that the proposed final waste containment structure would be protective for the 10,000 year period. However, some suggested modifications to the design are noted in the report and these modifications would enhance the margin of safety provided by the waste containment structure.

The proposed final waste containment structure design evaluated in this report consisted of the existing IWCS with additional materials augmenting the cap. The report addressed the following topics as part of the evaluation:

- Site history,
- An analysis of future land use and population trends in the vicinity of the site,
- A summary of the radiological and chemical composition of the residues and wastes stored in the IWCS, summarized in Table 1-1,
- A summary of the features of the NFSS that impact the life expectancy of the proposed final waste containment structure,
- A pathway analysis for contaminants of concern, and

- Eight scenarios (seven natural phenomena scenarios and one intruder scenario) and their impact on the proposed final waste containment structure.

This report contains a useful summary of the history of previous activities at the site and was used in part to prepare subsequent sections of this RI report. However, the report as a whole addresses several topics (such as the longevity of the IWCS and the potential impacts on the IWCS from several natural phenomena) which will be considered in the FS for the NFSS.

Chemical Data Gap Characterization at Niagara Falls Storage Site, Technical Memo (Kapoor 1996b)

As further confirmation of the results of the soil gas survey performed for the chemical characterization discussed above, Bechtel National Inc. (BNI) initiated a limited data gap characterization of the NFSS in 1995. The technical memorandum that presents the results of this characterization states:

“The purpose of this characterization activity was to: (1) define the presence and depth of organic and/or metal contamination in soil and groundwater in the vicinity of Building 401 and Building 407, (2) complete the sediment and surface water characterization downstream from Building 401 and former Building 407, (3) collect background soil samples, and (4) collect groundwater samples from background wells.”

The locations of roads and buildings at the NFSS are shown on Figures 1-1 and 1-2. The figures show both features that are present at the site and those features that were formerly present at the site which are relevant to this investigation.

Soil, surface water, sediment and groundwater samples were collected and analyzed for VOCs and metals (cadmium, copper, lead, magnesium, thallium, vanadium, and zinc).

The two background groundwater samples were collected from wells B02W20S and B02W20D, located on the NFSS, immediately south of O Street. The background soil samples were collected from the Lewiston Public School grounds. All soil samples were composited from zero to one foot below grade level.

The results of this characterization are described in Section 2.3.

History Search Report, Lake Ontario Ordinance Works, Niagara County New York (EA 1998)

The report contains a detailed operational history of the entire LOOW and the NFSS. It also includes a comprehensive description of past remedial actions at the NFSS. An operational time line for the NFSS, summarizing information from this report and from others, is presented in Table 1-2.

2.3 SITE DESCRIPTION

This section describes the physical site characteristics pertinent to the RI.

2.3.1 Site Physiography

With the exception of the IWCS, the site is generally level, with ground level elevations ranging from 315 feet above mean sea level (amsl) to 321 feet amsl.

2.3.2 Surface Water

Figure 2-1 shows surface water drainage to, through, and from the site. Surface water runs onto the site from the east from the Modern Landfill site along Castle Garden Road and along O Street and from the north and east from the adjacent CWM Chemical Services, LLC. site. In addition, surface water run-on to the NFSS occurs from the properties to the south of the site via ditches that are connected to the site by the Central and West Ditches, which flow through the site.

Several ditches on site collect surface water runoff. Over most of the site, surface water is conveyed through east-west ditches that empty into the Central Ditch. The Central Ditch flows north and joins Four Mile Creek about 1.5 miles north of the NFSS. Four Mile Creek, in turn, empties into Lake Ontario. Surface water runoff from the western periphery of the site and from the Baker-Smith area in the northwest corner of the site flows to the West Ditch. The West Ditch flows north and joins the Central Ditch approximately 0.5 miles north of the NFSS.

Drainage at the NFSS is poor because of the flat terrain and the relatively impermeable nature of surface soils. Much of the NFSS property has the potential to collect and hold standing water for lengthy periods, which is evident in several areas of the site (Figure 1-2).

2.3.3 Regional Geology and Geologic Units

A geologic column for the NFSS is shown in Figure 2-2. Six geologic units other than surficial soils and fill are present at the NFSS. These units, from shallowest to deepest, are:

- **Surficial Soils and Fill** - The surficial soil at the NFSS consists of a loose to medium dense, brown to yellowish silt with organic matter. Gravel and sands are generally encountered and are dispersed randomly throughout the unit. Thicknesses of surficial deposits vary from zero to five feet, with an average range of one to two feet (BNI 1994, Acres American, Inc. 1981a).
- **Brown Clay Unit** - The Brown Clay Unit, also known as the “Upper Clay Till” or the “Brown Clay Till”, is a brownish or reddish, poorly sorted, brown silty clay till deposit indicative of a ground moraine. The ground moraine occupies the low till plain in the area of the NFSS and extends west to east in a wide belt from Lockport to the Niagara River (USDA 1972). The till was deposited above sediments of glacio-lacustrine origin (Gray Clay Unit) described below. The thickness of the unit varies from 6 to 23 feet. The consistency of the upper clay till ranges from medium soft to hard with plasticity increasing with depth. Thin sand and silt seams, pockets and lenses are common in the basal portion of the unit.

The sand, gravel, and silt lenses in the basal portion of this unit average one to five feet in thickness and the lateral extent and thickness of these lenses vary abruptly. These intermittent sand lenses likely represent glaciofluvial deposits and are generally vertically and horizontally discontinuous. When saturated, these lenses, pockets and/or seams are most likely not hydraulically interconnected and do not represent a continuous water-bearing zone or aquifer. Geostatistical analyses indicate that the sand lenses cannot be correlated over distances greater than about 20 feet (HGL 2007). The sand and gravel in the lenses are usually moist to saturated and vary from loose to dense. Occasional extensive deposits of sand and gravel 17.5 to 20 feet in thickness occur within the Brown Clay Unit (BNI 1994b, Acres America 1981b).

Historical data and in-situ permeability testing conducted in 2001 and 2003 indicate that the horizontal permeability of the brown clay unit ranges from approximately 3×10^{-2} to 7×10^{-9} cm/sec. Typical values are between 1×10^{-5} to 1×10^{-7} cm/sec. Vertical permeability for this unit is reported as 7×10^{-7} cm/sec. (BNI 1994a).

- Gray Clay Unit - The Gray Clay Unit, also known as the “Glacio-Lacustrine Clay Unit”, is of lacustrine origin. Post depositional erosion is evident from channels (depressions) along the upper surface of this unit. These depressions are intermittently filled with the coarser-grained sand and gravel of the Brown Clay Unit. Based on boring logs, the fill deposits are not widespread and not representative of a contiguous lithologic unit. These channel deposits are also described above in the description of the Brown Clay Unit. The Gray Clay Unit occasionally grades vertically to a silt and sand mixture. Gravel is dispersed throughout the unit, as are lenses of fine to medium-grained sand. Sand and gravel become the primary constituents near the base of the unit. The overall consistency of the unit ranges from soft to medium soft, with clay portions being slightly to highly plastic. The clay is generally wet and sand lenses are wet to saturated.

The thickness of the Gray Clay Unit varies from less than 5 to 30 feet and it is the thickest unconsolidated unit on site (BNI 1994b, Acres America 1981b). Based on laboratory tests, the average permeability of the Gray Clay Unit is reported as 7.34×10^{-8} cm/sec (BNI 1982a).

- Middle Silt Till Unit - At some locations, a glacio-lacustrine Middle Silt Till Unit splits the Gray Clay Unit or where the lower portion of the Gray Clay Unit is absent, the Middle Silt Till overlies clastic sediments associated with the Sand and Gravel Unit of Wisconsinian age. This silt horizon was reported in the subsurface at the CWM landfill but was not found at the NFSS. The Middle Silt Till Unit may consist of zones of coarse to fine sand and traces of gravel, but dense gray silt is dominant. The horizontal permeability of the Middle Silt Till Unit was reported as 3×10^{-6} cm/sec and the vertical permeability was 1×10^{-7} cm/sec (BNI 1994b, Goldowitz and Greenholtz 1994).
- Sand and Gravel Unit - The Sand and Gravel Unit, also referred to as “Alluvial Sand and Gravel”, consists of clean sand to mixtures of sand, gravel, and silt. The unit is thought to be glaciofluvial in origin, is normally wet to saturated, and exhibits loose to medium relative density. In general, the thickest portions of the unit are present where depressions occur in the bedrock.

The Sand and Gravel Unit is approximately three to seven feet in thickness and occurs 15 to 28 feet bgs (BNI 1994b, Acres America 1981b). The horizontal permeability of the Sand and Gravel Unit ranges from 1.3×10^{-3} to 9×10^{-6} cm/sec (BNI 1994b, Acres America 1981b).

- Red Silt Unit - The Red Silt Unit, referred to as the “Basal Red Till” in some documents, consists of angular fragments of bedrock in a sandy silt matrix that suggests that this till was locally derived and emplaced as a basal lodgement till. The Red Silt Unit is composed of clayey gravelly silt with lesser amounts of sand. Gravel is dispersed throughout the unit and consists of both rounded and angular fragments of bedrock. This unit is generally dry to moist, over consolidated, and ranges from medium to very dense. The Red Silt Unit varies in thickness from zero to seven feet. The top of the Red Silt Unit varies across the site from a minimum of 17 feet bgs to a maximum of 45 feet bgs. The

base varies from 22 feet bgs to 48.73 feet bgs. (BNI 1994b, Acres America 1981b). The horizontal permeability of the Red Silt Unit is reported as 4×10^{-8} and the vertical permeability is 3×10^{-8} cm/sec (Goldowitz and Greenholtz 1994).

- Queenston Formation - The Queenston Formation forms the bedrock at the site and consists of brownish red shale, siltstone, and mudstone. Occasional lenses of green siltstone and shale occur within this formation. The Queenston Formation is over 1,200 feet thick. The top 6 to 12 feet of the Queenston Formation are moderately weathered, fractured and more permeable than lower portions of the formation. Calcite replacement and clays have been noted in some of the wider fractures. The Queenston Formation is typically encountered 32 to 49 feet bgs (BNI 1994b, Acres America 1981b). Based on information provided by Stratigrapher, Dr. Carlton Brett, the marine shales and sandstones of the Ordovician Georgian Bay Formation underlie the Queenston Formation (BNI 1994b, Acres America 1981b, Tisch 1979).

The horizontal permeability of the unweathered portion of the Queenston Formation ranges from 2.3×10^{-4} to 2×10^{-7} cm/sec (BNI 1994b, Acres America 1981b).

2.3.4 Regional Hydrogeology

Within 50 feet of the ground surface, there are two water-bearing zones at the NFSS and surrounding vicinity. The uppermost unit is present in the Brown Clay Unit (also identified as Unit 2) located above the Gray Clay Unit (also identified as Unit 3). The Gray Clay Unit acts as an aquitard for the second water zone that underlies the Gray Clay Unit. This second (lower) water-bearing zone is associated with the upper fractured portion of the Queenston Formation and the unconsolidated materials between the bedrock and the Gray Clay Unit (Red Silt and Sand and Gravel Units). A regional groundwater divide exists approximately two miles south of the NFSS. Regional groundwater flow north of the divide is toward the northwest, whereas groundwater flow south of the divide is toward to the southwest (BNI 1982b).

The two water-bearing zones identified at the NFSS are the upper water-bearing zone (UWBZ) and the lower water-bearing zone (LWBZ).

The UWBZ is typified by clayey silt and silty clay with occasional sand and gravel lenses. Coarse-grained, possibly channel fill deposits, are sporadically present in the basal portion of the zone on the undulating upper surface of the Gray Clay Unit. However, based on boring logs and recent statistical analysis (HydroGeoLogic Inc. [HGL] 2006), these sand seams, pockets, and lenses are intermittent and vertically and horizontally discontinuous.

HGL performed a geostatistical analysis to assess the continuity of sand lenses in the UWBZ at the NFSS to evaluate whether the sand lenses act as preferential migration pathways for contamination. Lithologic information from boring logs was spatially analyzed using semivariogram calculations and models. The results suggest the sand lenses in the UWBZ are not horizontally continuous over distances greater than 15 to 20 feet (HGL 2007).

Saturated conditions occur in the UWBZ in both the continuous, low permeability clays and in the discontinuous lenses of sand and gravel. Throughout the UWBZ, the coarse-grained lenses, pockets and seams vary considerably in thickness and extent and range from dry to saturated. As a result, the occurrence of groundwater varies across the site.

The horizontal hydraulic conductivity of the UWBZ, estimated from field (slug) tests and laboratory tests, ranges from 3×10^{-2} to 7×10^{-9} cm/sec with most values in the range of 1×10^{-5} to 1×10^{-7} cm/sec. Horizontal conductivity values for wells screened in the sand lenses, seams and pockets are typically higher than wells in the silt or clay (a range of 9.5×10^{-7} to 1.27×10^{-2} cm/s is evident).

Vertical hydraulic conductivity values for the clay within the Brown Clay Unit (Unit 2) were reported to be 6×10^{-7} cm/sec (BNI 1994a). However, preserved desiccation cracks (mud cracks), filled with clay, have been reported at 3 to 14 feet bgs at Modern Landfill and Model City (Wehran 1979, Goldowitz and Greenholtz 1994). Where open desiccation cracks occur, vertical hydraulic conductivity may be greater than reported. Mud cracks filled with clay may also increase vertical conductivity depending upon how efficiently the clay seals the cracks. Preserved desiccation cracks were not noted in the subsurface at the NFSS. Open desiccation cracks 0-1 foot deep were noted on a seasonal basis in surface soil during prolonged dry periods and were most prevalent in low-lying areas such as the ephemeral ditches throughout the NFSS and the low lying areas adjacent to N and O Streets. In the 1994 Failure Analysis Report, Bechtel reported that desiccation cracking had not been observed at the IWCS (BNI 1994a).

The Gray Clay Unit (Unit 3) acts as an aquitard separating the UWBZ from the LWBZ. For purposes of classification, wells that terminate in the Gray Clay Unit are considered to be representative of the UWBZ.

The LWBZ extends from bottom of the Gray Clay Unit (Unit 3) to the bottom of the weathered zone of the Queenston Formation (Unit 7) and consists of the stratified sands and gravels of the Sand and Gravel Unit (Unit 5), the dense silt and sands of the Red Silt Unit (Unit 6) and the weathered and fractured upper portions of the Queenston Formation (Unit 7). The presence of Middle Silt Till (Unit 4) was not noted in NFSS boring logs. The thickness of the LWBZ varies from about 10 feet to about 38.5 feet. The LWBZ has significantly higher permeability and more lateral continuity than the UWBZ.

In the Sand and Gravel Unit (Unit 5), the horizontal hydraulic conductivity ranges from 1.3×10^{-3} to 9×10^{-6} cm/sec (BNI 1994b, Acres American, Inc. 1981a). Well yields in the LWBZ are less than seven gpm in the fractured portion of the Queenston Formation (Acres American, Inc. 1981a).

The potential for contamination of this zone is limited due to the presence of the confining Gray Clay Unit and Red Silt Unit (where present) and the relatively low permeability of the Queenston Shale. In addition, documents suggest an upward vertical gradient at locations where the Red Silt Unit is absent (BNI 1994b and Acres American, Inc. 1981a). Based on NFSS boring logs, the Red Silt Unit is absent from at least 6 boreholes at scattered locations suggesting this limiting factor may be of only local significance at NFSS.

The general direction of groundwater flow in the LWBZ is to the northwest. The highest gradients occur south of the NFSS and the Modern Landfill property.

2.3.5 Groundwater Usage

A public water supply from the upper Niagara River has been utilized by almost all county residents for several decades (Niagara County Department of Health [DOH] 2006). Prior to installation of the public water supply, groundwater from private wells was the primary source of drinking water near the LOOW property. The highest yields and quality of potable groundwater

are found in the fractured dolomite associated with the Lockport Dolomite. However, this formation is absent in the subsurface of the Ontario Plain where the NFSS is located. In the Ontario Plain, the Queenston Shale and thin sandy deposits of glacial origin provide a very limited supply of potable groundwater that is reportedly poor in yield and water quality (Johnston 1964, DOE 1986). Groundwater yields are generally less than seven gallons per minute. Based on early U.S. Geological Survey (USGS) documents and current information, groundwater usage in the vicinity of the NFSS is restricted to limited domestic use and farm applications. Current use of private wells near the NFSS for drinking water is uncommon (Johnston 1964, DOE 1991).

During compilation of this report, the towns of Lewiston and Porter, the Niagara County Water District, and the Niagara County Health Department were contacted. These agencies reported that the Niagara County Water District supplies water to the residents of nearby Lewiston and Porter. Everyone within the region has access to District water. The District obtains water from the west branch of the Niagara River.

In 1988, a well survey was performed by BNI and six wells were identified within three miles of the site. Four of the wells were used for domestic purposes and the use of the remaining two wells was unknown. The locations of the six private wells were not provided (BNI 1994a).

In 1990, Wehran EnviroTech performed a water well survey for Modern Landfill. The survey encompassed one mile downgradient and one-quarter mile upgradient of the landfill. One water well user was identified along Porter Center Road, upgradient of the Modern Landfill facility. The well was 28 feet deep and produced less than two to three gallons per minute. This well is located east and upgradient of the NFSS (Wehran Engineering 1990) and was regularly sampled in 1982 by DOE along with three other wells within four miles of the NFSS. Three of the four wells sampled by DOE in 1982 were approximately 25 feet deep and were used for domestic purposes and the fourth well was identified as the industrial Service Corporation of America (SCA) Services, Inc. (a subsidiary of Chemical Waste Management) well.

In 1994, BNI updated their 1988 well survey information. Eight wells were identified within a 3.5-mile radius of the NFSS as shown on the map in Appendix E. One existing private well was downgradient (northwest) of the NFSS, four were northeast and three wells were southeast (BNI 1994a, BNI 1982a). No public water-supply wells were found within 3.5 miles of the NFSS. Current use of the eight wells was not reported, but the document stated that “None of the wells are known to have been used for drinking water.” The maximum depth of the eight wells was 60 feet and the well yields ranged from 2 to 10 gallons per minute (BNI 1994a).

A 2002 list of wells in the vicinity of the NFSS, obtained from the USGS, indicated 138 wells were located within a four-mile radius of the NFSS. Sixteen wells were located potentially downgradient (northwest) of the site. The depths of the wells ranged from 16 to 22 feet bgs. Seven of the 16 wells were completed in bedrock (frequently specified as the Queenston Formation), but the aquifer penetrated in the remaining nine wells was not identified. Based on reported well depths, these wells likely draw groundwater from glacial sediments. The use of these wells was specified as follows: ten used for domestic purposes, one used for stock, one used for irrigation, and three wells unused. The use of one well was unknown. The 2002 USGS list of wells is most likely not verified frequently and the current status of the wells listed is not known.

In March 2006, the Niagara County DOH issued the results of a private well study (Niagara County DOH 2006), which is included in Appendix E. One-hundred seventeen private wells were identified near the LOOW property. Of the 117 wells identified, 11 were reported as potable, 8 were reported as non-potable, 20 were reported as not accessible, and 78 were reported as not in

use. Of the 11 private wells reported as potable, six were identified as secondary groundwater sources (i.e. public water was the primary drinking water source). This study concluded that only a small number of private wells in the study area were active (19 of 117). Thirteen wells were sampled for temperature, turbidity, pH, total coliform, heterotrophic plate count, E coli, chloride, nitrate/nitrite, phenol, fluoride, lithium, drinking water metals (arsenic, boron, copper, manganese, nickel, lead, and vanadium), nuclear chemistry parameters, pesticides, PCBs, VOCs, and SVOCs. Five wells exceeded the regulatory maximum contaminant levels (MCL) for a single parameter, and in each case the parameter was different (chloride, phenol, arsenic, manganese, and lead). All wells that were sampled met safe drinking water standards with respect to radiological quality. The New York State DOH issued advisories to well owners whose wells exceeded the regulatory MCL for the five other parameters noted above.

2.3.6 Regional Meteorology

Weather data for Niagara Falls, NY was obtained from the Air Force Combat Climatology Center in Asheville, NC. The data is the result of observations at the Niagara Falls Air Force Base, located off Route 62, about seven miles southeast of NFSS and four miles east of Niagara Falls. The period of record is from 1973 through 1995.

Figure 2-3 demonstrates mean daily maximum and minimum temperatures, as well as extreme maximum and minimum monthly temperatures observed at Niagara Falls during the period from 1973-1995. As shown, extremes at Niagara Falls have ranged from a maximum of 99 °F to a minimum of -17 °F.

Annual precipitation (rain and equivalent snow and ice) is approximately 38.0 inches per year. Average monthly precipitation at Niagara Falls is relatively consistent throughout the year. August and November are the wettest months (mean 3.9 inches) and February is the driest month (2.5 inches). Mean and extreme monthly precipitation data are presented in Figure 2-4. The maximum 24-hour rain event in Niagara Falls was 4.4 inches. Thunderstorms occur on an average of 33 days per year, primarily during June through August.

Average annual snowfall at Niagara Falls is 89 inches, and the record maximum snowfall in one year was 176 inches. Monthly average snowfall peaks during January, which averages 24 inches. Maximum monthly snowfall recorded at Niagara Falls was 68 inches, which has occurred during both of the months of December and January. The record 24-hour snowfall event at Niagara Falls is 19 inches.

Average afternoon relative humidity ranges from a minimum of 54% during May, June, and July to a maximum of 71% during the months of January and November. Average morning relative humidity ranges from a minimum of 78% during the month of November to a maximum of 87% during the month of August.

The winter months are typically mostly cloudy, averaging 75% of maximum possible cloud cover. Low ceilings (less than 3,000 feet) and/or reduced visibility (less than three miles) are most likely to occur during the month of January (54% occurrence) and are least likely during July (15% occurrence). During the summer months (June through August) cloud cover averages 50% of maximum. Fog is observed at Niagara Falls on an average of 164 days per year, and occurs on an average of 12 or more days each month.

Prevailing winds at Niagara Falls are from the west during most of the winter months and from the southwest during spring and summer months. Southeast winds are least prevalent. Mean wind

speed ranges from a maximum of 11 knots during January to a low of seven knots during August. An annual wind rose for Niagara Falls is presented in Figure 2-5 and wind summaries are presented in Figures 2-6 and 2-7. The wind rose (Figure 2-5) represents data collected from over 20 years ago and is the only available information obtained for on-site wind direction and speed. The information presented in Figures 2-6 and 2-7 are generally consistent with this wind rose although these two figures indicate a somewhat higher percentage of calm conditions.

2.3.7 Surrounding Land Use

The NFSS is bordered on the north and northeast by the CWM Chemical Services, LLC. hazardous waste disposal facility, on the east and south by the Modern Landfill, Inc. solid waste disposal facility, on the west by a transmission corridor owned by Niagara-Mohawk Power Corporation, and on the northwest by the village of Lewiston (the former LOOW wastewater treatment plant) (BNI 1994a). All of the aforementioned properties were once part of the original LOOW.

The surrounding area land use consists primarily of row-crops and orchards, abandoned agricultural fields, and second-growth forests. The Lewiston-Porter public school property is approximately 1.5 miles northwest of the site and a public campground is approximately 0.5 miles west of the site. A hydroponic greenhouse has been constructed immediately south of the NFSS (south of Pletcher Road) where a farm field used to be. Many residences are also in the area with the nearest residences located on Pletcher Road approximately 0.5 miles west-southwest of the site.

Land use in the vicinity of the NFSS is shown on Figure 1-7.

2.4 DATA QUALITY OBJECTIVES

DQOs are qualitative and quantitative statements that are used to develop a scientific and resource-effective sample collection plan. They serve as formal documentation of the data quality requirements. Effective use of DQOs yields data of known quality, documents the planning process, and provides benchmarks to determine if data meet project objectives. DQO #1 is a general DQO that was developed during the June 1999 TPP meeting. During the May 2000 TPP meeting, two more DQOs were developed to meet the needs of the BRA (DQOs #2 and #3).

DQO #1

Obtain information of sufficient quantity and quality to meet the requirements for an RI as described in the directive *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988). Requirements of the directive *Guidance for Performing Site Inspections Under CERCLA* (EPA 1992a) were also used, where appropriate. The information obtained also had to be of sufficient quantity and quality to identify sources of contamination and migration pathways in order to adequately characterize potential contamination at areas included in this investigation. DQO #1 includes the elements listed below.

- Intended Data Uses:
 - Satisfy project objectives,
- Data Need Requirements:
 - Satisfy data user perspective(s),
 - Determine contaminants or characteristics of interest,
 - Determine media of interest,

- Determine required sampling areas/locations and depths,
 - Determine the number of samples required,
 - Determine the reference concentration of interest or other performance criteria,
- Appropriate Sampling and Analysis Methods:
 - Determine the sampling method, and
 - Determine the analytical method.

DQO #2

Obtain information of sufficient quantity and quality to meet the requirements described in the EPA document, *Guidance for Data Usability in Risk Assessment*, (EPA 1992b).

DQO #3

Obtain information of sufficient quantity and quality to meet the requirements for development of a BRA based on EPA Risk Assessment Guidance for Superfund (RAGS), 1989 and subsequent guidance documents.

In order to achieve these three DQOs, the Quality Assurance Project Plan (QAPP) and addenda and the Field Sampling and Analysis Plan and addenda guided all sampling and analysis. Methods used to demonstrate the achievement of the DQOs are discussed in the sections that follow. Section 2.4.4 contains a summary discussion of the DQOs.

2.4.1 Data Collection

Samples from all the types of collected media were used to generate definitive data. These media included water, soil, sediment, debris, concrete, rock, and both solid and liquid waste materials. The samples were analyzed for the following parameters:

- VOCs,
- SVOCs,
- Organochlorine Pesticides,
- PCBs,
- Target analyte list metals plus Boron and Lithium,
- Cation exchange capacity,
- Total Organic Carbon,
- Nitroaromatic compounds,
- Geotechnical analyses,
- Asbestos,
- Radiological parameters, and
- PAHs, a subcategory of SVOCs.

General Engineering Laboratories (GEL), a USACE-certified lab in Charleston, SC, performed all primary radiological and chemical analyses. Maxim's geotechnical laboratory in St. Louis, MO performed all geotechnical analyses. Data Chem, in Cincinnati, OH, performed all asbestos testing. Tables 2-2 through 2-5 list analytical methods for analyses performed during the RI.

To assess the primary laboratory's performance, several laboratories were designated by the USACE for the analysis of Quality Assurance (QA) samples during the progress of the RI. The analysis of QA samples is an element of the QA management system that measures the degree of excellence of environmental data. Initially, Argonne National Laboratory (ANL), Chicago, IL,

was utilized for the analysis of QA samples for both chemical and radiological parameters. Responsibility for the testing of QA samples for radiological parameters was later transferred to Nuclear Technology Services (NTS), Roswell, GA and then again, to Severn-Trent Laboratories (STL), St. Louis, MO.

2.4.2 Quality Control Protocols

Appendix F describes the Quality Control (QC) procedures employed during the RI. These procedures, which address key QA elements (e.g. the level of QC effort; accuracy, precision, and sensitivity of analysis; method blanks; LCSs; MS/MSDs; blind field duplicates; laboratory duplicates; QA samples; completeness; representativeness; comparability; and presentation of data), ensure the correct level and extent of sampling and analysis was conducted to produce sufficient data for evaluating remedial alternatives at NFSS.

2.4.3 Data Review

The data review process applied to data received from the laboratory is described in greater detail in Appendix F and consisted of three phases of review.

- The first phase involved the review of the hardcopy analytical data reports and was conducted to monitor completeness, correctness, consistency and compliance of the primary data with the QAPP and the Subcontract Services Agreement with the primary laboratory. The first phase of the review was also conducted with respect to the electronic data deliverables (EDDs) and verified the accuracy, completeness and compliance of the spreadsheet formatted data with the format specified in the QAPP.
- The second phase included a further review of the data for accuracy by SAIC to ensure the data met EPA national functional guidelines where appropriate, specifically the 5x and 10x rule for organics and the uncertainty rules for radiological parameters, and that assigned data qualifiers were appropriate.
- The final phase included a detailed validation of the data packages by U.S. Army Engineer Research and Development Center Environmental Laboratory (Omaha, NE), Integrated, Inc. (Baton Rouge, LA), and Nuclear Technologies Services, Inc (NTS) (Roswell, GA). This was done to comply with USACE Engineer Regulation 1110-1-263 *Chemical Data Quality Management for Hazardous, Toxic, Radioactive Waste Remedial Activities*. The results of this validation are presented in a Chemical Data Quality Assessment Report (CDQAR). In the NFSS CDQAR, primary and QA split sample results from chemical quality assurance reports (CQAR) resulting from RI Fieldwork Phases 1, 2, and 3 were evaluated. Additionally, the data verification/validation processes and findings regarding data usability were documented. The NFSS RI CDQAR can be found in Appendix G.

2.4.4 Achievement of DQOs

The information generated in this report was evaluated by using the QA parameters discussed briefly in the previous sections and guidance documents cited below. This evaluation is used, along with reference to relevant guidance documents, to demonstrate the achievement of the three DQOs presented in Section 2.4.

2.4.4.1 DQO #1

All applicable sections of the EPA guidance documents were followed during the performance of this investigation. Three phases of environmental samples were collected from soil, surface water, sediment, groundwater and subsurface utilities at the site. A review of historical documents helped identify contaminants and media of interest for each EU identified in Figure 1-2. Section 3 tables provide the sampling rationale for each media of interest and document the number of samples collected, their depth, location, and contaminants of interest. Sampling rationale was dynamic and biased in nature, i.e., sample collection was guided by field instrumentation (PID, radiation detections meters). In addition, the second two phases of field investigation used results from the previous sampling round to further guide sample collection to ensure that all data need requirements were met. The environmental sampling data was supplemented with information from a site gamma walkover survey, non-invasive geophysical methods, and trenching activities. The rationale and requirements for all sampling and analytical methods are discussed in the RI QAPP and Field Sampling and Analysis Plan and addenda. Appendix F discusses the sampling and analytical methods used. Sections 3 through 6 of this report discuss the data collected, the nature and extent of contamination, and the fate and transport of constituents at NFSS. The quality and quantity of information collected has proved to be adequate to address all of the elements listed for DQO #1 in Section 2.4.

2.4.4.2 DQO #2

The objective of DQO #2 was to obtain information of sufficient quantity and quality to meet the requirements described in the *Guidance for Data Usability in Risk Assessment* (EPA 1992b). Information from this RI was provided to the risk assessors, so that they could evaluate the site, sampling locations and media types, and analyte lists. Documentation of the sampling is sufficient so that samples are traceable to a specific location. Historical data and information, as well as three phases of recent sampling and newly discovered historical information, were evaluated along with analytical methods to ensure that a broad spectrum of analytes evaluated the entire site and all its media. In addition the physical characteristics of the media were documented. This ensures that the information obtained represents appropriate data sources for a risk assessment. The analytical methods with appropriate detection limits were reviewed and determined to meet guidance requirements. Data Quality Indicators (DQI) (precision, accuracy, representativeness, completeness and comparability) have been evaluated and found to meet guidance requirements. Documentation of the review and other QA/QC evaluations is found in Appendix F. Therefore all six criteria used to evaluate the achievement of this DQO have been satisfied.

2.4.4.3 DQO #3

The objective of DQO #3 was to obtain information of sufficient quantity and quality to meet the requirements for development of a BRA based on RAGS (EPA 1989) and subsequent guidance documents. This DQO is, in part, based on DQO #2. Table 2-1 includes a summary of the numbers of samples by EU and by media. As documented in Appendix F, the quality of data was assessed. As a result, the quality and quantity of information collected has proved adequate to produce the BRA included with this report.

2.4.4.4 DQO #4

The objective of DQO #4 was to obtain information of sufficient quantity and quality to identify sources of contamination and migration pathways to adequately characterize potential contamination at areas included in this investigation. To meet this objective, three phases of environmental samples were collected from soil, surface water, sediment, groundwater and subsurface utilities at the site. This data was supplemented with information from a site gamma walkover survey, non-invasive geophysical methods and trenching activities. Sections 3 through 6 of this report discuss the data collected, the nature and extent of contamination and the fate, and transport of constituents at NFSS. The quality and quantity of information collected has proved to be adequate for this purpose.

3.0 REMEDIAL INVESTIGATION ACTIVITIES

3.1 INTRODUCTION

The NFSS RI was performed using a phased approach. The strategy employed was to begin with a single field sampling phase and to add additional phases to further refine site knowledge and to more accurately characterize the site. A total of three phases were performed. A brief summary of these phases follows:

- Phase 1 fieldwork started in November 1999 and concluded in January 2000. Surface water and sediment samples were collected from ditches across the site. Groundwater samples, collected from both previously existing wells and from temporary well points (TWP), subsurface soil samples, and surface soil samples were collected from locations at which historical information suggested the potential presence of contamination.
- Phase 2 fieldwork started in August 2000 and concluded in October 2000. Analytical data from Phase 1 suggested potential contamination in thirteen TWPs. Permanent monitoring wells were installed and sampled at these locations in Phase 2. Surface soil, subsurface soil, railroad ballast, and pavement core samples were collected in and around Phase 1 sample locations that exhibited elevated concentrations of parameters of concern. Samples were also collected from areas that were previously uninvestigated. Surface soil and subsurface soil background samples were collected. Five surface water and sediment samples were collected from locations that were dry during the Phase 1 fieldwork.
- Phase 3 fieldwork started in May 2001 and continued on an intermittent basis until October 2003. After a site-wide gamma walkover survey was performed at the site, surface and subsurface soil samples were collected in and around locations that exhibited elevated gamma readings. Geophysical investigations, consisting of ground penetrating radar (GPR), seismic reflection and refraction, electromagnetic frequency domain and time domain, and electrical imaging/induced polarization were conducted at the site. Exploratory trenches were excavated at the locations of geophysical anomalies. Exploratory trenches were also excavated at locations where the historical record indicated contamination might be present. A detailed reconnaissance of the pipelines and sewers at the site was performed and samples were collected from manholes, pipes, and sumps. Confirmation samples were later collected from several manholes that exhibited elevated concentrations of parameters of concern. Because the need for a suitable background groundwater data set was identified, and no suitable data set existed for the site, background groundwater samples were collected. During the previous phases of fieldwork at the site, several abandoned drums were found. These drums were sampled in Phase 3. Additional surface soil, subsurface soil and groundwater samples were collected to fill data gaps identified in the preparation of the BRA work plan. Confirmation samples were collected from several wells that previously exhibited elevated concentrations of parameters of concern. Additional monitoring wells were also installed in Phase 3 to further investigate and characterize the groundwater at the NFSS.

Because this is a federally-owned site, USACE investigated potential chemical contamination at the NFSS. Therefore, many of the samples collected for this RI were analyzed for chemical parameters, as well as radiological parameters.

In order to facilitate the accurate estimation of exposure and dose in the BRA, the site was divided into 18 EUs. These EUs provided the geographical framework within which the determination of SRCs was performed. SRCs are defined as those compounds that exceed background in their respective EUs. The determination of SRCs is further discussed in Section 4 of this RI report.

Because the site data are to a large degree organized around the concept of EUs, they are briefly presented here in the RI report. A more detailed discussion of EUs is presented in the BRA. The BRA evaluates risks to human and ecological receptors. An EU is the geographical area in which a receptor is assumed to work or live. In other words, it is the area in which the receptor may be exposed to SRCs detected during the RI. As explained in the BRA, the EUs were defined based on specific administrative and data considerations such as:

- Adequate representation of potential site exposures in terms of receptor behavior,
- The potential for future release of specific properties for re-use (e.g., sale of property),
- Consistency with previous divisions of the site as identified in prior site investigations,
- Consistency with historical use of specific areas at NFSS,
- Consistency with operable unit (OU) definitions for the FS,
- Quantity and spacing of samples,
- Distribution of contamination,
- Conformity for use in both the human health and ERAs, and
- Relative size of each EU.

Figure 1-2 shows the geographical boundaries of the various EUs. The descriptions of the individual EUs are presented in Table 3-1. The area of investigation considered by this RI, consisting of the NFSS and the neighboring Niagara-Mohawk property, was divided into 14 distinct EUs, numbered 1 through 14, as seen in Table 3-1. These EUs formed the basis for the evaluation of surface soils, subsurface soils, and some of the sediment and surface water samples. The separate determinations of SRCs for these media were made in each of these 14 EUs.

EUs 15 through 18 were created to accommodate special circumstances of the site or needs of the BRA. These EUs are described below:

- EU 15 consists of ditches that are inundated at least 50% of the year including the Central Ditch, South 16 Ditch, South 31 Ditch, and Modern Ditch. All sediment and surface water samples collected from these ditches were evaluated in EU 15. Sediment and surface water samples collected from ditches other than those in EU 15 were evaluated in the EUs from which they were collected.
- EU 16 contains on-site subsurface pipelines used in former site operations. These pipelines include acid lines, water lines, sanitary sewers, and storm sewers. All sediment and water samples collected from these pipelines were evaluated in EU 16.
- EU 17 is a site-wide EU and includes all areas and media within the property boundary of NFSS. This includes all soil, sediment, surface water, and pipeline material in EUs 1 through 16. In addition it contains site-wide groundwater, including both the upper and lower water bearing zones. EU 17 is approximately 191 acres.
- EU 18 consists of all background samples that were used for the determination of SRCs in EUs 1 through 17.

Hereinafter, the RI report may refer to 14 physical EUs or 18 risk EUs, depending on the topic being discussed. The 14 physical EUs represent the distinct EUs into which the site was divided. The 18 risk EUs includes the 14 physical EUs and the EUs discussed in the bullets above.

Section 3 is organized by RI tasks and site media (groundwater, surface soil, etc.) sampled for this RI. Each medium is presented in its own subsection. Each site media subsection presents the following information:

- Sample locations and rationale for their selection,
- Analytical parameters for each sample and the rationale for the selection of the parameters, and
- A description of the methods of sample collection.

Table 3-2 summarizes the sample naming conventions.

In addition to sampling performed during the RI at NFSS, regular sampling of air, surface water, groundwater, and streambed sediment is conducted to support the ongoing environmental surveillance program. Environmental surveillance results are compared to local background conditions and regulatory criteria to determine if radioactive waste stored on-site poses a threat to human health and the environment.

Since 1981, an annual technical memorandum has been issued to document surveillance results. Based on the FUSRAP NFSS 2004 Environmental Surveillance Technical Memorandum (USACE 2004), the nearest off-site worker receives an annual radiation dose of approximately 0.0046 mrem/yr from radioactive materials stored at the NFSS. The nearest resident receives an annual radiation dose of approximately 0.001 mrem/yr. To put these values into perspective, the U.S. average annual background dose is 360 mrem/yr and the annual dose limit above background to the public is 100 mrem/yr. By further defining the nature and extend of SRCs at the NFSS during the RI, goals and objectives of the environmental surveillance program will be better directed to ensure continued safety to human health and the environment.

The sample collection methods are briefly summarized in the sections that follow. For detailed descriptions of sample collection methods and decontamination procedures, the reader is directed to the FSP (Maxim 1999) and subsequent addenda.

3.2 TOPOGRAPHIC SURVEY

A topographic survey, described in detail in the sections that follow, was performed for the RI. The topographic survey performed at the NFSS determined the locations of sample points and other features of interest, relative to horizontal and vertical datums. A horizontal datum is a reference point for a grid system across the earth's surface and vertical datum is an elevation reference point, relative to distance amsl.

3.2.1 Objectives

There were two objectives for the topographic survey; the first objective was specified in the original project SOW and consisted of a detailed civil survey of the IWCS. This survey was performed to investigate if settlement of the IWCS cap had occurred and to provide a baseline for

such determinations in the future. The civil survey of the IWCS was performed on December 21, 1999 at grid nodes originally established by the DOE. The 1999 elevations were compared to measurements taken by the DOE on April 10, 1996. Both sets of elevation measurements are shown on Table 3-3. An examination of the data shows that some minor settling has occurred, primarily in the area of the original R-10 pile. Most locations that experienced settling only reduced in elevation by an inch or less. Localized areas of settling greater than one inch occurred around the area where approximately 60 drums containing contaminated soils and resin, 4 steel tanks, approximately 900 boxes of soil samples, tarps, geotextiles, and other miscellaneous debris were added to trenches cut into the IWCS in 1991. The maximum difference in elevation between the 1996 and 1999 surveys was 1.9 inches.

The second objective was to provide an accurate record of all samples and exploratory trench locations. The horizontal coordinates for all survey points were determined relative to the New York State Plane Coordinates, 1983, West Zone. The basis of these coordinates was derived from a global positioning system (GPS) static survey with reference to the National Geodetic Survey (NGS) control monuments “Youn USCG B: Upper” and “Youn USCG B: Power”. The vertical datum for all survey points was the National Geodetic Vertical Datum (NGVD) 1929. The source benchmark used for the site was the top of the west bonnet bolt of a fire hydrant located at the southwest corner of Building 429. The elevation of this benchmark, relative to NGVD 1929, was 321.50 feet. Relative to the vertical datum NGVD 1988, the elevation of the benchmark was 320.94 feet.

3.2.2 Methods

Except as noted below, all horizontal coordinates were determined using a two-receiver differential GPS. A stationary receiver was set up on a known benchmark located in O Street north of the IWCS and a roving receiver was used to determine the coordinates of each surveyed point. The stationary receiver determined the necessary corrections that were applied to the coordinate data collected with the roving receiver. Elevations determined by this method are accurate to within 0.13 feet and horizontal coordinates are accurate to within 0.01 feet.

The elevations of ground level survey points (exclusive of the IWCS and exploratory trenches) were also determined using a two-receiver differential GPS. The elevation of survey points located on the IWCS and survey points located above the ground surface (e.g. the top of well casings) were determined by closed-loop differential leveling. Elevations determined by closed-loop differential leveling are accurate to within 0.01 feet.

The horizontal coordinates of exploratory trenches were determined with a single receiver resource-grade differential GPS. The accuracy of the coordinates determined with this unit was one meter.

3.2.3 Activities

The civil survey of the IWCS was performed in 1999 and sample locations were surveyed at the conclusion of each field task. The coordinates for all sample locations are shown in Appendix H.

3.3 SITE WALKOVER INSPECTIONS AND RECONNAISSANCE SURVEYS

As part of this RI, several visual site walkover inspections and reconnaissance surveys were performed at the site to gather information on site features, physical characteristics, and potential waste sources and migration pathways.

3.3.1 Objectives

In general, the objectives of these visual site walkover inspections and reconnaissance surveys were to obtain information to guide the development of sampling strategies and to acquire information necessary for the preparation of the FSP and subsequent addenda.

3.3.2 Activities

The specific visual site walkover inspections are discussed in detail in the following sections.

3.3.2.1 Initial Visual Site Walkover Inspection

Prior to the preparation of work plans for the RI, a project kickoff meeting was held in April 1999. This meeting included a visual inspection during a site walkover of the NFSS. Building 401 was the focus of the inspection and included a tour of the interior of Building 401. The inspection also included a brief ‘windshield’ tour of the site to familiarize project personnel with the site geography. The project team acquired familiarity with Building 401 and general site features through this inspection. A civil survey of the cap of the IWCS was also performed as part of the initial visual site walkover inspection.

3.3.2.2 FSP Support Reconnaissance

In July 1999, a detailed reconnaissance of the site was performed in support of the preparation of the FSP. The reconnaissance consisted of:

- Mapping previously uncharted site features, including ruins (structures in poor condition), slabs and unimproved roads.
- Evaluation of potential sample locations.
- Evaluation and resolution of issues regarding access and logistics.

3.3.2.3 Pipeline Reconnaissance

Reconnaissance of the pipelines at the NFSS was performed in 2000 in support of the preparation of the FSP that described the sampling of the pipelines. The bulk of the reconnaissance was performed in May of that year, though knowledge of the pipeline system was refined during subsequent inspections performed in later months. As-built drawings were used as a guide. The reconnaissance consisted of:

- Locating all known manholes and sumps at the NFSS.
- Measuring the depth to the invert in each manhole and sump.
- Evaluating the presence or absence of water and sediment in the pipelines at each manhole.
- Evaluating the general condition of the various sewers, sumps and pipelines at the site.

The following bullets summarize the NFSS pipeline reconnaissance.

- A review of as-built drawings showed that 46 manholes were located on the sanitary, storm and acid process sewer lines. The field reconnaissance found 40 of these manholes. Six manholes, three on the storm sewer system, one on the sanitary sewer system, and two on the acid lines were not found.
- The as-built drawings showed two storm sewer outfalls (Outfall 1 and Outfall 2) on the Central Ditch. Outfall 2 was found and consisted of an exposed wooden pipe banded with steel. Outfall 1 could not be located. For purposes of sampling, its location was approximated based on site drawings.
- Seventy-two exposed pipes, most of which were vitrified clay pipes (VCP), were found. Most of these pipes are in the acid area.
- A four-inch steel pipe was found near Building 401. This pipe may have been either a sewer cleanout or a fill tube for an UST.
- A 10-inch VCP was found in the shops area, on the remnant floor slab of the Garage and Repair Shop. This pipe may be connected to a sump also found in the floor slab.
- A review of as-built drawings showed 36 sumps associated with the on-site pipe network. The field reconnaissance found 26 of these sumps.

The results of this reconnaissance were used to develop the Pipeline FSP. The sampling of the pipelines and associated sumps is described in Section 3.12.

Field notes made during the pipeline reconnaissance and tables summarizing the findings are shown in Appendix I. The pipeline reconnaissance discussed above was supplemented with non-intrusive geophysical survey techniques (SAIC 2003b), which were used to further delineate the subsurface piping extent.

3.3.2.4 Niagara-Mohawk Reconnaissance

A reconnaissance of the Niagara-Mohawk property was performed in August 2001 in support of the preparation of the FSP that described the sampling of soil, sediment and surface water at the Niagara-Mohawk property. The reconnaissance consisted of:

- Mapping previously uncharted site features,
- Evaluating potential sample locations, and
- Performing a limited gamma walkover survey of the site.

3.3.2.5 Ecological Reconnaissance

Maxim performed an Ecological Reconnaissance of the NFSS from August 21 through August 25, 2001. The purpose of the reconnaissance was to develop an ecological understanding and description of the site sufficient for the preparation of a site conceptual model for use in an ecological risk assessment. The results of this reconnaissance were presented in *Technical Memorandum #1, Niagara Falls Storage Site, Ecological Reconnaissance Report* (Maxim 2002a). This document is included in Appendix J.

3.4 FIELD SCREENING METHODS

3.4.1 Objectives

Field screening of environmental media was conducted in order to select sampling locations and depths, ensure worker safety, and comply with the Department of Transportation (DOT) shipping regulations. Field screening tools used during the RI field activities included gamma and geophysical surveys, photo-ionization detectors (PID), TNT kits, and magnetometers.

3.4.2 Methods

A PID was used to screen environmental samples for the presence of organic compounds, mainly VOCs. Similarly, samples were screened using TNT kits when historical data indicated the possible presence of TNT (i.e. areas known or suspected to have been used for explosives manufacturing or handling). Magnetometers (i.e. Schonstedt magnetic locators) were used to locate underground pipes and other magnetic objects prior to trenching or drilling activities to appropriately determine sampling locations and ensure safety of field personnel.

Portable gamma radiation meters were used by health physics technicians to evaluate the presence of gamma emitting radionuclides in soil, sediments, and other solid materials present at NFSS. Surface soil, subsurface exploration, and sediment and surface water sampling locations were screened to investigate the nature, presence, and horizontal and vertical extent of radiological compounds. Screening was performed to identify locations and depths at which radiation levels exhibited localized maximum values. Monitoring was performed to screen sample containers against background values, and at these depths samples were collected.

3.4.3 Activities

Sample locations and rationale for their selection were specified in the FSPs. The tentative locations were based on factors such as:

- results of previous site investigations,
- site history,
- site topography,
- locations of former buildings and slabs,
- results of gamma walk-over surveys,
- PID and TNT screening results,
- site drawings,
- knowledge of former site activities and processes ,
- presence of evidence of potential contamination, and
- need to provide representative sampling throughout each EU of the site.

Unbiased samples were also collected to ensure adequate data coverage for each constituent and media in each EU for risk assessment purposes. The tentative locations and composition of samples in all environmental media were screened with a gamma meter and modified if necessary, based on gamma survey results, as described in the following sections.

3.4.3.1 Selection of Sampling Locations

Sediment and Surface Water

Prior to sample collection, each planned sediment and surface water sampling location was surveyed by a health physics technician, using a NaI gamma 2 inch by 2 inch detector (60 second static count). The survey at each location was conducted along a 50 foot line that extended from the tentative sample point in both the upstream and downstream directions. The width of the gamma survey extended from about ten feet beyond the top of the bank to the centerline of the ditch (if dry), or to the edge of the water (if present). After the point with the highest gamma radiation measurement was identified, the location was staked and the sediment sample was collected from within the ditch as close as possible to the stake. In general, surface water samples were collocated with the sediment samples, though if surface water was not present at the sediment sample location, the surface water sample location was moved downgradient to the first location at which water was present.

Surface Soil, Subsurface Exploration, and Railroad Ballast Locations

Each planned soil sampling location, TWP, and groundwater monitoring well, was staked or otherwise marked, and the surrounding ten meter by ten meter area (33 feet by 33 feet) was surveyed by a health physics technician using a NaI gamma 2 inch by 2 inch detector. The planned surface soil and/or boring location was re-located, if necessary, so that it coincided with the location with the highest surface gamma measurements.

3.4.3.2 Borehole Radiological Logging

All soil borings installed with a drill rig were continuously logged by a health physics technician using a NaI gamma 2 inch by 2 inch detector. The health physics technician surveyed the entire length of each sample core after the sampler (either a 24-inch split spoon or a five-foot continuous sampler) was opened and the soil core was presented to the sample team for logging. The supervising geologist recorded gamma radiation measurements and other observations on the borehole log sheet. This information was used, in part, to select the depth interval for subsurface sample collection.

During Phase 1 of the RI, a downhole gamma survey was performed on each boring. These downhole surveys were performed to evaluate the vertical distribution of gamma-emitting radionuclides and to confirm the results of the gamma survey performed on the corresponding soil core. Downhole logging was performed using a one cm by one cm (3/8 inch by 3/8 inch) NaI gamma detector with a portable logging device. The one cm by one cm detector was equipped with a collimator to ensure that the photons detected originated from the nearest boring wall. Testing was performed through the PVC casing that was placed along one side of the boring. The NaI one cm by one cm detector was attached to a cable and initially lowered to the bottom of the casing. The instrument was then withdrawn to the surface and the boring was continuously logged. Each instrument was checked daily against the cesium-137 source provided by the equipment vendor and instrument responses were verified against calculated values. The real time data generated during the downhole logging was found to be consistent with the continuous core gamma logging performed during the installation of each borehole. Information from both gamma scans was used to determine where samples were collected along the soil core (i.e., the zone with elevated gamma readings). The results of the downhole logging are presented in Appendix K for informational purposes only.

3.4.3.3 Gamma Scanning of Soil and Sediment Sample Media

Sample material was removed from the bucket auger, split spoon or other sampling device, and placed in a stainless steel bowl. Materials such as grass, twigs, and pebbles were removed to the extent practical. After the volatile organic sample was collected, the contents of the sample bowl were screened with a NaI 2 inch by 2 inch detector. The health physics technician used the NaI 2 inch by 2 inch detector probe to investigate whether radioactivity was uniformly spread throughout the sample material. In some cases, it was found that radioactivity was not uniformly distributed, and that elevated radioactivity was due to presence of a single small “rock” of radioactive material. In individual cases, these rocks were submitted for analysis.

3.4.3.4 Gamma Scanning of Sample Containers

In order to ensure that sample shipments conformed to DOT shipping requirements, each sample container was scanned with a NaI 2 inch by 2 inch gamma detector prior to shipment. The results of this scan, reported relative to background, were recorded on the sample chain of custody. A background gamma radiation measurement for the sample shipment area (i.e. near the field trailer) was determined using the NaI detector prior to bringing sample containers into the shipment area. Each soil sample container was scanned and gamma radiation measurements were compared to the background measurement. Samples that exhibited gamma radiation levels 1.5 times background, or more, were labeled as radioactive samples.

3.5 SITE-WIDE GAMMA RADIATION SURVEY

A gamma walkover survey covering the NFSS and the adjoining Niagara-Mohawk property was performed from May 12 to August 27, 2001.

3.5.1 Objectives

The objective of this survey was to identify areas at NFSS where gamma radiation exceeded the site-specific background level. Lewiston-Porter School property was selected as the site for gathering the site-specific background levels due to its proximity to the NFSS site and based on historical records, no DOD or MED activities occurred on this property. The Lewiston-Porter School background gamma radiation measurement was determined to be approximately 8,000 counts per minute (cpm). A comparison background study was conducted at the Army National Guard Weekend Training Site on Balmer Road, also an area identified as having no documented MED activities. The Weekend Training Site background measurement was determined to be approximately 9,000 cpm. Gamma radiation surveys for both the background sites and NFSS were performed with a Ludlum rate meter coupled with a 2 inch by 2 inch NaI gamma detector in units of cpm while GPS instruments provided coordinate and time information for each radiation measurement. The product of the survey was a data set, stored in the field in a data logger, and then mapped to display relative levels of gamma radiation measurements across the site.

The survey was performed over the entire site, though it was designed to focus on areas most likely to contain radiological contamination. The areas identified as more likely to contain residual contamination were surveyed in one-meter transects. The remaining areas were surveyed in five-meter transects.

Details of procedures used to perform the gamma walkover survey are presented in *Final Gamma Walkover Survey and Geophysical Survey for the NFSS* (SAIC 2003b). The results of the gamma walkover survey are shown on Figures 3-1 through 3-6.

3.5.2 Summary Results and Conclusions

For purposes of the gamma walkover survey, the site was divided into six sectors.

Sector 1 consisted of the northwest corner of the site. Two areas of elevated activity were identified. Gamma readings of up to 25,000 cpm were noted at the western end of Sector 1. This area contained a slag/soil mixture at the surface. The second area of elevated activity was along the banks of the West Ditch, where gamma readings up to 66,000 cpm were identified.

Sector 2 consisted of the north-central portion of the site. Four localized areas of elevated activity (up to 26,000 cpm) were identified in the southeast corner of the Sector. Eight areas of up to 65,000 cpm were identified in the west-central portion of the sector. Numerous other localized areas of elevated activity up to 21,000 cpm were detected in slag/soil areas.

Sector 3 consisted of the northeast portion of the site. Activity up to 18,000 cpm was detected intermittently in slag/soil areas. A concrete foundation had up to 17,000 cpm. Two isolated areas north of N Street had activity of 50,000 and 20,000 cpm. Localized areas in the southeast portion of the Sector exhibited up to 82,000 cpm.

Sector 4 consisted of the southwest portion of the site and included the IWCS and the majority of the Central Ditch. Two localized areas of elevated activity up to 47,000 cpm were detected in the bottom of the O Street Ditch. Twenty-six localized areas of up to 107,000 cpm were detected in the field south of the O Street South Ditch and north of the IWCS. Nine areas up to 53,000 cpm were noted at the north edge of the IWCS. A 4-meter x 4-meter area of 120,000 cpm was detected on the northeast slope of the IWCS. Numerous other localized areas of elevated activity up to 40,000 cpm were noted in this Sector.

Sector 5 consisted of the southeast portion of the site and includes Building 401. Twenty-three locations of elevated activity up to 53,000 cpm were identified east of Campbell Street. Elevated activity as high as 17,000 cpm was detected on concrete pads in the area. Between X Street and Building 401 there were 45 isolated areas up to 40,000 cpm. In the fenced area of Building 401 there were eight areas up to 107,000 cpm. The area south of Building 401 had eight areas of elevated activity up to 93,000 cpm.

Sector 6 contained the West Ditch. Most of the West Ditch is on Niagara-Mohawk property. It crosses Sector 1 before intersecting the CWM property line. Five areas of elevated activity were identified. It was suspected that in four of the areas, the elevated activity was attributable to presence of granite rocks (glacial erratics) found during the survey.

The background level for the Site-Wide Gamma Walkover Survey was established at the beginning of the field activities by taking ten gamma survey counts of soil and pavement surfaces at the National Guard facility located north of the NFSS on the former LOOW. These ten survey counts were then averaged to establish the background value. The background value used for the Site-Wide Gamma Walkover Survey was 9,000 cpm.

The results from the gamma walkover survey are shown in Appendix B.

Results of the gamma walkover survey were used to guide subsequent soil, road/pad coring, sediment, and groundwater sampling efforts.

3.6 SURFACE SOIL CHARACTERIZATION

Surface soil characterization at the NFSS was performed using a phased-approach. Characterization activities included a review of historical site operations and previous investigations. This review was used to select the surface soil sample locations collected in Phase 1. Additional activities were performed in Phase 2 and 3 to fill data gaps, confirm previous results and provide sufficient and representative data to characterize the surface soil at NFSS. The information obtained from this characterization was used to support the RI and the BRA for the NFSS.

3.6.1 Objectives

The objectives for the surface soil characterization that supported the overall objectives included the following:

- Evaluate the distribution of potential chemical and radiological parameters of interest in the surface soil and investigate whether these potential SRCs exceed background levels.
- Confirm and investigate areas previously sampled and found to contain detectable concentrations of chemical or radiological constituents which may exceed background.
- Provide a basis for evaluation of the horizontal and vertical migration of SRCs and the estimation of source terms for use in the BRA.

3.6.1.1 NFSS Samples

During Phase 1 of this RI, over 60 surface soil samples were collected from the Building 401 Area, former shops area, former acid area, former Baker-Smith area, former radioactive residue storage areas and uninvestigated areas. These areas were sampled to investigate the presence or absence of chemical and/or radiological compounds associated with operation of the LOOW or AEC/DOE activities.

Approximately 140 surface soil samples collected during Phase 2 of the RI were located in the Building 401 Area, former shops area, former acid area, former Baker-Smith area, IWCS Area and uninvestigated areas. Samples were collected to:

- Further evaluate the presence and extent of chemical and/or radiological compounds found during Phase 1.
- Evaluate the presence or absence of chemical and/or radiological compounds in areas of the NFSS not investigated during Phase 1.

Over 250 surface soil samples were collected from locations throughout the NFSS during Phase 3 of the RI. Samples were collected in Phase 3 to:

- Further evaluate the presence and horizontal extent of chemical and radiological compounds found during previous phases.

- Further evaluate the presence or absence of chemical and radiological compounds in previously uninvestigated areas.
- Evaluate the presence or absence of chemical and radiological compounds at selected trench locations where visual observations or field monitoring indicated the potential presence of chemical compounds or the presence of radiological compounds at concentrations above background.
- Evaluate the horizontal extent of radiological parameters at areas with elevated gamma radiation, as investigated by the Gamma Walkover Survey of the NFSS described in Section 3.5.
- Evaluate the presence or absence of chemical and radiological compounds at the locations of abandoned drums.
- Fill data gaps identified during the preparation of the BRA Work Plan, including the collection of a sufficient number of samples in each EU to provide an adequate database for statistical analysis, comparison to background, and the development of an exposure source term.

Table 3-4 shows the surface soil samples collected from the NFSS, the parameter list for each sample, and a brief description of the rationale for the selection of each sample location. The locations of the surface soil samples are depicted by a gray triangle on Figures 3-7 through 3-13.

3.6.1.2 Background Samples

Background soil samples collected by EA for chemical analysis during the LOOW RI were also used for this RI. Tetra Tech collected additional background samples for radiological analysis. Background sampling locations were located in the buffer area of the former LOOW. These areas were considered to be representative background sampling locations, since they are close to NFSS, and are presumably un-impacted by LOOW or NFSS site-related activities. Background sample locations are shown on Figure 3-14. EA provided geological logging of all the test holes and all labor in the collection of the samples. EA also performed a topographic survey of the background sampling locations [*Final Report from Phase II Remedial Investigation at the Former LOOW in Niagara County, NY*, (EA 2002)]. Boring logs for background samples are presented in Appendix L.

Table 3-5 provides a summary of background surface soil samples, the approximate distance of the background locations to the closest NFSS border, and the rationale for sample location and analysis.

3.6.2 Surface Soil Sample Collection

Surface soils were defined as the interval from zero to six inches bgs. Samples were collected with clean, stainless steel hand augers, spoons and bowls. For each sample, soil was placed in a stainless steel bowl and surveyed with a PID for organic vapors and a gamma meter for radioactivity. These values and a description of the soil were noted on field data sheets, shown in Appendix M. Materials such as roots, rocks and sticks were removed from the six inch soil core and were not included in the samples. Only the most contaminated depth interval below the root zone was collect for analysis based on field screening results. Therefore, the sample volume sent

to the laboratory for analysis would not have included the entire 0 to 6 inch interval. If the root zone encompassed approximately 2 to 3 inches, the portion of the sample that was analyzed was from the top 3 to 4 inches of soil.

Samples for VOC analysis were collected prior to homogenizing the sample, to prevent loss of volatiles. The remainder of the sample was then homogenized and the remaining sample containers were filled. Sample containers were then placed on ice, documented on chain-of-custody forms and shipped to GEL for analysis.

3.7 SUBSURFACE SOIL CHARACTERIZATION AND BORING INSTALLATION

Subsurface soil characterization for this investigation was performed in three phases. Phase 1 sample locations were selected using information gained from a review of historical site information and previous studies performed by other contractors. Phase 2 and 3 sampling was performed to fill data gaps, confirm previous results and provide sufficient and representative data to characterize the subsurface soil at NFSS. Data collected during the subsurface soil characterization was used to support the RI and the BRA for the NFSS.

3.7.1 Objectives

The objectives for the subsurface soil characterization that support the RI objectives include:

- Evaluate the horizontal and vertical distribution of the chemical and radiological parameters of interest and investigate whether these compounds exceed background concentrations.
- Evaluate and confirm previous detections of chemical and radiological compounds.
- Provide sufficient and representative soil data for use in the BRA.

3.7.1.1 NFSS Samples

Over seventy subsurface soil samples were collected during Phase 1 of the RI from the Building-401 Area, former shops area, former acid area, former Baker-Smith area, former radioactive residue storage areas and previously uninvestigated portions of the site. Samples were collected to investigate the presence or absence of chemical and radiological compounds associated with operation of the LOOW or AEC/DOE activities.

Approximately fifty subsurface soil samples were collected during Phase 2 from the Building 401 Area, former shops area, former acid area, former Baker-Smith area, IWCS Area and previously uninvestigated portions of the site. Samples were collected to:

- Investigate the horizontal and vertical extent of chemical and/or radiological compounds found during the Phase 1 investigation.
- Investigate the presence or absence of chemical and/or radiological compounds in areas not investigated during the Phase 1 investigation.

Phase 3 of the RI consisted of several activities performed from May 2001 through October 2003. Almost 300 subsurface soil samples were collected during this phase from all areas of the NFSS. Samples were collected to:

- Further evaluate the horizontal and vertical extent of chemical and radiological compounds found in previous phases.
- Evaluate the presence or absence of chemical and radiological compounds at trenching locations selected based on the geophysical survey or the appearance of disturbed areas.
- Evaluate the horizontal and vertical extent of radiological parameters at locations where gamma radiation was found above background levels during the Gamma Walkover Survey.
- Investigate the presence or absence of chemical and radiological compounds at locations where abandoned drums were found.
- Fill data gaps identified during preparation of the BRA Work Plan, including collection of a sufficient number of samples in each EU to provide a suitable database for statistical analysis, comparison to background and the development of an exposure source term.

Subsurface soil samples are listed in Tables 3-6 and 3-7. The locations of the surface soil samples are depicted by a small red dot on Figures 3-7 through 3-13.

3.7.1.2 Background Samples

Background subsurface soil samples were collected from the buffer area of the former LOOW. This area was chosen because it was close to the NFSS and assumed to be unaffected by activities related to the LOOW or NFSS. Samples were collected for the LOOW RI and a topographic survey of the sample locations was performed as part of that RI (EA 1999). Figure 3-14 shows the sample locations. Table 3-8 lists the sample numbers and a brief rationale for their collection.

3.7.2 Subsurface Soil Sample Collection

The majority of subsurface soil samples were collected using either a truck- or all terrain vehicle (ATV)-mounted drill rig advancing a two-foot split spoon sampler or a five-foot continuous sampler. All borings were continuously sampled and logged from the surface to the termination depth. Copies of the boring logs are presented in Appendix N. The sampler was advanced ahead of the augers to obtain a relatively undisturbed sample. After the sampler was advanced (two feet for the split spoon and five feet for the continuous sampler) it was brought to the surface and opened. The exposed sample was then logged and scanned for gamma radiation and organic vapors. This process was repeated until the prescribed depth was reached.

Shallow (0.5 foot – 2.0 foot) subsurface soil samples, collected in areas identified as a result of the Gamma Walkover Survey, were collected with a stainless steel bucket auger. The bucket auger was advanced in approximately six-inch intervals. Each soil interval was then placed in a stainless steel bowl and scanned for gamma radiation and organic vapors.

Samples were collected from intervals exhibiting signs of contamination (staining, odors, elevated PID or gamma readings). If no signs of contamination were observed, samples were

collected at sand lenses, the soil-water interface, changes in lithology or the bottom of the borehole. Samples for VOC analysis were collected prior to homogenizing to prevent the loss of volatiles. The remainder of the sample was then homogenized and the remaining sample containers were filled. Sample containers were then placed on ice, documented on a chain-of-custody form and shipped to the laboratory for analysis.

3.8 SURFACE WATER CHARACTERIZATION

Initial surface water characterization activities were performed in Phase 1. Additional samples were collected in Phase 2 and Phase 3 to fill data gaps, confirm previous results, obtain background surface water data and provide sufficient and representative data for use in the risk assessment.

3.8.1 Objectives

The overall project objectives associated with surface water at the NFSS were to define the nature and extent of chemical and radiological contamination.

The objectives for the surface water characterization that support the overall objectives included the following:

- Provide a basis for the determination of the presence, absence and extent of SRCs in surface water associated with the network of ditches and low-lying wetland areas within the NFSS boundaries.
- Evaluate the potential for migration of parameters of interest onto off-site adjacent properties.
- Provide sufficient and representative surface water data for use in the BRA.

In order to achieve these objectives, characterization activities included a review of historical surface water monitoring results and collection of over 50 surface water samples from onsite and upstream locations within ditches and low-lying areas.

3.8.1.1 Selection of Sampling Locations

An extensive network of man-made ditches is present at the NFSS. Five east-west-trending ditches empty into two primary north-south ditches that direct the surface water drainage off-site to Four Mile Creek. Numerous low-lying areas are present that collect and retain standing water during wet portions of the year. Approximately 40 surface water samples were collected from ditches and low-lying areas located within the NFSS. The majority of the samples were collected from ditches and low-lying areas that drain portions of the NFSS formerly used to handle, store, treat, transport or dispose of chemical and/or radiological materials and waste. The majority of surface water sampling locations coincided with sediment sampling locations.

In addition, surface water samples were collected near the NFSS property boundary in order to evaluate the presence, absence and/or migration of site-related compounds in these areas.

Surface water sampling locations were selected based on the activities previously performed near or within the area, analytical results of previous site investigations, current RI results, and the need for sufficient and representative analytical data in specific areas. The locations of the surface

water samples are depicted by a blue triangle on Figures 3-7 through 3-13. A summary of the surface water sample locations, rationale for selection, sample designations, and analytical parameters are presented in Table 3-9 and 3-10.

3.8.1.2 Selection of Background Sampling Locations

Surface water enters the site via ditches as shown in Figure 2-1. To characterize background conditions, ten samples were collected in March and May 2003 at locations where surface water flows onto the NFSS. Background surface water sampling locations, shown in Figure 3-14, are prefaced with the label SWBKGD. With one exception, background surface water samples were collected on NFSS property immediately adjacent to and within a few feet of the site boundary. One background sample (SWBKGD-02) was collected on Niagara-Mohawk property a short distance off site, because right-of-entry was available.

A summary of the background surface water sample locations, rationale for selection, sample designations and analysis parameters are presented in Table 3-11.

3.8.1.3 Selection of Analytical Parameters

The analytical parameters at each surface water location were selected to detect a wide range of chemical compounds and radiological parameters based on the activities previously performed throughout the NFSS, previous results presented in the LOOW RI, and current RI sampling results. Rationale for the selection of analytical parameters for each surface water sampling location is provided in Tables 3-9 through 3-11.

3.8.2 Surface Water Sample Collection

Because many of the sample locations were in ephemeral streams, sampling activities were conducted during or after significant rain events or snowmelt event. Sampling activities were recorded on Field Boring Logs or specially designed sampling logs (see Appendix O). Information recorded on the forms during surface water sampling included the following:

- Location and sample number,
- Depth, flow direction and flow rate of the surface water,
- Collection date and time,
- Water quality parameters, and
- Evidence of contamination, i.e., odors, sheens, turbidity.

To minimize turbidity, surface water samples were collected prior to the collection of collocated sediment samples. Sampling equipment was either disposable or decontaminated prior to use. Before collection of the sample, the depth of the water was measured with a tape measure. The surface water was collected by submerging a precleaned sample container or dedicated disposable bailer into the water. When the water level was not sufficient for submersion, a peristaltic pump with disposable Teflon tubing was used to collect the sample. Filtered samples were collected using the peristaltic pump, disposable tubing and a 0.45-micron disposable filter prior to preserving the sample. After collection, samples were placed in an iced cooler for overnight shipment.

Following sample collection, water quality parameters and the flow rate of the water were monitored and noted. The pH, temperature, conductivity, oxidation-reduction potential (ORP),

and dissolved oxygen (DO) were recorded by placing the water quality meter probe into the surface water. When insufficient water was available to place the probe into the water, a small plastic cup was dipped into the water and attached to the probe. The direction of flow was noted and the velocity of flow was estimated by floating sticks or other small items in the water and noting the time it took for the item to travel a given length of the stream.

3.9 SEDIMENT CHARACTERIZATION

Sediment characterization at the NFSS was performed using a phased approach. Characterization activities included a review of historical site operations and previous investigations. This review was used to select the sediment sample locations collected in Phase 1. Additional activities were performed in Phase 2 and 3 to fill data gaps and provide sufficient and representative site data. The information obtained from this characterization was used to support the RI and the BRA for the NFSS. For this RI, over seventy sediment samples were collected from ditches and low-lying areas on the NFSS.

3.9.1 Objectives

The overall project objectives associated with sediment at the NFSS were to define the nature and extent of chemical and radiological contamination.

The objectives for the sediment characterization that supported the overall objectives included the following:

- Investigate the presence, absence and extent of chemical and radiological parameters of interest in sediment associated with the network of ditches and low-lying areas within the NFSS boundaries.
- Characterize background concentrations of parameters of interest at locations along the perimeter of the NFSS.
- Evaluate the potential for migration of parameters of interest onto off-site adjacent properties.
- Provide sufficient and representative sediment data for use in the BRA.

The network of ditches and the flow of surface water at the NFSS is described in Section 2. The majority of the sediment samples were collected from these ditches and low-lying areas. Approximately forty samples were collocated with surface water samples. The majority of the sediment samples were collected from areas that drain portions of the NFSS formerly used to handle, store, treat, transport or dispose of chemical and/or radiological materials and waste. These areas include the IWCS, the IWCS stormwater ponds, the former Shop Area, Building 401, the acid area, the Baker-Smith area and the area around former Building 434. The sediment samples were collected to characterize the presence or absence of the parameters of interest in the ditches and low-lying areas that may have originated from activities that occurred in these areas during operation of the LOOW or NFSS. Sediment samples were also collected near the NFSS property boundary in order to evaluate the migration of potential SRCs at the perimeter of the site.

The locations of the sediment samples are depicted by a large black dot on Figures 3-7 through 3-13. A summary of the sediment sample locations, rationale for selection, sample designations and analysis parameters are presented in Table 3-12 and 3-13.

To characterize sediment background conditions, ten samples were collected along the NFSS perimeter at locations where surface water flows onto the NFSS. The locations are outside the known zone of impacted sediment associated with the NFSS. Each background sediment sample was collocated with a background surface water sample. Background sediment sampling locations, shown in Figure 3-14, are prefaced with the label SDBKGD. A summary of the background sediment sample locations, rationale for selection, sample designations and analysis parameters are presented in Table 3-14.

The analytical parameters were selected to detect a wide range of chemical compounds and radiological parameters based on the activities previously performed throughout the NFSS, previous results presented in the LOOW RI, current RI sampling results, and the need for sufficient and representative data to characterize the sediments at the NFSS. Analytical parameters included: VOCs, SVOCs, pesticides, PCBs, metals, radionuclides and nitroaromatics, though not all samples were analyzed for all these parameters. Samples collected in 2003 were also analyzed for PAHs. Rationale for the selection of analytical parameters for each sediment sampling location is provided in Tables 3-12 through 3-14.

Analytical methods and required QC are described in Appendix F.

3.9.2 Sediment Sample Collection

Sampling activities were documented in field notebooks or project-specific sample logs and are included in Appendix P. Information recorded on the forms during sediment sampling included the following:

- Location and sample number;
- Collection date and time;
- Evidence of contamination, i.e., staining, odors, gamma readings, PID measurements;
- Sample depth; and
- Description of the sediment.

Sampling equipment was decontaminated prior to use at each sampling location.

Most sediment samples were collected to a maximum depth of 0.5 feet bgs with a steel shovel, stainless steel Ekman dredge, stainless steel bucket auger, or stainless steel spoon. Vegetation, rock and other debris were removed from the sediment sample. The sediment was placed in a stainless steel bowl and free water was decanted from the sample and organic vapor and gamma radiation were measured using hand-held field meters. VOCs were collected first prior to homogenizing the sample. The sample was then thoroughly homogenized and the remaining sample containers were filled. The containers were then placed on ice in a cooler and prepared for overnight shipment.

To evaluate the vertical extent of potential SRCs, some sediment samples were collected from specific depths. These samples are described in the following sections.

3.9.2.1 Sediment Samples Collected From Locations Based on Gamma Screening

Twelve samples were collected at specific depths from seven locations based on gamma screening results. The initial locations were surface samples (0 to 0.5' bgs) selected based upon the gamma walkover survey. A bucket auger was used to collect the sample. Additional sediment was collected from depths of 0.5-1.0 feet bgs, 1.0-1.5 feet bgs and 1.5-2.0 feet bgs. Each 0.5-foot interval was screened for gamma radiation during sample collection. A sediment sample was collected at the surface, at the interval with the highest gamma reading and, where possible, from the depth that exhibited a background gamma reading. Sample locations collected in this manner included SD746 through SD752.

3.9.2.2 Sediment Core Samples

Ten continuous sediment core samples were collected from six locations. The samples were collected using a 24-inch long thin-walled steel tube. At each sample location, the tube was manually pushed through the sediment, advanced approximately two inches into the native soil and manually removed. The entire core was extracted and placed in an aluminum pan. The sediment core was then scanned using a gamma radiation survey meter, measured and the native soil plug was removed. The sediment texture, color, odor and field screening results were recorded in a field notebook. Sediment core sample locations included SEDC01 through SEDC06. Samples of the soft sediment were collected from specific depths to vertically characterize the sediment. Core samples for VOCs were recollected several months after initial sample collection due to problems encountered concerning sample preservation.

3.10 GROUNDWATER CHARACTERIZATION, WELL INSTALLATION AND SAMPLE COLLECTION

Groundwater at the NFSS was characterized using a phased approach. Initial characterization activities were performed in Phase 1. Additional activities were performed in Phase 2 and 3 to fill data gaps, confirm previous results and provide sufficient and representative data to characterize the groundwater at NFSS. The information obtained from this characterization was used to support the RI and the BRA for the NFSS.

3.10.1 Sampling Objectives and Selection Criteria

The overall project objectives associated with groundwater at the NFSS were to define the nature and extent of chemical and radiological contamination, evaluate the potential release of contamination from the IWCS to the groundwater and investigate the potential for groundwater to infiltrate into the IWCS.

The objectives for the groundwater characterization that supported the overall objectives included the following:

- Investigate the presence, absence and extent of chemical and radiological parameters of interest in the UWBZ and LWBZ.
- Evaluate the distribution of parameters of interest in the UWBZ and LWBZ and identify locations where these constituents may exceed background levels.

- Confirm and investigate areas previously sampled and found to contain detectable concentrations of chemical or radiological constituents which may exceed background.
- Evaluate the dissolved nature of metals and radionuclides in groundwater to aid in determining their potential for migration.
- Provide a basis for evaluation of the horizontal and vertical migration of parameters of interest in the UWBZ and LWBZ.
- Investigate the direction of groundwater flow.
- Describe the physical characteristics of the water-bearing zones.
- Evaluate the potential for natural attenuation at locations where parameters of interest were found in the groundwater.
- Provide sufficient and representative groundwater data for use in the BRA.

In order to achieve these objectives, characterization activities included a review of historical groundwater monitoring results and boring logs, installation and sampling of temporary and permanent groundwater monitoring wells, collection of samples from previously installed monitoring wells, collection of water level monitoring data, performance of permeability testing and establishment of horizontal and vertical coordinates for each well point.

Filtered and unfiltered groundwater samples were collected as part of the groundwater evaluation process. For comparison purposes, background groundwater results were also obtained for filtered and unfiltered groundwater samples.

3.10.1.1 Selection of Groundwater Sampling Locations

Over two hundred samples were collected from groundwater monitoring wells installed prior to this RI (“previously installed wells”), newly installed monitoring wells (“new wells”), and TWPs installed during this RI. The majority of the wells was located near or within areas that were formerly used to handle, store, treat, transport or dispose of chemical and/or radiological materials and waste. These areas included the IWCS and vicinity, the former Shop Area, Building 401, the acid area, the Baker-Smith area and the former LOOW water tower (or “silo”) used to store K-65 residues.

In addition, groundwater samples were collected near the NFSS property boundary and areas where no LOOW, AEC or DOE operations were known to have occurred in order to evaluate the presence, absence or migration of parameters of interest in these areas.

Specific well locations were selected based on the activities previously performed near or within the area, analytical results of previous site investigations, current RI results, and the need for sufficient and representative analytical data in specific areas. The locations of the new and previously installed groundwater monitoring wells and TWPs are shown in Figures 3-7 through 3-13, and background wells and piezometers are shown in Figure 3-14. A summary of the permanent, temporary and background well networks including sample locations, well depths, rationale for selection, sample designations and analysis parameters are presented in Tables 3-15 through 3-18. In order to ensure adequate coverage of the entire site, some sampling locations

were selected to fill data gaps even if there was no historical evidence to suspect presence of contamination.

Previously Installed Wells

Approximately 80 groundwater samples were collected from 62 previously installed DOE monitoring wells prior to the initiation of this RI. Thirty-six of the 62 wells were screened in the LWBZ and the remaining 26 wells monitored the UWBZ. Most of these wells were located adjacent to or near the IWCS. Locations were selected to provide adequate information to characterize the UWBZ and LWBZs at the NFSS. During the course of the RI, some of the previously installed wells were re-sampled to confirm previous results, to provide additional information and/or as a part of the environmental surveillance program.

New Wells

Over 30 groundwater samples were collected from 25 new wells installed as a part of this RI. Twenty-two of the 25 new wells were screened in the UWBZ and the remaining three wells monitored the LWBZ. Well locations were generally selected to confirm the presence and extent of parameters of interest found in nearby TWPs and to provide sufficient data to develop a representative picture of the constituents present in the groundwater. Several of the new wells were re-sampled to confirm previous results and provide additional information for the RI and BRA.

TWPs

One hundred and twelve TWPs were installed in the UWBZ to characterize the shallow groundwater quality and depth. Locations were selected based on historical activities at the NFSS, results presented in the LOOW RI, current RI results and the need for sufficient and representative data for use in the RI and BRA.

Background Wells and Piezometers

Twenty-six wells and piezometers, located within the Modern Landfill property boundaries, were sampled to characterize background groundwater quality. The wells were located off-site and upgradient from the NFSS. Eight background wells monitor the UWBZ and 18 monitor the LWBZ. Four additional wells, MW7A, MW8B, MW9A and MW18, sampled in July 1998 during the LOOW RI, were not included in Table 3-18 but were included in the database for background groundwater. These wells monitor the UWBZ and were analyzed for metals only. The locations of the background wells are shown in Figure 3-14. Field observations recorded during the sampling of background groundwater are presented in Appendix Q.

3.10.1.2 Selection of Analytical Parameters

The analytes were selected to detect a wide range of compounds based on the activities previously performed near or within the areas, previous results presented in the LOOW RI, current RI sampling results, and the need for sufficient and representative data to characterize the groundwater at the NFSS. Rationale for the selection of analytes for each well is provided in Tables 3-15 through 3-17. Some of the samples collected were analyzed for the “full suite” of analytical parameters in order to cover potential lapses in site history.

3.10.1.3 Analytical Methods and QC Samples

Analytical methods and required QC are described in Appendix F of this document.

3.10.2 Permanent Well and TWP

Twenty-five permanent monitoring wells and 112 TWPs were installed during the RI. The following sections describe the procedures, materials, and testing performed during the installation of permanent and temporary monitoring wells.

3.10.2.1 Permanent Well Installation

Twenty-five permanent wells were installed with truck-mounted or ATV-mounted drill rigs using 4-1/4 ID hollow stem augers in accordance with EM 1110-1-4000. Borings were continuously logged for soil classification using either two-foot split spoons or five-foot Central Mining Equipment (CME) continuous samplers. Boring logs are presented in Appendix R.

3.10.2.2 Permanent Well Depths

Twenty-two wells were installed and screened in the UWBZ at depths ranging from ten feet to top of casing (TOC) to 25.5 feet to TOC (top of screened interval ranging from 4.7 to 12.75 feet bgs and bottom of screened interval ranging from 9.7 to 24.7 feet bgs). Three wells were installed and screened in the LWBZ at depths ranging from 42.15 feet to 44.50 feet to TOC (top of screened interval ranging from 30 to 32.25 feet bgs and bottom of screened interval ranging from 40 to 42.25 feet bgs). The depth of each well sampled is provided in Table 3-15 and 3-16.

3.10.2.3 Permanent Well Construction

Wells were constructed using the materials described below. Well construction logs are presented in Appendix S.

Casing (Riser):

The well riser consisted of new, threaded, flush joint, PVC pipe with a two-inch ID. The riser conformed to the ASTM-D 1785 Schedule 40 requirements, as well as National Sanitation Foundation potable water grade requirements.

Screen:

The well screen did not exceed ten feet in length and was constructed of factory-slotted, two-inch ID, Schedule 40 PVC pipe. The slot size was 0.010 inches. Screens were placed to intercept the water table.

Centralizers:

No centralizers were used.

Filter Pack:

A filter pack, consisting of clean 0.6 to 0.7 mm silica sand was placed in the annulus of each well from the bottom of the borehole to a level three to five feet above the top of the screen.

Bentonite Seal:

A three to five-foot seal, consisting of tamped 0.25-inch bentonite pellets or chips, was placed in the annular space immediately above the gravel pack. The thickness of the gravel pack and bentonite seal was measured through use of a weighted measuring tape. The bentonite pellets were hydrated using clean, nonchlorinated water. The thickness of the bentonite seal was adjusted in the field if the well was shallow.

Grout Mix:

A non-shrink, neat, cement grout was used as a surface seal. The grout consisted of not more than seven gallons of clean, approved water per bag (one ft³ or 94 pounds) of Portland cement (ASTM-C 150), plus 7% by weight of bentonite powder. The grout was placed from the top of the bentonite seal to the ground surface using a tremmie pipe. The surface seal extended to one foot below the frost line. After a minimum of 24 hours, the borehole was checked for grout settlement and more grout was added when necessary.

Well Protection:

Upon completion of the well, a suitable vented cap was installed to prevent material from entering the well. The PVC riser was surrounded by a large diameter protective steel casing, which stood 24 to 36 inches above ground level and set into concrete. The steel casing had a 0.25 inch diameter drainage port drilled immediately above the concrete collar and was provided with a lock and cap. A two-foot radius, six-inch thick concrete pad was constructed around the well casing above the final ground level elevation. Round steel bumper posts (two-inch diameter or larger), filled with concrete, were spaced equally around the well and embedded in concrete. The steel protective casing and posts were painted with permanent high visibility paint.

Survey Marker:

A permanent aluminum tag was attached to the protective casing of each well. Each aluminum tag was stamped with 0.125 inch tall letters with the following information:

- USACE Buffalo District,
- Well ID,
- Month and year of installation,
- Elevation: TOC PVC (top of PVC casing), and
- Ground surface elevation.

3.10.2.4 Permanent Well Development

New and previously installed wells were developed by pumping and surging after installation or, for the previously installed wells, prior to sampling. The development of the wells was performed in accordance with USACE guidance manuals, Preparation of Sampling and Analysis Plans, and Monitor Well Design and Installation (USACE 1994, USACE 1998), and modified as necessary during the RI to address specific problems encountered in the field.

Water purged from each well was pumped into truck-mounted tanks, transported to the investigative derived waste (IDW) storage area and transferred to 1,500-gallon storage tanks.

Phase 1 and Phase 2 (1999 – 2000) Development Protocol

After each well was constructed, but not sooner than 48 hours after grouting was completed, each well was developed by pumping and surging or bailing and surging using a submersible pump or a disposable bailer. The water level and depth of each well were measured and recorded prior to

initiation of well development. A portable water quality meter was used to monitor turbidity, pH, conductivity, temperature, DO, and ORP of the well water initially, three to five times throughout purging, and after development was finished. The wells were surged and pumped until a maximum of five times the standing volume of water present in the well casing and annulus was removed or until the turbidity of the water was less than or equal to 20 nephelometric turbidity units (NTU). Development time did not exceed six hours. The volume of water purged and any odor, color, turbidity, or elevated PID readings were noted on well development logs (Appendix T). Development continued until all the following criteria were met:

- The water was clear (<20 NTUs);
- There was less than 0.1 foot of sediment in the well; and
- Five times the standing borehole volume was removed, along with five times the volume of any water lost to the well during drilling or construction.

In the fall of 2000, the development criteria were revised to maximize the clarity of the groundwater in wells with limited recharge while minimizing the development time. For wells developed after September 2000, development continued until all the following criteria was met:

- Stabilization of pH (± 0.2 units), conductivity (<10% variation), and temperature (± 0.5 °C) for three consecutive readings (measured for each well volume);
- Removal of a maximum of three well volumes (standing water in the well casing and the saturated portion of the annulus), regardless of whether the stabilization criteria were met; and
- Pumping a well dry on three separate days.

Phase 3 (2003) Development Protocol

Wells were developed using procedures similar to those described above. Well development was considered complete when less than 0.1 foot of sediment remained in the well and three successive water quality measurements met all the following criteria:

- ± 0.2 units for pH,
- Relative percent difference (RPD) <3% for conductivity,
- ± 10 mv for ORP,
- ± 1 °C for temperature,
- RPD <10% for DO,
- RPD <10% for turbidity, and
- Turbidity <50 NTU.

3.10.2.5 Permanent Well In-situ Permeability Testing

In-situ permeability testing of the screened portion of the water-bearing zone of 50 groundwater monitoring wells was performed in 2001 (35 wells) and 2003 (16 wells) to estimate the hydraulic conductivity of the aquifer materials and investigate the aquifer characteristics of the UWBZ. Slug tests were performed according to ASTM D-4044-96 using a data logger and pressure transducer or an electronic water level indicator. The data set was analyzed using the software Aqtesolve and Single Well Solutions 3.1 in accordance with either the Bouwer and Rice Method

for unconfined aquifers (Bouwer and Rice 1976) or the Hvorslev Method for confined aquifers (Hvorslev 1951).

The in-situ permeability testing was conducted using the following method. The depth of water was measured with an electronic pressure transducer and electronic water level indicator. A PVC slug of known volume, which was filled with sand and sealed at both ends, was lowered into the water column (a slug-in or falling head test). Immediately after the bailer was lowered, the water levels were monitored by hand or were recorded using a Hermit 3000C Data Logger. If an electronic water level indicator was used, the water level was measured every five to ten seconds during the first two minutes and then every 30 seconds until the well stabilized. After the water level had stabilized, the slug was removed and the test was repeated as a slug-out (rising head) test. No water or other liquid was introduced into the well other than formation water from that well. If the well stabilized in 15 minutes or less, the slug test was performed at least three times. If the well was slow to recharge (15 minutes or more) fewer than three tests were conducted. Results are presented in Appendix U.

3.10.2.6 Permanent Well Water Level Measurements

In order to investigate the direction of groundwater flow, water levels were recorded during two separate water level monitoring events. The water levels in 69 TWP were measured on December 7, 1999, and water levels were recorded for 66 permanent monitoring wells on August 24, 2000. This was accomplished by recording water-levels within a 24-hour period using an electronic water level indicator.

3.10.2.7 TWP Installation

One hundred-twelve TWP were installed as described above using a truck or ATV-mounted drill rig and 4¼-inch ID hollow stem augers. Borings were continuously logged for soil classification using either two-foot split spoons or five-foot CME continuous samplers. Boring logs are presented in Appendix R.

Two-inch, Schedule 40 PVC, screens and risers were placed in each boring to facilitate collection of a groundwater sample. After the groundwater sample was collected, the screen and riser were removed and the borehole was sealed to grade with bentonite grout.

3.10.2.8 TWP Depths

TWP were installed and screened exclusively in the UWBZ. Depths ranged from 10.00 feet bgs to 25.00 feet bgs. The depth of each TWP is provided in Table 3-17.

3.10.2.9 TWP Construction

Each TWP was constructed using two-inch, Schedule 40 PVC, screens and risers. Screens were factory-slotted (0.010 inch) and were five or ten feet in length. Filter pack, bentonite seal and grout were not used in the construction of the TWP.

3.10.2.10 TWP Well Development

TWP were not developed after installation or before sample collection.

3.10.3 Groundwater Sample Collection Procedures

Throughout the course of the RI, groundwater-sampling procedures were continuously updated and revised to address problems encountered in the field. The groundwater sample collection methods used during this RI are described in the following section.

3.10.3.1 Groundwater Sampling Procedures for Permanent Monitoring Wells

Permanent monitoring wells were developed and/or purged either after installation or prior to sampling according to Section 3.10.2.4.

Phases 1 and 2

Prior to sample collection, water levels and well depths were measured to TOC. All monitoring and sampling were performed using a modified low-flow method. Low flow procedures are outlined in *USEPA Ground Water Issue for Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures* (EPA 1996). Using a submersible pump and tubing each well was purged of a minimum of three and a maximum of five standing volumes of water present in the well casing and annulus. The pump was placed in the middle of the wetted screened interval and the water level and water quality meter were placed above the pump intake. To the extent possible, the purge rate was adjusted to match the well recharge rate (i.e. establish an equilibrated or near zero drawdown) and did not exceed 0.5 liters per minute.

Water quality parameters of pH, temperature, conductivity, ORP, and DO were measured prior to purging, throughout purging and when purging was complete. These measurements were collected in-situ with a YSI 600XL water quality meter while simultaneously purging the wells.

Purging ceased when:

- The turbidity was less than or equal to 20 NTU.
- Temperature, pH, and conductivity readings stabilized for three successive measurements to within ± 0.5 °C, ± 0.2 pH units, and less than 10% variation in conductivity.
- A volume equivalent to five times the standing volume of water present in the well casing and annulus was removed.

If a well was pumped dry before purging was complete, well purging ceased and the well was sampled after the well recharged. The length of time purged, volume of water removed, odors, color, turbidity, and PID readings were noted on a Well Monitoring Data Log (Appendix V). All purge water was pumped into plastic carboys, transported to the IDW storage area and transferred to 1,500 gallon storage tanks.

After purging, samples were collected using a disposable submersible pump, a Masterflex peristaltic pump or a disposable Teflon® bailer. Water was pumped through disposable tubing or bailed from the well and placed directly into the appropriate sample containers. The VOC samples were collected first with a disposable Teflon® bailer to minimize the loss of volatile organics. The remaining samples were collected using peristaltic/submersible pumps.

The hierarchy of analytes collected from the wells was typically: VOCs, SVOCs, nitroaromatics, pesticides/PCBs, and inorganic compounds (metals, radiological parameters). Samples collected for analysis for dissolved parameters were filtered using a peristaltic pump and dedicated

disposable 0.45-micron filter prior to sample preservation. After collection, groundwater samples were placed in iced coolers for overnight shipment.

Phase 3

Samples were collected as described above in Section 3.10.3.1, except the low-flow sampling technique used during this phase more closely followed the 1998 EPA low-flow sampling guidance document.

The wells were purged using submersible pumps and tubing equipped with rheostats or valves to accommodate low pump rates and enable adjustment of the rate to less than 0.5 L/minute. The pump was placed in the middle of the wetted screened interval and an in-line flow-through cell was attached to the tubing and the water quality meter. A water level indicator was lowered into the well and the water level was recorded. The pumping rate of the well did not exceed 0.5 L/minute and was adjusted to cause little or no drawdown in the well. If the well was pumped dry, pumping was suspended until the well recovered. Water quality parameters (temperature, pH, conductivity, ORP, oxygen concentration, and turbidity) were continuously monitored and were recorded every three to five minutes. Stabilization was defined as three successive readings for all parameters within the following ranges:

- pH: difference of less than 0.1 units between the high and low readings;
- Conductivity: RPD between the high and low readings of no more than 3%;
- ORP: difference of less than 10 mV between high and low readings;
- DO: RPD between the high and low readings of no more than 10%; and
- Turbidity: all readings less than 50 NTU and RPD between the high and low readings of no more than 10%.

In 2003, the hierarchy of analytes collected from wells was typically as follows: VOCs, unfiltered radiological parameters, unfiltered uranium, unfiltered metals, PAHs, filtered radiological parameters, filtered uranium, filtered metals, filtered gross alpha/beta, SVOCs, PCBs, pesticides, nitroaromatics, total gross alpha/beta and miscellaneous parameters.

3.10.3.2 Groundwater Sampling Procedures for TWPs

No development or purging was performed on TWPs prior to sampling.

Phases 1 and 2

Water levels and TWP depths were measured prior to sample collection. Samples were collected using a disposable submersible pump, a Masterflex peristaltic pump or a disposable Teflon® bailer. The VOC samples were collected first with a disposable Teflon® bailer to minimize the loss of volatile organics. The remaining samples were collected using peristaltic/submersible pumps. The sample rate, to the extent possible, was adjusted to match the well recharge rate.

The hierarchy of analytes collected from the wells was typically: VOCs, SVOCs, nitroaromatics, pesticides/PCBs, and inorganic compounds (metals, radiological parameters).

Samples collected for analysis of dissolved parameters were filtered using a peristaltic pump and dedicated disposable 0.45-micron filter prior to sample preservation. After collection, groundwater samples were placed in an iced cooler for overnight shipment.

When sufficient volume of water was available in the well, a portable water quality meter was used to monitor pH, conductivity, temperature, DO, ORP, and turbidity of the groundwater immediately preceding sampling. Water levels, well depths, odors, color, turbidity, water quality parameters, and PID readings were noted in a field notebook or on a Well Monitoring Data Log (Appendix V).

Phase 3

Samples were collected as described above except the sampling sequence of the analytes was amended. The hierarchy of analytes collected during 2003 was typically as follows: VOCs, unfiltered radiological parameters, unfiltered uranium, unfiltered metals, PAHs, filtered radiological parameters, filtered uranium, filtered metals, filtered gross alpha/beta, SVOCs, PCBs, pesticides and total gross alpha/beta.

3.11 INSTALLATION OF EXPLORATORY TRENCHES

As part of the RI performed at the NFSS, 27 exploratory trenches were excavated in May and June 2002 to characterize potential USTs, potential burial areas and anomalies found during the 2001 geophysical study conducted by SAIC. The trench lengths varied from 30 feet to 150 feet and the maximum excavated depth was ten feet.

The activities described in this section were based on the February 2002 SOW for *On-Site Trenching and Associated Sampling* (USACE 2002) issued by the Buffalo District of USACE and subsequent discussions.

3.11.1 Exploratory Trench Objectives

The objectives of the trenching task that supported the overall project objectives included the following:

- Confirm the presence or absence of suspected anomalies based on historical information and previous phases of the RI and visual inspection during a site walkover. Anomalies confirmed to be present were characterized (e.g. anomaly size, depth, condition, and type).
- Investigate anomalies disclosed as a result of the historical review and the geophysical survey of the site.
- Investigate the potential nature and extent for contamination, collect samples of subsurface soil from near identified anomalies, and analyze those samples for site-related compounds.

3.11.2 Trench Installation and Sample Collection

Trench locations and samples are shown on Figure 3-15 and the location justifications are described on Table 3-19. Figures 3-16 through 3-44 show cross-sections of the individual trenches.

Prior to the arrival of the excavating equipment on-site, the boundaries of each trench were staked and flagged and, for trenches designed to investigate geophysical anomalies, the presence of the anomaly within the footprint of the proposed trench was confirmed and flagged. The known locations of sewers and other subsurface anomalies in the vicinity of each trench were also staked and flagged. A limited gamma survey of the area was performed. The purpose of the survey was to accurately locate the trench in an area of interest to prevent mixing of potentially contaminated soils with uncontaminated soils.

All trenches were excavated with a track-mounted hydraulic excavator. Depth of the trenches ranged from one to ten feet bgs. The final trench depth was specified in the *Trenching Plan and Addendum to the FSP* (Maxim 2002b), and was specified after evaluating the known features of the items being investigated by the trenches, along with depth estimates furnished by the geophysical survey. In some cases, the trenches were terminated short of the planned depth if field evidence showed that the trench had been advanced two feet into uncontaminated, undisturbed native soil and magnetometer survey of the bottom of the trench did not indicate the presence of a geophysical anomaly. Because of this modification, the planned trenching activities were completed ahead of schedule and allowed for the excavation of several additional trenches.

A geologist directly supervised each trenching activity. The geologist directed the equipment operator to remove no more than one foot of soil from the bottom of the trench with each bucket and each bucket of excavated material was monitored with a PID and gamma survey meter and inspected for evidence of nitroaromatic contamination. After each one foot of excavation the bottom of the trench was surveyed with a magnetometer and gamma survey meter.

Specific sample locations within each trench were chosen in the field based on trench monitoring results and field observations. In general, sample locations were selected according to the following priorities:

- Samples were collected from areas exhibiting elevated PID or gamma meter readings;
- Samples were collected from locations near buried debris, subsurface utilities or stained areas;
- Samples were collected from hydraulically conductive zones such as sand lenses or gravel seams; and
- Samples were collected from the bottom of the trench. Surface soil samples collected from the exploratory trenches are described in Table 3-4. The over 70 subsurface soil samples that were also collected from the trenches are summarized in Tables 3-6 and 3-7.

The selection of analytes for the soil samples collected from the trench was based on previous phases of the NFSS RI. Sample collection methods and analysis parameters for surface and subsurface soil samples collected from the trenches are presented in Sections 3.6 and 3.7, respectively.

Each trench was backfilled with soil from the trench and compacted with the bucket of the excavator. Locations were then seeded with annual rye.

3.12 PIPELINE CHARACTERIZATION

The sewer systems and associated piping (collectively, “the pipelines”) serving the NFSS were constructed as a part of the former LOOW and supported the normal plant operations and TNT-manufacturing processes carried out at the LOOW prior to the creation of the NFSS. Constituents of interest potentially present in the pipelines included compounds related both to TNT manufacturing and to the handling and storage processes of radioactive materials later carried out at the NFSS.

3.12.1 Objectives

The objective of the subsurface piping network characterization at the NFSS was to define the nature and extent of chemical and radiological contamination and to obtain sufficient and representative data to:

- Evaluate the presence or absence of parameters of interest in the subsurface piping system;
- Investigate the migration and extent of potential SRCs in the piping network; and
- Evaluate direct, indirect and potential contaminant migration pathways associated with the subsurface piping system.

In order to achieve these objectives, characterization activities included the review of historical information concerning the LOOW and collection of sediment and water samples from the piping network.

3.12.2 Historical Background of the Subsurface Piping Network at the NFSS

The subsurface piping network constructed to serve the LOOW was also present during operation of the NFSS. The type of lines present at the NFSS included lines for water (for drinking, plant processes, and fire protection), sanitary sewer lines, storm water lines, and acid/process sewer lines.

With the exception of pipelines located in the vicinity of the IWCS, the original piping network installed during the construction of the LOOW exists relatively unchanged today. Some of the subsurface piping located in vicinity of the IWCS was sealed and/or excavated prior to construction of the IWCS.

Historical documents and as-built construction drawings indicate subsurface piping within the planned confines of the IWCS was excavated from building perimeters to an area immediately outside of the planned cut-off wall. The piping outside of the cut-off wall was sealed with concrete or grout. The piping was removed and/or sealed to eliminate “pathways for possible migration of radionuclides and to prevent future subsidence of compacted wastes.” (BNI 1984a, BNI 1995)

The configuration of the subsurface piping network is shown in Figure 1-2. Copies of the as-built drawings of the water and sewer lines are presented in Appendix W.

3.12.2.1 Fresh Water Lines

As-built facility drawings showed that approximately 1,360 linear feet of fresh water lines (drinking, process and fire protection) were located in the subsurface at the NFSS. The main trunk lines ran north-south along Campbell Street. Additional water lines for fire protection, cooling and drinking water were located along the eastern perimeter of the NFSS. The fresh water lines were located approximately eight feet below grade. East-west oriented lateral lines were present in the Acidification Area and at the northern and southern ends of the Shop Area (EA 1999). Remnants of a large network of waterlines were located in the southwest quadrant of the site south and east of the IWCS near the former location of the water treatment plant (Ordnance Department circa 1942, Acres American, Inc. 1981b, BNI 1984a, EA 1999).

The diameter of the pipes ranged from two inches up to 36 inches in diameter.

Drinking water was obtained from the City of Niagara Falls and was not processed through the water treatment plant. Drinking water lines entered the property from the chlorination station located south of Pletcher road. Drinking water lines were constructed of two-inch to ten-inch diameter cast iron pipe (Ordnance Department circa 1942, EA 1999).

3.12.2.2 Storm Water Lines

As-built facility drawings showed approximately 4,340 linear feet of stormwater sewer lines within the NFSS. Two separate east-west oriented lines were located south of N Street and north of O Street. Acidic storm water runoff from leakage of acid storage tanks, spills and housekeeping practices was directed into the stormwater sewer system and discharged at two outfalls located in the Central Ditch. The lines consisted of 24-inch VCP (Ordnance Department circa 1942).

3.12.2.3 Sanitary Sewer Lines

As-built facility drawings showed approximately 11,875 linear feet of the LOOW sanitary sewer system were present at the NFSS. The main sanitary sewer line on the NFSS ran to the north and was located along the west side of Campbell Street. Lateral lines extended into Building 401, Fresh Water Treatment Plant, shop area and the acid area. Wastes were directed northward to the LOOW waste water treatment plant (WWTP). At the WWTP, the sanitary sewer water was combined with the TNT and acid process wastewaters after pH neutralization. The combined wastewaters were discharged to the Niagara River through two outfalls. The sanitary lines located on the NFSS were constructed of 24-inch diameter VCP. (EA 1999, Ordnance Department circa 1942).

3.12.2.4 Acid/Process Sewer Lines

As-built facility drawings showed approximately 3,830 linear feet of acid/process sewer lines were present in the northeastern portion of the NFSS. These lines were associated with the acid area. Acidic wastewater from the production, concentration and storage of acids were discharged to the acid/process sewers. Acidic wastewater collected in this system was directed northwest toward the LOOW WWTP. Outside the NFSS boundary, the acid/process line combined with process lines from the TNT Manufacturing Area and discharged acidic and TNT-contaminated wastewater at the LOOW WWTP. At the LOOW WWTP, the acidic wastewater was neutralized and the TNT-contaminated water was diluted with the sanitary and acid process waters. The

combined wastewater was discharged from the LOOW WWTP to two outfalls located in the Niagara River. The acid/process lines were constructed of ten to 30-inch diameter VCP (EA 1999).

3.12.3 Selection of Sampling Locations

Approximately 45 sewer sediment/soil and 30 water samples were collected from 31 manholes, 11 exposed pipes, 8 sumps and 1 outfall. The sample locations were in EUs 2, 3, 4, 5, 8, 10, 11, and 13. An additional 6 water, 2 oil, and 14 sediment samples were collected from drains and sumps located inside Building 401 (EU 13).

Specific sampling locations were selected based on the presence of sufficient volume of sewer sediment and/or water for sampling purposes, the activities previously performed near or within the area, and historical and current analytical results. The locations of the manholes, pipes and sewers that were sampled are shown on Figures 3-7 through 3-13. A summary of the visual examination of the piping network, sample locations selected, rationale for selection, sample designations and analysis parameters are presented in Tables 3-20 and 3-21. The locations of samples collected inside Building 401 are shown in Figure 3-45 and sample designations, locations and analysis parameters are summarized in Table 3-22. Field notes for sediment and surface water sampling are presented in Appendix X.

All manholes found on the NFSS were sampled, except those that did not contain either sediment or water. In 2003, manholes MH06, MH07, MH08, MH41, MH43 and MH45 were re-sampled to confirm previous results and obtain additional information to characterize the extent of potential SRCs in the piping network. Approximately 30 water and 30 sediment samples were collected from the 31 manholes sampled during the RI.

Most exposed pipes and sumps identified during the reconnaissance of the sewer lines were connected to the acid/process sewer system or with acid storage tanks. Eleven of the 74 exposed pipes and eight of the 35 sumps were sampled. Pipes and sumps were selected for sampling based on:

- Accessibility of the pipe or sump,
- The presence of a sufficient volume of sediment and/or water,
- The position of the drain or sump within the buildings drainage network,
- Historical activities in the area,
- Past and current analytical results, and
- Geographical distribution of samples to provide a representative picture of the potential SRCs present in the piping system.

With the exception of PIPE28, PIPE74, and SUMP35, the pipe/sump locations were associated with the acid processing lines or acid storage tanks. PIPE28, PIPE74, and SUMP35 were located in isolated areas that are not thought to be directly or indirectly connected to the sewer network.

In 2003, one exposed pipe (PIPE74) was resampled to confirm previous results and obtain additional information to characterize the extent of SRCs in the piping network.

A total of four water (three from exposed pipes and one from a sump) and 20 sediment samples (12 from exposed pipes and eight from sumps) were collected from the 11 exposed pipes and eight sumps sampled.

Surface water, sediment and soil samples were collected near the two outfalls associated with the storm sewers. These outfalls discharge directly to the Central Ditch. The samples were collected in Phase 1 and Phase 2 of the RI, prior to the pipeline characterization.

In 2003, Outfall 2 was resampled to confirm previous results and obtain additional information to characterize the extent of SRCs in the piping network.

Fourteen drains and sumps located within Building 401 were selected based on the following:

- Accessibility of the drain or sump,
- The presence of a sufficient volume of sediment and/or water,
- Geographical distribution of samples to provide a representative picture of the potential SRCs present in the indoor piping system associated with the structure, and
- Historical activities that took place within specific rooms.

3.12.4 Sample Analysis and Rationale for Selection

Due to the widespread handling and storage of radiological wastes and the widespread dispersion of fly ash and coal residuum from power generation, sewer water and sediment samples were typically analyzed for radionuclides and SVOC. VOCs were included as analytes when visual evidence of contamination such as a sheen or odor was observed during the visual examination of the piping network. In addition, selected samples were analyzed for metals, PCBs, pesticide, VOCs and nitroaromatics based on historical use and previous analytical results. Rationale for the selection of the analytes for each sample location is provided in Tables 3-20 and 3-21. Sample locations are shown in Figures 3-7 through 3-13.

When sufficient sample volume was available, drain water, oil, and sediment from inside Building 401 was analyzed for the entire suite of parameters (VOC, metals, radionuclides, SVOCs, PAHs, pesticides and PCBs) in order to detect a wide range of compounds. When sample volume was minimal, the parameters were selected based on the historical use of the room/building. Analytes for each drain sample are summarized in Table 3-22. Sample locations are shown in Figure 3-45.

Analytical methods and required QC are described in Appendix F of this document.

3.12.5 Sampling Procedures

Prior to collection of each water and sediment sample, the depth to water, depth to sediment, height of the water column, and thickness of the sediment layer were recorded. When both water

and sediment samples were collected from the same location, the water sample was collected first to minimize turbidity.

Water samples were collected using dedicated low-voltage submersible pumps and disposable Teflon[®] tubing. If the depth of water at a given sample location was not deep enough to allow the use of submersible pumps, a peristaltic pump with disposable Teflon tubing or a disposable bailer was used. Drain samples within Building 401 were collected using a peristaltic pump or disposable Teflon[®] bailer. The sample was pumped directly into the appropriate sample containers. Samples for dissolved metals were filtered using a 0.45-micron disposable filter in the field prior to the addition of preservative. If sufficient water was available after sample collection, the probe of the water quality meter was placed in the water in the manhole, pipe or sump and the temperature, conductivity, DO, pH and ORP were recorded.

A light, non-aqueous phase liquid referred to as “oil” was present above the drain water inside Building 401 at two locations. The oil was collected first using a peristaltic pump, prior to collection of water or sediment.

When water was present at the outdoor manhole or pipe sample location, sediment samples were collected using a clean Ekman Dredge. A stainless steel hand auger with extensions was used to collect dry sediment. A stainless steel spoon or bucket auger was used to collect sediment from drains located inside Building 401.

It was not possible to collect sediment samples from several of the pipes because the pipes had 90-degree elbows located one or two feet below grade. At these locations, a soil sample was collected adjacent to the bottom of the elbow using a bucket auger.

Soil/sediment from the dredge or hand-auger was placed in a clean stainless steel bowl, free water was decanted from the sample material and the sample was scanned for gamma radiation. A portion of the sample was also placed in a plastic bag for subsequent headspace monitoring for organic vapors using a PID. VOC samples were collected (where applicable) and the sample was then thoroughly mixed and placed in the appropriate sample containers.

3.13 RAILROAD BALLAST CHARACTERIZATION

Several rail lines served the site. These lines were operational both during the operational period of the LOOW and the period during which radioactive materials were transported to the NFSS. During Phase 1 of the RI, soil samples were collected near these lines and analyzed for chemical and radiological parameters. While performing the field gamma survey prior to collecting these soil samples, it was discovered that the ballast material exhibited higher gamma readings than the surrounding soil. In order to further evaluate these elevated field readings, five railroad ballast samples were collected during Phase 2 of the RI.

3.13.1 Objectives

The objective of the railroad ballast characterization at the NFSS was to define the nature of the elevated field gamma readings observed in the railroad ballast at three locations during Phase 1 of the RI. Two additional samples were also collected from rail lines near Building 401. The ballast samples were analyzed for the following:

- Actinium-227, americium-241, cobalt-60, protactinium-231, radium-226, radium-228, thorium-228, uranium-238, thorium-230, thorium-232, uranium-234, and uranium-235;

- Gross alpha/beta; and
- Total uranium.

Table 3-23 shows the list of ballast samples collected, collection dates, and rationale for sample locations. The sample locations are depicted by a yellow square with a “B” in the center on Figures 3-7 through 3-13.

3.13.2 Sample Collection

The railroad ballast samples were collected in a manner similar to surface soil samples. A limited gamma survey was performed in the vicinity of the proposed sample locations and the location with the highest gamma reading was selected for collection. Approximately one kilogram of railroad ballast material was then containerized and shipped to Maxim’s geotechnical laboratory, where the sample was crushed to pass a number 20 sieve. The crushed samples were then submitted to GEL for radiological analysis.

3.14 ROAD/BUILDING 401 CORE CHARACTERIZATION

3.14.1 Objectives

Gamma survey activities detected gamma readings above background at several locations on asphalt roads. Fourteen core samples were collected during Phase 2 of the RI. Five additional roadway cores were collected during Phase 3. The cores were submitted for radiological analysis to investigate the presence of radionuclides associated with the roadways.

Also during Phase 3, ten cores were collected from the floor slab inside Building 401. The Building 401 cores were collected from stained areas and locations near floor sumps and drains. In order to investigate whether any of the previous activities that occurred inside Building 401 had resulted in the release of chemical or radiological compounds, the cores collected from inside Building 401 were submitted for total metals, pesticides, PCBs, VOC, SVOC, and radiological analysis.

3.14.2 Sample Collection

Core samples were collected with a concrete coring machine. The following paragraphs summarize the road/pad core sample collection procedure that was originally presented in Appendix F of the FSP Addendum, Phase 2 edition.

- A limited gamma survey was performed with a NaI gamma 2 inch by 2 inch detector on the paved area within 30 feet of the proposed core sample location. The point with the highest gamma reading was cored.
- A core of the pavement was collected. The coring machine and bit were decontaminated before each use.
- The sample was removed from the bit and examined and surveyed with a NaI detector. Due to the way the concrete was poured, occasionally the core samples inhibited distinct layers. If the sample contained distinct layers, each layer was surveyed separately. The

portion of the core with the highest gamma reading was submitted for sample preparation and analysis.

- The sample was prepared for analysis by crushing the sample to pass a number 20 sieve and was submitted to GEL for analysis.

The locations of the core samples are depicted by yellow squares with a “C” in the center in Figures 3-7 through 3-13. Table 3-24 shows the samples collected, collection dates, and rationale for sample locations organized by EU. The analytes selected at each sample location, and the rationales for selection of analytes and locations, are also shown on Table 3-24.

For the Building 401 cores, the method by which sample locations were selected was modified. Because of the varied past uses of Building 401, there was a broad range of chemicals and radiological compounds that were potentially present. Also, the purpose of the coring, in addition to allow the collection of a sample of the concrete floor, was to facilitate the collection of subsurface soil samples below the floor slab. Locations were first selected based on presence of staining on the floor. Other locations were selected based on cracks in the concrete, which could serve as migration routes to the subsurface. Lastly, some locations were selected based on the apparent former use of a particular room or area. The core samples were collected in accordance with steps two through four, described above. The justifications for each core location are given in Table 3-24. The locations of the core samples inside Building 401 are shown on Figure 3-46.

3.15 NIAGARA-MOHAWK INVESTIGATION

Property owned by the Niagara-Mohawk Power Company is adjacent to the NFSS along its western border. This strip of land was not identified as a vicinity property.

This property was once part of the LOOW. The West Ditch transects the property north to south. The West Ditch had been documented as being radiologically contaminated and later remediated (BNI 1990). No analytical data documenting remediation was available.

Gamma walkover survey results on NFSS property near the border with Niagara-Mohawk property were nearly two times background.

3.15.1 Objectives

The objective of work at the Niagara-Mohawk property was to perform a CERCLA investigation of the presence and extent of FUSRAP-related radiological and/or chemical contamination on the Niagara-Mohawk Power Company property. As this property is privately owned, the government only has the authority to address contamination that is related to the adjacent FUSRAP site (i.e. NFSS).

For this investigation, surface soil and subsurface soil, sediment, and surface water samples were collected.

Sampling locations were chosen based on observations made during the reconnaissance of the property and on the results from a limited gamma walkover survey. In order to facilitate the gamma walkover survey, a 200-foot wide lane, centered on the West Ditch, was cleared of trees and shrubs prior to the survey.

Both chemical and radiological analyses were performed on the samples collected from the Niagara-Mohawk property. The chemical analyses were performed solely for waste characterization purposes because of limits in the authority of FUSRAP.

Figure 3-11 shows the sample locations. Tables 3-25 and 3-26 list the samples collected and include rationale for sample location and analytes.

3.15.2 Sample Collection Methods

Surface soil, subsurface soil, sediment and surface water samples were collected using the same methods prescribed for the NFSS. These methods are described in Section 3.6.2 (Surface Soil), Section 3.7.2 (Subsurface Soil), Section 3.8.2 (Surface Water) and Section 3.9.2 (Sediment).

Further information concerning collection of soil, sediment, and surface water samples is presented in Appendix Y.

3.16 INVESTIGATIVE DERIVED WASTE GENERATION AND DISPOSAL

Field activities conducted during the completion of this RI resulted in the generation of both solid and liquid IDW. This IDW included:

- Soil cuttings,
- Decontamination pad solids,
- Personal protective equipment (PPE),
- PVC piping,
- Plastic tarps,
- Canvas,
- Well casings and screens,
- Deteriorated drums/scrap metal,
- Concrete core samples,
- Decontamination water,
- Purge water,
- Well development water,
- Abandoned drums and their contents,
- Wood and Styrofoam used at the IDW liquid storage pad,
- Vegetative growth removed from the IDW liquid storage tanks, and
- IDW liquid sludge cake.

3.16.1 Solid IDW

Solid IDW generated during field activities was containerized in 55-gallon drums. Deteriorated drums, including their contents and adjacent soils, scrap metal, and decontamination pad solids were placed in 85-gallon polyethylene overpack drums. All drums were initially stored outdoors on a former building pad 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 reducing drum corrosion. Drums remaining on-site after conclusion of the RI field investigations were transferred to Building 401 to protect them from the elements until shipment.

3.16.1.1 Solid IDW Characterization

Soil cuttings generated during installation of boreholes were containerized in the 55-gallon drums and analyses of representative samples from each borehole were used to characterize the content of each of these drums. The abandoned drums and drums containing the concrete cores from Building 401 were also sampled and analyzed to characterize the waste. Drums containing contact wastes (PPE, well casings, tarps, canvas, decontamination pad solids, debris, etc.) were characterized by using an algorithm to estimate radionuclide activity in each container. NFSS mean radionuclide concentrations (pCi/g) were 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, well casings, soil, etc.), a fraction of the weight was estimated as soil (1%-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.

3.16.1.2 Shipment and Disposal

Two shipments of IDW drums were made to the contracted disposal facility, Waste Control Specialists in Andrews, Texas. For the first shipment, the drums remained on pallets in the outdoor IDW storage area until shipment arrangements were made. The drums were then prepared for pickup by trimming plastic from under the lids and removing rust and debris from the drum lids. As mentioned above, the second shipment of drums was transferred to Building 401 to protect them from the elements prior to shipment.

The hauler contracted to transport the drums, T.A.G Transport, began loading the first shipment of drums on the first of three trucks on September 18, 2002 with 22 pallets containing 64 drums being loaded this day. On September 19, 2002 two more trucks from T.A.G. Transport were loaded carrying 22 pallets containing 64 drums and 20 pallets containing 61 drums, respectively. Before leaving the site, both the drums and the trucks were scanned for radiological characteristics. All three trucks arrived at Waste Control Specialists on September 23, 2002 with a total of 189 55-gallon drums.

The second shipment consisting of approximately 160 drums was transported by T.A.G. Transport to Waste Control Specialists in September 2006. Approximately ten drums that did not meet the definition of Naturally Occurring Radioactive Material (NORM) due to low levels of Pu-239/240 and Sr-90 could not be disposed of at Waste Control Specialists. These drums were brokered to Energy Solutions in Utah for disposal.

3.16.2 Liquid IDW

Liquid IDW generated during field activities was containerized in temporary storage containers located near Building 429. In January of 2000, 10,000 gallons of liquid IDW was transported from the site and disposed of at the City of Niagara Falls Waste Water Treatment Plant. Another 3,500 gallons was disposed of at the same facility in November of 2001. After these initial disposal efforts, seven 1,500 gallon polyethylene tanks containing approximately 5,050 gallons of liquid IDW including NFSS purge, decontamination, and well development water, Vicinity Property G decontamination water, and Modern Landfill purge water remained onsite.

3.16.2.1 Liquid IDW Characterization

Before the remaining liquid IDW could be disposed, the New York Department of Environmental Conservation (NYSDEC) requested that the wastes be characterized to ensure it met the receiving POTW's discharge regulations. The remaining liquid IDW in six of the tanks (Tanks 1, 2, 3, 5, 6, and 8) was sampled as part of Tetra Tech's original RI field effort in 2000 and 2001. In order to further characterize the IDW in these tanks, as well as the IDW in Tank 4, a sampling effort was performed in October of 2004.

During the field sampling effort, the sediment in the bottom of each tank was agitated in order to mix the tank contents. Water samples were then taken by pumping the IDW through a 10-micron filter bag attached to the end of a pump discharge hose. An unfiltered sample was also taken from Tank 4. The samples were analyzed at General Engineering Laboratories (GEL), Charleston, SC by alpha spectroscopy and gamma spectroscopy for a parameter list approved by NYSDEC. The 10-micron filtered sample was also filtered through a 0.45-micron filter in the lab and the resulting effluent was analyzed by alpha spectroscopy and gamma spectroscopy.

The analytical results from the 2004 IDW sampling event as well as the 2000 and 2001 IDW liquid sampling events were reviewed by both NYSDEC and the City of Lockport, NY. Both entities approved the disposal of the liquid IDW at the City of Lockport, contingent on filtering the liquid in Tanks 1, 4, 5, and 8.

3.16.2.2 Shipment and Disposal

As mentioned previously, 13,500 gallons of liquid IDW were disposed of at the City of Niagara Falls Waste Water Treatment Plant in January of 2000 and November of 2001. For the remaining 5,050 gallons, USACE performed the requested liquid IDW filtration for Tanks 1, 4, 5, and 8 prior to disposal. The liquid in Tank 1 was filtered through a 5-micron filter bag and the liquid in Tanks 4, 5, and 8 was filtered using a 10-micron filter bag. Tanks 2, 3, and 6 did not require filtration. All of the liquid was then consolidated before being released to the contracted septic hauler, Western New York Septic Tank Cleaning Service. The approximately 5,650 gallons of liquid, including 5,050 gallons of filtered IDW and 600 gallons of rinse water, was transported in two loads to the Lockport Waste Water Treatment Plant in Lockport, New York for disposal in May 2005.

3.16.3 Hydraulic Oil

One additional 55 gallon drum left onsite containing hydraulic oil was shipped to Safety-Kleen Systems, Inc. for reprocessing.

3.17 LANDFILL SURVEY

In order to support the evaluation of future potential remedial actions, a landfill survey was conducted early in the RI/FS process. The survey investigated disposal locations outside of the state of New York through telephone and written contact. Since that time, changes in legislation and associated changes in regulatory status of potential disposal sites have occurred. These changes may affect the disposition options for residues and wastes at NFSS. Section 3.17.1 and 3.17.2 present the results of the early landfill survey. Section 3.17.3 discusses pertinent activities that occurred since August 2004.

3.17.1 Objectives

In 1999-2000, a nationwide landfill survey was performed to identify alternative disposal alternatives for residues and related wastes. The objectives of the landfill survey were to answer the following questions:

- Is off-site disposal legally feasible? If landfill disposal is feasible, is pretreatment required to render the chemical and radiological characteristics of the NFSS residues and wastes suitable to comply with landfill waste acceptance criteria (WAC)?
- Do appropriate resource recovery or recycling technologies exist for application to residues and waste?
- Will existing DOE facilities accept NFSS residues and wastes?

3.17.2 Results

The findings of the landfill survey were presented in a report to the USACE titled *Task 3- Landfill Survey: A Survey of Facilities with Potential to Accept K-65 Residues from the Niagara Falls Storage Site*; (Maxim 2000). Key findings presented in that report are summarized in the following sections.

3.17.2.1 Off-Site Disposal

None of the 19 off-site waste treatment/disposal and three resource recovery firms contacted indicated a capability to accept untreated residues and waste. Three firms (Energy Solutions [formerly Envirocare], Envirosafe, and Waste Control Specialists) have USACE contracts in place to receive FUSRAP wastes. However, the specific activity of the residues and wastes is significantly higher than these firms' existing WAC. Energy Solutions and Waste Control Specialists stated that they could potentially accept the residues and wastes after treatment at their facilities or pretreatment at the NFSS, or after receipt of a special one-time exemption from their permit requirements.

3.17.2.2 Recovery or Recycling

Constituents of residues and wastes with potential resource recovery value include uranium and vanadium. The only firm contacted during the survey that indicated a potential interest in recovery of these constituents was International Uranium Corporation (IUC). Without preliminary extraction studies, it is not known if a recovery process is feasible. However, if such a process were determined to be feasible, IUC would reconfigure existing equipment at its White Mesa Mill in Utah to implement the recovery process of the NFSS residues and wastes. After completion of the extraction process, the remaining tailings would be stored in an on-site mill tailings impoundment for disposal.

Issues related to transportation of the residues and wastes, and potential radon exposures, limit the feasibility of this option. In addition, the State of Utah might not approve of this option.

3.17.2.3 Disposal at Other DOE Facilities

Three DOE facilities (Hanford, Nevada Test Site, and the Savannah River Site) will accept some types of radioactive materials from off-site government generators, though a DOE directive (*DOE Preferred Alternatives for Disposal of LLW and MLLW –12/10/99* [see Appendix Z]) allows only Hanford and the Nevada Test Site to accept waste from off-site DOE generators. A memorandum of understanding between the USACE and DOE, dated 3/17/99, potentially allows the disposal of the NFSS residues and wastes at either Hanford or the Nevada Test Site, but only after it was determined that no commercial disposal sites will accept the residues.

3.17.3 Disposition of NFSS Residues and Wastes Since August 2004

The ultimate disposition of the residues and wastes in the IWCS will be evaluated in the FS. A primary consideration in disposing radioactive material is its classification. At the end of 2004, language included in the Energy and Water Development Appropriations Act designated the NFSS wastes as "byproduct material" as defined by Section 11e(2) of the Atomic Energy Act of 1954, as amended. This legislation allows for the disposition of the NFSS wastes in a Nuclear Regulatory Commission (NRC) regulated or Agreement State regulated facility. It also eliminates uncertainties regarding waste classification of the NFSS residues.

In August 2004 Waste Control Specialists LLC filed an application with the Texas Commission on Environmental Quality to modify its license to allow for disposal of radioactive waste that is the responsibility of the federal government, among other requested modifications. If the application is approved, the Waste Control Specialists' facility in Andrews County, Texas appears to be the most promising disposal site for the residue material, if it is determined during the FS that the wastes should be excavated and disposed offsite. An alternate disposal facility is Energy Solutions, LLC in Clive, Utah, although an amendment to the current WAC may be required.

The exact language from Section 312 of the Energy and Water Development Appropriations Act (Fiscal Year 2004) which outlines the framework for disposal of NFSS residues and wastes at Waste Control Specialists or Energy Solutions is presented as follows:

“Section 312. Notwithstanding any other provision of law, the material in the concrete silos at the Fernald uranium processing facility currently managed by the DOE and the ore processing residual materials in the NFSS subsurface waste containment structure managed by the USACE under the FUSRAP shall be considered “byproduct material” as defined by section 11e.(2) of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2014(e)(2)). The NRC or an Agreement State, as appropriate, shall regulate the material as “11e.(2) by-product material” for the purpose of disposition of the material in an NRC-regulated or Agreement State-regulated facility.”

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4.0 RESULTS OF FIELD ACTIVITIES AND DETERMINATION OF SRCs

4.1 INTRODUCTION

This section presents the results and findings from the field activities performed for this RI. Section 4.4.2 presents the statistical method by which SRCs were identified.

4.2 TRENCH FINDINGS

In general, trenches were excavated to a depth of one to ten feet below grade and were terminated when undisturbed native soil was encountered. Sections of trenches T301, T304, T404, and T413 were terminated before native soil was encountered due to the influx of water from gravel deposits (principally railroad ballast) at the surface.

Analytical results from surface and subsurface soil samples are discussed in Sections 4.5 and 4.6.

Significant findings resulting from the installation of the trenches are:

- Buried debris, sample containers (apparently unused), paper and other solid wastes were found in trenches T802 and T808, located north of the IWCS. Numerous small chips of radioactive waste residue with elevated gamma readings were found near the ground surface in the vicinity of these trenches.
- Soil in trenches T202 and T205 had an organic or 'pesticide-like' odor, though no staining or elevated PID readings were observed to provide a further basis for identification of the chemical nature of this odor.
- Unidentified concrete structures were found in trench T201 on the west side of Building 401. It is thought that these structures may be the remnants of above ground or USTs. Historical photographs show an UST pool south of Building 401 as well as concrete tank cradles that were unearthed (and potentially reburied). No evidence of contamination was observed during the excavation of this trench.
- Except as noted for trench T201, no evidence of USTs was found. Anomalies identified by a geophysical survey of the site were attributed to buried utilities, debris or saturated clays.
- A surface soil sample (TS812-2928-062), collected from trench T812 near the south gate, contained concentrations of several radiological parameters above background.

A summary of field observations from each trench is contained in Table 4-1 and shown on Figures 3-16 through 3-44.

4.3 SUMMARY OF DRUM SAMPLES, ROAD/PAD CORES, RAILROAD BALLAST, AND GENERAL CHEMISTRY SAMPLES

Field activities included the collection of drum samples, road/pad core samples, and railroad ballast as discussed in the following sections; however, the analytical results were not used for the determination of SRCs.

4.3.1 Road/Building 401 Cores and Railroad Ballast Samples

Sample designations, location and analysis parameters are discussed in Section 3.13 and 3.14 and are summarized in Tables 3-23 and 3-24. Analytical results are presented in Appendix AA.

4.3.1.1 Background Sample Analytical Results

No suitable background data set was available for these matrices.

4.3.1.2 Road/Building 401 Cores and Railroad Ballast Analytical Results

Because no suitable background data sets for the cores or railroad ballast media were available, it was not possible to determine if any parameter found in these samples exceeded background. For this reason, SRCs were not determined for these media. Table 4-2 summarizes all analytical results above the laboratory reporting limits for the road/Building 401 cores and railroad ballast samples.

4.3.2 Drum Samples

Two abandoned and deteriorated drums were found on the ground surface in EUs 2 and 4. Samples were taken from the two drums as well as from the soil beneath the drums. The deteriorated drums were subsequently re-drummed for disposal. Analysis results from the samples collected from these drums are presented in Appendix AA. Table 4-3 summarizes all analytical results above the laboratory reporting limits for the drum samples.

No suitable background data set was available for these matrices; however, the analytical results were used to determine the appropriate disposition of the drums.

4.3.3 General Chemistry Samples

Samples for general chemistry parameters were collected for use in groundwater modeling efforts, as a supplement for evaluating natural attenuation of constituents in the RI, and for evaluating technologies in the FS. Table 4-4 summarizes all analytical results for the general chemistry samples.

4.4 DATA EVALUATION METHODS

4.4.1 Determination of Background

Background concentrations were used in the identification of SRCs presented in this RI and in the evaluation of human health risk presented in the BRA. The determination of background involved the establishment of a background data set for each medium and the calculation of a background value for each analyte within each medium. Background was determined for the following media during the NFSS RI: groundwater, sediment, soil (0-10 feet), surface soil (0-0.5 feet), and surface water.

Background samples for the NFSS were collected along the inside perimeter of the boundary of the former LOOW DERP-FUDS site. Because the potential for impact to these sample locations could not be absolutely eliminated, an outlier test was used in conjunction with a review of the historical use of these properties. The presence of all of the constituents that were identified as

being outliers in the background data sets could be explained based on previous site use, as further explained in this section.

Prior to performing calculations using the medium-specific background data sets, outliers within the data set were identified using a simple inter-quartile test (Iglewicz and Hoaglin, 1993) that determined a limit above which a sample value may be considered a potential outlier. The equation used to determine this limit is as follows:

$$L=Q3+3(Q3-Q1)$$

where:

Q1= first quartile of the data

Q3= third quartile of the data

L= the limit above which a sample value may be considered a potential outlier.

A factor of three was applied to the difference between the third quartile and the first quartile in the above equation for conservatism so that only the most extreme outliers would be rejected.

Any background sample value that exceeded this calculated limit was considered to be a potential outlier. Potential outliers were further reviewed to determine if there were any technical reason(s) for removing the data from the background data set (e.g. impacts from site activities, or laboratory and transcription errors). The evaluation of potential outliers in the NFSS background data resulted in the following conclusions.

- Some of the background sample values in the NFSS RI medium-specific background data sets are only slightly greater than the upper limit specified by the outlier test. A sufficient number of samples were available to determine that the data were simply high values in the medium-specific background data sets and not outliers.
- Because the detection limits for an analyte within a given medium vary, many of the potential outliers represent detection limits that are relatively greater in value than other analytical results for that parameter. However, the presence of a significant number of non-detected results for non-radiological parameters in the medium-specific background data sets tends to skew the quartile values, resulting in low values for the outlier limits. This is due to the fact that non-detected results are evaluated using $\frac{1}{2}$ the detection limit, while detected results are evaluated using the value at which they are reported. In such cases, a greater possibility exists for the identification of potential outliers.
- The NFSS RI background data set was reviewed to determine if any background values exceeded the acceptable risk screening values. Background values that exceeded risk screening values may be identified as potential outliers. However, no background values in the NFSS RI medium-specific background data sets exceeded the risk screening values. Potential outliers in the medium-specific background data sets that are less than risk screening levels do not affect evaluation of site risk. However, potential outliers in the medium-specific background data sets can affect the identification of SRCs because SRCs are determined using background values, not risk screening values. The presence of potential outliers in the medium-specific background data sets can result in fewer SRCs being identified for any given medium because the background concentrations used to screen SRCs may be biased high.

- Manganese oxides and hydroxides naturally occur in the mineral (solid) phase under oxidizing conditions. Manganese minerals are commonly associated with iron oxides and hydroxides, which are also solids under oxidizing conditions. Under anaerobic (reducing) conditions, such as in low lying swampy areas, both manganese and iron are reduced to more soluble forms, resulting in higher dissolved phase concentrations. Once in the dissolved phase, iron and manganese may precipitate as new oxygenated water mixes with the soluble metals. The precipitation of these metals under aerobic conditions to form concretions high in iron and manganese is a common occurrence in soils. The soil conditions at NFSS are conducive for generating such concretions.

The background UTL for manganese in soils at the NFSS is 6,650 mg/kg, which represents the maximum value of manganese detected in NFSS background soil samples. This sample was not considered to be an outlier because it is believed to represent the presence of iron/manganese concretions that are typically found in soils at the NFSS. As a result, all other detections of manganese in soil were found to be below the background UTL and were not further investigated as SRCs, even though manganese concentrations in NFSS soils are observed to be up to thousands of parts per million. Total and dissolved concentrations of manganese in sitewide groundwater are less than 80 ppm. The concentrations of manganese and iron in groundwater are most likely related to the naturally occurring concentrations of these metals in NFSS soils and not from operations conducted at the NFSS. However, to conservatively evaluate human health risk, manganese was identified as a COC in sitewide groundwater (EU 17), and in groundwater in EUs 4 and 13.

- An outlier for selenium was identified in the surface soil sample collected from background location BKGD-12. BKGD-12 is on property owned by a hunting and gaming club. Selenium dioxide is used to “blue” gun metal, and selenium is used in various copper alloys that could be associated with ammunition (NLM, 2002). Selenium is a common contaminant at ammunition facilities. Because selenium could be a result of the current land use, the selenium concentration reported in the surface soil sample collected at BKGD-12 was considered to be an outlier and was not included in the surface soil background data set.
- Lead and arsenic were identified as outliers in the surface soil sample collected at background location BKGD-17 because these metals are likely to be a result of historical land use. Lead arsenate, used historically as a pesticide and herbicide, was employed extensively on apple orchards to control the codling moth (NLM, 2002; NJDEP, 1999). Lead arsenate was also used for control of agricultural pests in vegetable fields and other fruit orchards, as well as golf courses and turf farms (NJDEP, 1999). Application of lead arsenate on apple and peach crops was recommended by the New Jersey Agricultural Experiment Station, and these recommendations continued until 1967 when the use of other pesticides (primarily organochlorine pesticides) became established (NJDEP, 1999). BKGD-17 is apparently adjacent to an old fruit orchard, where lead arsenate would have been used as a pesticide. Consequently, lead and arsenic concentrations reported in the surface soil at BKGD-17 were excluded from the surface soil background data set. Additionally, an Integrated Exposure Uptake Biokinetic Model (IEUBK) guideline value of 400 mg/kg is being used as the risk screening level for lead in soil and sediment. This guideline is greater than any potential outlier values for lead in soil and sediment, therefore the presence of potential outliers in the soil and sediment background data sets has no effect on the risk evaluation of site data.

- Lead is a potential outlier in groundwater and surface water. Outliers are present in groundwater and surface water at concentrations of 5.99 µg/L and 11 µg/L, respectively. However, both of these concentrations are less than the MCL for lead (15 µg/L), which is being used as the risk screening level in groundwater and surface water. Therefore, the presence of potential outliers for lead in the groundwater and surface water background data sets has no effect on the risk evaluation of site data, and no outliers for lead were removed from the groundwater and surface water background data sets.
- Groundwater data from two background monitoring wells (PZ-21S and PZ-25S) were determined to contain outliers and thus, all groundwater results from these two wells were removed from the background data set. These two wells are located near a rail bed on the Modern Landfill property. Although analyte concentrations from these wells were below MCLs, data from these wells were removed from the background data set due to noticeably high total and dissolved isotopic uranium values derived from ballast leaching and nearby disturbed soil. Not only did these two samples have unusually high concentrations of uranium isotopes, but also had uranium isotopic ratios indicating that they may have been impacted by site contaminants (Rhodes et al 2006).
- A few background sample results, particularly those for metals collected in groundwater, may reflect the quality of the water migrating on site from the Modern Landfill located to the east of the NFSS. Despite potential outliers in these results, the risk screening values are much higher than the outlier values and therefore, the potential outliers do not present a risk concern and were not removed from the background data set.
- Potential outliers exist in groundwater samples for alpha and beta. The MCL, rather than a background concentration, is being used as the risk screening value for alpha and beta in groundwater. Because concentrations of alpha and beta in the background groundwater data set are less than the MCL, the presence of potential outliers for these two parameters in the background data set has no effect on the risk evaluation of site data. Thus, no outliers for alpha and beta were removed from the groundwater background data set.
- Outliers were identified for alpha, beta, total uranium, uranium-234, uranium-235, and uranium-238 in samples collected from background surface water locations SWBKGD-3 and SWBKGD-7. These constituents from these locations were removed from the surface water background data set based on outlier testing and elevated radiological concentrations for total uranium and uranium isotopes.
- Potential outliers exist in sediment samples for radium-226, thorium-230 and uranium-234. These radionuclides are present in sediment at concentrations that slightly exceed the calculated outlier limit. The potential outliers are present in samples collected at background locations SDBKGD-2 and SDBKGD-3. SDBKGD-2 is located in the West Ditch south of the IWCS and SDBKGD-3 is located in the ditch adjacent to the West Patrol Road in the northwestern corner of the NFSS, next to EU 1. Upon further evaluation of these data, it was determined that these potential outliers are not likely the result of activities conducted at the NFSS; therefore, the data were not removed from the background data set.

Background calculations were performed following evaluation of potential outliers and finalization of the NFSS background data set. For the purpose of calculating background, non-

radiological data qualified as not detected were set to a concentration of ½ the analytical detection limit. Radiological data that were evaluated as not detected were used at the reported activities.

A Shapiro-Wilk W Test (Gilbert 1987) was used to determine if the data distributions of the medium-specific background data sets were normal or lognormal. If a data distribution was determined to be significantly different from both normal and lognormal, it was evaluated as a non-parametric distribution. The calculation of the W statistic is as follows:

$$d = \sum_{i=1}^n (x_i - x_{avg})^2 \quad W = \frac{1}{d} \sum_{i=1}^k a_i (x_{(n-i+1)} - x_i)^2$$

where:

d = denominator of the W statistic
n = number of samples
 x_i = individual sample results
 x_{avg} = average result
k = n/2 if n is even or (n-1)/2 if n is odd
W = Shapiro-Wilk statistic
a = coefficient from table
 α = 0.05 (Gilbert 1987)

If the W value exceeds a tabulated value (Gilbert 1987) then the distribution can not be differentiated from a normal distribution.

A standard 95% Upper Tolerance Limit (UTL) (Gilbert 1987) was calculated for data that was determined to be normally distributed. Similarly, log transformed data were used to calculate a lognormal UTL. The standard 95% UTL calculation is shown below.

$$UTL = \bar{x} + k(s)$$

For lognormal data distributions, the equation used to calculate the 95% UTL with log transformed data is:

$$UTL = e^{\bar{x} + k(s)}$$

where:

\bar{x} = sample arithmetic mean,
k = k statistic table-value, dependent on the sample size (Gilbert 1987),
s = sample standard deviation, and
e = exponential conversion for lognormal data.

The maximum detected concentration was used as a surrogate for the UTL when the data distribution was determined to be neither normal nor lognormal. The maximum detected concentration was also used as a surrogate for the UTL when less than three sample results were available for any medium-specific analyte. The result of these data evaluations is a set of background screening values representing either the UTL or maximum detected concentration for each analyte within each medium. A background screening value was defined to be the lesser of the 95% background UTL or the maximum value in the background data set. Hereafter, a background screening value is referred to as a background UTL. Background UTLs are used to compare investigative data to existing background concentrations. If an analyte was not detected

in a medium-specific background data set, no background UTL was established for that analyte within that medium. For analytes with no background UTL, all detected values were forwarded to the BRA for screening purposes. A more detailed discussion of determination of background UTLs is presented in the BRA.

4.4.2 Determination of SRCs

The methodology for the determination of SRCs is consistent with the methodology presented in the BRA. The SRC summary tables presented in Sections 4.5 through 4.9 are the result of the SRC process outlined in Tables A-1 and A-2 of the BRA. SRCs were defined to be chemicals or radionuclides that were present in a given medium and EU at concentrations statistically greater, as defined below, than the corresponding background concentrations. SRCs were determined for soil (0 to 10 feet bgs), surface soil (0 to 0.5 feet bgs), sediments, surface water, groundwater, pipeline/utility sediments, and pipeline/utility water.

For each medium, analytical results for samples collected from both the NFSS and the background locations were compiled into data sets. For the purpose of this report, “data set” is defined to be all the analytical results for a given parameter from samples of a given medium, collected within a given EU. This approach allows the determination of SRCs for each EU that reflect the actual conditions and past historical uses.

For this RI, background samples were collected for groundwater, surface soil (0 to 0.5 feet bgs), soil (to depths of approximately 20 feet bgs), sediment and surface water and compiled into background data sets. Suitable locations for the collection of background pipeline/utility sediment and water samples were not identified. For these matrices, the background sediment and surface water data sets were used to determine SRCs.

The data sets were evaluated using several different statistical tests in accordance with the decision tree shown in Figure 4-1. The evaluation process is briefly described below.

Step 1:

First, the frequency of detection for each parameter in each data set was determined. Parameters that were not detected in at least five percent of the samples in each EU/medium were dropped from further evaluation and were not considered to be SRCs. Parameters found in at least five percent of the samples then moved on to the second step in the evaluation process.

Step 2:

In the second step, site sample results for each parameter were compared to the corresponding background screening values. A background screening value was defined to be the lesser of the 95% background UTL or the maximum value in the background data set. Parameters for which their site data sets contained at least one value that was greater than the background screening value were designated as Preliminary Site-Related Constituents (PSRCs). This step did not definitively determine if a particular parameter was a SRC or not. It was possible for a parameter that was not a PSRC to be deemed a SRC. However, the statistical requirements in this case were more rigorous than those required of parameters that were PSRCs. Parameters classified as PSRCs were evaluated by the methods described in Step 3a. Parameters that were not classified as PSRCs were evaluated by the methods described in Step 3b.

Step 3a:

Data sets for parameters classified as PSRCs were then compared to their corresponding background data sets. If the site data set and the background data set were either both normal or

both lognormal, the comparison was made using a one-tailed Analysis of Variance (ANOVA) at a level of confidence of 95%. If the normality or lognormality requirements were not met, a comparison was made using a one-tailed Wilcoxon Rank Sum test, also with a level of confidence of 95%. In some instances, either the site data set or the background data set was not amenable to analysis using either ANOVA or the Wilcoxon Rank Sum test (e.g. if more than 50% of the members in either data set were U flagged and not detected). In these cases, the parameters were declared to be SRCs based on the previous two steps of the evaluation process.

If the ANOVA analysis concluded that the mean value in the site data set for a PSRC exceeded the mean value in its corresponding background data set, or, analogously, if the Wilcoxon Rank Sum test concluded that the median value of the site data set exceeded its corresponding median value in the background data set, the parameter was declared a SRC. If the ANOVA analysis concluded the opposite (the site mean/median does not exceed the background mean/median) an additional test, called the weight of evidence test, was performed. The weight of evidence test consisted of a comparison between the maximum value in the PSRC data set and the background screening value. If the maximum value was more than ten percent greater than the background screening value, the parameter was considered a SRC. Otherwise, the parameter was not considered a SRC.

Step 3b:

A comparison between these site data sets and their corresponding background data sets was made using a one-tailed ANOVA analysis (or a one-tailed Wilcoxon Rank Sum test) as described above. If this analysis concluded that the site data set mean/median value was not greater than the corresponding background data set mean/median value, the parameter was dropped from further consideration and not considered to be a SRC. If this analysis concluded the opposite – that the site data set mean/median was greater than the background data set mean/median – an additional test was performed. In this case, the actual mean value of the site data set was compared to the actual mean value of the background data set. If the actual site mean exceeded the actual background mean, then the parameter was considered to be a SRC. Otherwise, the parameter was not considered to be a SRC.

The steps outlined above were used in the BRA to identify SRCs for each medium in each physical EU (1-14). SRCs were also identified on a site-wide basis for the following media:

- surface water in interconnected drainage ways (EU 15),
- pipeline sediment and water (EU 16),
- groundwater (EU 17), and
- deep soils (for use in Seasonal Soil Compartment (SESOIL) modeling and discussion of nature and extent in various EUs).

In this RI report, the EU-specific SRCs for soil, surface water, sediment, and groundwater (as determined in the preliminary steps of the BRA) were used for discussion of nature and extent of contamination within each EU. Risk from exposure to groundwater was to be evaluated in the BRA on a site-wide basis only. However, prior to combining EU-specific data to create a site-wide groundwater data set, preliminary screening of SRCs in each physical EU was performed to ensure that no areas exhibiting localized contamination were inadvertently dismissed. During this screening process, localized VOC contamination in groundwater was identified in EUs 4 and 13.

To fully address this localized VOC contamination, the BRA evaluated groundwater on an EU-specific basis for EUs 4 and 13, as well as for EU 17 (sitewide). Although EU-specific groundwater SRCs were developed for each physical EU, only groundwater in EUs 4 and 13 were evaluated on an EU-specific basis in the BRA. As mentioned above, this RI report used the EU-specific groundwater SRCs developed in the BRA for discussion of nature and extent of contamination.

4.5 SURFACE SOIL (0 TO 0.5 FEET) SRCs

Surface soil sample designations, locations and analysis parameters are discussed in Section 3.6 and are summarized in Table 3-4. Analytical results are presented in Appendix AA.

4.5.1 Background Sample Analytical Results

Fifteen background surface soil samples were collected from off-site locations which were unimpacted by past NFSS activities. Background surface soil sample locations are shown in Figure 3-14 and the background surface soil sample results are summarized in Table 4-5. Background surface soil results were used to determine surface soil SRCs using the statistical methods described in Section 4.4.

4.5.2 Summary of Surface Soil SRCs

For each EU, the number of surface soil samples collected, number of detects and the minimum and maximum concentrations measured for each analysis parameter are summarized in Tables 4-6 through 4-19. Nitroaromatic compounds, PAH compounds, VOCs and SVOCs were detected above the reporting limits in only a limited number of samples. Metals and radionuclides; however, were detected above the reporting limits in a large percentage of the samples. Tables 4-20 through 4-33 present the surface soil SRCs for each EU. These tables also list all of the samples that exceed the background screening value for each SRC. These samples are also shown on Figures 4-2 through 4-14.

An evaluation of the surface soil analytical results is presented in Section 5.

4.6 ALL SOIL (0 TO 10 FEET) SRCs

In support of the BRA, all soil samples collected from the interval of zero to ten feet bgs were evaluated as a single medium. This medium definition was designed to facilitate the estimation of dose and risk to residents, farmers, maintenance workers, industrial workers, constructions workers and visitors associated with intrusive activities such as excavations and other construction activities. Both surface soil analytical results and the analytical results from subsurface samples collected from depths of less than ten feet below grade were combined for this evaluation.

Subsurface soil sample designations, locations and analysis parameters are discussed in Section 3.7 and are summarized in Tables 3-6 and 3-7. Surface soil samples are discussed in Sections 3.6 and 4.5.

Analytical results for subsurface soil samples are presented in Appendix AA.

4.6.1 Background Soil Sample Analytical Results

Thirty-four background surface soil and subsurface soil samples were collected from off-site locations believed to be unimpacted by past NFSS activities. Subsurface soil samples were collected from depths ranging from five to 20 feet bgs and most of the subsurface soil samples were collected from depths between ten and 20 feet bgs. Because the number of background subsurface samples collected from depths between 0.5 feet and ten feet bgs was small, it was decided to include all available background subsurface soil samples in the evaluation, regardless of sample depth. Using a background data set that includes soil samples collected at depths greater than ten feet bgs generally results in lower background concentrations for those constituents which are commonly present at shallower depths due to human activity. Thus, this approach generates more conservative background concentrations. Background surface soil sample locations are shown on Figure 3-14. Background soil sample results are summarized in Table 4-34. Results are presented in their entirety in Appendix AA. Background soil results were used to determine soil SRCs using the statistical methods described in Section 4.4.

4.6.2 Summary of Soil SRCs

As discussed above, the evaluation of SRCs in soil considered only results from samples collected from the interval of zero to ten feet below grade and this was done in order to accommodate the needs of the BRA. Analytical results from samples collected from depths greater than ten feet are presented and discussed in Section 5.

For each EU, the number of samples collected, number of detects and the minimum and maximum concentrations measured for each analysis parameter are summarized in Tables 4-35 through 4-49. Tables 4-50 through 4-64 present the soil SRCs for each EU. These tables also list all of the samples that exceed the background screening value for each SRC. Then samples are also shown on Figures 4-2 through 4-14.

4.7 SURFACE WATER SRCS

Surface water sample designations, locations and analysis parameters are discussed in Section 3.8 and are summarized in Tables 3-9 through 3-11. Analytical results are presented in Appendix AA.

4.7.1 Background Sample Analytical Results

Nine background surface water samples were collected from locations on NFSS property, within a few feet of the site boundary where water flowed onto the site, and one sample was collected on Niagara-Mohawk property. Background surface water sample locations are shown in Figure 3-14 and the background surface water sample results are summarized in Table 4-65. Results are presented in their entirety in Appendix AA. Background surface water results were used to determine surface water SRCs using the statistical methods described in Section 4.4.

4.7.2 Summary of Surface Water SRCs

For each EU, the number of surface water samples collected, number of detects and the minimum and maximum concentrations measured for each analysis parameter are summarized in Tables 4-66 through 4-76. Nitroaromatic compounds, VOCs and SVOCs were detected in only a limited number of samples. Metals and radionuclides; however, were detected in a large percentage of the samples. Tables 4-77 through 4-87 present the surface water SRCs for each EU. These tables also list all of the samples that exceed the background screening value for each SRC.

Locations of the SRCs found in surface water in each EU are presented in Figures 4-15 and 4-16. An evaluation of the surface water analytical results is presented in Section 5.

4.8 SEDIMENT SRCs

Sediment sample designations, locations and analysis parameters are discussed in Section 3.9 and are summarized in Tables 3-12 through 3-14. Analytical results are presented in Appendix AA.

4.8.1 Background Sample Analytical Results

Background sediment samples were collocated with the background surface water samples. Background sediment sample locations are shown in Figure 3-14 and the background sediment sample results are summarized in Table 4-88. Background surface water samples are presented in their entirety in Appendix AA. Background sediment results were used to determine sediment SRCs using the statistical methods described in Section 4.4.

4.8.2 Summary of Sediment SRCs

For each EU, the number of sediment samples collected, number of detects, and the minimum and maximum concentrations measured for each analysis parameter are summarized in Tables 4-89 through 4-94. Nitroaromatic compounds, VOCs and SVOCs were detected in only a limited number of samples. Metals and radionuclides; however, were detected in a large percentage of the samples. Tables 4-92 through 4-94 present the sediment SRCs for each EU. These tables also list all of the samples that exceed the background screening value for each SRC.

Locations of SRCs in sediment in EU 5, 9, and 15 are presented in Figure 4-17. An evaluation of the sediment analytical results is presented in Section 5.

4.9 GROUNDWATER SRCs

Groundwater characterization, well installation and sample collection (designation and analysis parameters) are discussed in Section 3.10 and are summarized in Tables 3-15 through 3-18. Monitoring well locations are shown in Figures 3-7 through 3-13. Groundwater analytical results are summarized in Appendix AA.

4.9.1 Background Sample Analytical Results

Filtered and unfiltered background groundwater results were used for comparison purposes using the statistical methods described in Section 4.4. As part of this RI, background samples were collected from 26 wells and piezometers located on the Modern Landfill property, which is upgradient and east of the NFSS. These background groundwater sample locations are shown in Figure 3-14. In addition to the 26 groundwater samples collected from wells and piezometers located on the Modern Landfill property, the background groundwater data set also includes total and dissolved metals results for four samples collected as part of the LOOW RI. Background groundwater results are summarized in Table 4-95. Background sediment sample results are presented in their entirety in Appendix AA.

Two water-bearing zones, described in Section 2.3.2 are present at the NFSS. For the determination of groundwater SRCs, groundwater results for the two zones were combined in order to facilitate the BRA. Results for the two zones were evaluated separately in Section 5.

4.9.2 Summary of Groundwater SRCs

For each EU, the number of groundwater samples collected, number of detects, and the minimum and maximum concentrations measured for each analysis parameter are summarized in Tables 4-96 through 4-109. The SRCs and samples exceeding background screening values for each EU are shown in Tables 4-110 through 4-123. The locations of the SRCs identified during this investigation are shown in Figures 4-18 through 4-21.

Metals and radionuclides were most prevalent and were detected above background screening values in every EU. Pesticides, PAH compounds, SVOCs and VOCs were less prevalent but were detected in most, but not all, of the EUs. PCBs were detected in one EU and nitroaromatics were present in three EUs.

The groundwater database included results for samples collected from temporary and permanent monitoring wells. Typically, samples from TWPs were turbid (visibly contained suspended soil particles) while those collected from the permanent wells were less turbid and contained a smaller amount of suspended matter. As a result, turbid samples may contain higher concentrations of the parameters of interest than less turbid or clear samples. The comparison of the total and dissolved groundwater data to background criteria did not account for the turbidity of the samples and the resulting list of SRCs for the total groundwater data set may be skewed toward the more turbid samples. The impact of turbidity on SRCs is discussed and evaluated in Section 5.

4.10 PIPELINE/UTILITY WATER SRCs

All pipelines, sewers, sumps and drains at the NFSS are in EU 16. Pipeline water sample designations, locations and analysis parameters are discussed in Section 3.12. Manhole locations are shown in Figures 3-7 through 3-13. Analytical results are presented in Appendix AA.

Water samples were collected from manholes on storm sewers, sanitary sewers and process pipelines. They were also collected from sumps and floor drains. As a group, these samples are referred to as pipeline/utility water samples.

4.10.1 Background Sample Analytical Results

Background surface water results were used for comparison purposes. These results are presented in Section 4.7. The results are presented in their entirety in Appendix AA.

4.10.2 Summary of Pipeline/Utilities SRCs

The number of samples, number of detects and the minimum and maximum concentrations encountered for each analysis parameter are summarized in Table 4-124. Nitroaromatic compounds were not detected in sewer water samples and a limited number of PAH compounds, pesticides, dissolved radionuclides, VOCs and SVOCs were detected. Metals and radionuclides were detected in a large percentage of sewer water samples.

A list of the SRCs and samples exceeding background concentrations is provided in Table 4-125 and the analytical results for the drain oil samples are summarized in Table 4-126. The locations of the sewer water SRCs identified during this investigation are shown in Figures 4-22 and 4-23.

The constituents present in the sewer water are related to the types of sewer lines and the activities performed in the vicinity of drains or sumps associated with each type of sewer line. A detailed evaluation of the results from the pipeline/utility sampling is presented in Section 5.

Two samples of oil were collected from drains in Building 401. SRCs were not determined for these samples because a suitable background data set was not available for this matrix. These samples are discussed in Section 5.

4.11 PIPELINE/UTILITY SEDIMENT AND SOIL SRCs

All pipelines, sewers, sumps and drains at the NFSS are in EU 16. Pipeline/utility sediment sample designations, locations and analysis parameters are discussed in Section 3.12 and are summarized in Tables 3-20 through 3-22. Manhole locations are shown in Figures 3-7 through 3-13. Analytical results are presented in Appendix AA.

Pipeline/utility sediment samples were collected from manholes on storm sewers, sanitary sewers and process pipelines. They were also collected from sumps and floor drains. As a group, these samples are referred to as pipeline/utility sediment samples.

A small number of subsurface soil samples were collected from locations immediately adjacent to manholes and drains and for purposes of the BRA were considered to be in EU 16.

4.11.1 Background Sample Analytical Results

Background sediment results were used for comparison purposes for the pipeline/utility sediment samples results. These results are presented in Section 4.8. The soil background results are presented in Section 4.6.

4.11.2 Summary of Pipeline/Utilities SRCs

The number of samples, number of detects, and the minimum and maximum concentrations encountered for each analysis parameter in sediment and soils are summarized in Tables 4-127 and 4-128. Nitroaromatic compounds were not detected in sewer sediment or soil samples and a limited number of SVOCs were detected and identified as SRCs. PAH compounds, pesticides and VOCs were found in a larger number of sewer sediment/soil samples and identified as SRCs. Metals and radionuclides were detected in the largest percentage of sewer sediment samples and were identified as SRCs. The SRCs in pipeline sediment and soil are summarized in Tables 4-129 and 4-130.

The constituents present in the sewer sediment are related to the type of sewer line, and the activities performed in the vicinity of drains or sumps associated with each type of sewer line. The sewer lines at the NFSS are associated with activities that occurred in five discrete areas: the IWCS, the former LOOW WWTP, the former Shop Area, Building 401 (former boiler house) and the acid area. A detailed evaluation of the results from the pipeline/utility sampling or each of the five areas based on the type of sewer network is presented in Section 5. Analytical results are presented in Appendix AA. A list of the SRCs and samples exceeding background concentrations is provided in Tables 4-129 (sediment) and 4-130 (soil). The locations of the sewer sediment/soil SRCs identified during this investigation are shown in Figure 4-24.

4.12 NIAGARA-MOHAWK AREA (EU 9) SRCS

During the course of this RI, surface water, sediment, surface soil and subsurface soil samples were collected from the Niagara-Mohawk area. This area lies to the immediate west from the NFSS. Because the Niagara-Mohawk area is not part of the NFSS proper, the results from the samples collected on the Niagara-Mohawk area are presented separately from the NFSS results.

4.12.1 Background Sample Results

The background data sets for surface soil, soil, sediment, and surface water were used to evaluate the Niagara-Mohawk samples. These background data sets are presented in Sections 4.5, 4.6, 4.7 and 4.8.

4.12.2 Summary of Niagara-Mohawk SRCs

The analytical results for the Niagara-Mohawk samples are summarized in Tables 4-131, 4-133, 4-135, and 4-137. The full analytical reports are shown in Appendix AA.

The Niagara-Mohawk SRCs were determined using the methods described in Section 4.4 and are shown on Tables 4-132, 4-134, 4-136, and 4-138.

The locations of the soil SRCs in the Niagara-Mohawk property are shown in Figure 4-25.

5.0 NATURE AND EXTENT OF SRCS

5.1 INTRODUCTION

This section presents and discusses topics related to the nature and extent of SRCs. In previous sections of this report, the presentation of data and findings was organized around the 18 EUs developed for the BRA. The EUs for surface soil (0 to 0.5 feet bgs), all soil (0 to 10 feet bgs), groundwater, a portion of the surface water sample set, and a portion of the sediment sample set consist of areas that were based, in part, on historical activities at the site. The main ditch system at the site (consisting of a portion of the West Ditch, the Central Ditch, the Modern Ditch, and the South 16 Ditch) was considered to be a separate EU, designated EU 15. The pipeline/utility system at the site was also considered to be a separate EU, designated EU 16.

This organization is modified slightly in this section to more concisely and completely present the discussion of nature and extent. All information concerning nature and extent is presented under an organization based strictly on geographic area. For this section, nature and extent will be discussed under a framework of six NFSS areas and the Niagara-Mohawk Area. These areas were delineated based on EU designation and past use. The boundaries of these areas follow current EU boundaries shown in Figure 1-2. The main ditch system and the pipeline/utility system are discussed based on the physical area in which they occur. The seven EU areas that form the basis for discussion in Section 5 are:

- Baker-Smith Area and Vicinity: EUs 1 and 2;
- Acid Area: EUs 3 and 4;
- Building 434 Area and Vicinity: EUs 5 and 6;
- Shops Area: EU 8;
- IWCS and Vicinity: EUs 7, 10 and 11;
- Building 401 and Vicinity: EUs 12, 13, and 14; and
- Niagara-Mohawk Area: EU 9.

As discussed in Section 3, USACE conducted the RI under a phased approach. A brief synopsis of the phases of the investigation and their objectives is as follows:

- Phase 1 (initiated in March 1999) –to verify the presence and location of existing chemical constituents;
- Phase 2 (initiated in August 2000) – to further investigate those areas identified in Phase 1 as areas of interest; and
- Phase 3 (conducted from February 2001 through October 2003) – to collect additional information needed for a risk assessment and background comparison, and to further define the nature and extent of contamination present at the site.

Although the LOOW RI was a separate effort from the NFSS RI, some of the samples from the first phase of the LOOW RI were collected at the NFSS. These samples were collected because during the early stage of the LOOW RI it was thought that DERP-FUDS would be responsible for DOD-related contamination on the NFSS portion of the former LOOW. However, no samples were collected at the NFSS during later phases of the LOOW RI because contamination at the NFSS eventually fell under the authority of the FUSRAP program. Samples collected at the NFSS during the first phase of the LOOW RI were used to direct some sampling efforts during

the NFSS RI. Thus, some data from the LOOW RI has been included as part of the NFSS RI Phase 1 figures, tables, and discussion.

Specific investigative objectives for each EU, as they pertain to each phase of the RI, are discussed in this section with the investigative results to provide a logical explanation for the sequence of sampling activities conducted at each EU and to verify that RI sampling objectives were met.

The discussion of SRCs for each of the seven EU areas listed (grouped) above includes a brief description of the area that identifies the operational history of the EU(s), existing or former buildings, surface water features, remedial actions that have been performed, and any other pertinent information about the site. The occurrence and distribution of SRCs in soil, surface water, sediment, and groundwater are then presented for each EU. SRCs associated with underground utility lines are also identified. The evaluation of each EU area concludes with a discussion of media interactions, as well as an evaluation of contaminant sources and effects of past site use.

Following separate discussions of each EU area, a site-wide examination of nature and extent of the NFSS is presented. This discussion follows the same format used to discuss the individual EU areas. The occurrence of SRCs is described for each media across the entire site. In addition, general conclusions concerning media interactions, contaminant sources, and effects of past site use are discussed from a site-wide perspective.

SRCs identified and discussed for each of the EUs presented in this section are later summarized in Section 7 of this report. Section 7 also summarizes groundwater modeling results with respect to the SRCs within each EU and identifies the SRCs within each EU that were determined to be COCs and ROCs in the BRA.

5.1.1 General Discussion of Methods

Water and sediment samples that are included in EUs 15 and 16 are, in this section, presented in the discussion of the site area from which they were collected.

Over 80 sediment samples were collected on the NFSS. Later, during the preparation of the BRA, it was determined that 49 of the samples, which were collected from locations that are dry for much of the year, should be reclassified as soil samples. Thus, sediment samples collected from locations that are inundated less than 50% of the year were reclassified as soil samples. This reclassification was performed prior to the determination of SRCs; thus, the following EU-specific discussions of the nature and extent of SRCs reflect the reclassification of these samples as presented in the BRA.

The discussions of analytical results in this section were developed from SRC concentrations tabulated for each EU in Section 4. For all SRCs in all media, the samples which contained concentrations of one or more SRCs at concentrations in excess of the associated background screening levels are shown in tables presented in Section 4. These tables also show the value of these concentrations. In this section, where appropriate, specific sample results are presented and discussed as part of the consideration of nature and extent. However, in general, these values are not tabulated here and the reader is referred back to the tables in Section 4 for a complete presentation of such material.

For the purpose of discussing the nature and extent of SRCs in soil within each EU, surface soil samples were considered to be samples collected from 0 to 0.5 feet bgs, and subsurface soil samples were considered to be samples collected from 0.5 to 10 feet bgs. Soil samples collected at depths greater than 10 feet bgs were also addressed separately. This approach to the discussion of soil SRCs corresponds to figures presented in Section 4 that show the horizontal and vertical distribution of SRCs in soil within each EU.

Various groundwater quality parameters are included on the tables in Section 4. Groundwater quality parameters may include alkalinity, cation exchange capacity, chloride, cyanide, ethane, ethene, fluoride, methane, nitrogen, orthophosphate, phosphorus, sulfate, sulfide, oxygen demand, percent moisture, total dissolved solids, total suspended solids, and total organic carbon. These parameters have not been identified as SRCs, but have been used to qualitatively evaluate groundwater conditions at the NFSS, where appropriate.

Throughout the discussions of SRCs in this section, the term “total” refers to dissolved plus undissolved particulates within a sample. However, when the term is used for “total uranium”, it refers to the concentration of uranium in $\mu\text{g/L}$, rather than the sum of all uranium isotopes in pCi/L .

In general, ubiquitous elements that are present at low concentrations and are essential human nutrients are not discussed in this RI report. These chemicals are toxic only at very high doses and are considered to be human nutrients essential to a well-balanced diet. For these reasons, they typically are not considered hazardous to humans. Essential human nutrients include iron, magnesium, calcium, potassium, and sodium.

As part of the evaluation of nature and extent for this RI, and in support of groundwater modeling presented under separate cover, the groundwater data was examined to determine if it supported the conclusion that groundwater plumes of SRCs existed at the site. A groundwater plume was defined to be a group of wells or groundwater samples in proximity to each other which exhibited groundwater concentrations of a given SRC that exceeded the associated background screening level, or MCL, as appropriate. Where appropriate, plume extent also considered water results taken from manholes. For metal and radionuclide SRCs, both total and dissolved concentrations were used to evaluate the existence of a groundwater plume. However, only the dissolved concentrations were used to define isoconcentrations used in the groundwater model and presented in this RI report. This is partly due to the fact that RI groundwater samples were predominantly collected from temporary well points which, by nature, can exhibit high turbidity. Samples for dissolved analysis were filtered in the field at the time of collection, removing much of the turbidity. Dissolved concentrations were also used to define plumes during this RI because portions of a constituent in an unfiltered sample can be sorbed onto particulate matter rather than be dissolved in the groundwater. Hence, dissolved fractions of constituents are likely to be more mobile in groundwater than non-dissolved fractions. However, it should be noted that the BRA evaluated dose and risk from exposure to total concentrations of constituents in groundwater to ensure a more conservative assessment of risk to human health and to comply with specifications included in RAGS (EPA 1989).

5.1.2 Evaluation of Groundwater Data

The classic concept of a groundwater plume is a contiguous area of contamination within a uniform aquifer. In such a scenario, the plume migrates downgradient at a measurable rate and expands its volume of influence by diffusing laterally and vertically. An aquifer is a relatively uniform body of rock or sediment that has sufficient permeability to transmit water at a

reasonable rate. However, contamination can occur in a formation that does not fit the definition of an aquifer, in which case the uniformity of the aquifer is questionable, as is the presence of a classic plume.

The contaminated groundwater areas at the NFSS exist within a zone of low permeable material containing small lenses of sand with lesser amounts of silt and clay, and occasional gravel. The sand lenses extend a few tens of feet laterally and only a few feet vertically. There is very little groundwater flow in subsurface areas consisting mainly of clay where there are no silt lenses. Portions of the clay material often appear dry when sampled. Downgradient migration of groundwater through a sand lens is likely to be relatively fast, while migration through a tight clay unit may be very slow or non-existent. Therefore, the configuration of contamination in groundwater at the NFSS may be quite irregular, rather than uniform, as depicted by a classic, uniform plume. For this reason, the interpretation of the extent of contamination at the NFSS using the concept of a classic, uniform plume is probably not warranted. However, for the purpose of evaluating constituents present in groundwater for this RI, contaminated groundwater areas at the NFSS are referred to as "plumes".

The plumes were drawn from an evaluation of total and dissolved radiological and chemical analytical data for water samples collected from manholes and for groundwater samples. As mentioned previously, only the dissolved phase data set was used to define isoconcentrations for the radionuclide and metal plumes.

In general, groundwater plumes were drawn based solely on the available concentration data, though, where present, the location of subsurface utilities, interconnectedness of the sand lenses, and areas of subsurface disposal – which can create preferential flow pathways in the subsurface – were also considered. The evaluation did not consider the impact of other groundwater contaminant transport mechanisms such as the possibility of dessication fractures in the clay till. As such, some of the resultant plumes show concentration gradients increasing in directions that are hydraulically upgradient. This result indicates that the general shapes of the plumes may be more a reflection of the general geometry and location of the original release than the result of groundwater flow and transport mechanics at force in the intervening time since the original release. Many of the plumes may not be the result of point releases, but rather the result of releases that occurred over larger areas and the sizes of these areas may have been as large as the plumes themselves.

Groundwater plumes delineated and discussed in this section include those for dissolved total uranium, dissolved thorium-230, dissolved boron, dissolved manganese, PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, bis(2-ethylhexyl)phthalate and vinyl chloride. Although groundwater data exists for individual uranium isotopes, only dissolved total uranium groundwater plumes are discussed in this section. Analytical data for dissolved uranium isotopes were considered during the delineation process for the dissolved total uranium groundwater plumes, which are indicative of elevated uranium isotope concentrations in groundwater. Uranium isotope plumes were generated for groundwater modeling efforts and are provided as Figures 5-1 through 5-3 for informational purposes only.

5.2 BAKER-SMITH AREA AND VICINITY: EU 1 AND 2

The Baker-Smith area and vicinity consists of EUs 1 and 2. The area is bordered by the NFSS perimeter fence on the west and north, O Street on the south, and the New Naval Waste Area (EU 3) to the east. The West Ditch flows through the Baker-Smith area (EU 1) and the Central Ditch flows through EU 2.

During the operation of the LOOW, a pipe shop, machine shop, welding shop, and a store house were located in the Baker-Smith area near a rail line that ran roughly parallel to the West Patrol Road. The rail line is no longer present, though its location appears to coincide with an unnamed drainage ditch that flows north through the area. This unnamed ditch crosses the West Patrol Road approximately 70 feet south of the north perimeter fence, where it joins the O Street South Ditch, which flows south to the West Ditch. Except for the West Ditch, the ditches in EU 1 are typically dry and carry water only after storm events. During operation of the NFSS by AEC, K-65 and KAPL residues were stored in buildings located in the Baker-Smith area. The KAPL residues were later transferred to Oak Ridge National Laboratory and the K-65 residues were moved to a silo in EU 6. A remedial action was performed in the Baker-Smith area in 1981.

Building 433, also known as the radium storage vault and used to store sealed radium sources, was believed to be located in either EU 2 or 3. The exact location of this building is not known with certainty as conflicting locations are given in the historical record, although they all agree that the building was located a short distance east of Campbell Street, between N Street and O Street. Because of the uncertainty associated with the exact location of Building 433, areas in both EUs 2 and 3 were investigated as potential former locations of the building. A small portion of the New Naval Waste Area, where construction debris was stored, was also located in EU 2 near the intersection of N Street and Campbell Street. A remedial action was performed in the New Naval Waste Area in 1983.

5.2.1 Occurrence and Distribution of SRCs

As described in detail in the following sections, both EU 1 and 2 are impacted with SRCs at concentrations above the background screening levels.

5.2.1.1 Soils

Figures 4-2 and 4-3 summarize the occurrence of SRCs in soil at EUs 1 and 2.

Soil samples were collected at EUs 1 and 2 during Phase 1 of the RI to investigate the presence or absence of radiological, organic, and inorganic compounds near the former Baker-Smith shop and storehouse locations in EU 1, and the former acid area east of EU 2. The areas of the former building foundations were particular areas of interest in EU 1. Specific features investigated at EU 2 included two underground pipes found during a gamma walkover, concrete slabs, a former fuel storage area, the area near the former radium vault, and former railroad lines. Further investigation of compounds found in the soil near these areas during the LOOW RI was included as part of the Phase 1 soil sampling activities. Phase 1 sample results indicated the presence of organic, metal, and radiological SRCs in surface and subsurface soil at EUs 1 and 2.

Soil samples collected during Phase 2 of the RI served to delineate the nature and extent of compounds detected during Phase 1 activities. In addition, soil samples collected in EU 2 served to investigate the presence or absence of radioactive compounds near the former radium vault. Samples located along the northern property boundary in EUs 1 and 2 indicated the presence of organic, metal, and radiological SRCs above background UTLs. Samples located to bound Phase 1 results in the area of the former Baker-Smith building foundations indicated the presence of metal and radiological SRCs above background UTLs, mainly in the area west of the former buildings. Samples located within the southeastern area of EU 2 indicated the presence of organic, metal, and radiological SRCs above background UTLs.

The majority of the soil samples collected during Phase 3 of the RI were used to investigate the horizontal extent of surface radiological activity observed during the gamma walkover conducted during 2001. Additional samples collected during Phase 3 were used for characterization purposes, to investigate previously uninvestigated areas of the EUs, or to confirm previous sampling results. Phase 3 soil results further indicated the presence of organic, metal and radiological SRCs above background UTLs in EUs 1 and 2.

Sixty-seven surface and subsurface soil samples, collected during the three phases of the RI, were used for the evaluation of soils in EU 1. Three samples collected from EU 1, SD712-319, SD713-324, and SD714-326, were intended to be evaluated as sediment samples. However, as discussed in previous sections of this RI report, these samples were classified as surface soil samples to be consistent with exposure mechanisms considered in the BRA. Therefore, these samples were included in the discussion of soil samples collected at EU 1. General conclusions concerning the nature and extent of SRCs in soils at EU 1 are:

- Soil samples collected at depth indicate that the majority of SRCs within EU 1 are present within the upper 2 feet of soil.
- Several of the surface and subsurface soil samples collected from EU 1 contained concentrations of one or more radionuclides. Actinium-227, radium-226, and thorium-230 exceeded their respective background UTLs by a factor of 100 or more. Sample locations exhibiting these exceedances include 5A016, located near the western portion of the former Baker-Smith building foundations, and 746, located in the southeast area of EU 1 near the West Ditch. Location 503 also exhibited several exceedances of the background UTL by a factor greater than 10. This location in the vicinity of the former building foundations exhibited surface soil concentrations of uranium-234, uranium-235, uranium-238, and total uranium at concentrations between 70 and 100 times the background UTLs. These uranium isotopes were detected at other locations throughout EU 1, but only exhibited concentrations that exceeded the background UTLs by less than a factor of 10. Location 727 exhibited concentrations of actinium-227, radium-226, and thorium-230 that exceeded background UTLs by a factor greater than 10.
- Cesium-137 was detected above the background UTL at several locations within EU 1, but only at concentrations that exceeded the background UTL by less than a factor of 10. Cesium-137 was detected above the background UTL mainly in the southeastern portion of EU 1 and in the vicinity surrounding the former building foundations.
- Gamma walkover survey data and analytical data indicate that the areas impacted with concentrations of radiological SRCs that greatly exceeded background are small and discontinuous.
- Other radiological, metal and organic SRCs were found less frequently in surface and subsurface soils than the SRCs listed above and typically exceeded the background UTLs by much smaller multiples. Metals, pesticides, PAHs, VOCs, and SVOCs were most frequently detected in surface soil samples.
- Subsurface soil samples collected in EU 1 at depths greater than 10 feet bgs slightly exceeded background UTLs for several metals, thorium and uranium isotopes, and six VOCs. The majority of these exceedances occurred at locations 505 and 506 along the

northern boundary of the EU and at locations 502 and 503 near the former building foundations.

- Trench samples collected during Phase 3 in the central portion of EU 1 near the former building foundations were used to further investigate above-background gamma measurements observed in surface and subsurface samples collected following the gamma walkover. The location of the trench was selected to examine conductive, magnetic, and ferrous zone anomalies that were reported in the geophysical investigation of the area. As presented in Section 3, fill mixed with wooden and iron debris was found in Trench 501. No elevated gamma or PID measurements were noted during field activities. However, trench soil sample results indicated the presence of metal and radiological SRCs slightly above background UTLs within the upper 3 feet of soil.

Seventy-eight surface and subsurface soil samples collected during the three phases of the RI were used for the evaluation of soils in EU 2. General conclusions concerning the nature and extent of SRCs in soils at EU 2 are:

- In EU 2, the most commonly detected radiological SRCs in both surface and subsurface soil were thorium-230 and radium-226. Both thorium-230 and radium-226 were detected at concentrations above background UTLs throughout EU 2; however, exceedances of the background UTL by a factor of at least 10 were relatively few. Although not frequently detected, actinium-227 exceeded the background UTL by a factor greater than 10 in several surface soil samples located in the western and central portions of the EU. The other radionuclide SRCs were found at lower concentrations and in fewer samples.
- Cesium-137 was found in the surface and near surface soils at concentrations slightly above the background UTL across a wide portion of EU 2. The data indicates that the distribution of elevated concentrations of cesium-137 in surface and near surface soils is very saltatory and uneven. The only cluster of elevated (i.e. in excess of background) cesium-137 soil samples was found in the eastern periphery of the EU where the collection of samples was concentrated. Sampling of soils was focused in this area during Phase 1 (LOOW RI) to investigate the presence of contamination in the vicinity of the former radium storage vault. Further investigation of soils in this area was conducted during later phases of the NFSS RI to bound Phase 1 samples and to determine the horizontal extent of radiological contamination observed during the gamma walkover.
- In EU 2, several metals and organic compounds were either commonly found or found at relatively high levels. Sixteen PAH compounds, one PCB, four pesticides, two SVOCs and seven VOCs (including acetone, benzene, toluene, xylene, and others) were determined to be surface soil SRCs in EU 2. Four PAH compounds, three PCBs, five pesticides and eight VOCs were identified as subsurface SRCs. Soil samples containing concentrations of PAH compounds above the background UTLs are restricted mainly to the extreme eastern portion of the EU. The situation with metals is similar. In general, samples exhibiting concentrations of several metals and VOCs above surface soil and subsurface soil background UTLs are located mainly in the eastern portion of the EU at depths less than 5 feet bgs. In particular, boron, lead, and selenium were detected in this eastern area at concentrations that exceeded background UTLs by factors greater than 10.

- Subsurface soil samples collected in EU 2 at depths greater than 10 feet bgs exceeded background UTLs for several metals, radium-226, thorium-230, and five VOCs. All background UTL exceedances were by less than a factor of 10. Selenium and thallium were the metals that most frequently exceeded the background UTLs in deep soils throughout EU 2. Radium-226 and thorium-230 exceeded the background UTL in only one sample each. Exceedances of the background UTLs by VOCs (including benzene, toluene, xylene, and others) occurred mainly in the southeastern portion of the EU.
- An abandoned drum was found in the extreme southeast corner of EU 2, sampled, and then appropriately disposed. The drum residue contained elevated levels of total and isotopic uranium. Soil samples collected from beneath the drum contained metals, radionuclides, PAHs, pesticides, one PCB, and one VOC above the background UTLs. Based on analytical results, it does not appear that the drum was the source of PAH, pesticide, PCB, and VOC contamination in the soils beneath it.

5.2.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

Three Phase 1 surface water samples were collected from road-side ditches and the West Ditch in EU 1 to investigate the presence or absence of SRCs in surface water near the property boundary and the Baker-Smith area, as well as downstream of the former storehouse (Building 444) and pipe shop (Building 445). Two Phase 1 surface water samples were collected from the Central Ditch in EU 2 to characterize the Central Ditch within this EU, and to investigate the presence or absence of SRCs near the property boundary and in the ditch downstream of the IWCS and the former IWCS stormwater ponds. General conclusions are:

- Several metals and radionuclides were determined to be surface water SRCs in EU 1 and EU 2. However, unlike the concentrations of SRCs in soils, the relative level by which samples exceeded the associated background UTLs was small. With the exception of dissolved silver and total thallium, no surface water SRC exceeded its associated background UTL by more than a factor of about five. Most exceedances were by a factor of two or less.
- All three surface water samples collected from EU 1 contained concentrations of dissolved silver which exceeded the background UTL. Radium-226 was the only radionuclide detected above the background UTL in surface water samples collected within EU 1.
- In EU 2, two surface water samples were collected from the Central Ditch. Dissolved silver was the only metal that exceeded its background UTL by a factor of 10 or more. Thorium-232, the only radionuclide detected in these surface water samples, was present at a concentration slightly above the background UTL in sample location SW709.

5.2.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Three Phase 1 sediment samples were collected from the Central Ditch in EU 2 to characterize the Central Ditch within this EU and to investigate the presence or absence of SRCs near the property boundary and in the ditch downstream of the IWCS and the former IWCS stormwater ponds.

General conclusions are:

- Two metals, manganese and selenium, were detected above background UTLs in sediment. The manganese concentration at location OTFL2 was almost three times the background UTL, while the manganese concentration at location SD709 was slightly less than twice the background UTL. The manganese concentration at location SD710 was just above the background UTL. Selenium was also detected at location OTFL2 at a concentration just above the background UTL.
- The correlation between surface water and sediment SRCs was not strong. This may be because many of the surface water analytical results are inflated by the presence of turbidity in the samples. There is not a corresponding mechanism for sediment samples which could also inflate analytical results.

5.2.1.4 Groundwater

Figures 4-18 through 4-21 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

In EU 1, groundwater samples were collected from three permanent wells and six TWP. In EU 2, groundwater samples were collected from four permanent wells and eleven TWPs.

Groundwater samples were collected in EUs 1 and 2 during Phase 1 of the RI to investigate the presence or absence of chemical and radiological compounds in groundwater at the NFSS property boundary and in previously uninvestigated areas, and to evaluate the presence and extent of compounds previously identified in soil during the LOOW RI. Groundwater areas of interest in EU 1 included the former welding shop (Building 443) and storehouse (Building 444) where radioactive residue was stored, and the former pipe shop (Building 445) where drums of L-30 and KAPL residues were stored. Features investigated at EU 2 included two underground pipes, concrete slabs, a former fuel storage area, the former radium vault (Building 433), and former railroad lines. Phase 1 sample results indicated the presence of organic, metal, and radiological SRCs in groundwater at EUs 1 and 2.

Groundwater samples collected during Phase 2 of the RI served to delineate the nature and extent of compounds detected during Phase 1 activities and to further provide data to characterize the EUs. Groundwater samples collected during Phase 3 of the RI served mainly to confirm previous results obtained during Phases 1 and 2 and to evaluate the presence of detected compounds at revised reporting limits. Phase 2 and Phase 3 sample results further indicated the presence of organic, metal, and radiological SRCs in groundwater in EUs 1 and 2.

General conclusions are:

- A dissolved total uranium groundwater plume was found to extend from the west-central portion of EU 2 through the northwest portion of EU 1. The plume, shown in Figure 5-4, trends from northwest to southeast. Based on the data shown in Figure 5-4, this plume

extends off site north of EU 1. The maximum dissolved concentrations of total uranium in this plume are approximately two to three times the background UTL. This plume could be related to localized areas of elevated activity up to 25,000 cpm (see Figure 3-1) that were identified in surface soils in the northwestern portion of EU 1 during the gamma walkover survey. Leaching from these surface soils could be affecting wells in this area.

- Other than uranium isotopes, the only other radionuclide detected above the background UTL in the dissolved phase was thorium-228. Dissolved thorium-228 was detected above the background UTL in EU 2 at well 808A.
- No radionuclides exceeded background UTLs by a factor of 10 or more in groundwater in EUs 1 or 2. However, three metals, total aluminum, silver and vanadium, exhibited concentrations exceeding background UTLs by a factor of 10 or more in both EU 1 and 2. Total chromium, cobalt, iron, manganese, and nickel exceeded background UTLs by a factor of 10 or more in EU 2 only, but at factors less than that of aluminum, silver and vanadium. No dissolved metal exceeded its background UTL in either EU 1 or 2 by a factor greater than 10. Antimony, barium, beryllium, cobalt, magnesium, nickel and thallium were detected relatively infrequently above the background UTL in the dissolved phase.
- Some of the groundwater SRCs in EUs 1 and 2, particularly metals and radiological compounds, were detected only in the TWPs. Many of the SRCs have an affinity for clay and other formation solids and tend to chemically bind to these materials. As a result of this affinity, turbid groundwater samples, such as those collected from TWPs, tend to have higher concentrations of SRCs than groundwater samples collected from permanent wells, which typically yield less turbid groundwater samples.
- Cesium-137 was detected in groundwater at locations MW404A and GW910A at concentrations of 61.5 pCi/L and 33.5 pCi/L, respectively. These well locations were sampled during Phase 2 to further evaluate the extent of radiological parameters observed in groundwater at temporary well points. MW404A is located near the former fuel oil storage area and in the vicinity of the former radium storage vault, while GW810A is located in the north-central portion of EU 2 in an area not previously investigated. GW810A was also sampled for radionuclides during Phase 3; however, no cesium-137 was detected in this sample.

Note that the above cited detections of cesium-137 were evaluated in the BRA and not found to pose an unacceptable risk, even when assuming water containing these concentrations was consumed (such as in the farming scenario). Furthermore, these detections of cesium-137 are below a drinking water MCL derived using 4 mrem/year as the annual dose rate limit (EPA 2000). The MCL equivalent for cesium-137, using a drinking water ingestion rate of 2 L/day for 365 days/year and ICRP-26/30 dosimetry (from Federal Guidance Report [FGR] 11), would be 110 pCi/L, which is well above the detected concentrations of cesium-137 in groundwater (Peterson et al. 2006).

- Two nitroaromatic compounds were found in EU 1 groundwater samples. 1,3,5-Trinitrobenzene was detected in samples GWBH62-275 and C5-VS-GW-D300 and cyclotetra methylene tetranitramine (HMX) was detected in sample C5-VS-GW-D300. All three of these detections were only slightly greater than the background UTL. HMX

is not known to have been manufactured at the LOOW and there is no record of HMX being stored at the LOOW, so this result is suspect. Nitroaromatic compounds were not detected in any of the other groundwater samples collected in EU 1 or 2.

- Three pesticide compounds, 4,4'-DDD, endosulfan II, and endosulfan sulfate, were detected at well MW505 at concentrations only slightly greater than the background UTL during Phase 3. These compounds were not found at measurable concentrations in the first sample, GW505-783, collected from this well. For this reason, these low pesticide detections are suspect.
- Three PAH compounds, benzo(a)anthracene, benzo(k)fluoranthene, and dibenzo(a,h)-anthracene were detected at well GW808A at concentrations only slightly greater than the background UTL during Phase 3.

5.2.1.5 Pipelines and Subsurface Utilities

Figures 4-22 and 4-23 summarize the occurrence of total and dissolved SRCs in pipeline water samples at the NFSS, while Figure 4-24 summarizes the occurrence of SRCs in pipeline sediment samples at the NFSS.

No pipelines or subsurface utilities are known to traverse EU 1. During the operation of the LOOW, administrative offices were located in this area. It is thought that sanitary sewer lines may have serviced this area, and if they did, they most likely ran to the north towards the facility wastewater treatment plant, located a short distance north of the NFSS perimeter fence.

A sanitary sewer traverses EU 2, flowing to the north, and following a path roughly parallel to Campbell Street. Lateral pipes, which served the acid area, the shops area, Building 401 and the Freshwater Treatment Plant (now part of the IWCS), feed this line. Two storm sewer lines in EU 2, running south of N Street and north of O Street and discharging to the Central Ditch, serviced the acid area. A drinking water line and a fire water line were routed through EU 2, just west of Campbell Street.

One sediment and one water sample were collected during Phase 1 of the RI as part of the LOOW RI sampling. During Phase 3 of the RI, three sediment samples and two water samples were collected from four manholes at EU 2. These manholes were part of the sanitary and storm water sewer systems. Manhole MH13 was sampled because it drained the former radium storage vault in the western acid area. Manholes MH15 and MH16 were sampled to further characterize the sewer system in EU 2. Manhole MH29, located southwest of the former sellite plant, was sampled to characterize the sewer system downgradient of the acid area fuel oil storage location. No manholes or outfalls exist for the drinking water lines so they were not sampled.

General conclusions are:

- The sediment sample collected from location C7-NFSS-ST9 during the LOOW RI contained detectable concentrations of calcium, iron, manganese, selenium, silver, several PAHs, two pesticides, and p-cresol that exceeded the background UTLs. The water sample from this location exhibited concentrations of silver, alpha-BHC, and toluene that exceeded background UTLs. Of these SRCs, silver in the stormwater sample was the only SRC to exceed the background UTL by a factor greater than 10.

- Uranium-234, uranium-235, and uranium-238 were detected at concentrations above background UTLs in a sediment sample collected from manhole MH16, southwest of the intersection of O Street and Campbell Street on the sanitary sewer line. The uranium isotopes exceeded their background levels by a factor of about 3. Calcium and mercury were also detected in this sediment sample at concentrations that slightly exceeded the background UTLs.
- No radiological SRC was detected in the water sample collected from manhole MH16 at a concentration above the background UTL. The following metals were found in the water sample at concentrations above their background UTLs: total thallium, dissolved antimony, dissolved mercury, dissolved nickel, dissolved silver, and dissolved vanadium. Total thallium and dissolved silver exceeded their background UTLs by a factor greater than 10, while the other metals exceeded their background UTLs by factors less than 10. Bis(2-ethylhexyl)phthalate was also detected in the water sample collected at this location.
- Radium-226 slightly exceeded its background UTL in the water sample collected from manhole MH15. No other parameters were detected at concentrations above their background UTLs in this water sample. No sediment sample was collected at this location.
- Sediment samples were collected from the southern storm sewer line from manholes MH13 and MH29, both located near Campbell Street. Both manholes were dry during the time they were sampled. No parameters exceeded background UTLs in sediment at manhole MH13. The sediment collected from manhole MH29 contained manganese, selenium, cesium-137 and several PAH compounds above the background UTLs. None of these SRCs exceeded the background UTLs by more than a factor of about two.

5.2.2 Media Interactions

Surface soils and near surface soils over significant portions of EUs 1 and 2 contain concentrations of several radionuclides that exceed background UTLs. At isolated locations, the magnitude of these exceedances is more than a factor of 100. However, these high concentrations of radionuclides in the soils appear to be spatially limited and relatively immobile. In general, the concentrations of SRCs decrease with depth and the maximum concentrations are found at the surface. The sole exception to this are the samples collected from location 5A016 where the maximum concentrations of radiological SRCs were found in the sample collected at one foot bgs.

There is minimal evidence that radionuclides in the surface and near surface soils are migrating to the groundwater. A dissolved total uranium groundwater plume was found to extend from the west-central portion of EU 2 through the northwest portion of EU 1. In EU 1, the three soil samples with the highest concentrations of total uranium (SS502-060, SS503-064, and SS504-692) do not directly coincide with the highest groundwater concentrations of dissolved total uranium. Likewise in EU 2, the soil samples with the highest concentrations of total uranium were all collected from locations that were hundreds of feet from the estimated footprint of the dissolved total uranium plume.

The uranium plume in EUs 1 and 2 is bounded by groundwater samples with uranium concentrations below UTLs; however in some cases, the samples are large distances (>350 feet)

from the edge of the plume, as shown on Figure 5-4. Due to the spatial distribution of the small number of groundwater samples, the plume size is fairly large. Additional groundwater sampling may be warranted in this area to better define the nature and extent of the uranium groundwater contamination, particularly to the north.

5.2.3 Sources and Effects of Past Site Use

As described above, radioactive wastes were once stored in EU 1 and a remedial action was performed in this area in 1981. A small portion of the New Naval Waste Area was located in EU 2. The former radium storage vault (Building 433) was also thought to have been located in EU 3 near the eastern portion of EU 2. A remedial action was conducted at the New Naval Waste Area in 1983.

- Elevated concentrations of several radionuclides were found across a wide portion of the area, chiefly in the central portion in the area of the former Baker-Smith buildings.
- Similarly, soil samples collected near the West Ditch contained radionuclides at concentrations that exceeded background UTLs by factors greater than 30, including actinium-227, radium-226, and thorium-230.
- The slightly elevated levels of cesium-137 found in surface soils in EU 1 may be attributed to the KAPL residues that were stored in this area. See Section 5.9 for a more detailed analysis of potential fission product contamination at NFSS.
- Radium-226 concentrations in surface and near surface soils above the background UTL were found across EU 2. In addition, several other radionuclides (including isotopic uranium and thorium-230) detected above background UTLs were also found in the area.
- An area of VOC contamination ranging from surface soil to depths greater than 20 feet was identified in the area of the former sellite manufacturing buildings and storage tanks. Past spills or leaks of chemicals used in this area could have resulted in the benzene, ethylbenzene, toluene, xylenes, carbon disulfide, acetone, butanone and hexanone contamination in this area.
- Several PAH compounds were found in the eastern portion of EU 2 at concentrations above the background UTLs. This area is a short distance from the main portion of the New Naval Waste Area, where demolition debris was reportedly stored. The New Naval Waste Area may have contributed to the elevated concentrations of PAH compounds found here.
- There appears to be correlation between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. For example, samples collected within EU 1 in areas exhibiting elevated gamma walkover readings (i.e., east of the West Patrol Road, along the West Ditch, and at location 5A016) contained elevated levels of total uranium, radium-226, and thorium-230. Although only a few small areas of elevated gamma walkover readings were observed in EU 2, similar correlations were observed. For example, location SS4A013 also contained elevated levels of total uranium, radium-226 and thorium-230.

5.3 ACID AREA AND VICINITY: EU 3 AND 4

The acid area and vicinity consists of EUs 3 and 4. The area is bordered by EU 2 on the west, the NFSS perimeter fence on the north, O Street on the south, and EU 5 on the east. None of the major ditches on the site flow through EUs 3 and 4. These EUs are poorly drained and significant portions are covered by ponded water during wet periods. The water that does run off these areas is conveyed to the Central Ditch through the ditches along N Street and O Street.

The major portion of the New Naval Waste Area, where building debris was stored, was located within EU 3. Building 433, also known as the radium storage vault and used to store sealed radium sources, was believed to be located in either EU 2 or 3. The exact location of this building is not known with certainty as conflicting locations are given in the historical record, although they all agree that the building was located a short distance east of Campbell Street, between N Street and O Street. Because of the uncertainty associated with the exact location of Building 433, areas in both EUs 2 and 3 were investigated as potential former locations of the building. During the operation of the LOOW, nitric acid and other materials related to the manufacture of TNT were stored in the acid area (EU 4). During the 1950's, uranium rods were stored in Buildings 431 and 432 (Aerospace Corporation 1982). These buildings, formerly located near the boundary between EUs 3 and 4, were decontaminated and demolished in 1986.

Five abandoned drums were found in EU 4. As part of the RI, these drums were shipped off site for disposal. Soil samples were collected at the locations of these drums and are discussed in the following sections.

5.3.1 Occurrence and Distribution of SRCs

Within EU 3, radium-226 and thorium-230 were the most widely distributed and most commonly found SRCs, though several other radionuclides, metals and organic compounds were also determined to be SRCs. SRCs were more commonly found in surface and near surface soils than at depth.

The list of SRCs in EU 4 is similar to that of EU 3, though more organic compounds were determined to be SRCs in EU 4. Also, significant groundwater impacts were found in EU 4.

5.3.1.1 Soils

Figures 4-4 and 4-5 summarize the occurrence of SRCs in soil at EUs 3 and 4.

Soil samples were collected at EUs 3 and 4 during Phase 1 of the RI to investigate the presence or absence of radiological, organic, and inorganic compounds in and near the acid area. Features of particular interest at EU 3 included a hummocky area near the former railroad lines, a former fuel storage area, and former Building 433. Specific features investigated at EU 4 included the sulfuric acid storage and Building 432; a hummocky area near the former rail lines, tank cradles, and Buildings 431 and 432; the former nitric acid concentrator; and a concrete slab and potential UST. Buildings 431, 432, and 433 were demolished during previous remedial actions, although building foundations and slabs are still present. Soil sampling areas of interest are adjacent to and near these former buildings. Soil was also investigated along the northern NFSS boundary in EU 4 where run-off is received from the CWM property.

Further investigation of compounds found in the soil near these EUs during the LOOW RI was included as part of the Phase 1 soil sampling activities. Phase 1 sample results indicated the presence of organic, metal, and radiological SRCs in surface and subsurface soil at EUs 3 and 4.

Soil samples collected during Phase 2 of the RI served to delineate the nature and extent of compounds detected during Phase 1 activities. In addition, soil samples collected in EU 4 served to investigate the presence or absence of radioactive compounds along the southern boundary of the EU along the former haul road and rail line for the K-65 residue, as well as along the northern boundary of the NFSS.

The majority of the soil samples collected during Phase 3 of the RI were used to investigate the horizontal extent of surface radiological activity observed during the gamma walkover conducted during 2001. Additional samples collected during Phase 3 were used for characterization purposes or to confirm previous sampling results. Phase 3 soil results further indicated the presence of organic, metal and radiological SRCs above background UTLs in EUs 3 and 4.

Four trench areas were investigated in EU 3 and another four trench areas were investigated in EU 4. In EU 3, the trenches were excavated to investigate previously remediated soils, the radium vault area and a rubble-filled depression. Trenches in EU 4 were excavated to investigate debris piles and some underground piping and sewers. One trench in EU 3 (Trench 403) and two trenches in EU 4 (Trenches 406 and 408) were screened during excavation with a two step field-screening method to determine the presence or absence of TNT. The first step determined if TNT was present. If TNT was found, a second step was completed to determine if the TNT was present at concentrations greater than or equal to 10%. None of the field tests suggested that TNT was present at these concentrations in either EU.

The nature and extent of subsurface soils at depths greater than 10 feet is more certain for EU 4 than EU 3 because over 20 samples were collected in EU 4 at depths greater than 10 feet, while only three samples were collected at depths greater than 10 feet at EU 3.

Forty-eight surface and subsurface soil samples collected during the three phases of the RI were used for the evaluation of soils in EU 3. General conclusions concerning the nature and extent of SRCs in soils at EU 3 are:

- Actinium-227, radium-226, thorium-230, uranium-234, uranium-235, uranium-238 and total uranium were found in the surface soils at concentrations above background UTLs, with radium-226 being detected most frequently. Three samples exhibited concentrations of radium-226 that exceeded the background UTL by a factor greater than 10. These three samples, SS4B009-2280, SS4B014-2288, and SS4B021-2295, are all located in close proximity to each other in the west-central portion of the EU. Actinium-227 was also detected above the background UTL at a factor greater than 10 in two of these samples (SS4B009-2280 and SS4B021-2295). Sample SS4B010-2282, which exhibited the highest thorium-230 concentration, was also located in this portion of the EU. Sample SS4B009-2280 exhibited the highest concentrations of uranium-234, uranium-235, uranium-238, and total uranium found in surface soil at EU 3.
- Radionuclides exceeded background UTLs less frequently in subsurface soils. All of the radionuclide SRCs in surface soil are also SRCs in subsurface soil including thorium-228 and thorium-232. Of all of the radionuclides, radium-226 and thorium-230 most frequently exceeded the subsurface soil background UTL. Radiological SRCs in subsurface soil were present in trenching locations as well as at several scattered

sampling points. No radionuclides were identified as SRCs in subsurface soils collected at depths greater than 10 feet bgs from two sample locations.

- Within the west-central portion of EU 3, concentrations of radioactive materials were found that exceed the background UTLs by a factor of 10 or more. In other portions of EU 3, the magnitude of exceedances is much less and analytical data show that the occurrence of radioactive materials in soils at EU 3 at levels above background UTLs is restricted to a maximum depth of approximately two feet, except at trenching locations. However, this conclusion may be biased, as the majority of soil samples collected from depths greater than two feet were from trenching locations.
- Five soil samples were collected from three trenches (one each from Trenches 408 and 414 and three samples from Trench 413) to test for the presence of asbestos; however, asbestos was not detected in any of these samples.
- Twelve metals exceeded background UTLs in surface and subsurface soils in EU 3. All concentrations were less than about three times the background UTL. Additionally, two PAHs, two PCBs, eight pesticides, and three VOCs were detected above background UTLs in soil at EU 3. These SRCs were detected above background UTLs more frequently in subsurface soils, particularly in trenching locations and at depths less than 10 feet. However, these results may be biased because the majority of soil samples collected at depths less than 10 feet bgs were from trenching locations.
- Three subsurface soil samples were collected in EU 3 at depths greater than 10 feet. These samples exceeded background UTLs for three metals only, including selenium, sodium, and thallium.
- Trench 403 was excavated in the former acid area between O Street and N Street. Three feet of fill with organic matter, bricks, gravel and wood were observed in a rubble-filled depression at this trench location. Although a number of magnetic anomalies appeared to exist in the fill material, there were no elevated PID readings and no gamma measurements above background. Three soil samples were collected, two of which were from sand lenses. The third sample was collected from the grayish-brown clay at the bottom of the trench. The trench samples indicated the presence of metals, pesticides, PCBs, and VOCs above background UTLs in soil. Additionally, total uranium, uranium-234, uranium-235, uranium-238, radium-226, and thorium-230 were detected above background UTLs. All SRCs were present at concentrations only slightly greater than the background UTLs.

Three trenches (Trenches 411, 412, and 413) were dug in areas of disturbed ground in the New Naval Dump. The trenches were located to investigate for the presence of radiological parameters in soils near a form vault where bars of pure radioactive materials were stored at the western end of the acidification area. These trenches were investigated for radiological parameters only.

- Trench 411 was excavated to look at remediated soils from the New Naval Waste Area. This trench is located to the north of the former radium vault. Geophysical results indicate both ferrous and conductive zone anomalies in the area. The upper two feet of the trench penetrated a dark brown to black clay containing concrete rubble and rebar. A brownish-gray clay with occasional cobbles was observed below the debris zone.

Magnetic anomalies exist in the upper two feet of soil and gamma readings above background were observed at two locations. No elevated PID readings were noted. The trench was reoriented slightly so that the west end would not intercept a surface gamma area of elevated radioactivity. One soil sample was collected in a sand lens. The other two soil samples were collected in the upper debris layer. The two samples from the upper debris layer indicated the presence of total uranium, uranium-234, uranium-235, uranium-238, actinium-227, radium-226, and thorium-230 above background UTLs. All of these SRCs were present at concentrations less than 10 times the background UTL. No SRCs were identified in the sample collected from the sand lens.

- Trench 412, a 7-foot deep trench near the western border of EU 3, was excavated to investigate remediated soils in the New Naval Waste Area. Geophysical results indicate ferrous and metallic zone anomalies in the area. Dark brown clay with metallic debris and organic material was observed in the upper two feet of the trench. Underlying the debris layer was a brownish-gray clay with two sand lenses and a zone of white clay nodules. An area in the zone of white clay nodules exhibited an elevated PID reading. Additionally, there were many magnetic anomalies in the top two feet. No gamma readings were above background levels. Three samples were collected; one in a sand lenses, one within the zone of white clay nodules, and one in the brownish-gray clay. Thorium-230 slightly exceeded the background UTL in one of the samples. No other SRCs were identified in these three samples.
- Trench 413, located in the south-central part of EU 3, was excavated to investigate the radium vault area and the asbestos burial area. Geophysical results indicated one metallic zone anomaly. The upper layer of the trench contained cinders as well as a 2.5-foot ballast layer at the west end of the trench. Water infiltration prohibited some of the western portions of the trench from being excavated. A 2.5-foot layer of brown to black clay containing a light colored clay lens and a 4-inch iron pipe was observed below the cinders. The bottom two feet of the excavated portion of the trench contained a grayish-brown clay which contained a sand lens. A magnetometer anomaly was found at the location of the iron pipe; however, no gamma readings exceeded background and there were no elevated PID readings. Three subsurface soil samples were collected; one from just below the iron pipe, one from the light colored clay lens, and one from the sand lens in the grayish-brown clay. Uranium-235 was detected at a concentration slightly greater than the background UTL in the sample collected below the iron pipe. No other SRCs were identified in these three samples.

Ninety-six surface and subsurface soil samples collected during the three phases of the RI were used for the evaluation of soils in EU 4. General conclusions concerning the nature and extent of SRCs in soils at EU 4 are:

- Cesium-137, radium-226, and thorium-230 were widely distributed in surface soils at concentrations above background UTLs. The maximum concentration for each of these three isotopes was less than five times the background UTL. These three radionuclides were also detected at concentrations above background UTLs in subsurface soils at depths less than 10 feet mainly at trenching locations and former drum locations. However, sampling results may be biased toward these locations because most of the subsurface soils collected from depths less than 10 feet were from trenching and drum locations. Thorium-230 was infrequently detected at concentrations slightly above the background UTL in subsurface soils at depths greater than 10 feet.

- Americium-241, thorium-228, thorium-232, uranium-234, uranium-235, uranium-238 and total uranium were also found at concentrations above the background UTL in EU 4 surface and subsurface soils. However, these SRCs were found infrequently compared to the other radiological SRCs. Sample TB414-2844-05.5-004, collected from trench 414 (excavated in the western portion of the EU) at a depth of 5.5 feet bgs, had a uranium-234 concentration of 15.2 pCi/g. This result was almost ten times greater than the background UTL. Americium-241 only slightly exceeded its detection limit in two surface soil samples. The associated analytical uncertainties reported for these two samples, which are very close to the value of the results themselves, lowers the confidence of these detections.
- The radium-226 concentration in the four surface soil samples in the acid area just north of the junction of O Street and Castle Garden Road (samples SS417-054, SS4D014-630, SS4D012-628, and SS4D015-631) exceeded the background UTL by a factor less than five. These samples were collected near a former railroad bed. A ballast sample collected near these surface soil samples had a radium-226 concentration of 5.13 pCi/g. Thus, the data suggests that the railroad ballast may be contributing to the elevated radium-226 concentrations found at this location.
- Fourteen PAH compounds were detected in surface and subsurface soil at concentrations above background UTLs in EU 4 at depths less than 10 feet bgs. Soil samples collected from one trench location (TB408) and the locations of five abandoned drums contained one or more PAH compounds at concentrations above background UTLs. Several other scattered locations exhibited PAH compounds in surface soil that exceeded background UTLs. These samples were all located in the central and south-central portion of the EU.
- Metals were frequently detected in surface and subsurface soils in EU 4 at concentrations above background UTLs. Selenium and thallium were the metals most frequently detected above background UTLs. Boron, copper, and lead exhibited the highest exceedances in surface soil. Boron, lead, and sodium exhibited the highest exceedances in subsurface soil at depths less than 10 feet bgs. Each of these exceedances corresponded to locations of a trench or abandoned drum with two exceptions; lead exceeded the background UTL by a factor of at least 10 at locations EU042 and SS413. The magnitude of exceedance for soil samples not collected from locations of trenches or abandoned drums was typically by less than a factor of five.
- Detectable quantities of Aroclor-1254 and Aroclor-1260 were frequently found in surface and subsurface soil samples collected from EU 4. The maximum concentration of Aroclor-1254 was 714 µg/kg in surface soil sample SS4C001-618. The maximum concentration of Aroclor-1260 was 70,200 µg/kg in surface soil sample SS-DRUM07-3398. Several other soil samples collected from depths of one foot or less, mainly in the south-central portion of the EU, exhibited Aroclor-1260 concentrations greater than 1,000 µg/kg.
- Three pesticides and nine VOCs were detected in surface and subsurface soils at EU 4. Pesticides and VOCs were most commonly detected at trench and abandoned drum locations. Pesticides were also detected at several surface soil locations in the south-central portion of the EU. One or more of four VOCs (TCE, PCE, cis-1,2-DCE, and trans-1,2-DCE) were detected in surface or subsurface soil at locations MW424, SB415, and SS418.

- Subsurface soil samples collected in EU 4 at depths greater than 10 feet exceeded background UTLs for metals, benzo(g,h,i)perylene, pesticides, VOCs, and radionuclides. These exceedances occurred at widely scattered locations within the EU and, in most cases, were collocated with exceedances in samples collected from shallower depths. Widely scattered locations of samples that exceed background UTLs are spatially isolated with no definable source.
- An abandoned drum (Drum 2) found in EU 4 was sampled and appropriately disposed. Metals of note in the drum include boron and nickel. Low levels of benzene were found in the drum residue. A surface soil sample collected from beneath the drum contained metals, most notably nickel at twice the background UTL. Aroclor-1260 and indeno(1,2,3-cd)pyrene were also found. The soil boring sample collected from beneath the drum did not have any exceedances.
- The five abandoned drum locations investigated in EU 4 indicated the presence of metals, PAHs, PCBs, pesticides, SVOCs, VOCs, and radionuclides in soil at concentrations exceeding background UTLs and at depths of one foot or less bgs. Three metals, boron, copper, and sodium, exceeded background UTLs by a factor of at least 10 at abandoned drum locations. PAHs commonly exceeded background UTLs at the abandoned drum locations. Two PAHs, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene, exceeded background UTLs by factors greater than 10. Cesium-137, thorium-230, and radium-226 were the radionuclides that most frequently exceeded soil background UTLs at abandoned drum locations. Radionuclide concentrations commonly exceeded the background UTLs by a factor of 5 or less. Five VOCs (acetone, cis-1,2-DCE, 1,1-DCE, PCE, and TCE), and two SVOCs (benzoic acid and 2-methylnaphthalene) were also detected above background UTLs at abandoned drum locations.
- Trench 404 was excavated in EU 4 to investigate piping and sewer lines. A 12-inch vitrified clay pipe was discovered at a depth of 2 feet. This pipe was surrounded with gravel and slag. A 36-inch concrete pipe was found at a depth of 7 feet. The southeastern end of the trench contained slag or gravel as the uppermost 18 inches and was not excavated to deeper depths due to groundwater infiltration. The concrete pipe exhibited the only magnetometer anomaly. There were no elevated gamma or PID readings. Three soil samples were collected at this trench location. One sample was collected from around the vitrified clay pipe just below the slag and gravel, and another sample was collected approximately one foot above the concrete pipe. The third sample was collected in the brown and tan clay which made up most of the soil from the trench. Aroclor-1260, pesticides, and thorium-230 were identified as SRCs in soil at this trench location.
- Trench 406 was excavated in EU 4 to investigate a debris pile. The trench was located just south of N street and east of Trench 404, and was oriented north-south. Steel, PVC, rubble and gray foam were found in the trench along with an 8-inch vitrified clay pipe and a 36-inch concrete pipe. The top foot of the trench contained a fine silty material like loess which was underlain by a brownish-gray clay. Several sand lenses were observed including one that contained oily gravel. A gravel backfill surrounded the 8-inch pipe. There were no magnetic anomalies, gamma readings above background, or elevated PID readings in the trench. Three soil samples were collected; one in the boundary between the clay and the loess, one in the oily gravel, and one in the clay at the bottom of the trench. Two metals, boron and sodium, were detected at this trench location at

concentrations that exceeded background UTLs by factors greater than 10. One PCB, one pesticide, eight VOCs, total uranium, and several radionuclides were also detected above background UTLs at this trench location.

- Trench 408 was also excavated to investigate a debris pile in EU 4. This trench was located east of Trench 406 but was oriented parallel to N Street. The upper few inches of the trench contained roofing debris and rubble. That debris overlaid a brown-clay with iron nodules. A 12-inch pipe was found at a depth of about 2 feet and there were several small magnetic anomalies. One section of the trench had slightly elevated gamma readings, but there were no elevated PID readings. One surface soil sample and three subsurface soil samples were collected. One of the subsurface soil samples was collected at the location of a magnetic anomaly. No SRCs were identified in the surface soil sample. Several metals, PAHs, pesticides, PCBs, VOCs, and radionuclides exceeded background UTLs in the subsurface soil samples.
- Trench 414 was excavated in EU 4 to investigate a debris pile near a building foundation. The soil in the area appeared disturbed or remediated. The trench was oriented north-south along the west side of the concrete foundation in the westernmost portion of EU 4. The upper 1 to 3 feet of the trench contained a dark brown to black loam with wood and concrete debris. Underlying the loam was brown clay containing bricks and concrete rubble. A white fibrous material was present in a short section of the boundary between the loam and the underlying clay. At the north end of the trench a concrete foundation was encountered at a depth of 5 feet. Immediately adjacent to the concrete foundation, at a depth of 5.5 feet, was a layer of wet ash-like material. The lower 4.5 feet of the 10-foot deep trench contained a brownish-gray clay that contained one lens of a dark stained soil. Magnetic anomalies attributed to rebar in the concrete were encountered, but no elevated PID measurements or gamma readings above background were observed. Three subsurface soil samples were collected from the trench; one from the zone of fibrous material at the base of the loam, one from the ash, and one from the dark stained soil. Total uranium activity in all three samples exceeded the background UTL. Several radionuclides including all three uranium isotopes exceeded the background UTLs in one or more soil samples. The sample collected from the wet ash-like material at a depth of 5.5 feet is suspected to contain enriched uranium. The uranium enrichment of this sample (TB414-2844-05.5-004) is further discussed in Section 5.9.4.4. This trench location was also the only trench location in EU 4 where cesium-137 was detected above the background UTL. No other SRCs were detected in any of the three soil samples.

5.3.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

No surface water samples were collected in EU 3 during the RI. A single surface water sample was collected in EU 4 during Phase 1 from a location adjacent to the mixed acid storage area and the associated sumps and piping. Sample SW740-390 was collected from a ponded area near Sump 25 to investigate the presence or absence of SRCs. A total of 20 metals were found in this sample at concentrations above background UTLs. However, none of these metals were found in the dissolved phase at concentrations above background UTLs. This indicates that the results may be attributable, in large part, to turbidity in the sample. No radionuclides or organic compounds were found at concentrations above background UTLs in this sample.

5.3.1.3 Sediment

Sediment samples were not collected from ponded areas or surface drainageways in EU 3 or 4. Sediment samples collected from the sewer systems are discussed later in this section.

5.3.1.4 Groundwater

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

Three TWP's were sampled in EU 3 during Phase 1 of the RI to investigate the presence or absence of radiological and chemical compounds in the groundwater near the former railroad lines and the property boundary, and to investigate previously identified compounds in soil near this area. Four permanent wells and nine TWP's were sampled in EU 4 during the RI to investigate the presence or absence of radiological and chemical compounds in the groundwater near the former railroad lines, tank cradles, former nitric acid concentrator, a potential former UST, Buildings 431 and 432, and the property boundary. Groundwater samples were also collected in EU 4 to investigate previously identified compounds in soil and groundwater near this area.

- Several metals were detected at concentrations above background UTLs in EU 3, although only manganese exceeded its screening level in both the total and dissolved phase in more than one well. The data indicates that a manganese plume is present in EU 3. This plume is shown on Figure 5-5. Trench 403 which runs through the area of the plume shows no elevated concentrations of manganese in soil. Additionally, sediment and water samples from nearby pipes and sumps exhibit no elevated manganese concentrations. A pipe, which is part of the acid sewer line and composed of vitrified clay, runs through the plume area. This pipe is unlikely to be the source of manganese in groundwater unless the pipe was cracked and a liquid with a high manganese concentration leaked from the pipe. There is also a concrete structure that impinges on the southern portion of the plume. This structure may represent a tank support, and it is possible that corrosion from a tank or the structure has influenced metal concentrations in the groundwater. Iron is also elevated in the groundwater sample collected nearest to the structure. The iron concentration in this sample is approximately two times greater than the background groundwater concentration. This observation supports the possibility that manganese concentrations in groundwater are products of corrosion.
- Several PAHs, heptachlor epoxide and carbon disulfide were detected in sample C5-AC-GW-BP3 in EU 3. PAH exceedances also occurred at three locations in EU 4.
- Total uranium, thorium-228 and uranium-238 were detected slightly above background UTLs in sample GW409-212. Total uranium was detected slightly above the background UTL in sample GW407-210.
- The data indicate that there is a boron plume in the central portion of EU 4. This plume is shown on Figure 5-6.
- A dissolved total uranium groundwater plume is present in the north-central portion of EU 4 near the former nitric acid concentrator. The configuration of this plume is defined by wells 415A, 4D003, and 4D005. As shown in Figure 5-4, the concentrations of

dissolved total uranium in this plume are approximately twice the background UTL of 16.7 µg/L.

- Dissolved thorium-228 and dissolved thorium-230 were detected above background UTLs in groundwater at two locations in the north-central portion of EU 4. This small plume, which is not collocated with a dissolved total uranium plume, is shown on Figure 5-7. Total concentrations of cesium-137, radium isotopes, and thorium isotopes were also greater than background UTLs in this EU; however, cesium and radium concentrations within the EU are not coincident with the thorium plume. Furthermore, the detection of cesium-137 was below a derived drinking water MCL (110 pCi/L, as described in Section 5.2.1.4), which is well above the detected concentration of cesium-137 in groundwater.
- Seventeen VOCs and four SVOCs (bis(2-ethylhexyl)phthalate, carbazole, di-n-butyl phthalate, isophorone) were detected in EU 4 groundwater samples at concentrations above background UTLs. Most of these compounds were detected in samples collected from permanent well MW415A. Several of these compounds were also found in other nearby wells. Groundwater plumes containing the following compounds are present in EU 4:
 - PCE
 - TCE
 - Cis-1,2-DCE
 - Trans-1,2-DCE
 - Vinyl Chloride

Figures 5-8 through 5-12 show the extent of these plumes. Concentrations of these VOCs within these plumes greatly exceed the National Primary Drinking Water Maximum Contaminant Levels (MCLs).

The organic compounds observed in the groundwater plumes may degrade through the process of natural attenuation; however, the effectiveness of natural attenuation is highly dependent on the degradation potential of the compounds present and the microbial conditions of the subsurface environment. Natural attenuation also relies on the processes of dispersion and dilution which are dependant on the local groundwater flow rates. Low groundwater flow rates at the NFSS will not greatly promote natural attenuation of organic compounds; however, because the groundwater plumes in EU 4 contain compounds included in the degradation chain of PCE and TCE, there is evidence that natural attenuation processes (mainly microbial) may be occurring at this location. Additionally, methane, a natural attenuation indicator parameter, was detected at well MW415A, which also may indicate that biodegradation is occurring.

- Acetone, benzene, 2-butanone, carbon disulfide, chloroform, 1,1-DCE, ethylbenzene, 4-methyl-2-pentanone, methylene chloride, 1,1,2-trichloroethane, styrene, and total xylenes were detected infrequently in one or two samples at concentrations above the background UTLs.

5.3.1.5 Pipelines and Subsurface Utilities

As shown on Figures 4-22, 4-23, and 4-24, sanitary sewers, storm sewers, and acid/process sewers traverse EUs 3 and 4. The acid/process lines form a complex pipe network, with many line junctions and laterals. Also, an aboveground piping system and a series of open sumps also drained to the acid/process sewer. Many of the man-hole covers and collars on these sewers are damaged and it is apparent that surface water, soil, leaves and other materials freely infiltrate these systems. In the case of the acid/process sewer, the aboveground pipes and open sumps also provide infiltration points.

Sediment and water samples were collected from this system as part of the LOOW RI. Sediment and water samples were also collected from pipelines and subsurface utilities during Phase 3 of the NFSS RI. In EU 3, Phase 3 sediment samples were collected from one pipe, one sump and one manhole. In EU 4, Phase 3 sediment samples were collected from nine pipes, six sumps, and four manholes. Five water samples were also collected in EU 4 during Phase 3; one from a pipe and four from manholes.

The list of SRCs found in the water and sediment samples collected from the sewers, pipes and sumps is very extensive. Metals, PAHs, Aroclor-1260, pesticides, VOCs, SVOCs, and several radionuclides were found at concentrations above background UTLs. The results associated with the three sewer systems present in EUs 3 and 4 are discussed below.

Acid/Process Sewer System

Acidic wastewater from the production, concentration and storage of acids was discharged to this sewer system, which flowed to the west, beyond the NFSS border, where it combined with other process wastewater lines and eventually discharged to the wastewater treatment plant located in the southwest corner of the site. The acid/process sewer system was constructed of vitrified clay pipe.

One sewer water sample, PIPE28W, was collected from an exposed pipe in EU 4 that is not known to be connected to any of the sewer lines. The pipe appeared to have been broken-off above the ground surface. The pipe was made of heavy gauge steel and may have been a part of the steam generation system or an acid process transfer line. An oily residue and lids from oil and paint cans were found in the pipe. The concentrations of several PAHs were among the highest found in sewer water samples collected in this RI and in previous investigations. Several metals were also detected in this sample above background UTLs. Although the function of this pipe is not known, this sample location was included in the discussion of the acid/process sewer system.

- Twenty sediment samples were collected from the acid/process sewer lines within the boundaries of EUs 3 and 4 during Phase 3. Five additional sediment samples were also collected from this system during Phase 1 as part of the LOOW RI. Several metals were found in one or more sediment samples at concentrations which exceeded the background UTLs. In all cases, the magnitude of exceedance was less than about four. With the exception of lead, mercury, and selenium, no metal was found in more than three samples. Selenium was the only metal detected above background UTLs in the samples collected in EU 3. The locations of samples exhibiting metal exceedances in EU 4 are scattered throughout the EU, with no apparent pattern to the distributions.

- Many organic SRCs, including PAHs, Aroclor-1260, SVOCs, VOCs and pesticides were found in the sediment samples at concentrations above background UTLs. These SRC exceedances occur in the eastern portion of EU 3 and sporadically over a wide portion of EU 4.
- Two subsurface soil samples associated with pipelines in the acid concentration area were collected during Phase 1 at depths of 2 to 2.5 feet. These two samples, C7-NFSS-SO-PIPE1 and C7-NFSS-SO-PIPE2, exhibited concentrations above the UTL for four metals, three PAHs, and seven pesticides; of these constituents, only fluorene exceeded its UTL by a factor of 10 or greater. This fluorene exceedance was in sample C7-NFSS-SO-PIPE2 only.
- Thirteen metals were found in either the total or dissolved phase in one of the water samples (PIPE28W-2056) in EU 4 at concentrations above background UTLs. Nine dissolved metals were detected above the background UTLs in this sample. Thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238 were detected above background UTLs in sample MH35W-2038. PAHs were found in both water samples; however, concentrations of PAHs that exceeded background UTLs by a factor of 100 or more were observed only in sample PIPE28W-2056.
- Heptachlor epoxide was detected above the background UTL in sample C7-NFSS-WW-ST6.
- TCE, cis-1,2-DCE and PCE were found in water samples MH32W-2036 and MH35W-2038 at the concentrations ranging from 2.6 µg/L to 225 µg/L. These three compounds were also found in groundwater in the vicinity of these samples. These results are discussed further in the groundwater section for this EU.

Sanitary Sewers

The sanitary sewers at the NFSS were routed to the original WWTP, located northwest and outside of the NFSS property boundary. The main sanitary sewer line, located along the west side of Campbell Street, is oriented north-south and lateral lines extended into EUs 3 and 4. The sanitary lines located on the NFSS were constructed of 24-inch diameter vitrified clay pipe.

- Two sediment samples, MH19S-2028 and MH37S-2040, were collected from the sanitary sewer system in EUs 3 and 4. Cesium-137 was detected at a concentration slightly above the background UTL in sample MH37S-2040. No other SRCs were found in these samples at concentrations above background UTLs.
- One water sample, MH31W-2035, was collected from the sanitary sewer. Cesium-137, radium-226, uranium-234, uranium-235, and uranium-238 were detected in this sample at concentrations greater than the background UTL. The cesium-137 concentration in this sample (2.02 pCi/L) was the highest concentration found in sewer water samples collected during this investigation. Cis-1,2-DCE was also detected in this sample.

Storm Sewers

A total of 4,340 linear feet of stormwater sewer lines were present on the NFSS. Two separate east-west oriented lines are located south of N Street and north of O Street. Stormwater runoff, principally from EUs 3 and 4, was routed to the storm water sewer system and discharged at two outfalls located in the Central Ditch. The lines consisted of 24-inch vitrified clay pipe. One

sediment sample, MH22S-2029 was located from a storm sewer located in the north-central portion of EU 4, and one water sample, MH26W-2032, was collected from a storm sewer located in the south-central portion of EU 4.

- Cesium-137 was detected slightly above the background UTL in sediment sample MH22S-2029. Three VOCs, cis-1,2-DCE, PCE, and TCE were also detected in this sample.
- Several metals were detected at concentrations greater than background UTLs in water sample MH26W-2032. The concentrations of SRCs detected in this sample were less than twice the background UTL, except for dissolved silver whose concentration was almost 30 times greater than the background UTL.

5.3.2 Media Interactions

There is a likely interaction between the groundwater plumes shown on Figures 5-8 through 5-12 and the pipeline system in EU 4. Elevated concentrations of TCE, cis-1,2-DCE and PCE were found in water samples collected from manholes MH32 and MH35 on the acid/process sewer. At manhole MH32, the depth to water was 11.83 feet bgs and at manhole MH35 the depth to water was 10.67 feet bgs. Monitoring well MW415A, which is in the vicinity of these two manholes and is near the center of the identified groundwater plumes, was sampled on two occasions. The depth to groundwater at MW415A in September 2000 was 10.3 feet bgs and in May of 2003 it was 14.04 feet bgs. Since the acid/process sewer was constructed of vitrified clay pipe – a type of material commonly subject to infiltration and exfiltration problems – and the acid/process line is at an elevation that is at times submerged below the water table, a hydraulic connection likely exists between the acid/process sewer and the groundwater plumes. It should be noted that the pipeline contamination is limited to manholes in the vicinity of the plume (near MW 415). Thus, VOC contamination appears not to have spread within the pipeline or along pipeline bedding in EU 4. Plume maps in this area were developed taking into account interactions between the various media.

The soils data for manganese and total uranium do not suggest a potential source for the plumes of these SRCs. In EU 3, where the manganese plume was located, none of the soil samples exceeded the background screening level for manganese. In EU 4, only eight soil samples collected in the EU exceeded the background UTL for uranium-234, and none of the exceedances were collected from a location within the footprint of the total uranium plume. Similarly, for uranium-238, only nine soil samples within the EU exceeded the background UTL, and none of the exceedances were collected from a location within the footprint of the total uranium plume.

5.3.3 Sources and Effects of Past Site Use

The New Naval Waste Area was located in EU 3 and an acid storage area was located in EU 4. A radium storage vault (Building 433) was located in the New Naval Waste Area in EU 3. Uranium rods were known to be stored in Buildings 431 and 432, located a short distance east of EU 3.

- The metals and organic compound results for surface soils in EU 3 are consistent with known past activities at this location. The New Naval Waste Area was known to contain demolition debris. Such materials could be related to the metals and PAH compounds now found in the area. This might also account for the pesticide found in groundwater.

- Most of the radionuclides present in EU 3 may be due to activities conducted and waste stored at the New Naval Waste Area and from activities at the former radium storage vault (Building 433). The analytical data is indicative of the radioactive wastes streams known to have been transported and stored at the NFSS.
- The groundwater in EU 4 is impacted with PCE, TCE and several other VOCs. There were no known past uses in this EU which would account for these findings. PCE was commonly used for industrial purposes during the operational time period of the LOOW, though given the safety concerns of storing solvents near acids, it is unlikely that this release occurred during the operation of the LOOW. Historically, TCE was not used at ordnance plants during WWII. TCE was not commonly used until after the war. However, TCE can be a degradation product of PCE. Although the source of the VOCs was not established, their presence may be due to past storage activities of the military and AEC. As presented in greater detail in Section 7.3.4, the VOC plumes are within the UWBZ at a depth of approximately 10 to 15 ft bgs and appear to be located in a topographic low in the GLC near monitoring well 415. There is no correspondingly high vadose zone soil contamination associated with the groundwater contamination in EU 4. CWM currently operates a VOC groundwater extraction and treatment system north of NFSS.
- Metals are present in the groundwater at EU 4, perhaps resulting from the storage and transport of acids which, if spilled, could cause mobilization of metals from soils.
- No known source for the elevated concentration of dissolved silver in the storm sewer could be identified.
- One groundwater sample at EU 4 also contained bis(2-ethylhexyl)phthalate, which was probably used as a plasticizer in the explosives manufacturing process, and 1,1,2-TCE, a breakdown product of the solvents likely used in the area.
- The metals and PAHs found in EU 4 soils could be a result of the transportation and storage of acids and the general industrial operations performed around the buildings. These activities might also account for the presence of PCBs and PCE and observed breakdown products in soils.
- The radionuclides present in EU 4 soils are likely a result of the general transportation and storage of residues on the NFSS site and not from any activity specific to EU 4.
- There appears to be correlation between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. For example, samples 4B009, 4B014, and 4B021 were collected in the western portion of EU 3 in areas exhibiting elevated gamma walkover readings. In general, these samples also showed analytical results with higher levels of radionuclides, particularly, total uranium and radium-226. Several portions of EU 4 exhibited fairly large areas with only slightly elevated gamma walkover readings. Samples collected in these areas generally exhibit only slightly elevated levels of radionuclides. Location 4C002, near the southeastern border of the EU appears to be in a small area of slightly higher gamma walkover readings. This sample location exhibited elevated levels of total uranium, radium-226 and thorium-230.

- Soils data from EU 4 do not suggest a potential source for the dissolved total uranium and thorium-230 groundwater plumes observed in this area. Concentrations of radionuclide SRCs in soil, as well as in sediment and water collected from the underground utility lines are generally less than three times the background UTLs and appear to be unrelated to the plume footprints. The highly industrialized nature of historical operations conducted in this EU may provide a general explanation for the presence of groundwater plumes in this area. Former abandoned drums, as well as the many underground pipelines and sewer lines traversing this EU, may represent historical sources for the concentrations of SRCs currently observed.

5.4 PANHANDLE AREA: EU 5 AND 6

The Panhandle Area, consisting of EUs 5 and 6, is located in the northeastern portion of the site. It is bordered to the north and east by CWM Chemical Services Inc. Landfill and Modern Landfill to the south.

Building 434, a water tower during the operation of the LOOW and later a storage facility for the K-65 residues, was located in EU 6. In the 1980's, the K-65 residues were slurry transferred to the IWCS through a pipeline. The pipeline passed through EU 5 along O Street.

A thaw house, located in EU 6 near Building 434, was used to store and dry 300 drums of P-54 residues containing 37 tons of residue and 740 lbs of U_3O_8 . P-54 is the code name for the lead sulfide cake produced from the processing of L-30 and L-50 ore at the Linde refinery. Barrels containing six tons of P-56 residues with 176 lbs of U_3O_8 were also stored in the thaw house. P-54 is the code name for the regenerated lead sulfate cake produced from the processing of L-30 and L-50 ore at the Linde refinery. This material was first stored in the filter building (Building 410) and was later shipped off-site for disposal.

Ammonia storage facilities were present in EU 5 during operation of the LOOW and some foundation material was found in the EU. In 1953, an explosion and fire that was not related to the storage or use of ammonia occurred immediately south of the Panhandle Area.

5.4.1 Occurrence and Distribution of SRCs

Soil samples were collected at EUs 5 and 6 during Phase 1 of the RI to investigate the presence or absence of radiological, organic, and inorganic compounds near the site boundaries, the former K-65 storage tower, and previously uninvestigated areas. The acid area and some LOOW sampling locations were of particular interest in EU 5. The areas near former Building 434 were of particular interest in EU 6. Specific features investigated in EU 5 included the former ammonia plant, the explosion site, and the northern and southern boundaries of the NFSS site. The 1953 explosion and fire that was investigated by some of the EU 5 samples occurred off-site immediately south of the Panhandle Area. In EU 6, the boundaries of the site and locations around the former water tower, which was used to store K-65 residues, were specifically targeted for investigation. Further investigation of compounds found in the soil near these areas during the LOOW RI was included as part of the Phase 1 soil sampling activities. Phase 1 sample results indicated the presence of organic, metal, and radiological SRCs in surface and subsurface soil in EUs 5 and 6.

Soil samples collected during Phase 2 of the RI served to delineate the nature and extent of compounds detected during Phase 1 activities as well as to investigate some areas not covered by previous sampling. In EU 5, the haul road (O Street) for K-65 residues was further investigated,

as was a tank cradle. In EU 6, soil in the former thaw house area was sampled, including several locations where walkover data indicated elevated radiation levels. Additionally, the site boundary near the Modern Landfill and explosion site was investigated. Phase 2 sample results indicated the presence of organic, metal, and radiological SRCs that exceeded background UTLs in surface and subsurface soil in EUs 5 and 6.

The majority of samples collected in Phase 3 of the RI were radiological samples used to further investigate areas found to be above background by the gamma walkover or were random samples used to verify the walkover results. Additional samples were used to further delineate individual results from Phases 1 and 2. Results from Phase 3 sampling indicated SRCs exceeding background UTLs for metals, PAHs, PCBs, pesticides, VOCs, and radiological constituents.

In EU 5 during Phase 3, a trench (Trench 410) near some foundation material was excavated and sampled with the intent of locating a potential UST.

A total of ninety-one surface and subsurface soil samples collected during the three phases of the RI were used to evaluate soils in EUs 5 and 6. Three of these soil samples were collected from the trench in EU 5. Additionally, one sample collected from EU 5 (SD737-381) and four samples collected from EU 6 (SD731-368, SD732-370, SD733-373, and SD734-375) were intended to be evaluated as sediment samples. However, as discussed in previous sections of this RI report, these samples were classified as surface soil samples to be consistent with exposure mechanisms considered in the BRA. Therefore, these samples were included in the discussion of soil samples collected at EUs 5 and 6.

Samples containing concentrations of SRCs above background UTLs appear to be randomly scattered in EUs 5 and 6 because many of the samples in this area were collected using a stratified random sampling approach to verify gamma walkover results and areas of suspected contamination. A localized area of elevated radioactivity was observed at location 6A001 (EU 5) and the area at the intersection of McArthur and O Streets (EU 6).

The SRCs in EUs 5 and 6 are predominantly radionuclides, especially in soils, though several metals and organic compounds are also SRCs. The following sections present the occurrence and distribution of SRCs, by media.

5.4.1.1 Soils

Figures 4-6 and 4-7 summarize the occurrence of SRCs in soil at EUs 5 and 6.

Forty-five soil samples collected during the three phases of the RI were used in the evaluation of soils in EU 5. General conclusions concerning the nature and extent of SRCs in soils at EU 5 are:

- The radionuclides that most frequently exceeded background UTLs in surface soil were cesium-137, radium-226, and thorium-230. Uranium isotopes and actinium-227 were also detected above background UTLs in surface soils. All of these radionuclides were detected above background UTLs in subsurface soil, with the exception of actinium-227 and cesium-137.
- The highest radium-226 concentration was found in surface soil sample SS6A001-2317. This sample was collected from an area near the east end of the O Street North Pond where elevated gamma radiation was identified during the site-wide gamma walkover

survey. This sample had a radium-226 concentration of 285 pCi/g, more than 200 times the background UTL. The radium-226 concentration in sample SB6A001-2318-2.0, collected from a depth of two feet bgs from the same sample location, was 6.33 pCi/g. Three surface soil samples collected from locations within 40 feet of SS6A001-2317 exhibited concentrations of radium-226 that only slightly exceeded the background UTL. Actinium-227 was also detected in surface soil at this same location at concentrations that exceeded the background UTL by a factor of almost 200.

- The concentrations of radionuclides (other than actinium-227 and radium-226) in surface and subsurface soils were generally less than five times the background UTLs.
- PCBs and pesticides were detected infrequently above background UTLs at several widely spaced locations in EU 5. The maximum depth at which PCBs were found was one foot bgs. Pesticides were found at a maximum depth of 1.5 feet bgs. PAHs were detected above background UTLs at a single surface soil location in the northwestern portion of EU 5. Ten VOCs were detected at widely-spaced locations in EU 5 at relatively low concentrations slightly above the detection limits. Most of the VOCs were detected in surface soils; however, benzene, toluene and xylenes were detected in surface and subsurface soil near the southwestern boundary of the EU at location 420. Other VOCs detected above background UTLs in subsurface soil were associated with trenching location TB410.
- Metals were detected above background UTLs in surface and subsurface soils at several locations throughout EU 5, but at concentrations generally less than 5 times the background UTL. Most of these metals were detected within the upper one foot of soil.
- Subsurface soil samples collected in EU 5 at depths greater than 10 feet bgs exceeded background UTLs for boron, cadmium, selenium, thallium, radium-226, thorium-230 and acetone. Metal exceedances occurred at four widely scattered locations within the EU. VOC exceedances occurred at sample location 811 and radionuclide exceedances occurred at sample locations 811 and 421.
- One trench, Trench 410, was excavated in EU 5 to investigate a potential UST northwest of some foundation material. The trench is 6 feet deep and 65 feet long, oriented east-west, and consists of dark brown to black loam overlying a brownish gray mottled clay and gray clay. There were no magnetometer anomalies, no gamma readings exceeding background, and no elevated PID readings in the trench. All three subsurface soil samples collected exhibited one or two detected VOCs (1,1-DCE and toluene). One sample exhibited a concentration of thorium-230 that slightly exceeded the background UTL.

Forty-six soil samples collected during the three phases of the RI were used to evaluate soils in EU 6. General conclusions concerning the nature and extent of SRCs in soils at EU 6 are:

- In the southeastern portion of EU 6, surface soil samples contained elevated concentrations of actinium-227, cesium-137, radium-226, thorium-230, total uranium, and uranium isotopes. One of these locations, 6B005, also exhibited exceedances of background UTLs for protactinium-231, radium-226, thorium-230, total uranium, and uranium isotopes at depths of up to 2 feet bgs. Pavement samples collected in this general area also had elevated concentrations of radiological parameters.

- No radiological SRCs were detected at concentrations above background UTLs in soil samples collected from depths greater than two feet bgs in EU 6.
- PCBs were detected in surface soil at five locations in EU 6. Three of the samples were located either near the northern property boundary with CWM or in a drainageway flowing onto the NFSS from CWM. In EU 6, pesticides were detected in surface soil along the northeastern boundary of the NFSS, as well as in subsurface soil to a depth of 2 feet bgs along the southeastern boundary of the NFSS. Eight VOCs were detected above background UTLs in surface soil from three locations in EU 6; two locations are in the western area of the EU and one location is in the southeastern area of the EU.
- Metals were detected in surface and subsurface soils at several locations throughout EU 6, but at concentrations generally less than 5 times the background UTL. The most frequently detected metals include cadmium, selenium, and thallium in both surface and subsurface soils.
- Subsurface soil samples collected in EU 6 at depths greater than 10 feet exceeded background UTLs for cadmium, selenium, thallium, acetone, benzene, toluene, and xylenes. These exceedances occurred mainly in the southwestern portion of the EU near where the K-65 tower (Building 434) once stood.

5.4.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

Ten Phase 1 surface water samples were collected from EU 5 to investigate the runoff from the acidification area, the former water tower (Building 434) where K-65 residues were stored, and the associated thaw house. In addition, surface water samples were used to evaluate runoff from adjacent properties and from haul roads used to move the residues to the water tower. Six of the samples were collected from ponded areas near N and O Streets and four were collected from ephemeral drainageways. Four Phase 1 surface water samples were collected in EU 6 from ephemeral drainageways which flow onto the NFSS to evaluate the runoff from the former water tower and thaw house as well as from the haul roads and adjacent properties. Surface water samples from EU 5 or 6 exceeded background UTLs for explosives, metals, radionuclides, PAHs, PCBs, and VOCs. Findings and conclusions are:

- No dissolved radionuclides were detected at concentrations greater than the background UTLs in any of the surface water samples collected from EUs 5 and 6.
- Four PAH compounds were detected at EU 5 in sample SW730-365, collected from a ponded area north of O Street at concentrations greater than the background UTLs. The concentration of each PAH was less than 1 µg/L. The PAH compounds were not detected in the other four samples collected from this ponded area. Sample SW737-380, collected from the northwestern portion of EU 5, contained a low concentration of total xylenes.
- Aroclor-1260 was detected in one sample located along the eastern boundary of EU 6.
- Several total and dissolved metals were detected above background UTLs in surface water collected from EUs 5 and 6. However, dissolved silver is the only metal in the

dissolved phase that exhibited concentrations that exceeded the background UTL by a factor greater than 10. Five locations exhibited such an exceedance; four in EU 5 and one in EU 6. Three of the samples in EU 5 were collected in the ponded area north of O Street. However, the dissolved silver concentrations were below the secondary MCL of 0.1 mg/L.

5.4.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Nineteen Phase 1 sediment samples collected within EU 5 were used to evaluate the impact of runoff from the former acidification area, the former K-65 storage tower, and adjacent properties and haul roads used to move the residues. Some Phase 1 and 3 samples exceeded their respective background UTLs for VOCs and radiological parameters.

- EU 5 sediment samples contained concentrations of three radionuclides above background UTLs. Cesium-137 and total uranium slightly exceeded the background UTL in sample SD735-377. This sample was collected in the northeastern portion of the EU.
- One VOC, methylene chloride, was detected in two sediment samples; one collected from the N Street South Pond and one collected from the O Street North Pond.

5.4.1.4 Groundwater

Figures 4-18 through 4-21 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

In EU 5, groundwater samples were collected from four permanent wells and four TWPs. During Phase 1, groundwater was investigated from the LWBZ and UWBZ to evaluate the presence, absence and migration of chemical and radiological parameters in groundwater in the vicinity of the former K-65 storage tower, along the haul roads used to move the K-65 residues, and in the vicinity of a 1953 explosion. Groundwater was also investigated to evaluate the presence and extent of organic and inorganic compounds previously identified in soil during the LOOW RI. Three temporary wells were sampled in Phase 2 to evaluate the presence or absence of radiological and non-radiological constituents associated with a 1953 explosion, the haul roads and railroad used to move the K-65 residues, and a drum storage and handling area, as well as to further evaluate previous sampling results. During Phase 3, one of the LWBZ wells and one of the UWBZ wells were resampled to confirm results from the initial sampling.

In EU 6, groundwater samples were collected from four permanent wells and five TWPs. During Phase 1, groundwater was investigated to evaluate the presence, absence and migration of chemical and radiological parameters in the LWBZ and UWBZ in the vicinity of the former K-65 storage tower. Two temporary wells and two permanent wells were sampled in Phase 2 to further delineate previous sampling results along the eastern boundary of the EU and to further evaluate the radiological constituents near the location of the K-65 storage tower. Two permanent wells were sampled during Phase 3 to confirm results of earlier sampling and to further evaluate the chemical and radiological constituents present.

Comparison of the groundwater analytes in EUs 5 and 6 to background UTLs indicate that background UTLs were exceeded for metals, pesticides, VOCs, SVOCs, and radiological parameters.

The SRC list for EU 5 includes 17 metals and four radionuclides. In EU 6, the SRC list includes 21 metals, total uranium, seven radionuclides and three organic compounds. The majority of the SRCs were found in samples collected from temporary wells points. The groundwater sample collected from well BH57 contained several dissolved metals at concentrations above background UTLs. This well, at 101.5 feet deep, is substantially deeper than any of the background wells and it is possible that the samples collected from the background wells are not consistent with groundwater quality in deeper portions of the Queenston Formation. If this is true, the background statistics may underestimate the true 'background' conditions for well BH57 (and thus, the Queenston Shale formation).

- No groundwater plumes were identified in EU 5 or 6.
- The majority of the groundwater SRCs were detected in samples from TWPs which were more turbid than samples from permanent wells. Thus, sample results may be biased high due to measuring metal contributions from particulate matter in the groundwater samples.
- With the exception of well BH57 in the LWBZ, radiological parameters were not found in the dissolved phase in groundwater samples collected in EU 5 or 6 at concentrations exceeding background UTLs. Well BH57 is screened in the unweathered portion of the Queenston Formation at a depth interval of 91.5 to 101.5 feet. The deepest background well is screened at a depth interval of 41.4 to 44.8 feet. Therefore, the background data set may not be representative of groundwater samples collected at well BH57. This may explain why concentrations of dissolved radiological parameters exceed background UTLs at this well.

5.4.1.5 Pipelines and Subsurface Utilities

Figures 4-22 and 4-23 summarize the occurrence of total and dissolved SRCs in pipeline water samples, while Figure 4-24 summarizes the occurrence of SRCs in pipeline sediment samples.

Sediment was collected at Manhole MH24, which is located in the storm sewer system in the acid area near haul roads for the former K-65 residue. This sediment sample showed exceedances of the background UTL for cesium-137 and uranium isotopes. No water samples were collected from pipelines or subsurface utilities in EUs 5 and 6.

5.4.2 Media Interactions

Soil sample results show that the distributions of radiological parameters are variable and mainly restricted to the upper two feet of the soil column. Of the organic compounds found above background UTLs in the soils in EUs 5 and 6, only 2-butanone was detected above the background UTL in EU 6 groundwater.

Surface and near surface soil samples indicate the southeast corner of EU 6 had significantly elevated concentrations of several radionuclides, some several hundred times the background UTL. The elevated concentrations in soils correlate with the results from the gamma walkover in

the southeast corner of the EU, as well as a sample (6B001) collected in an area of elevated gamma walkover readings along N Street. The remainder of the samples collected in the EU had concentrations below or near background UTLs. Concentrations of SRCs in soil do not appear to be impacting groundwater.

5.4.3 Sources and Effects of Past Use

The K-65 residues were stored in Building 434, located in EU 6. During the remedial activities in the 1980's, a pipeline, which traversed both EUs 5 and 6, was constructed to transfer the K-65 residues from Building 434 to the IWCS. Elevated concentrations of radiological SRCs were found in the surface soils near the intersection of O Street and MacArthur Street. Pavement samples from these streets also contained elevated concentrations of radiological parameters. Road core sample results are provided in Table 4-2. With the exception of station 6A001 in EU 5 and the southeast corner of EU 6, the Panhandle Area appears to exhibit only minor impact from AEC/DOE activities.

- The concentrations of metals in groundwater in EU 5 may be consistent with the propensity for water to accumulate on the surface and promote leaching of metals from soils in these low lying areas.
- Elevated metals and radiological concentrations in soils in EU 5 cannot be attributed to any specific prior activities. Radiological constituents in soil may have resulted from the transportation of residues along haul roads or in the slurry pipeline from EU 6 to the IWCS. Although metals are present above background UTLs they do not exceed risk levels.
- In EU 6, there are numerous metals in groundwater in both the total and dissolved phases, which exceed background UTLs. These cannot be attributed to any specific NFSS activities, and may be artifacts of turbid samples collected from TWPs.
- Radionuclides in groundwater and soil in EU 6 may be related to the storage of K-65 residues in Building 434 and the use of N Street, O Street and McArthur Street as haul roads for residues.
- Pesticides, PCBs and VOCs are also present in the soils at EU 6. The pesticides appear to be related to ditches along the haul roads and so may be the results of pest control efforts. The PCBs are also near ditches and may represent the results of spills during transportation or use of PCB-containing oil for dust control on the roads. Most of the VOCs were found near haul road ditches and Building 434, and the VOCs may be related to activities conducted at or near this building.
- Elevated gamma walkover readings in EU 5 occur mainly in the southeastern corner of the EU and along O Street. Correlation does appear to exist between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. For example, sample location 6A001, located just north of the O Street North Pond in the southeastern portion of the EU, exhibited elevated levels of total uranium, radium-226 and thorium-230.
- No elevated gamma walkover readings were observed in the remediated location of the K-65 storage tower within EU 6. Locations along N Street exhibit some elevated activity,

as do very small areas in the southeastern corner of the EU. Correlation does appear to exist between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. Phase 3 sample location 6B005, located north of O Street, exhibited elevated levels of total uranium, radium-226, thorium-230 and protactinium-231, which correlate with gamma walkover results. Samples collected along N Street in the northern portion of the EU exhibit only slightly elevated levels of some radionuclides. Other samples collected prior to Phase 3 also confirm the presence of radionuclides in areas of elevated gamma walkover readings. For example, sample location 606, located in the southeastern corner of the EU, exhibited high levels of radionuclides.

5.5 SHOPS AREA: EU 8

The shops area is located in the east-central portion of the NFSS, north of Building 401. It is bordered to the north by the acid area, to the south by the Building 401 Area, to the east by Modern Landfill, and to the west by Campbell Street. This area once contained a parking garage, equipment maintenance garage, material shed, general storehouse, combined shops, millwright shop, and riggers shop. None of these buildings remain although some concrete building foundations are still present. Radioactive residues were stored in several of the former buildings and corroded uranium billets were cut into smaller sections in the riggers shop. A debris pile that acted as a former radiological storage site is present in the southeastern portion of the EU.

5.5.1 Occurrence and Distribution of SRCs

Samples containing the highest concentrations of SRCs are generally clustered in two areas: the combined shops and the debris pile.

The SRCs in EU 8 are predominantly radionuclides, especially in soils, though numerous metals and organic compounds are also SRCs. The occurrence and distribution of SRCs is presented by media below. Several sediment samples were collected from this EU. However, as discussed in Section 5.1.1, only sediment samples collected from the Central Ditch, the West Ditch, the Modern Ditch and the South 16 Ditch were evaluated as actual sediment samples. Due to the fact that drainage areas within this EU are inundated less than 50% of the year, all sediment samples from this EU, with the exception of sample SD722-347, were evaluated as surface soil samples in this section.

5.5.1.1 Soils

Figure 4-9 summarizes the occurrence of SRCs in soil at EU 8.

Phase 1 surface and subsurface soil samples were collected in EU 8 to evaluate the presence or absence of inorganic, organic and radiological constituents in a number of areas. The specific targets were areas investigated in the LOOW RI, concrete rubble piles, a K-65 drum storage area, railroads, a pipeline, Building 430, a uranium rod storage area, change houses, and a service house. The LOOW RI samples had been collected to get general characterization information on the LOOW. Additionally, three samples collected from EU 8 (SD723-349, SD724-351, and SD725-353) were intended to be evaluated as sediment samples. However, as discussed in previous sections of this RI report, these samples were classified as surface soil samples to be consistent with exposure mechanisms considered in the BRA. Therefore, these samples were included in the discussion of soil samples collected at EU 8. In Phase 1, concentrations of

explosives, metals, PAHs, PCBs, pesticides, radionuclides, SVOCs, and VOCs exceeded their respective background UTLs in surface and subsurface soil samples.

During Phase 2, surface soil samples were used to delineate the radiological and semivolatile findings of previous sampling and to investigate a gamma walkover reading elevated with respect to background. One Phase 2 subsurface soil sample was collected to evaluate the elevated reading obtained during the gamma walkover. Phase 2 analytical results indicated that concentrations of metals, PAHs, radiological parameters, and SVOCs exceeded background UTLs in surface soil samples. The lone subsurface soil sample (SB314-415) contained concentrations that exceeded background UTLs for some radiological parameters.

Phase 3 sampling was conducted at EU 8 to provide a basis for further evaluation of the results of earlier sampling. Surface and subsurface soils samples were mainly analyzed for radiological parameters. However, some samples were analyzed for other analyte groups to investigate a debris pile and to confirm previous results for organic and inorganic constituents. Five trenches were excavated in EU 8 during Phase 3 to investigate potential USTs, pipelines, debris piles, and petroleum stained soils. Concentrations of analytes in trench samples exceeded background UTLs for metals, PAHs, PCBs, radionuclides, SVOCs, and VOCs. One hundred and forty-four soil samples collected during the three phases of the RI were used to evaluate soils in EU 8. Conclusions and findings are:

- The majority of surface and subsurface soils in the EU appear to be impacted with varying concentrations of actinium-227, cesium-137, radium-226, thorium-230, total uranium, and uranium isotopes. With the exception of samples collected in the vicinity of the combined shops area, the concentrations of radionuclides were generally less than three times the background UTLs. Several soil samples, all from the combined shops area, contained concentrations of actinium-227, radium-226, thorium-230, and various uranium isotopes ranging from approximately 20 to 1000 times the background UTLs. The highest concentrations of radionuclide SRCs were encountered at the surface to a depth of 2 feet, with decreased concentrations at depths greater than 2 feet.
- Several PAHs and two SVOCs were detected at concentrations that greatly exceeded background UTLs in the upper three feet of soil at EU 8. Some PAH and SVOC compounds exceeded their respective background UTLs by several hundred times. The samples with the highest concentrations were collected along W Street, near the intersection with 6th Street. A former machine shop was located near these sample locations. Oils, lubricants and other PAH source materials were likely used in this shop.
- Pesticides are present at scattered locations across the EU. Most exceedances are less than 3 feet deep; however, three exceedances occur at 8 feet bgs. Aroclor-1260, a PCB, was found at several locations within the EU.
- Concentrations of analytes in subsurface soil samples collected in EU 8 at depths greater than 10 feet bgs exceeded background UTLs for metals, thorium-230, benzo(g,h,i)perylene, and five VOCs. These exceedances occurred at widely scattered locations within the EU.
- Trench 301 was excavated to investigate a pipe and suspected UST south of Z Street. Twenty feet of the trench were excavated to a depth of 6 feet, and the remaining 30 feet of the trench were excavated to a depth of 3 feet. One section of the trench containing a

water valve was only excavated to a depth of 1 foot. The shallower section of the trench was capped with asphalt with approximately 2 feet of gravel above a blue-gray clay. A 4-inch steel pipe and rebar were observed in the deeper section of the trench. One area of darkly stained soil was observed in the upper portion of the first 5 feet of the trench. This stained soil was sampled at a depth of 3.5 feet bgs. Two other samples were collected at depths of 1.0 and 1.5 feet bgs. The sample collected from the stained soil area exhibited concentrations of the following constituents that exceeded background UTLs: selenium, thallium, 1,1-DCE, 2-butanone, acetone, and toluene. The two shallower samples exhibited metals, PAHs, radiological parameters, SVOC and VOC results above background UTLs. The shallow sample located near the water valve also exhibited a total uranium concentration that exceeded the UTL.

- Trench 302 was excavated to investigate a debris pile on the east end of EU 8, south of Z Street. The debris pile contained large blocks of concrete, so no gamma walkover was performed in this area. Two feet of black loam with brown and gray clay was encountered below the base of the pile, down to the 9 foot total depth of the trench. No magnetic anomalies and no elevated gamma readings were encountered in the trench. One small area of a white powdery substance was encountered in the black loam at a depth of approximately 1 foot. Three soil samples were collected from the trench at depths of 1, 6, and 8 feet. The three samples exhibited concentrations that exceeded the background UTLs for the following parameters: metals, Aroclor-1260, 4,4'-DDE, 4,4'-DDD, radium-226, thorium-230, 1,1-DCE, acetone, and toluene. The sample collected from the area of the white powdery substance also exhibited a total uranium concentration that exceeded the background UTL.
- Trench 305 was excavated to further investigate the debris pile initially investigated by Trench 302. The upper foot of the trench contained dark loam with railroad ballast or slag. One sand lens was encountered at a depth of 4 feet. The total trench was 5 feet deep and 85 feet long and oriented in a northwest to southeast direction ending just north of the South 16 Ditch and just west of the ditch along Castle Garden Road. No magnetic anomalies or areas of gamma radiation above background were encountered. Three subsurface soil samples were collected. Two of the three subsurface soil samples exhibited radiological activities above background UTLs. Both of these samples exhibited background UTL exceedances for total uranium, thorium-230, and uranium-235. One sample also exhibited background UTL exceedances for uranium-234 and uranium-238. This sample was collected at a depth of 5 feet in grayish-brown clay near the southeastern end of the trench. No other SRCs were identified for samples collected at this trench location.
- Trench 303 was excavated just south of X Street to investigate a potential UST north of a building foundation. There was a ferrous zone anomaly indicated in this area during the geophysical survey. The trench was 7 feet deep and oriented east-west. A sample was collected from a small area of dry tar-like material found at a depth of approximately 1 foot. Two samples were also collected from sand lenses at depths of 5 feet. All three samples exhibited VOC concentrations that exceeded background UTLs. VOCs exceeding background UTLs at this trench location include 1,1-DCE, acetone, methylene chloride, and toluene. The sample collected from the dry tar-like material contained levels of radium-226 and thorium-230 that exceeded background UTLs.

- Trench 304 was excavated southeast of a building foundation between Z Street and the South 16 Ditch. The trench was 7 feet deep and 73 feet long. It was excavated to investigate an open sump and some underground piping. Some gross contamination had been observed in one of the pipes, PIPE 74, during an earlier investigation. A discussion of the results for this pipe sample is included later in this section. The surface soil from the trench consisted of black loam with large gravel. A sample was collected from a black stained zone observed below a depth of one foot at the beginning of the trench. Additionally, a 1-inch copper pipe and a 6-inch VCP were encountered within the first 12 feet of the trench at depths of approximately 1.5 and 2 feet, respectively. No magnetometer anomalies, gamma readings above background, or elevated PID measurements were encountered. The sample collected from the black stained soil near the building foundation was the only sample that exhibited any analyte concentrations exceeding background UTLs. Total uranium, as well as all three uranium isotopes, exhibited activities that exceeded background UTLs in this sample. No other exceedances were observed.

5.5.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

During Phase 1, four surface water samples were collected to determine the presence or absence of SRCs in the shops area and to further evaluate organic and inorganic compounds detected above evaluation criteria during the LOOW RI sampling. Three of these samples were collected from small drainageways, which carry water only after rain events. Sample SW722-346 was collected from the Castle Garden East Ditch near its confluence with the South 16 Ditch.

- Metals were detected in all four of the surface water samples at concentrations above their respective background UTLs.
- No dissolved radionuclides were detected at concentrations above the background UTLs. Low concentrations (less than 0.3 pCi/L) of total thorium-230 and total thorium-232 were detected in some of the samples.
- Two nitroaromatic compounds were detected in sample SW723-348. 2,6- and 2-amino-4,6-dinitrotoluene (DNT) were detected at concentrations of 0.34 µg/L and 0.28 µg/L respectively. This sample was collected from a small ditch located between Castle Garden Road and 6th Street.

5.5.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Three Phase 1 sediment samples were collected to evaluate the ditches in the shops area. An additional six samples were collected during Phase 3. After further evaluation, most of these samples were all reclassified as soil samples. However, one Phase 1 sediment sample (SD722-347) collected from the South 16 Ditch east of Castle Garden Road was retained as a sediment sample. The only SRC detected in this sample at a concentration above the background UTL was methylene chloride.

5.5.1.4 Groundwater

Figures 4-18 through 4-21 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

During Phase 1, groundwater samples were collected from three permanent and twelve temporary wells. The purposes of the permanent well groundwater samples were to evaluate the LWBZ in the vicinity of a titanium alloy storage area, a concrete rubble pile, a K-65 drum storage area, and soils that were identified in the LOOW RI as having contained organic and inorganic constituents. The twelve temporary groundwater well samples were taken to evaluate the presence or absence of radiological and non-radiological constituents in the shops area, specifically, near a rubble pile, along the site boundary, in the vicinity of a fuel oil pipeline and a uranium rod storage area, in the area of Building 430, and near some LOOW RI sampling that indicated the presence of organic and inorganic constituents.

Two additional permanent groundwater wells were sampled in Phase 2 to evaluate earlier findings. Both of these wells and another permanent well not previously sampled were sampled in Phase 3 to confirm earlier findings and expand the analyte list. Findings and conclusions from the sampling of all permanent and temporary wells are:

- A dissolved total uranium groundwater plume is present in the southeastern portion of the EU in the area of former storehouse Buildings 420 and 421. The plume appears to be approximately centered beneath a large debris pile located west of Castle Garden Road and south of Z Street near the South 16 Ditch. This plume, shown in Figure 5-4, could be related to two localized areas of elevated activity ranging from 13,000 to 37,000 cpm (see Figure 3-5) that were identified in surface soils south of Z Street and southeast of EU 8. Leaching from these surface soils could be affecting wells in this area.
- A second dissolved total uranium plume is present in the southwestern portion of the EU near former Building 423. This plume may be associated with the utility lines in this area. Elevated concentrations of tetrachloroethene were also found in two samples in this area; however, no plume was drawn because only one of the samples exceeded the MCL.
- Thirteen dissolved metals were detected above background UTLs in groundwater at EU 8. Of these dissolved metals, antimony, barium and nickel were the most frequently detected above the background UTL. However, total silver was consistently detected at over 20 times the background UTL.
- Low concentrations of VOCs, SVOCs, pesticides, and PAHs were detected in several wells. However, the distributions were very sporadic and it was determined that the results did not indicate the presence of groundwater plumes.
- Low concentrations of two nitroaromatic compounds, (1,3,5-trinitrobenzene and RDX) were detected separately in two different samples. However, the detection of RDX is suspect as it was never manufactured at the LOOW and is not a breakdown product of TNT.

5.5.1.5 Pipelines and Subsurface Utilities

Figures 4-22 and 4-23 summarize the occurrence of total and dissolved SRCs in pipeline water samples, while Figure 4-24 summarizes the occurrence of SRCs in pipeline sediment samples.

During Phase 3, water and sediment samples were collected from seven manholes on the sanitary sewer system in EU 8. The purpose of this sampling was to evaluate the sediment and water in the sewer for radiological, inorganic, and organic constituents. The sewer and associated laterals flowed from the buildings in EU 8 to the west, connecting the main sanitary line located along Campbell Street. Three of these manholes were sampled during the LOOW RI. The manholes from which these samples were collected are shown below.

Sample	Matrix	Manhole
C7-NFSS-WW-SS9	Water	MH43
C7-NFSS-SL-SS10	Sediment	MH44
C7-NFSS-WW-SS10	Water	MH44
C7-NFSS-WW-SS8	Water	MH41

Sediment and water samples were also collected from an exposed pipe, PIPE 74, found in the foundation of the former Vehicle Repair Shop. One subsurface soil sample also associated with PIPE74 was collected at a depth of 7 feet. It is not known if this pipe is part of the sanitary sewer system. Findings and conclusions are:

- Metals, at concentrations above the background UTLs, were detected in three samples collected from the sanitary sewer system. Total antimony concentrations that exceeded the background UTL at manholes MH41 and MH43 during Phase 1 were not confirmed during Phase 3. The water sample from manhole MH12 contained dissolved lead, dissolved selenium and dissolved silver at concentrations above the background UTLs. The concentrations for dissolved lead and dissolved silver were more than ten times greater than the background UTL in this sample. Of all the manholes sampled within EU 8, MH12 is the furthest downstream. None of the upgradient sanitary sewer water samples contained elevated concentrations of metals.
- Several PAH compounds were found in the EU 8 sanitary sewer sediment samples. However, no PAH compounds were found above the background UTL in the sediment sample collected from MH12 – the last manhole before the sanitary sewer exits EU 8 and joins the main line west of Campbell Street. This suggests that the PAH compounds in the sanitary sewer sediments are not very mobile within the sanitary sewer system. No PAH compounds were found at concentrations above the background UTLs in any of the sanitary sewer water samples collected in EU 8. Additionally, VOCs and SVOCs were infrequently detected in EU 8 sanitary sewer sediment and water samples.
- Both water and sediment samples were collected from Pipe 74, located on the pad of the former Vehicle Repair Shop. Although this pipe does not appear on any available site drawing, it appears to lead to a sump. The lead concentration in the sediment sample collected from this pipe was more than ten times greater than the background UTL. This sediment sample also contained VOCs. The pipe was sampled a second time to confirm the VOC results. The VOC concentrations for the two sediment samples are shown in the following table.

Compound	Concentration (µg/kg)	
	Pipe74S-2068	Pipe74S-3692
Cis-1,2-DCE	Not Detected	9.71
2-Butanone	57	832
Carbon Disulfide	19.5	61.3
Ethylbenzene	14.4	7.95
PCE	13.1	431
Toluene	156	62.1
TCE	Not Detected	28.4
Xylenes (total)	64	12

- Low levels (less than 1 µg/kg) of TCE, PCE, and cis-1,2-DCE were detected in the sediment sample collected from manhole MH45, which is the nearest manhole to PIPE 74.
- Radiological SRCs were detected in water samples at concentrations above the background UTLs at several sanitary sewer locations. Manhole MH45W exhibited the greatest exceedances above background UTLs. Total and dissolved radionuclides generally exceeded the background UTLs in this sample by factors between three and five.
- Radiological SRCs, and in particular the uranium isotopes, were commonly found in the EU 8 pipeline sediment samples. The sediment sample collected from PIPE 74 also contained elevated concentrations of the uranium isotopes. The radiological SRCs appear to be relatively immobile in the sediments, as evidenced by the fact that the concentrations of radiological SRCs were much lower in the sample collected from manhole MH12, which is the manhole furthest downstream in the EU 8 sanitary sewer system.
- Subsurface soil sample SB-PIPE74-7.0-3657 was collected in association with PIPE74 and exhibited concentrations of thorium-232, uranium-235, and acetone that exceeded their background UTLs. Both thorium-232 and uranium-235 exceeded the background UTLs by less than a factor of 5.

5.5.2 Media Interactions

Discounting the SRCs found in the sewer lines, the highest concentrations of organic and radionuclide SRCs were in the combined shops and debris pile areas. The remainder of the EU contained isolated detections of various organic, inorganic and radiological compounds at significantly lower concentrations. The vast majority of SRCs above background UTLs were found at depths of three feet or less from the ground surface. At locations where samples were collected both at the surface and at 1.0 to 1.5 feet below the surface, concentrations were typically several times less at the greater depth. Soil samples collected from depths of 4 to 5 feet in Trench 305 contained concentrations of uranium isotopes at 1 to 3 times the background UTL. These samples alone do not explain the presence of the dissolved total uranium groundwater plume in the vicinity of the combined shops and debris pile. However, interaction of shallow groundwater in this area (3 to 4 feet bgs) with debris and permeable material observed in the trench area (railroad ballast which likely contains some amount of uranium [see Table 4-2 for examples of railroad ballast samples collected on NFSS], and a sand lens, both encountered in Trench 305)

may represent a plausible explanation for the generation of the dissolved total uranium groundwater plume.

The presence of numerous pipelines and subsurface utilities may also help to explain the presence of organic compounds and radionuclides in groundwater and subsurface soils near utility lines. Figure 5-4 indicates the potential enhancement of a groundwater plume by these pipelines and utilities.

5.5.3 Sources and Effects of Past Uses

As described above, the former buildings within EU 8 have been used for a number of activities consistent with the results of analytical sampling.

- The use of these buildings as vehicle maintenance and repair shops during operation of the LOOW may account for the presence of PAHs, metals, SVOCs, and VOCs in soil and groundwater at EU 8. Such compounds are prevalent in oils, solvents, paints and lubricants that would have been used at the former building locations.
- Radionuclides in soil and groundwater are probably the result of storage of residues in some of the buildings and the debris pile, as well as from their transportation to and from those areas.
- The gamma walkover survey conducted in EU 8 focused on roads and some former building locations south of Z Street and between W and X Streets in the shops area. Most of the gamma walkover data showed only single points of elevated gamma activity. Several single point locations exhibiting elevated gamma walkover readings also had analytical results that indicated elevated levels of total uranium, actinium-227, cesium-137, radium-226, and thorium-230.

5.6 IWCS AND VICINITY: EU 7, 10 AND 11

The IWCS and vicinity consists of EU 7, 10 and 11. The area is bordered by the NFSS perimeter fence on the west and south, O Street on the north, and Campbell Street on the east.

EU 7 is a large grassy area north of the IWCS. In a 1944 oblique, a large building was located in EU 7; however, no buildings currently exist in this EU. During the remedial actions of the 1980's, several large temporary ponds (shown on Figure 1-2), principally used for the management and storage of stormwater, were located in this area. EU 7 is also the location of the former DOE Organic Burial Area, which was delineated during trenching activities performed for this RI. In 1984, the DOE Organic Burial Area was originally used for the disposal of organic materials stockpiled at Lutts Road and O Street. Materials known to have been disposed in the area included roofing timbers, wooden debris, and organic material from clearing activities (BNI 1984b, 1985). Material placed in the DOE Organic Burial Area was intentionally separated from the IWCS contents to avoid settlement that would result from the degradation of this organic material.

The predominant feature in EU 10 is the IWCS. Prior to the construction of the IWCS, the LOOW freshwater treatment plant was located at the southern end of the EU. The Middlesex Sands, F-32, L-30, L-50, and K-65 residues are currently stored in the remnants of the freshwater treatment plant, which are now contained in the IWCS. Likewise, the R-10 pile, formerly

unprotected and stored in the open north of the freshwater treatment plant, is also contained in the IWCS.

EU 11 is 'L' shaped and located both east and south of EU 10. During the operation of the LOOW, a fire house was located in the central portion of this EU and a parking lot was located in the southern portion. Later, during the remedial actions of the 1980's, several temporary ponds used to hold treated slurry water, decontamination water, and stormwater prior to release were located here.

5.6.1 Occurrence and Distribution of SRCs

5.6.1.1 Soils

Figures 4-8, 4-10, and 4-11 summarize the occurrence of SRCs in soil at EUs 7, 10 and 11.

During Phase 1, collocated surface and subsurface soil samples were collected to assess the presence or absence of organic, inorganic and radiological parameters. Surface soil sample locations included dewatering ponds 4 and 5, the organic burial area and a former "lay down" area, an area south of Building 401 and the southwestern site boundary. Phase 1 surface soil sample results indicated the presence of metals, radiological parameters, and VOCs above background UTLs. Phase 1 subsurface soils indicated only metals exceeded background UTLs.

Phase 2 soil samples were collected to evaluate previous remediation efforts, to assess the soil contaminants associated with groundwater results, to delineate previous sampling results, and to assess gamma walkover results. Of special interest were the area west of Building 401, the decon pad, and the western and southern boundaries of the NFSS site. Several samples were collected at locations exhibiting gamma readings that were very high relative to background gamma results. Results from analysis of Phase 2 surface soil samples show that metals, PAHs, pesticides, radiological parameters, and SVOCs exceeded background UTLs. Phase 2 subsurface soil samples exhibited exceedances of background UTLs similar to that of surface soil samples with the addition of VOCs.

The primary reason for Phase 3 soil sampling was to further investigate or confirm previous sampling results, especially from the gamma walkover. However, Building 409, the water storage pits, the organic burial area, and the integrity of the dike around the IWCS were also further investigated. Several samples were also collected to evaluate soils near locations exhibiting elevated groundwater results. The Phase 3 surface and subsurface soils exceeded background UTLs for metals, PCBs, PAHs, pesticides, SVOCs, VOCs, and radiological parameters. During Phase 3, samples were also collected from seven trenches. The trenches were concentrated in EUs 7 and 11 and targeted the organic burial area, a disposal area, water storage pits and elevated gamma readings. The trench samples from EU 7, in particular, contribute to the background UTL exceedances for PAHs, PCBs and pesticides.

Additionally, eighteen samples collected from EUs 7, 10 and 11 were intended to be evaluated as sediment samples. However, as discussed in previous sections of this RI report, these samples were classified as surface soil samples to be consistent with exposure mechanisms considered in the BRA. Therefore, these samples were included in the discussion of soil samples collected at these EUs.

Seventy-two soil samples collected during the three phases of the RI were used to evaluate soils at EU 7. Similarly, 68 soil samples were used to evaluate soils in EU 10 and 89 soil samples were used to evaluate soils in EU 11. Findings and conclusions are:

- Several surface and subsurface soil samples collected from EU 7 contained elevated concentrations of radiological SRCs including actinium-227, cesium-137, radium-226, thorium isotopes, total uranium, and uranium isotopes. Concentrations of these SRCs in surface soil frequently exceeded background UTLs by factors of more than 10. One location in the western portion of the EU (SS8D009) exhibited concentrations of radionuclides that exceeded background UTLs by a factor of 300. The distributions of these high concentrations are very sporadic. Most surface and near surface soil samples (less than two feet bgs) were located in areas of high gamma radiation found during a gamma walkover survey of the site. The results of the gamma walkover survey, as shown on Figure 3-4, indicate that areas impacted by radionuclide SRCs are sporadic and discrete. The soil samples with the highest concentrations of radionuclide SRCs were collected from these areas. Most of these areas loosely coincide with the haul route used during the construction of the IWCS.
- Subsurface soil samples collected in EU 7 at depths greater than 10 feet bgs exceeded background UTLs for metals and four VOCs (1,1-DCE, acetone, benzene, and toluene). These exceedances occurred at widely scattered locations within the EU. Thorium-228 and thorium-230 were found at soil boring location 838 at a depth of 14 feet bgs and uranium-235 was found in soil boring 837 at a depth of 9 feet bgs. In addition, Aroclor-1254 was found at soil boring 840 and 4,4-DDT was found at soil borings 836 and 837 at depths greater than 10 feet bgs.
- The former DOE Organic Burial Area was delineated during trenching activities performed for this RI. This burial area was found to contain railroad ties, general demolition debris, slag, ash-like material, miscellaneous office waste, plastic pipe, and apparently unused environmental sample containers. During the excavation of the trenches, field gamma screening indicated many areas with elevated gamma radiation at depths down to approximately five feet bgs. Some of the concentrations found in the trench soil samples exceeded background UTLs by a factor of more than 10. Sample TB802-2903-03.8-096, collected from a depth of 3.8 feet bgs, exhibited radium-226 and thorium-230 concentrations that exceeded the background UTLs by more than a factor of 20. Metals, VOCs (2-butanone, acetone, ethylbenzene, methylene chloride, and toluene), several PAH compounds, and PCBs were also detected in soil samples collected from trenches.
- All soil samples collected from EU 10 were collected from areas outside the IWCS so as not to jeopardize the integrity of the cap or dike. Metals and radiological parameters were frequently detected in surface and subsurface soils to a depth of approximately 2 feet bgs. Approximately one third of all soil samples collected from depths of two feet or less exceeded the background UTLs for one or more radiological parameters. Radium-226, thorium-230, and uranium isotopes were the most commonly detected radionuclides in surface and subsurface soil. However, in general, the magnitude of radionuclide exceedances was typically small and in most cases was by a factor of three or less. Also, the distributions of the exceedances are sporadic and are more indicative of localized areas of concentrations elevated above background UTLs rather than broad areas which are uniformly impacted. Samples with higher relative exceedances of radiological

parameters were frequently located near samples that contained much lower concentrations.

- Three surface soil samples were collected from near the toe of the slope on the east side of the IWCS, just beyond the subsurface cutoff wall and cap, and west of the Central Ditch. Several PAH compounds were found in these samples at concentrations that exceeded the background UTLs. PAH exceedances in EU 10 occurred primarily in the area between the east side of the IWCS and the Central Ditch, and to the south of the IWCS. Aroclor-1260, pesticides, carbazole, and four VOCs (1,1-DCE, 2-butanone, acetone, and toluene) were also detected at sporadic locations at EU 10, mainly within the upper 2 feet of soil.
- Subsurface soil samples collected in EU 10 at depths greater than 10 feet bgs exceeded background UTLs for metals, thorium-228, thorium-230, thorium-232, uranium-235, Aroclor-1254, 4,4'-DDE, 4,4'-DDT, and two VOCs (1,1-DCE and acetone). Most of these exceedances occurred on the east and south sides of the IWCS.
- Several metals and radionuclides, as well as total uranium, five VOCs, four SVOCs, fourteen PAHs, two PCBs, and two pesticides were detected above background UTLs in surface and subsurface soils in EU 11. PAHs and SVOCs were mainly detected along the eastern edge of the EU in two sample locations, 2A002 and 2A003.
- Some of the highest concentrations of radiological SRCs found on the NFSS were in soil samples collected from EU 11 in the parking area east of Campbell Street, near the main entrance to the site. The radium-226 concentration in surface soil sample SS830-1036 was 386 pCi/g. This sample also had a thorium-230 concentration of 304 pCi/g. These values are approximately 200 to 400 times greater than the background UTLs. An actinium-227 concentration of 132 pCi/g, which is approximately 1,600 times greater than the background UTL, was also observed in this sample. Because of these findings, an exploratory trench, Trench 812, was excavated in the parking area. Surface soil sample TS812-2928-062 had a uranium-234 concentration of 8,340 pCi/g, almost 5,000 times greater than the background UTL, and a uranium-235 concentration of 886 pCi/g, which is approximately 10,000 times greater than the background UTL. Field gamma screening performed during the excavation of this trench indicated that the area of elevated gamma activity from which TS812-2928-062 was collected was restricted to a small area and that the elevated gamma activity did not extend below the asphalt pavement. Samples collected in this parking area at depths greater than 2 feet below grade did not contain elevated concentrations of radiological SRCs. This location may have been a staging area for inbound trucks during the operation of the NFSS and sloughing of loads while the trucks were in the parking area may account for the sporadic and shallow nature of the elevated radiological SRCs found here.
- Another small area of radiological impact in EU 11 is located due south of the IWCS, near the site perimeter fence. The surface soil sample SS8A014-2181 had a thorium-230 concentration of 68.5 pCi/g, which is approximately 45 times greater than the background UTL. Approximately four feet to the west of SS8A014, soil sample TB813-2925-8.0-013 was collected from trench T813 at a depth of 8 feet. This sample had a thorium-230 concentration of 31.2 pCi/g – approximately 20 times greater than the background UTL. The nearby surface soil samples SS801-070, SS8A008-2180, and SS8A010-2182 did not contain elevated levels of thorium-230, indicating that the extent of the elevated

concentrations of thorium-230 was limited in this part of the site. Surface soil sample SS819-706, collected near the decontamination pad used during the remedial activities performed in the 1980's, contained uranium-234, uranium-235, and uranium-238 above the background UTLs.

- There is some evidence of radiological impacts in the northern portion of EU 11, in the vicinity of the DOE water treatment plant which was operational during the remedial activities performed in the 1980's. Sample TB810-2908-01.8-041 had elevated concentrations of radium-226 and thorium-230. Other soil samples collected in this area also exceeded the background UTLs for radionuclide SRCs, although the level of exceedance was generally small, on the order of five times or less. Three VOCs (1,1-DCE, acetone, and toluene) were detected in subsurface soil in this same general area.
- Subsurface soil samples collected in EU 11 at depths greater than 10 feet bgs exceeded background UTLs for metals, radium-228, thorium-228, thorium-230, thorium-232, 4,4'-DDT, and three VOCs (acetone, toluene, and xylenes). These exceedances occur at widely spaced locations within the eastern and southern portions of the EU.
- Trench 802 was excavated to investigate the organic burial area in EU 7. Trench 802 consisted of a complex of excavations including a 230-foot long north-south trench and a 198-foot long east-west trench. The excavation uncovered a large volume of wood, debris and concrete along with a brown clay fill. One overpack drum was uncovered in the east-west portion of the trench. There were numerous elevated gamma readings and magnetic anomalies encountered. No samples were collected in the east-west trench. Three soil samples were collected in the north-south trench. Metals and radionuclide results exceeded background UTLs in all three samples. Thorium-230 and radium-226 exceeded background UTLs by greater factors than did metals or other radionuclides. Total uranium, PCBs, PAHs, pesticides and VOCs also exceeded background UTLs.
- Trench 808 was also excavated to investigate the organic burial area in EU 7. This trench consisted of two segments; one oriented east-west excavated to a depth of 4.5 feet, and one oriented northeast-southwest excavated to a depth of 10 feet. Chips of material with very high gamma readings were encountered in both trench segments. The highest of these readings was 688,000 cpm at a depth of about $\frac{3}{4}$ of a foot in the east-west trench. No elevated PID readings or magnetic anomalies were measured in the northeast-southwest trench; however, several small magnetic anomalies were measured in the east-west trench, and an area of slightly elevated gamma readings was observed approximately a foot and a half below the chip of material with the highest gamma reading. Three soil samples were collected; one from the brown clay fill, one from the debris of the northeast-southwest trench, and one from the deeper brown clay of the east-west trench. The deeper sample exhibited concentrations of selenium, thallium, acetone, and toluene that exceeded background UTLs. The two shallower samples also exhibited background UTL exceedances for thallium, selenium, Aroclor-1254, radium-226, thorium-230, acetone, methylene chloride, and toluene.
- Trench 809 was excavated in EU 11 to evaluate the location of former water storage pits just west of Campbell Street and north of the Hitmann Building. The trench was 50 feet long, 4 feet deep and oriented northwest to southeast. The northwestern most portion of the trench was only excavated to a depth of 1 foot due to the presence of utilities. At the

southeastern end of the trench at a depth between 3 to 4 feet, a 36-inch concrete pipe and an 8-inch steel pipe were encountered. The top foot of the trench consisted of brown loam with gravel and slag. Two soil samples were collected from this upper foot of material. Another soil sample was collected at a depth of approximately 1 foot. There were numerous small magnetic anomalies in the upper foot of the trench and several elevated gamma measurements were collected. No elevated PID measurements were noted. All three soil samples exhibited radiological activities above background UTLs. One surface soil sample exhibited a single pesticide detection, and total uranium was measured above the background UTL in the subsurface soil sample.

- Trench 810 was also excavated to investigate the water storage pits. It was located west and north of Trench 809 near the EU 10 boundary and oriented along the boundary in a north-south direction. There were no elevated PID readings and only one elevated gamma measurement. Three feet of disturbed soil was encountered for the entire 55-foot length of the trench. A single sand lens was encountered near the southern end of the trench, below the disturbed soil, at a depth of 5.5 feet. One sample was collected from the sand lens and two samples were collected from the disturbed soil. All of the samples exhibited metals concentrations above background UTLs. Both the disturbed soil samples exhibited total uranium concentrations and radiological activities above background UTLs. Two VOCs, acetone and toluene, were detected in the samples. One SVOC, diethylphthalate, was detected in the sample collected from the sand lens.
- Trench 811 was a north-south trending trench located at the north end of EU 11 near the EU 10 boundary. This trench was also excavated to investigate a water storage pit. The upper 4 to 5 feet of the trench is brown silty clay with fill and debris. This is underlain by brown sand that extends the entire length of the trench from a depth of 4 to 5 feet bgs to a depth of 6 or 7 feet bgs. Brown clay lies below the brown sand in some areas of the trench. Magnetic anomalies were observed at the surface; however, no elevated PID readings or gamma readings that exceeded background were noted. A piece of pond liner material was excavated from the fill at a depth of approximately 2 feet. All three of the subsurface soil samples collected from the trench exhibited metals concentrations and radiological activities above background UTLs. Additionally, one sample exhibited a total uranium concentration that exceeded the background UTL and another sample exhibited detections of 1,1-DCE and acetone.
- Trench 812 was excavated in the southeastern portion of EU 11 to investigate an elevated gamma walkover measurement in an area paved with asphalt. The trench was 62 feet long and 5 feet deep and is oriented west-southwest to east-northeast. The upper few inches of the trench consist of asphalt, with large gravel present to a depth of 2 feet. A layer of clay fill material and possible clay fill material extends to a depth of 3 feet, and gray-brown clay is present as the lower most excavated layer. The area with the elevated gamma reading (as high as 100,000 cpm) was observed just south of the trench. No magnetic anomalies, elevated PID measurements or elevated gamma readings were noted below the asphalt pavement. Three subsurface soil samples were collected from the gray-brown clay or the possible fill material located just above the native soil. All three of the subsurface soil samples exhibited metals concentrations above background UTLs, and the one closest to the surface gamma anomaly exhibited radiological activities above background UTLs. There was also one surface soil sample collected from the asphalt in this trench which exhibited radiological activities above background UTLs. Plutonium-239/240, radium-226, and thorium-230 were detected above background UTLs in this sample. Additionally, uranium-234, uranium-235, and uranium-238 were

detected in this sample at levels that exceeded the background UTLs by factors of 5,000 to 10,000.

- Trench 813 was excavated in EU 11 to investigate an elevated gamma walkover reading. The trench is oriented west-southwest to east-northeast in the vicinity of the intersection of Lutts Road and R Street. The trench is 40 feet long and 4 feet deep. One elevated gamma reading was observed 13 feet from the west end of the trench at a depth of approximately 0.8 feet. No elevated PID readings were noted. The upper 1.5 to 3.5 feet of the trench consisted of fill material and two samples were collected from this material. Both of the samples exhibited radiological activities above background UTLs. The third sample, collected from the native brown silty clay, showed exceedances of the background UTL for total uranium, radium-226, thorium-230, thorium-232, and uranium isotopes.

5.6.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

Surface water samples were collected from EUs 7, 10, and 11 in Phases 1 and 3 to assess runoff from the IWCS, the organic burial area, and the storm-water ponds. Metal and radiological background UTLs were exceeded in surface water samples during both Phases 1 and 3.

Two surface water samples were collected from EU 7, four were collected from EU 10 and one was collected from EU 11. Eight additional samples, previously presented in EU 15, were collected from the Central Ditch from locations within EU 7, 10 and 11 and are included in this discussion.

- In EU 7, sample SW744-681 contained the highest concentrations of thorium-228, thorium-230, and thorium-232 found in any surface water sample collected at the NFSS. This sample was collected at the junction of the South O Street Ditch and a drainage way which flows north through the western portion of EU 7. The concentrations of the three thorium isotopes in sample SW711-316, collected from the South O Street Ditch a short distance upgradient from SW744-681, were all below the analytical detection limit, indicating that the source of the thorium in SW744-681 is in or near the drainageway and not in the South O Street Ditch.
- Thorium isotopes were also found in surface water samples collected from small ditches draining the west side of the IWCS and from the Central Ditch, though in these samples the concentrations were very low – less than 0.32 pCi/L.
- The radium-226 concentration in sample SW701-292, collected from a small ditch that drains the west side of the IWCS to the West Ditch in EU 10, was 3.66 pCi/L. This is 7.5 times greater than the radium-226 background UTL of 0.487 pCi/L. Radium-226 also exceeded the background UTL in samples collected from the Central Ditch in EU 10, but by smaller factors.
- Uranium-234 and uranium-238 were detected in one surface water sample in EU 7 at levels that slightly exceeded the background UTLs.

5.6.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Eleven sediment samples collected during Phases 1 and 3 were used to evaluate sediment in the Central Ditch and the South 31 Ditch within EUs 7, 10 and 11. These samples were collected to assess the migration of constituents from the IWCS, the organic burial area and stormwater pond locations. Two of the samples collected from the Central Ditch that were at or below a depth of 1 foot were used to assess the vertical migration of constituents. Sediment samples collected from these three EUs in ditches or drainageways other than the Central Ditch have been reclassified as soil samples. These reclassified samples have been included in the soils discussion for these EUs.

- Boron was the only SRC identified in sediment samples within EU 7. Boron was detected above the background UTL in the furthest downstream sediment sample within EU 7.
- Boron, iron, and manganese exceeded background UTLs in upstream sediment samples collected from the Central Ditch within EU 10. Thorium-228 slightly exceeded the background UTL in a sample collected near the conjunction of the South 31 Ditch with the Central Ditch.
- No SRCs were identified in the one sediment sample collected from the South 31 Ditch within EU 11.

5.6.1.4 Groundwater

Figures 4-18 through 4-21 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

Groundwater samples were collected during all three phases of the RI from EUs 7, 10 and 11. In EU 7 all of the samples were collected from temporary wells while in EUs 10 and 11 both permanent monitoring wells and temporary wells were sampled. Phase 1 samples were collected to evaluate the presence or absence of chemical and radiological parameters in the UWBZ and LWBZ in the vicinity of the IWCS, to assess the groundwater in the vicinity of the organic burial area and De-watering Pond 4, to assess the groundwater near the “lay-down” area and De-watering Pond 5, and to assess the groundwater near the former “stockpile” area. Phase 2 samples were intended to confirm the results of previous findings and to further refine the extent of constituents identified during previous sampling. Phase 3 sampling was performed to obtain further confirmation of previous sampling and to investigate the integrity of the clay dike around the IWCS.

Phase 1 results indicated that groundwater from the three EUs exceeded background UTLs for metals and radiological parameters. Phase 2 results also indicated that metals and radiological parameters exceeded background UTLs. Phase 3 results indicated metals, PCBs, pesticides, SVOCs, VOCs, and radiological parameters exceeded background UTLs.

Ninety-three TWP and permanent wells were sampled in EUs 7, 10, and 11. During the multiple phases of the RI, some permanent wells were resampled in support of a groundwater monitoring program at the site and other wells were resampled to confirm previous results. Findings and conclusions from these results are:

- Several dissolved metals were detected in groundwater samples collected from EUs 7, 10, and 11. In EUs 7 and 11, the exceedances tended to be infrequent and only slightly above background UTLs; however, several samples in EU 10 contained concentrations of dissolved metals which exceeded background UTLs by factors of more than ten. These elevated samples were in every case isolated and may be indicative of either natural variation in the background concentrations of metals in groundwater or of a past release which was spatially limited or has not migrated. No groundwater plumes were identified for metals in EUs 7, 10, or 11.
- Several dissolved total uranium groundwater plumes were identified in this area. These plumes are shown on Figure 5-4. Groundwater near the north and west sides of the IWCS is impacted with uranium. There are also minor isolated plumes east of the IWCS and in the western portion of EU 7. A dissolved total uranium plume, located south of the IWCS in EUs 10 and 11, appears to be associated with the sanitary sewer and water lines in this area (i.e. infiltration, exfiltration, and migration along bedding material).
- Dissolved thorium-230 groundwater plumes were identified north of the IWCS in EUs 7 and 10 and south of the IWCS in EUs 10 and 11 (see Figure 5-7). Samples defining the plume north of the IWCS exhibit dissolved thorium-230 concentrations up to almost three times the background UTL. These concentrations are greater than those defining the plume to the south of the IWCS, which exhibits dissolved thorium-230 concentrations that are generally less than 1.5 times the background UTL.
- Cesium-137 was detected in groundwater in three Phase 2 samples in EU 10 at concentrations ranging from 4.41 to 57.1 pCi/L. All three of these locations were resampled for radionuclides during Phase 3; however, cesium-137 was not detected in these samples. Cesium-137 was detected at an additional location (OW07B) during Phase 3 at a concentration of 2.12 pCi/L.

Note that the above cited detections of cesium-137 were evaluated in the BRA and not found to pose an unacceptable risk, even when assuming water containing these concentrations was consumed (such as in the farming scenario). Furthermore, these detections of cesium-137 are below a derived drinking water MCL (110 pCi/L, as described in Section 5.2.1.4), which is well above the detected concentrations of cesium-137 in groundwater.

- SVOCs, VOCs and PCBs were infrequently detected above background UTLs in EUs 7 and 11. Two pesticides (4,4'-DDE and 4,4'-DDT) were detected in samples located mainly along the western portion of EU 11 near the boundary with EU 10 and to the south of the IWCS. SVOCs [bis(2-ethylhexyl)phthalate and phenol], and VOCs (2-butanone, acetone, and methylene chloride) were more frequently detected in groundwater in EU 10, mainly south of the IWCS. A bis(2-ethylhexyl)phthalate plume present in EU 10 is shown on Figure 5-13.

5.6.1.5 Pipelines and Subsurface Utilities

Figures 4-22 and 4-23 summarize the occurrence of total and dissolved SRCs in pipeline water samples, while Figure 4-24 summarizes the occurrence of SRCs in pipeline sediment samples.

Seven sanitary sewer manholes were sampled in EUs 10 and 11. Another manhole on the sewer line (MH05) was sampled in EU 11. No manholes were sampled in EU 7.

Water and sediment samples were collected from the manholes located on the sanitary sewer line. The sanitary sewer line was approximately eight to ten feet below grade, which places it near or slightly above the water table. Water was present in the sanitary sewer at all the sampled manholes and sediment was present in five of the sampled manholes. The lower portion of MH06 was filled with concrete and the sanitary sewer is thought to be blinded at this location. An additional lateral line not shown on available site drawings enters MH06 from the west, at an elevation above the concrete plug. Sanitary sewer manholes MH03 and MH04 may be sump or water valve locations. Findings and conclusions are:

- Elevated concentrations of uranium isotopes in both the dissolved and total phases were observed in water samples collected from sanitary sewer manholes MH06 and MH08, located southeast of the IWCS. The greatest concentrations of these isotopes occurred at manhole MH06 where uranium isotopes exceeded the background UTLs by a factor of 50 or more. The concentrations of uranium isotopes observed in a water sample collected from manhole MH07, located on the same line between manholes MH06 and MH08, were not as highly elevated as those at manholes MH06 and MH08. Resampling of the manholes confirmed these results. No dissolved uranium isotopes exceeded background UTLs in water samples collected from manholes MH03, MH04, MH09, and MH10 which are located north of manholes MH06, MH07, and MH08.
- The water sample collected from manhole MH05 exhibited concentrations of metals and uranium isotopes that exceeded background UTLs.
- Sediment samples were also collected from sanitary sewer manholes MH03, MH04, MH07, MH08, and MH09 (no sediment was present in MH06 or MH10). Thorium and uranium isotopes were found in samples collected at manholes MH07 and MH08 at concentrations that were approximately twice the background UTLs. Unlike the water samples collected from MH07 and MH08, a significant difference in the concentrations of the radionuclides in these two sediment samples was not observed. The concentrations of the uranium isotopes in the sediment sample collected from manhole MH09 were elevated, both relative to background UTLs and to the other sediment samples collected from the sanitary sewer manholes. However, the water sample collected from MH09 did not exhibit elevated isotopic uranium concentrations relative to other manhole water samples. During the collection of these samples, the field crew measured the pH, conductivity, and DO concentrations in the manholes prior to sample collection. The water in MH09 had higher conductivity, DO and pH than the other manholes in this area. These differences in water chemistry may be suppressing the solubility of uranium compounds in MH09. Radiological isotopes were also detected in sediment samples collected from manholes MH03 and MH04 at concentrations approximately twice the background UTLs.
- PAH compounds and metals were frequently detected at concentrations that exceeded background UTLs in sediment samples collected from MH03, MH04, and MH09. VOCs and SVOCs were infrequently detected in these samples. Similar concentrations of PAH compounds, VOCs, SVOCs, and metals were not observed in the other samples collected from manholes in this area.

5.6.2 Media Interactions

The uranium plume north of the IWCS could be related to localized areas of elevated activity ranging from 15,000 to 53,000 cpm (see Figure 3-4) that were identified in surface soils north of the IWCS during the gamma walkover survey. Leaching from these surface soils could be affecting wells north of the IWCS. The uranium plume south of the IWCS is collocated with the sewer lines in the area and this plume may be related to the elevated uranium concentrations found in manhole MH06. The concentrations of the uranium isotopes in MH06 are greater than the estimated concentrations of those isotopes in the groundwater in the vicinity of MH06. However, the highest concentrations in the plume occur very near a subsurface water line. This water line heads northeast and intersects the path of the sanitary sewer near manhole MH06. The depth at which the water line was installed is not known, though water lines were typically installed at depths shallower than sanitary sewer lines. The water line may be a preferential flow path exhibiting higher uranium concentrations than would be expected to be found in other flow paths through the native soil.

The highest isotopic thorium concentrations found at the NFSS in surface water was in a sample collected in a drainageway that flows north through EU 7, north of the IWCS. Many surface and near surface soil samples collected in the watershed of this drainageway also contained elevated concentrations of thorium and these soils may be the source of the thorium found in the water sample. The drainageway discharges to the South O Street Ditch and from there to the West Ditch. The relatively small flow volume of this ditch is apparently attenuated by the flow in the South O Street Ditch and the West Ditch. None of the thorium isotopes were detected in sample SW712-318, collected from the West Ditch downgradient from EU 7.

5.6.3 Sources and Effects of Past Site Use

Presence of compounds in groundwater and soil within these EUs is consistent with the past uses of the site.

- The burial area in the west central area of the site is consistent with the presence of metals, PCBs and radiological constituents in EU 7. Although this was labeled as a clean burial area, there were also several holding ponds present for dewatering of the K-65 slurry. These ponds may have also contributed radiological constituents to the environment.
- The presence of cesium-137 in EU 7 may be related to the EU's proximity to EUs 1 and 2 where the KAPL waste was stored.
- EUs 10 and 11 exhibited metals, pesticides, VOCs, radiological constituents and one SVOC in groundwater. The presence of these compounds may be related to the activities of the AEC since this is the location of the IWCS and the location of several of the holding ponds used for dewatering liquids during filling of the IWCS. In addition, there are numerous supply and waste pipelines that traverse the area. Some of these constituents may be migrating to groundwater along the pipelines or through the fill around the pipelines.
- Considerable construction activities have taken place that have disturbed the soils. Some areas of soil exhibit the presence of metal and radiological SRCs. These SRCs are likely related to the construction of the IWCS (i.e. residue placement, R-10 stabilization,

consolidation of contaminated soil, final grading and capping) and to activities at Building 401 located just east of EU 11.

- Elevated concentrations of metals were found in sediment and water collected from manhole MH09 in EU 11. Elevated concentration of PAH compounds were also found in the sediment at this manhole location. This manhole is located at the junction of a lateral line from Building 401 with the main sanitary sewer. Many of the PAH compounds and metals found in manhole MH09 were also detected at elevated concentrations in and around Building 401, which may be the source for these compounds and metals.
- As documented in Section 2 of this RI report, the IWCS was constructed over the former LOOW freshwater treatment plant. Several different radioactive wastes and residues were stored in the buildings and lagoons that were part of the plant. Prior to the construction of the IWCS, the R-10 pile was located on the ground north of the plant and was left unprotected. Building 409, formerly located south of the IWCS, was used for the storage of uranium scrap metals. Some or all of these past activities may be responsible for the uranium groundwater plumes now evident at the site.
- Correlation appears to exist between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. Small areas of high gamma walkover readings were observed in the vicinity of the former organic burial area and along the O Street South Ditch west of the Central Ditch in EU 7. Several soil samples collected in these areas exhibited elevated levels of radium-226 and thorium-230. Elevated gamma readings were identified northwest of the IWCS, along the east side of the IWCS and in the southeast corner of EU 10. No soil samples appear to have been collected to directly evaluate these areas.
- The highest gamma walkover readings within EU 11 were directly northwest of former Building 403 and in the area of the intersection of Campbell Street and R Street, which corresponds to the location of Trench 812. Subsequent soil sampling in these areas indicated the presence of elevated total uranium, radium-226, and thorium-230. Some elevated gamma walkover readings along Campbell Street, particularly in the east side ditch, corresponded to soil samples with elevated radium-226 activities. A sample in the South 16 Ditch that exhibited an elevated gamma walkover reading contained elevated actinium-227, radium-226 and thorium-230.
- Groundwater and soil data in both EU 7 and the northern portion of EU 10 indicate that the DOE Organic Burial Area is the likely source of the thorium plume north of the IWCS. The burial area was originally used for the disposal of organic materials stockpiled at Lutts Road and O Street. Material known to have been disposed in this area includes roofing timbers, wooden debris, and organic material from clearing activities (Bechtel National, Inc. 1984, 1985). During trench excavation activities conducted during this RI, the burial area was found to contain railroad ties, general demolition debris, slag, ash-like material, miscellaneous office waste, plastic pipe, and apparently unused environmental containers. Thorium concentrations observed in soil and groundwater in this area may be the result of residual contamination from this collection of debris. Surface and subsurface soils in the vicinity of the burial area in EU 7 exhibit moderate concentrations of thorium isotopes, with one sample (SS8D009) exhibiting a concentration of 536 pCi/g. Four samples immediately north of Ponds 1 and 2 either exhibited no exceedances of the background UTLs for thorium isotopes or only low

levels of thorium isotopes, thus the historic use of Ponds 1 and 2 is not thought to be the source of the thorium in groundwater in EU 7.

- The source of the thorium-230 in groundwater south of the IWCS is likely associated with historical use of Building 409 during construction of the IWCS. According to unpublished construction reports, treated slurry water from various bays in Building 411 was pumped to Building 409 for additional settling prior to being pumped to Ponds 3 and 4. Building 409 underwent a gross decontamination operation using a high pressure wash in October 1985 after removal of the 'yellow cake' that had accumulated during its use as an intermediate settling basin. Building 409 was then demolished, the rubble filled with fillcrete, and covered with backfill to a minimum depth of two feet. Inefficiencies in the transfer process or decontamination process may have led to the thorium groundwater contamination, as the K-65 residues are known to contain elevated levels of thorium-230.

5.7 BUILDING 401 AND VICINITY: EU 12, 13 AND 14

Building 401 and vicinity consists of EU 12, 13, and 14. The area is bounded by the South 16 Ditch on the north, Modern Landfill on the east and south, and by Campbell Street on the west.

EU 12 is a vacant wooded tract located between the shops area (EU 8) and Building 401. No production or storage activities are known to have occurred in EU 12. The Building 401 Ditch flows north through the EU, where it joins the South 16 Ditch, which continues to the west, joining the Central Ditch in EU 10.

The main feature in EU 13 is Building 401, a large structural steel building. During the operation of the LOOW, Building 401 was a power house, generating steam for use in the TNT production facilities. Later, the building housed a boron-10 (a nonradioactive isotope) separation process. During active use of the NFSS as well as during previous remedial activities, the building was used to temporarily store and stage radioactive waste and KAPL wastes.

EU 14, bounded on two sides by Modern Landfill, is a wooded tract. Both the South 31 Ditch and the Modern Ditch flow through the area and join near the northwest corner of the area. The South 31 Ditch continues to the west, joining the Central Ditch in EU 10. No production or storage activities are known to have occurred in EU 14.

5.7.1 Occurrence and Distribution of SRCs

5.7.1.1 Soil

Figures 4-12 through 4-14 summarize the occurrence of SRCs in soil at EUs 12, 13, and 14.

Thirty-eight surface and subsurface soil samples collected during the three phases of the RI were used to evaluate soil in EU 12. Phase 1 samples were collected to assess the presence or absence of chemical and radiological parameters around Building 401, a concrete bunker northwest of Building 401, and the eastern boundary of the NFSS site. Other Phase 1 samples were used to evaluate a former rail line, some residual coal near Building 401, and runoff from the Modern Landfill. Phase 2 samples were collected to evaluate data from the gamma walkover or to bound the extent of results from previous sampling. Phase 3 samples were collected to further investigate the results of the gamma walkover, to evaluate some areas of the EU that had not previously been investigated, and to delineate the results of earlier trenching.

Results from soil sampling in EU 12 indicate that metals, PAHs, PCBs, pesticides, SVOCs, VOCs and radiological parameters, exceeded background UTLs.

Seventy-two surface and subsurface soil samples collected during the three phases of the RI were used to evaluate soils in EU 13. Phase 1 samples were collected to evaluate previous sampling results, to investigate potential USTs and the location of a fuel storage tank, to investigate Building 407, and to investigate a concrete pad, fill pipes, and an area of stressed vegetation near Building 401. Phase 2 samples were collected to further investigate the results of the gamma walkover. Phase 3 samples were collected to investigate previously un-sampled areas, to evaluate the soils under Building 401, to evaluate a potential UST, to investigate a tank cradle, and to further define the horizontal extent of inorganic compounds identified during previous sampling. Phase 3 samples were also used to investigate several trenches. The trenches sampled in Phase 3 were installed to investigate potential tanks, a storm sewer, and a spoils pile.

Forty-nine surface and subsurface soil samples collected during the three phases of the RI were used to evaluate soil in EU 14. Phase 1 samples were collected to assess the inorganic, organic and radioactive constituents along the southern site boundary and in an area where TCE had previously been detected. Phase 2 samples were used to bound the results of earlier sampling, and to evaluate areas of the site boundary that had not previously been investigated. Phase 3 samples were used to investigate a drum storage area, to further investigate the findings of the gamma walkover, and to further delineate previous sampling results. Trench samples were also collected during Phase 3.

Additionally, one sample (SD719-341) collected from EU 12 was intended to be evaluated as a sediment sample. However, as discussed in previous sections of this RI report, this sample was classified as a surface soil sample to be consistent with exposure mechanisms considered in the BRA. Therefore, this sample was included in the discussion of soil samples collected at this EU. Findings and conclusions are:

- Radionuclides most frequently detected above background UTLs in EU 12 surface and subsurface soils include cesium-137, radium-226, thorium-230, uranium-234 and uranium-238. The majority of the background UTL exceedances occurred within surface soils. Two samples collected in the northwestern portion of EU 12, SS218-400 and SS219-401, exhibit the highest concentrations of these radionuclides. These two samples also exhibit elevated levels of actinium-227. Both of these samples were collected from localized areas with elevated gamma radiation readings, as determined by a limited gamma walkover survey.
- The evaluation of the results for radiological parameters leads to the conclusion that the distribution of radiological SRCs within EU 12 is erratic with small areas containing elevated concentrations of radiological parameters. The surface soil in the southeast corner of the EU appears to be largely contaminated with radionuclides.
- Metals, PAHs, PCBs, SVOCs, and VOCs also exceeded background UTLs in surface and subsurface soils within EU 12, but much less frequently than radiological parameters. Subsurface soil samples collected in EU 12 at depths greater than 10 feet bgs exceeded background UTLs for metals, radium-228, thorium isotopes, uranium-235, and three VOCs (1,1-DCE, acetone, and carbon disulfide). Most of these exceedances occurred in only a few samples in the northwestern and southeastern portions of the EU.

- The radium-226 concentration in sample SS203-003, collected approximately 80 feet south of Building 401 in EU 13, was 1,140 pCi/g – the highest radium-226 concentration measured at the NFSS. The gamma radiation at this location measured 200,000 cpm. This sample consisted of a single ‘nugget’, which accounted for almost the entirety of the gamma radiation measured at this location. When the site-wide gamma walkover survey was performed after the ‘nugget’ was removed, elevated gamma radiation was no longer present at this location.
- The radium-226, thorium-230 and actinium-227 concentrations in sample SS221-403, approximately 35 feet southeast of Building 401, were more than 100 times greater than the background UTLs. Uranium isotopes were also detected in this sample location at concentrations that exceeded the background UTLs by factors greater than 10. This is consistent with the results of the site-wide gamma walkover survey, which found evidence of an area at this location with gamma radiation that was elevated relative to background gamma results. Both the gamma walkover survey and the sample data show that the area impacted with radium-226 is restricted to the unpaved area immediately southeast of Building 401. While some radiological SRCs were found in other soil samples collected south and east of Building 401, the concentrations of radiological SRCs found in these samples, with the exception of SS203-003, were less than three times the background UTLs. Additionally, sample SS220-402, located northwest of Building 401, exhibited concentrations of radionuclides that were at least 20 times greater than the background UTLs, particularly, actinium-227, radium-226, and uranium-238.
- Metal exceedances in EU 13 soil samples occurred throughout the EU. Most of the metals exceedances were two to three times the background UTLs. South of Building 401, boron was found at concentrations greater than twenty times the background UTLs in trench samples. Subsurface samples collected from this area tended to have higher boron concentrations than the surface samples. The highest boron concentration measured in EU 13 was found in a soil sample collected from a depth of 5.2 feet below grade south of Building 401.
- Ten soil samples were collected from beneath the floor slab in Building 401. Boron, selenium, and thallium were commonly detected metals in these samples. However, boron was found at elevated concentrations (up to five times greater than the background UTL) in several of the samples. PCBs and pesticides were also commonly found in these samples. The maximum PCB concentration (441 µg/kg) was for Aroclor-1254 in SB-Core01-0.5-3731. The maximum pesticide concentration (8.58 µg/kg) was for 4,4’-DDT in sample SB-Core02-0.5-3733. Chlorinated solvents, including 1,1-DCE, cis-1,2-DCE, PCE, trans-1,2-DCE, and TCE, were also detected in these samples. While most of the concentrations of these compounds were less than 10 µg/kg, some sample concentrations ranged as high as 66 µg/kg (cis-1,2-DCE). PCE was found in six of the ten samples at concentrations ranging from 0.71 to 12.9 µg/kg. TCE was found in eight samples with concentrations ranging from 0.437 to 227 µg/kg. The soils beneath the floor appear to be minimally impacted with PAHs and radionuclides. PAHs were detected in only a couple of locations mainly at concentrations less than five times the background UTLs. Most isotopic concentrations were at or near background UTLs.
- Four exploratory trenches were excavated around Building 401. Trench 201 was excavated near the southwest corner of Building 401 to investigate the possible location of an UST. The trench was excavated to depths of 1 to 5 feet bgs, but no tank was found.

However, a series of concrete structures was observed in the trench. The purpose of these structures is not known, though it is thought that they may in some way be associated with one or more USTs that may have been located adjacent to Building 401. There is what appears to be a vent pipe located at the southwest corner of the building. However, no definitive evidence of the existence of USTs was found here. No chemical evidence suggesting the presence of USTs was found in the soil samples collected from Trench 201. Results from three subsurface soil samples collected at this trench location indicated that selenium, thallium, thorium-230, naphthalene, 2-methylnaphthalene, 1,1-DCE, and toluene exceeded background UTLs. A sample was collected from what appeared to be a piece of building material found in Trench 201 at a depth of approximately 2.4 feet bgs. Analysis determined that the sample contained approximately 15% chrysotile asbestos.

- Trenches 202 and 205 were excavated in the area of the former leaching pit located south of Building 401. Trench 202 was excavated to investigate a storm sewer grate and associated piping. The trench was excavated to between 4 and 7 feet bgs; however, no piping was uncovered. During the excavation of this trench, a distinct odor, variously described as ‘pesticide-like’ and ‘similar to chlorinated solvents’, was noted. However, none of the chemical results for soil samples collected from this trench identified the chemical constituent responsible for this odor. Small concentrations of several VOCs and one pesticide were observed in the soil samples collected from Trench 202, but given the small concentrations in the samples, it is unlikely that the detected compounds are responsible for the odor. Other results indicated several metals and radionuclides exceeded background UTLs at this trench location. Trench 205 was excavated in EU 14 to further investigate the organic/pesticide odor observed at Trench 202. Trench 205 is oriented east-west with the western end near the southern end of Trench 202. Several sand lenses were encountered at depths below 5 feet. Three subsurface soil samples were collected, all of which exhibited concentrations of metals and at least one VOC above background UTLs. Additionally, one sample exhibited total uranium and uranium-235 above background UTLs.
- Subsurface soil samples collected in EU 13 at depths greater than 10 feet bgs exceeded background UTLs for metals, thorium-230, thorium-232, 4,4-DDE, 4,4-DDT, and five VOCs (1,1-DCE, acetone, carbon disulfide, toluene, and xylenes). These exceedances occurred at widely scattered locations within the EU.
- Trench 203 was excavated north of Building 401 to investigate a potential UST. The upper 3 feet of the excavation included firebrick and fill debris in a brown clay matrix. Also uncovered was a 12” diameter pipe and a crushed steel bucket. One surface soil sample and two subsurface soil samples were collected from the trench. Surface and subsurface soil results indicate that metals and radionuclides slightly exceed background UTLs. Surface soil samples also indicated the presence of anthracene, acetone, methylene chloride, PCE and toluene. Additionally, acetone, methylene chloride, PCE, toluene, and TCE were detected in subsurface soil samples at this trench location.
- Trench 204 was excavated to investigate a spoils pile southeast of Building 401. The trench lies mostly within EU 13 with the south end of the trench positioned in EU 14. The trench was excavated to a depth of 10 feet from the top of the spoils to 5 feet below the base of the pile. Three subsurface soil samples were collected in the brown-gray clay underlying the fill material. The sample analytical results exhibited concentrations of uranium-238 and total uranium just above background UTLs. No samples were collected

in the fill material because no magnetic, or gamma anomalies were observed and no PID measurements were elevated.

- Approximately two-thirds of the soil samples collected in EU 14 contained concentrations of one or more radiological SRCs that exceeded background UTLs. However, with the exception of a few isolated locations, the magnitude of exceedance was small. In most cases, the concentrations of radiological SRCs were less than three times the background UTLs, though small areas containing radiological SRCs at much higher levels are present. The concentration of radium-226 in surface soil sample SS816-703, located adjacent to the perimeter road in the southeast corner of the EU, was 299 pCi/g – the fourth highest radium-226 concentration measured at the NFSS. A short distance away, in surface soil sample SS8B001-2430, the radium-226 concentration was 16.8 pCi/g. Other samples collected in this vicinity contained concentrations of radium-226 that were near or below the background UTL. Other samples collected at this location exhibited elevated concentrations of actinium-227 as well. This is consistent with the findings of the site-wide gamma walkover survey, which identified an impacted area along the road at the location of these two samples.
- Elevated concentrations of radiological SRCs and boron were found in surface and subsurface soil samples collected in the northwest portion of EU 14, north of the South 31 Ditch in an area formerly used by the AEC as a sludge pit. The purpose of the sludge pit is not known, though apparently it was constructed contemporaneously with the production of boron-10 in Building 401. Surface soil sample SS2B014-2374 exhibited a radium-226 concentration of 126 pCi/g, which was more than 100 times greater than the background UTL. The total uranium concentration in this sample was 9.96 µg/g, approximately three times greater than the background UTL. A surface soil sample collected in this area (SS202-002) exhibited a concentration of boron of 283 mg/kg. Several subsurface soil samples collected at this area also exhibited boron concentrations greater than 10 times the background UTL with the greatest concentration observed at location BH223. This location exhibited a boron concentration of 1,580 mg/kg, which is more than 150 times the background UTL. Small concentrations of VOCs were also found in surface and subsurface soil samples collected from the sludge pit.
- Subsurface soil samples collected in EU 14 at depths greater than 10 feet bgs exceeded background UTLs for metals, and two VOCs (1,1-DCE and acetone). These exceedances occurred in two widely spaced locations along the southern and northern perimeter of the EU.

5.7.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

During Phase 1, three surface water samples were collected from both EU 12 and 14. These samples were taken to assess surface water from Building 401 and the southern shops area (EU 8), as well as from the Modern Landfill to the east of the site. In EU 12, two surface water samples were collected from the South 16 Ditch along the northern portion of the EU. The other surface water sample in EU 12 was also collected in the northern portion of the EU south of the South 16 Ditch. In EU 14, two surface water samples were collected in the South 31 Ditch, one at the conjunction with the Modern Ditch and one at the eastern boundary of the EU. Another

surface water sample was collected in Modern Ditch along the southern boundary of the EU where the Modern Ditch enters the site. O-cresol was the only SRC identified in the surface water sample collected south of the South 16 Ditch in EU 12. Several metals, in both the dissolved and total phases, were detected in the other surface water samples from EUs 12 and 14 at concentrations above background UTLs. No consistent pattern was identified in the spatial distribution of the metals concentrations detected in the samples. Two VOCs, 4-methyl-2-pentanone and benzene, were detected in the sample collected at the conjunction of the South 31 Ditch and the Modern Ditch.

No surface water samples were collected from drainageways in EU 13. The nearest surface water sample collected downgradient from EU 13 was SW716-329, collected from the South 31 Ditch in EU 11. This sample, which is also downgradient from the sludge pit in EU 14, contained the highest dissolved boron concentration (628 µg/L) found in any surface water sample collected at the NFSS. However, a sediment sample, collocated with SW716-329, did not contain elevated concentrations of boron.

5.7.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Six sediment samples were collected in EU 12 and 14 at points collocated with the surface water samples; however, sample SD719-341 was later reclassified as a soil sample. These samples were collected to assess the sediments from Building 401 and the southern shops area (EU 8), as well as from the Modern Landfill to the east of the site. Several metals were detected in the sediment samples at concentrations above background UTLs, though, like the surface water samples, no consistent pattern was identified in the spatial distribution of the metals concentrations detected in the samples. Additionally, cesium-137 exceeded the background UTL in the sample collected from the South 31 Ditch at the eastern boundary of EU 14 (SD718).

5.7.1.4 Groundwater

Figures 4-18 through 4-21 summarize the occurrence of total and dissolved SRCs in the LWBZ and UWBZ at the NFSS.

In EU 12, groundwater samples were collected from six TWPs and one permanent well; in EU 13, groundwater samples were collected from 13 TWPs and five permanent wells; and in EU 14, groundwater samples were collected from seven TWPs and one permanent well. Phase 1 groundwater samples were collected in EU 12 to determine the affect that Building 401 activities had on groundwater, and to define the groundwater constituents along the eastern site boundary. The permanent well was sampled during Phases 2 and 3 to assess previous sampling results at a temporary well. Phase 2 groundwater samples were also used to further investigate metals, radiological and VOC results from previous sampling within EU 13. In EU 13, groundwater samples were collected for the purpose of evaluating the groundwater in the immediate vicinity of Building 401, including the paint shop and some USTs, and for further investigating previous sampling results. Groundwater sampling in EU 14 was used to assess the groundwater at the southern and eastern boundaries of the NFSS site and to investigate areas near Building 401 that had not been previously sampled. A total uranium groundwater plume was identified in this area and is shown on Figure 5-4. Findings and conclusions are:

- Total and dissolved metals and radionuclides were detected above background UTLs in all three EUs. Additionally, fluoranthene, di-n-butylphthalate, pentachlorophenol, and phenol were detected above background UTLs in groundwater within the northwest corner of EU 12. Fluoranthene, phenanthrene, five pesticides, bis(2-ethylhexyl)phthalate, phenol, and five VOCs (1,2-DCE, 2-butanone, chloromethane, methylene chloride, and PCE) were detected above background UTLs in groundwater within EU 13. Six PAHs, bis(2-ethylhexyl)phthalate, di-n-butylphthalate, and phenol were detected above background UTLs in groundwater within EU 14.
- A dissolved total uranium groundwater plume was identified northwest of Building 401, centered on monitoring well MW-215A in EU 12. Concentrations of dissolved total uranium in this plume were approximately 2 to 3 times the background UTL of 16.7 µg/L.
- A dissolved total uranium groundwater plume was also identified in the area south of Building 401. Concentrations of dissolved total uranium in this plume were up to 3 times the background UTL of 16.7 µg/L. Concentrations of uranium in the plume do not show a direct relation to total uranium surface soil concentrations. The relationship between soil and groundwater uranium concentrations may be more evident with additional groundwater data. Also, past remedial actions may have removed most of the SRCs in the surface soil, leaving the 'foot print' of the original impacted area evident in the groundwater. The uranium plumes in EU 13 could be related to sporadic areas of localized elevated activity ranging from approximately 34,000 to 93,000 cpm (see Figure 3-5) that were identified in surface soils in EU 13 during the gamma walkover survey. Leaching from these surface soils could be affecting wells in this area.
- A north-south trending boron plume was found within the central portion of EU 13. This plume is shown on Figure 5-14. The highest concentration of dissolved boron within this plume is centered on wells MW213 and MW213A. Some of the water samples collected from the Building 401 floor drains also had high levels of dissolved boron.

Building 401 drain samples contain elevated levels of boron which could be a potential source for the boron plume. Therefore, the plume presented in Figure 5-14 is shown to extend beneath the building. The drain samples did not contain elevated concentrations of uranium; thus two separate uranium plumes are presented north and south of Building 401 in Figure 5-4.

5.7.1.5 Pipelines and Subsurface Utilities

Figures 4-22 and 4-23 summarize the occurrence of total and dissolved SRCs in pipeline water samples, while Figure 4-24 summarizes the occurrence of SRCs in pipeline sediment samples.

During Phase 3, two manholes, MH01 and MH02, were sampled in EU 13. Manhole MH01 was sampled only for water and manhole MH02 was sampled for both water and sediment. Both were sampled to determine the impact of the Building 401 activities on the sanitary and storm water sewer systems in EU 13. MH01 is known to be located on a sanitary sewer that serviced Building 401. The line on which MH02 is located, south of Building 401, is not shown on available site drawings for the NFSS and the purpose of this line is not known. Conclusions and findings are:

- Water sample MH01W-2000 contained dissolved aluminum, boron, chromium, copper, nickel, silver, and other dissolved metals at concentrations above background UTLs. The concentrations of dissolved aluminum and silver exceeded the background UTLs by a factor of more than 20. The dissolved boron concentration found in the sample exceeded the background UTL by a factor of almost three. The other dissolved metals exceeded their background UTLs by factors that ranged from approximately two to eight. Concentrations of total radium-226, total uranium-234, and total uranium-238 slightly exceeded the background UTLs in this sample.
- In water sample MH02W-2001, dissolved nickel, total thallium, total radium-226, total thorium-230, and total thorium-232 were identified as SRCs.
- In sediment sample MH02S-2002, arsenic, boron, nickel, selenium, and zinc were identified as SRCs. The concentrations of these parameters in MH02S-2002 were all less than three times the background UTLs. Anthracene, naphthalene, phenanthrene, 2-methyl naphthalene, and dibenzofuran were also identified as SRCs in this sediment sample.

Fourteen floor drains in Building 401 were also sampled during Phase 3 of this RI. The purpose of sampling these drains was to assess the chemical and radiological impacts that could have been introduced into the sewer system(s) by site activities at Building 401. Site drawings showing the piping for these drains were not available and the destination for materials entering these drains is not known. Sediment was present in all 14 drains. Water was present in only six of the drains. In most of the drains with water, the volume of water present was insufficient to satisfy all analytical requirements, so the analytical lists were reduced to accommodate the limited sample size. Oil was present in three of the drains, though the amount present in one of the drains was insufficient for analysis. Samples of the oil were collected and submitted for SVOC, metals, pesticide, PCB, and radiological analysis. Findings and conclusions are:

- The sediment samples collected from the drains contained many metals at concentrations above background UTLs. Boron and mercury, in particular, were many times higher than background UTLs. Sample Drain06-S-3711 had a boron concentration of 11,700 mg/Kg and two others had boron concentrations over 7,000 mg/Kg. The mercury concentrations in three of the drain sediment samples exceeded 200 mg/Kg. Aroclor-1254 was present in 12 of the 14 sediment samples, at concentrations as high as 84,900 µg/kg. 4,4'-DDT was detected in three samples, at concentrations as high as 60,900 µg/kg. Various PAHs, SVOCs, and VOCs, including chlorinated solvents, were frequently detected in the sediment samples. TCE was detected in seven of the thirteen drains at concentrations ranging from 1.87 to 217 µg/kg. PCE was detected in eight of the samples at concentrations ranging from 0.345 to 1,000 µg/kg.
- Radiological SRCs were also present in the floor drain sediment samples, though the magnitudes of exceedances were not nearly as extreme as that observed for some of the metals and organic compounds. Drain03-S-3705 exhibited the highest uranium isotope concentrations detected in the drain sediment samples. Uranium-234, -235, and -238 were detected at the following concentrations: 26.2 pCi/g, 6.99 pCi/g, and 28.5 pCi/g. The other isotopes were detected at smaller concentrations.
- Four water samples collected from the drains were submitted for total metals analysis. Many metals were found at concentrations over 100 times greater than background

UTLs. However, these results were to a large degree attributable to solids present in the samples. Sample Drain04-W-3706 tended to have higher concentrations of total metals than the other drain water samples. Unfortunately, the volume of water available in Drain04 was not sufficient to also allow analysis for dissolved metals.

- Dissolved thorium isotopes were detected at levels that exceeded background UTLs at drain location Drain01. 2-Butanone, acetone, bis(2-ethylhexyl)phthalate, 4,4'-DDT, Aroclor-1254 and Aroclor-1260 were also infrequently detected in drain water samples.
- Oil samples were collected from Drain03 and Drain04. Aroclor-1254 was detected in both samples. The concentration in Drain03-O-3720 was 83,800 µg/kg and in Drain04-O-3719 it was 214,000 µg/kg.

5.7.1.6 Building 401 Floor Slab Core Samples

In Phase 3, ten core samples were collected from the floor slab of Building 401. These samples were analyzed for metals, PAHs, PCBs, SVOCs, and radionuclides. Metals and radionuclides were detected in all of the samples. The highest concentrations of radionuclides were less than 2 pCi/g, except for one sample which contained 5.7 pCi/g of plutonium-239. PCBs were detected in eight samples with a maximum detection of 26,000 µg/kg for Aroclor-1254. PAHs were also detected in a number of samples with the maximum concentration of 135 µg/kg for phenanthrene. SVOCs were found in nine of the samples and included bis(2-ethylhexyl)phthalate and di-n-butylphthalate. Di-n-butylphthalate exhibited the highest concentration at 2,540 µg/kg.

5.7.2 Media Interactions

Elevated concentrations of boron were found in all media sampled in this area. There appears to be two principal source areas for boron: Building 401 and the 'sludge pit' south of Building 401 (see Figure 1-2). Building 401 may be the source for the boron groundwater plume found in this area. Boron levels that exceeded the background UTL by factors greater than 200 were found in sediment samples collected from some of the floor drains inside Building 401. Dissolved boron was also detected in water samples collected from the floor drains at concentrations that exceed the background UTL by as much as a factor of about 20. The sludge pit south of Building 401 may be the source of boron found in surface water downgradient from the sludge pit.

5.7.3 Sources and Effects of Past Site Use

During the operation of the LOOW, Building 401 served as a steam generation plant. Later, the DOE extracted boron-10 in the building. At times, the AEC, the DOE, and their contractors, housed and stored radioactive wastes in the buildings.

- Chemicals typical of industrial facilities were found in and around Building 401. Pesticides, PCBs, PAHs, SVOCs, VOCs, metals and radiological constituents were found in EUs 12, 13, and 14. The presence of these constituents is consistent with the uses of Building 401. PCBs, SVOCs, metals and radiological constituents all exceed risk levels in some areas of the three EUs.
- Impacts resulting from the past use of the building as a storage and staging facility for radioactive materials are found throughout the three EUs, particularly in low lying areas such as ditches.

- Elevated concentrations of boron were found in all sampled media.
- Correlation does appear to exist between elevated readings detected during the gamma walkover and soil samples collected during Phase 3. Within EU 12, areas of gamma walkover readings that were elevated relative to background gamma results occurred mainly along service roads and rail lines. Other small areas of elevated gamma walkover readings occurred in the northwestern area of the EU. A few soil samples indicated slightly elevated levels of radionuclides in these areas. Scattered single point locations exhibiting elevated gamma walkover readings were identified in EU 13; however, no Phase 3 soil sampling was conducted at these locations. As previously discussed, analytical results from a Phase 2 soil sample location are consistent with results of the gamma walkover survey. Within EU 14, analytical results are consistent with elevated gamma walkover readings identified at scattered single point locations in the northwest portion of the EU and at the intersection of Castle Garden Road and R Street.

5.8 NIAGARA-MOHAWK PROPERTY, EU 9

The Niagara-Mohawk property is adjacent to the western boundary of the NFSS. The West Ditch is the principal site feature of the Niagara-Mohawk property.

5.8.1 Occurrence and Distribution of SRCs

5.8.1.1 Soil

Figure 4-25 summarizes the occurrence of SRCs in soil at EU 9.

During Phase 3, soil samples were collected from along the West Ditch. These samples were collected to evaluate the presence or absence of inorganic, organic and radiological parameters on the Niagara-Mohawk Property. Thirty-five soil samples were collected on the Niagara-Mohawk Property. Seven of these samples were collected from the West Ditch, collocated with surface water samples, and initially classified as sediments. For purposes of the BRA, these seven samples were later reclassified to be surface soils and are being evaluated as surface soils in this section. Findings and conclusions are:

- The radium-226 concentration in sample SS913-2105 was 17.8 pCi/g, approximately 20 times greater than the background UTL. This sample was located on the top of the east bank of the West Ditch, a few feet west of the NFSS perimeter fence at a small area of elevated gamma activity discovered during a limited gamma survey of the Niagara-Mohawk property. A second sample, SB913-2474-1.5, was collected from a depth of 1.5 feet bgs at this location. The radium-226 concentration in the second sample was 0.966 pCi/g, which was less than the background UTL. The radium-226 concentrations in collocated surface soil sample SSEU093-3342 and subsurface sample SB-EU093-3322-2.0, collected from a location only 2.5 feet from SS-913-2105, were both below the background UTL, indicating that the extent of elevated radium-226 around SS913-2105 is very limited.
- The concentration of thorium-230 in sample SS913-2105 was approximately 20 times greater than the background UTL. Like the radium-226 found in this sample, the extent of the elevated concentration of thorium-230 was limited and the concentration of thorium-230 in nearby samples was less than the background UTL.

- The total uranium concentration in sample SS905-2089, located on the west bank of the West Ditch, approximately 120 feet northwest from SS905-2089, was 13.5 µg/g, approximately four times the background UTL. The total uranium concentration in the collocated subsurface sample, SB905-2090-2.0, collected from a depth of two feet bgs, was slightly lower, 12.2 µg/g, but still exceeded the background UTL.
- Several other soil samples contained concentrations of one or more radionuclides that exceeded background UTLs, though the magnitude of exceedance in these other samples was much lower – by a factor of two or less.
- The radium-226 concentration in three of the reclassified sediment samples slightly exceeded the background UTL for surface soils. However, they were significantly less than the background UTL for radium-226 in sediment.
- Metals, PCBs, pesticides, SVOCs (2-chlorophenol, m,p-cresols, and phenol), and VOCs (1,1-DCE, benzene, and toluene) exceeded background UTLs in soil samples collected from the Niagara-Mohawk property. The presence of these constituents may be due to the property's vicinity to historical operations (i.e. the unprotected R-10 pile and the construction activities conducted at the IWCS in the 1980's).

5.8.1.2 Surface Water

Figures 4-15 and 4-16 summarize the occurrence of total and dissolved SRCs in surface water at the NFSS.

Ten surface water samples were collected from the West Ditch on the Niagara-Mohawk property. Findings and conclusions are:

- The concentration of dissolved americium-241 in sample SW920-2122 was 16.9 pCi/L. However, the uncertainty associated with this result, as reported by the laboratory, was nearly as high, 15.2 pCi/L, and the confidence in this result is low. SW920-2122 was collected from the West Ditch, immediately south of where it enters the NFSS in EU 1. None of the other surface water samples collected from the West Ditch on the Niagara-Mohawk property contained detectable quantities of americium-241. Americium-241 was not part of the analytical list for surface water samples collected on the NFSS.
- Several other samples had concentrations of dissolved thorium isotopes and uranium isotopes at levels slightly above background UTLs. There is no apparent pattern evident in the spatial distributions of these exceedances. These exceedances may be attributable to the natural variation in the concentrations of these isotopes in the environment.

5.8.1.3 Sediment

Figure 4-17 summarizes the occurrence of SRCs in sediment at the NFSS.

Nine sediment samples were collected from the West Ditch on the Niagara-Mohawk property. Except for the northernmost two samples, SD919-2119 and SD920-2121, the samples were later reclassified as surface soil samples. Radium-228 and thorium-228 slightly exceeded background UTLs in one or both of these samples.

The results for the reclassified samples are presented in the discussion of soil, above.

5.8.1.4 Groundwater

No groundwater samples were collected on the Niagara-Mohawk Property.

5.8.2 Media Interactions

There is no current direct evidence that SRCs are migrating from the NFSS onto the Niagara-Mohawk property or from one environmental medium to another. As discussed in the following section, the presence of SRCs is likely the result of historical operations. Based on sampling conducted in EUs 9 and 10, it appears that contaminated surface soil on the NFSS could be a potential historical source of constituents detected in sediment and surface water in the West Ditch.

5.8.3 Sources and Effects of Past Site Use

Impacted soils and sediments in the West Ditch on the Niagara-Mohawk property were removed during a previous removal action.

- Much of the length of the ditch is impacted by metals and radionuclides at concentrations above background UTLs. This is consistent with the area's proximity to historical operations (i.e. the unprotected R-10 pile and the construction activities conducted at the IWCS in the 1980's).
- Slightly elevated gamma walkover readings were present in only a minimal area of EU 9. One single point location (913) that showed elevated gamma activity also had analytical results that indicated elevated levels of total uranium, radium-226, and thorium-230.

5.9 SITE-WIDE EVALUATION OF TRANSURANIC AND FISSION PRODUCT DATA

5.9.1 Transuranic and Fission Product Data Review

A review of almost 950 surface soil, subsurface soil, and sediment samples was conducted to identify potential fission product or transuranic contamination at the NFSS. The site database contains results for the fission product cesium-137 and the neutron activation product cobalt-60. Both of these radionuclides are produced in nuclear reactors and are commonly present in radioactive wastes. Cesium-137 is also a common radionuclide present in fallout from aboveground nuclear weapons tests. The existence of either of these radionuclides could be an indication that fission-product-contaminated materials were stored at NFSS. The database also contains results for americium-241, a transuranic also typically considered a nuclear reactor byproduct. The existence of americium-241 could be an indication of other transuranics associated with the nuclear industry, such as plutonium. Lastly, the database contains results for isotopic uranium (uranium-234, uranium -235, and uranium-238) that can be used to estimate uranium enrichment, another indicator of the presence of nuclear byproduct material.

5.9.2 Definitions

The following definitions are presented to support method description and the presentation of results:

Background – As presented here, the term background is used in two ways: soil *background* concentrations and detector *background*.

- A soil background concentration is the activity per unit mass (pCi/g) in an area that is not impacted by site activities and contains characteristics similar to site soil.
- Detector background is the detector response to an uncontaminated sample. For radio-analytical data, detector background can be represented as a distribution including both positive and negative values. The soil background concentration may be estimated from this distribution (e.g., as the 95th percentile, mean, or other statistical value).

Detect – As interpreted here, a detect is an analytical result reported above analytical thresholds and is not assigned a rejected (R) or undetected (U) flag, noting that estimated (J-flagged) results are typically accepted as detects.

Histogram – A histogram, as applied here, is a plot that partitions data into bins, where each bin represents a range of pCi/g results.

Qualified – As interpreted here, an analytical result reported with a data qualifier, including the J (estimated) and U (non-detect) qualifiers.

Strip Chart – A strip chart (also known as a run sequence chart) is a plot of the data in the order they are presented in the database. The order number is shown on the x-axis and the parameter of interest (e.g., pCi/g) is presented on the y-axis. Strip charts can be used to quickly identify outliers and data trends.

Probability Plot – A probability plot (can also be shown as a cumulative frequency distribution) presents value of a result within a population of data versus the expected value. Probability plots can be used to quickly identify outliers and can be used to approximate background levels.

5.9.3 Method

Results from six radionuclides were evaluated to determine the existence of fission products and transuranics at NFSS. The general approach was as follows:

- Identify fission product and transuranic radionuclides in the site database;
- Use the isotopic uranium results (from alpha-spec analyses of uranium-234, uranium-235, and uranium-238) to estimate enrichment as an indicator of nuclear materials;
- Use strip charts, probability plots, and histograms to identify outliers from the detector background distribution;
- Upon identification of outliers, use other available data and information to explain, if possible, the existence of outliers.

Results are presented by radionuclide and results reported as numerical values are considered (i.e., results reported as “NA” are excluded). Surface soil, subsurface soil, and sediment results are considered in this evaluation as one population of data. Detects are illustrated as shaded cells on strip charts for ease of identification. The negative (-) 1.45 pCi/g americium-241 result is

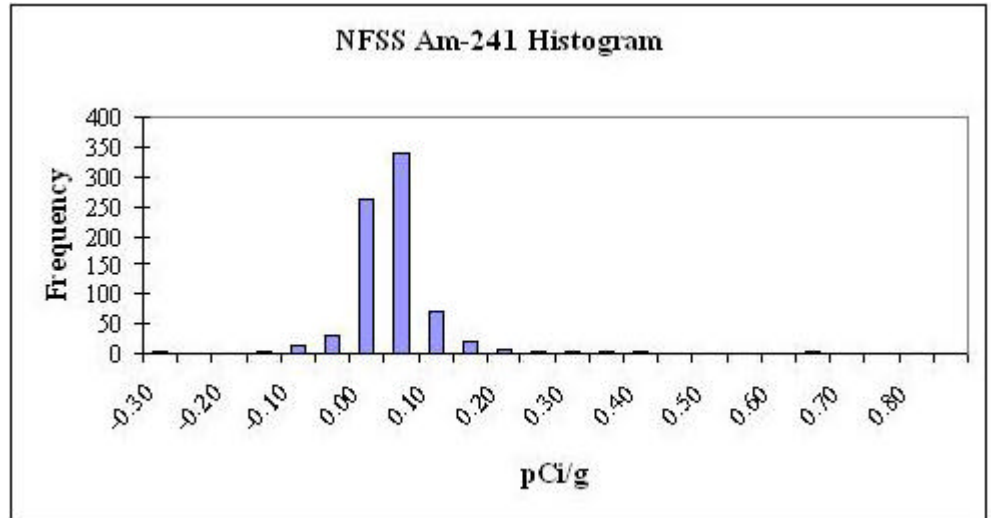
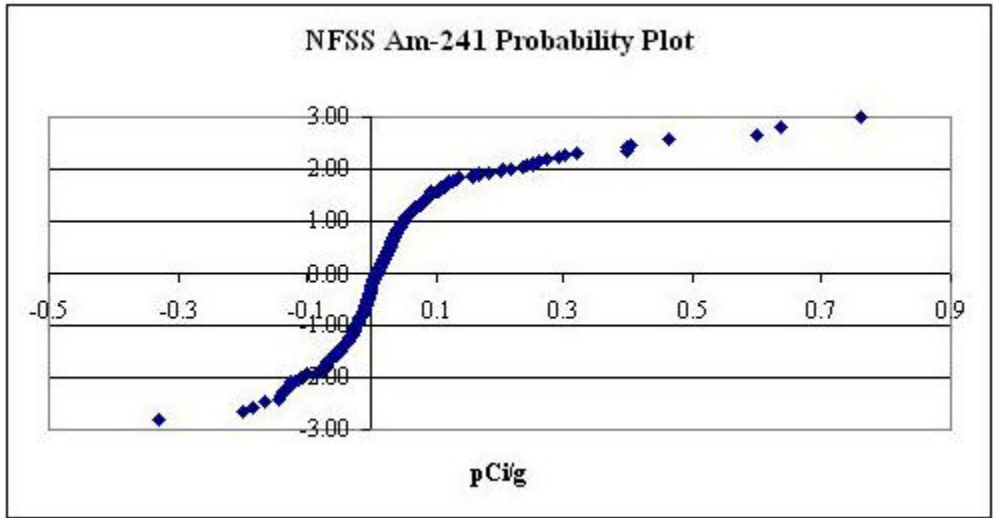
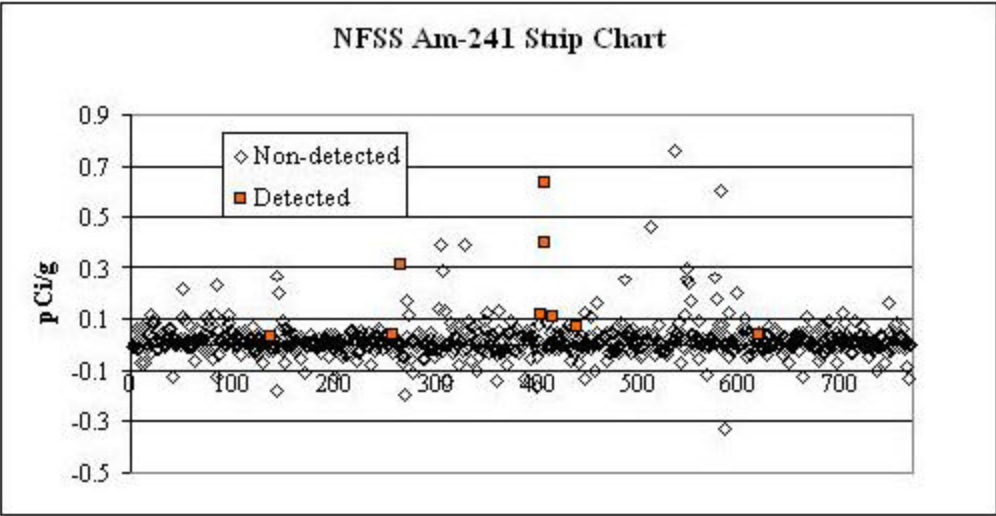
excluded to improve the presentation of other data (scale optimization). Uranium enrichment calculations are only performed using samples with uranium-234 results greater than 2 pCi/g. This truncation was performed given that during the gaseous enrichment process uranium-234 concentrations may be increased relative to uranium-235 and uranium-238 concentrations. A uranium-234 concentration of 2 pCi/g was selected based on the assumption that uranium-234 at 2 pCi/g may be slightly elevated above soil background concentrations and given that enrichment estimates are more reliable with increased concentration. Finally, it is assumed that all the data and associated qualifiers have been reviewed and results accurately represent environmental concentrations.

5.9.4 Results

The following discusses strip charts, probability plots, and histograms for americium-241, cobalt-60, cesium-137, and uranium enrichment, as appropriate. Assumptions concerning the nature of detected results, if any, are also presented.

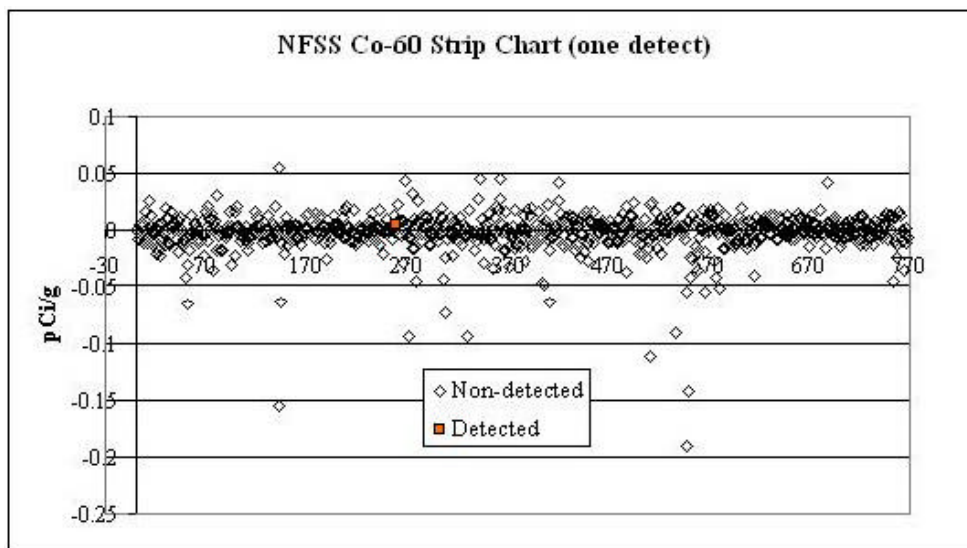
5.9.4.1 Americium-241

A total of 768 americium-241 results are illustrated in the strip chart shown below, only 9 of which are listed as detected (~1%). The maximum result of 0.76 pCi/g is a non-detect (U-flagged) and the detected values fall within the overall range of background concentrations. The probability plot and histogram do seem to indicate the presence of two populations or indicate a lognormal distribution, but do not indicate the presence of contamination. The number of detects (9 of 768) is not unexpected given around 5% false positives (detected when there is actually no activity due to statistical variations) are expected. The conclusion based on available data is that americium-241, which has not been identified as a ROC in the BRA, is not a contaminant, thus, it is unlikely that other transuranics are present at significant concentrations or are widespread in NFSS soils/sediment. This is further supported by a review of transuranic detections at the site. For example, there were only three very low detections of plutonium-239/240 in soil out of 34 samples analyzed. These detections occurred in EU 8, EU 11, and EU 13 at concentrations of 0.322, 0.129, and 0.536 pCi/g, respectively. There were no detections of plutonium-238 in 34 samples analyzed. Likewise, there were no detections of strontium-90 in 31 soil samples analyzed. However, there was one detection of strontium-90 in sediment in EU 16 (pipeline) at a concentration of 0.74 pCi/g.



5.9.4.2 Cobalt-60

At total of 768 cobalt-60 results are evaluated, only one of which is detected at 0.0058 pCi/g. This “detected” value is J-flagged (estimated), falls well within the population of non-detected results, and represents approximately 0.1% of the entire population. The cobalt-60 strip chart clearly shows the absence of outliers and the one detected value can easily be described as a statistical anomaly. It is concluded that cobalt-60, which has not been identified as an ROC in the BRA, is not present as significant concentrations in NFSS soils/sediment.

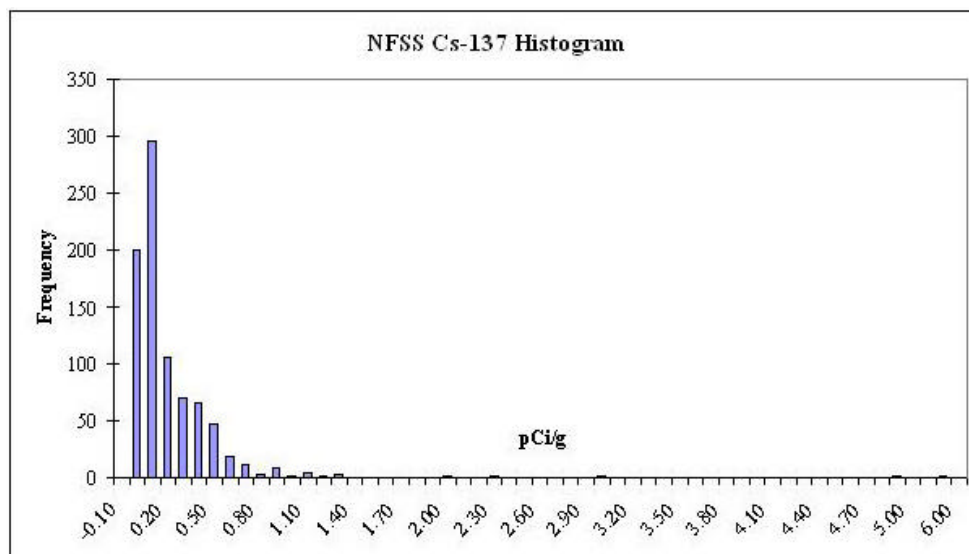
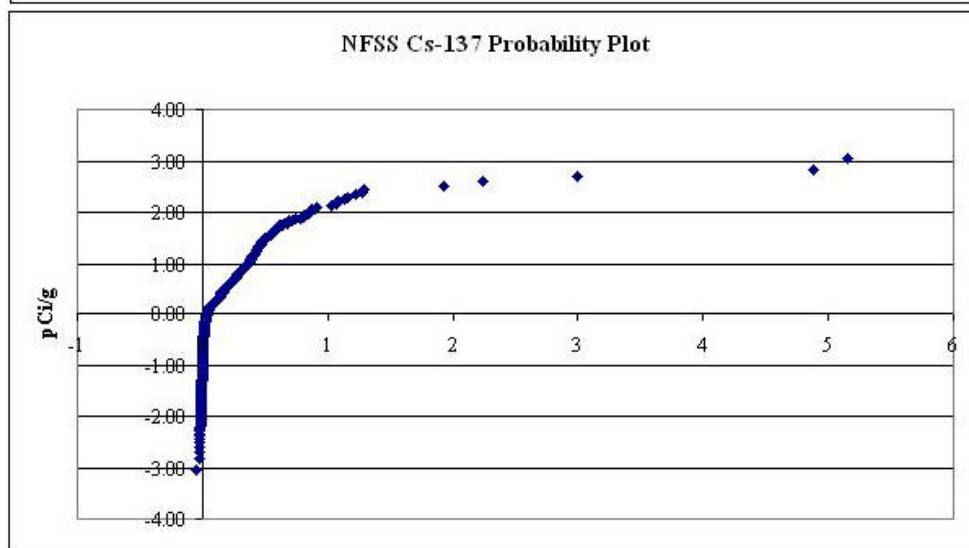
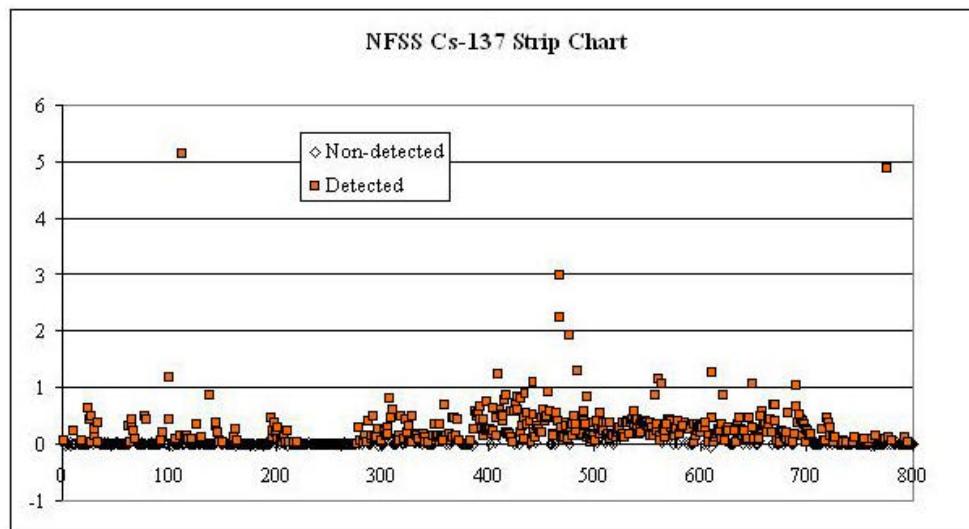


5.9.4.3 Cesium-137

A total of 841 cesium-137 results are evaluated, 433 of which are detects (including 54 J-flagged results). Figure 5-15 shows locations where cesium-137 concentrations exceed the UTL in surface soil, subsurface soil, and sediment. Possible outlier locations, which are further discussed in the following paragraphs, are also noted on the figure. The following additional illustrations show the presence of at least five visual outliers plus suggest the presence of several more. For ease of reference, the maximum five results are presented in the following table. The probability plot and histogram suggest the upper bound of background is approximately 0.8 pCi/g. Twenty-four results (all detects) are reported above 0.8 pCi/g, 23 of which are in the top foot of soil. The maximum result of 5.15 pCi/g is; however, from a subsurface sample from the 1.5 to 2 foot interval. The presence of elevated activity with depth and apparent deviation from the background distribution suggest cesium-137, which has been identified as a ROC in the BRA, is a site-related contaminant and should be evaluated further as part of on-going NFSS activities.

Potential NFSS Cesium-137 Outliers (maximum five results)

Sample ID	Start Depth (feet)	End Depth (feet)	Concentration (pCi/g)	Detection Limit (pCi/g)	Error (pCi/g)	Flag
SB 8D016-2231-2.0	1.5	2	5.15	0.0268	0.587	J
SS 3D001-2414	0	0.5	2.23	0.0508	0.221	--
SS 3D002-2415	0	0.5	3	0.0447	0.388	--
SS 414-051	0	0.5	1.92	0.0302	0.057	J
TB301-2811-01.0-029	--	1	4.88	0.0502	0.504	--

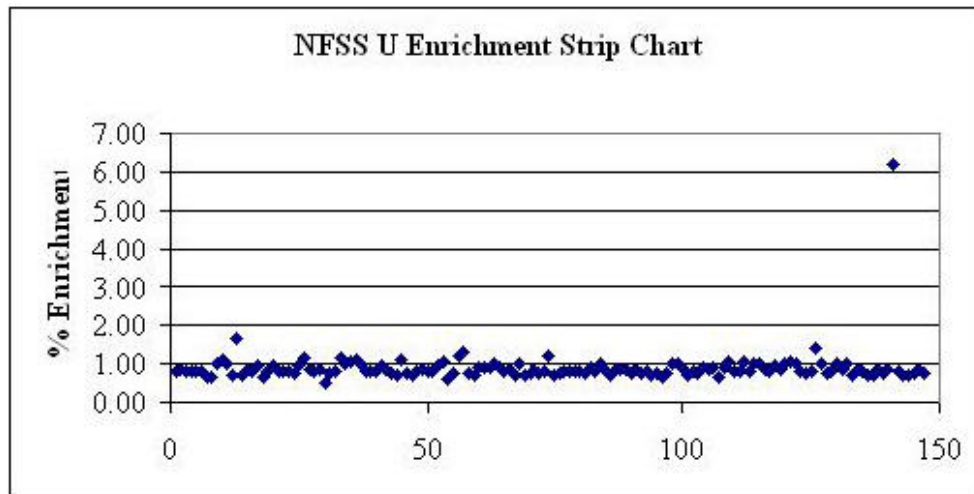


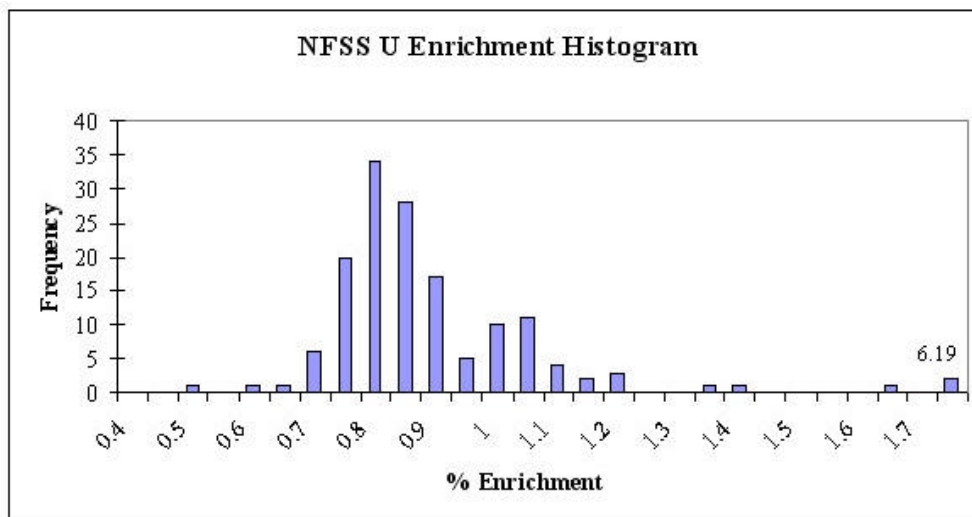
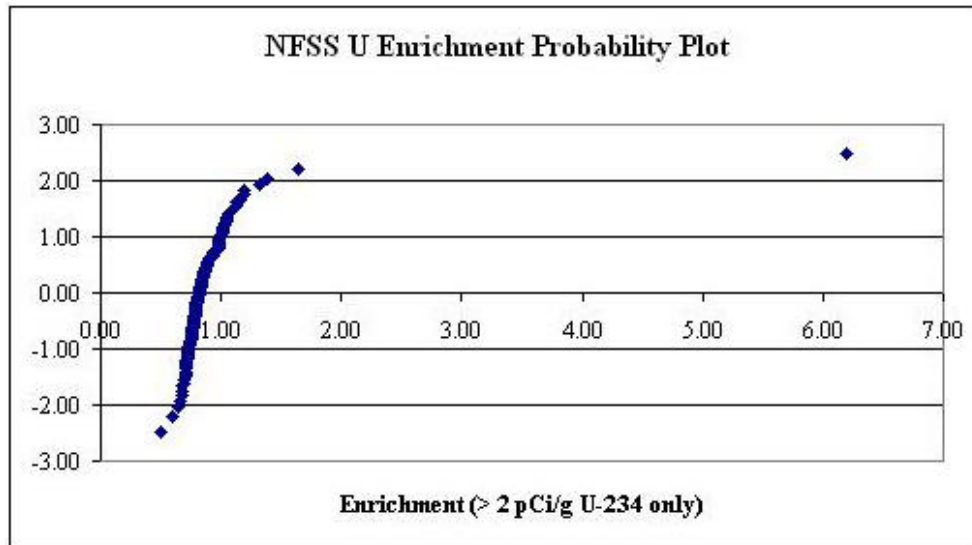
5.9.4.4 Uranium Enrichment

A total of 147 isotopic uranium results are evaluated, all with detected uranium-234 concentrations above 2 pCi/g. The following strip chart shown clearly illustrates one outlier with an estimated enrichment of 6.19 percent (surface sample TB414-2844-05.5-004). Inspection of the uranium enrichment probability plot and histogram show that the remaining results can be interpreted as within the background distribution for enrichment. As with the potential cesium-137 outliers, attempts should be made to tie the potential enrichment outlier with historical activities, or to dispute this result given other information not considered here. It is noted; however, that the total activity is relatively small compared to what might be expected for enriched uranium contamination and the result represents only about 0.7% of the entire dataset. Uranium-234, -235, and -238 have been identified as ROCs in the BRA.

Potential NFSS Enrichment Outlier (TB414-2844-05.5-004)

Uranium Isotope	Concentration (pCi/g)	Detection Limit (pCi/g)	Error (pCi/g)	Flag
Uranium-234	15.2	0.21	2.21	--
Uranium-235	0.64	0.24	0.3	--
Uranium-238	1.26	0.09	0.418	--





5.9.4.5 Other Considerations

The following table presents the 24 maximum cesium-137 results (all above 0.8 pCi/g), and enrichment estimates to determine if higher concentrations/enrichments are collocated across parameters. Radium-226 results are also presented for comparison given radium-226 is the primary NFSS contaminant relative to concentration. Review of the table shows that the single enriched uranium outlier is not collocated with elevated cesium-137 or radium-226 results.

Comparison of Potential Outliers

Sample Number	Cesium-137 (pCi/g)				Radium-226 (pCi/g)				Enrichment
	Result	MDL	ERR	Qual.	Result	MDL	ERR	Qual.	%
Potential Enriched Uranium Outlier									
TB414-2844-05.5-004	0.00	0.00	0.01	U	0.59	0.03	0.09	--	6.19
Potential Cesium-137 Outliers									
SS3A023-2394	0.81	0.04	0.10	--	17.60	0.08	2.09	--	NC
SD734-375	0.81	0.03	0.09	J	1.10	0.06	0.16	--	NC
SS4A007-605	0.82	0.03	0.10	--	3.27	0.06	0.40	--	NC
SS3A021-2392	0.84	0.05	0.10	--	21.00	0.10	2.45	--	NC
SS829-409	0.85	0.12	0.11	--	182.00	0.25	0.79	--	NC
SS3A007-562	0.85	0.05	0.11	--	5.50	0.09	0.70	--	NC
SS504-692	0.86	0.05	0.06	--	6.07	0.09	0.19	--	0.79
SB3D001-2476-1.0	0.87	0.03	0.10	--	5.63	0.06	0.66	--	NC
SS3B003-576	0.89	0.05	0.12	--	7.91	0.09	1.05	--	0.71
SS3C007-590	0.90	0.02	0.13	--	2.50	0.04	0.36	--	0.75
SS-DRUM02-3372	1.02	0.02	0.12	--	2.54	0.04	0.32	--	NC
SS5A004-640	1.07	0.04	0.13	--	1.67	1.67	0.23	U	NC
SS8D003-2190	1.07	0.03	0.12	--	45.50	0.06	5.04	--	NC
SS3B011-2398	1.08	0.05	0.15	--	12.50	0.09	1.66	--	0.90
SS5A001-637	1.13	0.03	0.13	--	2.91	2.91	0.35	U	0.72
SB8D003-2233-0.75	1.16	0.08	0.10	--	44.50	0.15	0.45	--	NC
SS314-404	1.22	0.05	0.06	--	55.40	0.11	0.33	--	0.94
SS817-704	1.27	0.03	0.16	--	2.72	0.06	0.37	--	0.88
SS422-688	1.29	0.05	0.19	--	2.33	0.07	0.34	--	NC
SS414-051	1.92	0.03	0.06	J	1.64	0.05	0.21	--	NC
SS3D001-2414	2.23	0.05	0.22	--	19.30	0.10	2.14	--	0.78
SS3D002-2415	3.00	0.04	0.39	--	2.03	0.07	0.29	--	1.20
TB301-2811-01.0-029	4.88	0.05	0.50	--	17.40	0.10	2.00	--	0.87
SB8D016-2231-2.0	5.15	0.03	0.59	J	19.10	0.05	2.36	J	0.78
ERR = error NC= not calculated because uranium-234 < 2 pCi/g									
MDL = method detection limit Qual. = qualifier									

5.9.5 Conclusions

The graphical presentation of available data indicates that some small fraction of NFSS may be contaminated with fission products and, at one location, low levels of enriched uranium. Specifically, several elevated cesium-137 results were identified and one elevated enrichment estimate was identified. Based on this analysis, the sample locations identified in the table above should be evaluated more fully in the FS.

5.10 SITE-WIDE EXAMINATION OF NATURE AND EXTENT

This section examines the nature and extent of SRCs across the entire site. General trends are noted and described. Aspects of nature and extent that are specific to an EU or portion of the site are described in the sections that follow.

5.10.1 Occurrence and Distribution of SRCs

5.10.1.1 Soil

Over eight hundred surface and subsurface soil samples were collected within the 191-acre NFSS. As described in Tables 3-4, 3-6, and 3-7, most of the samples were collected from locations known or suspected of being impacted by past site activities. Gamma walkover surveys, which identified areas with elevated gamma radiation, guided the selection of the majority of the soil sample locations in order to fully characterize the radiological parameters present at the site. Since the majority of soil samples were collected from areas for which there was a reasonable expectation of finding concentrations of other parameters above background, the sampling scheme was largely biased to that end. General conclusions are:

- The occurrence and distribution of SRCs, and especially radiological SRCs, in soils are very erratic and uneven. Samples containing high concentrations of a given SRC are frequently located very near samples containing concentrations which are near or below background. Field gamma walkover data and analytical data samples support the conclusion that most of the elevated samples were collected from impacted areas that are small and isolated.
- Field screening indicated that the highest concentrations of radiological parameters are not spread through the soil matrix but rather appear to be associated with small individual chips or stones, apparently consisting of original waste residues.
- Radiological parameters and metals were more commonly found at concentrations above the background screening levels than were organic compounds.
- No direct evidence of USTs was found, though organic compounds were detected in some locations in the subsurface at concentrations above the background screening levels. Concrete structures were found in the subsurface near the southeast corner of Building 401 and these structures may have contained USTs. This conjecture was not verified.

5.10.1.2 Surface Water

Over fifty surface water samples were collected on the NFSS. General conclusions are:

- The majority of SRCs found in surface water were metals.
- Surface water samples in EUs 7 and 9 contained uranium isotopes at concentrations that exceeded background UTLs.
- Several samples contained radium-226 concentrations above the background screening level. The maximum concentration of radium-226 was found in sample SW701-292, collected from a small drainage ditch on the west side of the IWCS leading to the West Ditch on the Niagara-Mohawk property. The concentration in this sample was 3.66 pCi/L -- approximately 7.5 times greater than the background screening level. The radium-226 concentrations in the other samples were less than three times the background screening level.

- There is no evidence that radiological SRCs are migrating off-site in the surface water conveyed by the Central and West Ditches. Radionuclide concentrations at sampling locations near the northern border of the property do not exceed background UTLs; however, both dissolved and total metals were detected in surface water samples collected in the Central and West Ditches at the northern property boundary, indicating that metal SRCs are most likely migrating off-site at these two locations. None of the metal concentrations at these locations exceeded the background UTLs by factors greater than 10.
- Most of the surface water samples were collected from ephemeral streams. Only the Central Ditch and the West Ditch carry water off-site throughout the year.

5.10.1.3 Sediment

As previously discussed, over eighty sediment samples were collected on the NFSS; however, 49 of the samples were later reclassified as soil samples because they were collected from locations that are dry for much of the year. General conclusions are:

- Very few organic compounds were found in sediment samples at concentrations above the background UTLs.
- There is evidence that the past remedial action in the West Ditch was incomplete. A sediment sample, later reclassified to be a surface soil sample and collected in the Baker-Smith area from the side wall of the West Ditch, contained 230 pCi/g of thorium-230.
- There is no evidence that SRCs are migrating off-site in the sediment. However, radionuclides are present in sediment above the background UTLs at the northern property boundary in EU 5 at sampling location 735. Metals are also present above the background UTLs in sediment at the northern property boundary in EU 2 at sampling location 710.

5.10.1.4 Groundwater

Over two hundred groundwater samples were collected on the NFSS. Samples were collected from TWPs, permanent wells installed for this RI, and permanent wells previously installed by the DOE in the 1980's. General conclusions are:

- Several groundwater plumes of SRCs were found in the UWBZ. Most of these plumes are geographically associated with past site uses or activities. The areas at which the groundwater was most impacted by past site activities are:
 - Plumes with elevated concentrations of dissolved total uranium, boron, and chlorinated solvents (e.g. TCE and degradation products) were found in the acid area (EU 4).
 - Plumes with elevated concentrations of dissolved total uranium and boron were found around Building 401 (EU 12, 13 and 14).
 - A plume with elevated concentrations of dissolved total uranium was found near the former Baker-Smith area (EU 1 and 2).
 - A plume with elevated concentrations of dissolved total uranium was found along the western boundary of EU 7.

- A dissolved total uranium plume is present in the southwestern portion of EU 8 near former Building 423.
 - A dissolved total uranium groundwater plume is present in the southeastern portion of EU 8 in the area of former storehouse Buildings 420 and 421.
 - A plume of dissolved manganese was found in EU 3.
 - A bis(2-ethylhexyl)phthalate plume was found in EU 10 to the east of the IWCS.
 - Thorium-230 plumes were found to the north and south of the IWCS (EUs 7, 10 and 11) and to the north of the acid area in EU 4. Similar to the uranium plumes in these areas (discussed below), these plumes are likely the result of site activities prior to the construction of the IWCS.
- Plumes of dissolved uranium were found around the northern section of the IWCS and in the area south-southeast of the IWCS (EU 7, 10 and 11). These plumes are likely the result of site activities prior to the construction of the IWCS.

As mentioned in Section 1.5.2, the R-10 residues were stored unprotected on the surface of the soil north of Building 411. In 1980, several wells were installed in the saturated zones in the R-10 residue storage area (Battelle 1981) and groundwater sampled from these wells exhibited an average uranium concentration of 40.8 µg/L. This value is similar to total uranium concentrations presented in Figure 5-4. Although the clay cutoff wall was installed around the R-10 pile in 1982, residual contamination in the saturated zone outside the wall persists to the north and west of the original R-10 pile. In addition, localized areas of elevated activity ranging from 15,000 to 53,000 cpm (see Figure 3-4) were identified north of the IWCS during the gamma walkover survey. Leaching from these surface soils could be affecting wells in this area.

The *Comprehensive Characterization and Hazard Assessment of the DOE-Niagara Falls Storage Site* (Battelle 1981) reported contamination in the fire water reservoir, Building 409. Contamination inside the building was attributed to water seepage through the south wall from the earthen berm surrounding the reservoir. Low-level soil contamination south of Building 409 was listed as the probable source of building contamination. In addition, in 1985 as the K-65 residues were being transferred to Building 411 from the tower, Building 409 was used as a settling tank in the treatment of slurry water. According to unpublished construction reports, treated slurry water from various bays in Building 411 was pumped to Building 409 for additional settling prior to being pumped to Ponds 3 and 4. Building 409 underwent a gross decontamination operation using a high pressure wash in October 1985 after removal of the 'yellow cake' that had accumulated during its use as an intermediate settling basin. This information suggests that there is a strong potential for the residual groundwater contamination present south of the IWCS to be associated with these historical operations.

- The UWBZ has a very erratic piezometric surface. The depth to groundwater across the site varies greatly and to a large degree is a function of the presence or absence of sand lenses in the subsurface. Figure 5-16 shows the piezometric surface of the UWBZ.
- The hydraulic conductivity in the upper water bearing zone varies greatly across the site. In wells that did not intersect large sand lenses, the hydraulic conductivities are on the order of 10^{-7} cm/sec or less. Table 5-1 summarizes the hydraulic conductivities at the site.

- No plumes were identified in the LWBZ; however, their absence does not necessarily mean that no SRCs were identified in the LWBZ. Several dissolved metal SRCs were identified in the LWBZ, with 55% and 85% of the exceedances reported at concentrations less than 2 and 5 times the UTL, respectively. Dissolved radiological SRCs (thorium-228, thorium-230, and radium-228) were identified in four wells at concentrations less than 1.5 times their respective UTLs. For the purposes of this RI, plume maps were generated for those constituents whose dissolved concentrations exceeded the UTLs in two or more spatially adjacent groundwater samples. The exceedances mentioned above were often isolated hits or, in some cases, spatially adjacent hits where one or more of the concentrations were just above the UTL. The occurrence of such sample results did not warrant identification of a groundwater plume.
- Based on current data, there is a potential that a dissolved total uranium plume extends off site north of EU 1.

5.10.1.5 Pipelines and Subsurface Utilities

SRCs were found in water and sediment samples collected from many locations along the pipelines and subsurface utilities at the NFSS. Most of the samples containing elevated concentrations of SRCs were collected in the following areas on the NFSS:

- Acid Area – EU 4. The SRCs were predominately PAHs, VOCs and SVOCs.
- Building 401 – EU 13. A broad spectrum of SRCs was found, chiefly in the floor drains inside Building 401 itself, though elevated SRCs were also found in the sewer systems servicing the building. The SRCs were predominately metals, PCBs, and pesticides.
- East and Southeast of the IWCS - EU 10 and 11. The SRCs were predominately uranium and thorium isotopes.
- Shops Area – EU 8. PAHs were present in sediment samples collected from the sanitary sewers, but not in water samples. Radiological parameters were detected in several sanitary sewer water samples. Uranium isotopes were commonly found in pipeline sediment samples.

5.10.1.6 Railroad Ballast and Pavement Samples

Five samples of railroad ballast were collected, crushed, and submitted for radiological analysis. The ballast at the site appeared to be a slag material. “Slag” is a generic term for rock-like material which is a byproduct of iron smelting and steel manufacturing. In the past, slag was frequently recycled as a construction material and this practice is still common today. No suitable background values were available for comparison with the site samples. Concerning the content of radiological materials in slag, the EPA has stated the following:

It is generally believed by geologists that the level of Naturally Occurring Radioactive Materials (NORM) found in ores (and slag) depends more on the geologic formation or region rather than on the particular type of mineral being mined. These ores often contain many different minerals, and the radionuclide content of one type of ore or mining operation or its wastes will not be representative of other mines or waste types [*Diffuse NORM Waste - Waste Characterization and Preliminary Risk Assessment* (EPA 1993)].

An evaluation of the railroad ballast data leads to the following general conclusions:

- The concentrations of cesium-137 and the thorium isotopes are below the background screening values for soil.
- The concentrations of uranium-234 and uranium-238 exceed the soil background screening values by a factor of two to three which puts them in the 3 to 6 pCi/g range. The total uranium concentrations in the ballast samples are between two and seven times greater than the background screening value for soil. Leaching of railroad ballast affected two background groundwater samples that were subsequently removed from the groundwater background data set (see Section 4.4.1).
- There appears to be a slight spatial correlation between elevated radium-226 concentrations in surface soils and the locations of railroad beds. Four of the five ballast samples had radium-226 concentrations that exceeded the surface soil background screening value for this isotope (maximum detection of 5.13 pCi/g radium-226). Surface soil samples collected from near railroad beds also typically exceeded the background screening value. During the collection of the surface soil samples, large stones (including pieces of slag) were excluded from the samples. This suggests that the radium-226 in the slag may be slightly mobile in the environment. There does not appear to be a similar correlation between railroad beds and isotopic uranium concentrations in surface soils.

Nineteen core samples were collected from roadways on the site. These cores were crushed and homogenized and then submitted for radiological analysis. As with the railroad ballast, no suitable background dataset was available to determine SRCs in this media. An evaluation of the data leads to the following conclusions:

- There is a wide range in reported values for radium-226, thorium-230, uranium-234, and uranium-238 and some of the sample results for these isotopes are much higher than the soil background screening values. The high relative concentrations and the wide reported range of concentrations suggest that the concentrations of some of these isotopes are higher than background as a result of past activities.
- The ranges in reported values for thorium-228, thorium-232, and uranium-235 concentrations are much less (and the values tend to be lower), indicating that these isotopes are less likely to be higher than background as a result of past site activities.
- In samples containing radium-226, thorium-230, uranium-234 or uranium-238, the relative concentrations of these isotopes in each sample varies significantly. For example, sample RC19-2450 has radium-226 and thorium-230 concentrations of 24.1 pCi/g and 25.9 pCi/g, respectively, resulting in a ratio of 0.93. In sample RC17-2448, the concentrations of these two isotopes are 32 pCi/g and 2.52 pCi/g, respectively, resulting in a ratio of 12.7:1. These results suggest that different waste streams have impacted these two samples.
- The samples with the greatest concentrations of radium-226, thorium-230, uranium-234, and uranium-238 are widely scattered on the site, with no apparent geographical correlation. A sample from EU 4 had the highest uranium-238 and 234 activities at 13.6 to 14.4 pCi/g with the thorium-230 activity at 14 pCi/g and radium-226 activity of 11.7 pCi/g. The highest activities occurred in one sample from EU 6 on O Street where

the radium-226 activity was 129 pCi/g and the thorium-230 activity was 34.4 pCi/g. In this same sample the uranium-234 and 238 activities were 8.9 and 9.9 pCi/g, respectively.

5.10.2 Media Interactions

Because of past remedial actions at the site, there is little correlation between the concentrations of SRCs in surface soils as compared to the concentrations found in groundwater. The past remedial activities evidently removed most of the impacted surface soils that were formerly present. However, none of the previous remedial activities addressed groundwater and there is evidence that plumes are still present.

The situation is very different for the interaction between the subsurface pipelines and the groundwater plumes found at the site. Pipelines or sewers are present in the three main areas with impacted groundwater. Analytical results for samples collected from those sewers and pipelines suggest that the sewers themselves may have been contributors to the plumes. In some cases, the sewers and pipelines may still be contributing to the plumes. Also, in some cases the sewers and pipelines may be acting as preferential flow pathways, influencing the movement and shape of the plumes.

Based on sampling conducted on the Niagara-Mohawk property and in EU 10, it appears that contaminated surface soil on the NFSS could be a potential historical source of constituents detected in sediment and surface water in the West Ditch.

5.10.3 Sources and Effects of Past Site Use

Evidence of adverse impacts was found over much of the site. In general, this evidence consists of elevated concentrations of radiological parameters, though organic parameters were also elevated in some locations.

6.0 FATE AND TRANSPORT

6.1 INTRODUCTION

This section discusses the fate and transport of the constituents that have been identified as SRCs in Section 5 and as COCs in the BRA. Constituent transport was assessed using current analytical results in conjunction with a general understanding of site topography, and surface and subsurface features (i.e., ditches, utilities, sand lenses, etc.) Results of SESOIL modeling conducted to support the BRA, and the results of a groundwater model, are also discussed. Both the Groundwater Modeling Report and the BRA are presented under separate cover, but are a component of the NFSS comprehensive RI.

For the purpose of reporting future impacts to groundwater in this section, 1,000-year model simulations are discussed in most detail, although model simulations were performed for a 10,000-year timeframe. USACE conducted a preliminary evaluation of potential Applicable or Relevant and Appropriate Requirements (ARAR) that may provide the statutory basis for managing the NFSS wastes (SAIC 2003a). ARARs under consideration for NFSS include 10 CFR Part 40 Appendix A and 40 CFR Part 192 Subparts A, B, and C. Both potential ARARs require remedial measures to be effective for up to 1,000 years to the extent reasonably achievable, and in any case, for at least 200 years.

All constituents in soil, sediment, surface water and groundwater are subject to a number of processes that can effect their migration. Many constituents are subject to adsorption onto soil particles which can delay migration by varying amounts depending on the constituent in question and the composition of the soil. Water movement through soil and sediment may leach constituents which then either move to groundwater or are adsorbed further down in the soil column. Organic chemicals may be degraded either chemically or biologically and radioactive decay may impact some short-lived radionuclides within our 1,000 year timeframe. Volatile organics may evaporate and some short-lived radionuclides, such as radon isotopes present at the NFSS, are gases. Both the gases and organic vapors may dissipate in air. The following paragraphs discuss degradation in more detail.

Organic compounds present in the environment will in the long-term reduce to elemental forms (e.g., carbon, hydrogen, and oxygen) with exposure to water, air, bacteria, soil, or sunlight. Persistence of organic constituents in the environment is related to resistance to degradation. The rate of degradation is presented in half-lives, which represent the amount of time necessary to reduce half the quantity of the constituent. The half-lives presented in this report are based on estimated times of degradation from readily available data. Tables 6-1 through 6-3 show available data on half-lives, solubilities, distribution coefficients (K_d), and partitioning coefficients (K_{oc}) for several representative constituents from the NFSS that were reported above screening criteria in this RI report.

Compounds in soil are degraded predominantly by biodegradation and secondarily by hydrolysis. Compounds in groundwater are degraded principally by biodegradation and, to a lesser extent, hydrolysis. Generally, biodegradation in groundwater proceeds at a slower rate compared to surface water, because groundwater microbial populations may be limited in numbers and enzymatic capabilities.

The main transport processes in groundwater include advection and hydrodynamic dispersion. Other reactions that affect constituent mobility and fate include chemical and biological processes. The major categories are acid-base reactions, solution, volatilization, precipitation, complexation, sorption reactions, oxidation-reduction reactions, hydrolysis reactions, and isotopic

reactions. Fate and transport mechanisms are more fully discussed in the document, *Groundwater Flow and Contaminant Transport Modeling, Niagara Falls, Storage Site, Lewiston, New York* (HGL 2007).

VOCs easily dissolve into surface water. Heavier organic compounds, pesticides, SVOCs, PCB, and PAHs tend to adsorb to soil and degrade slowly, and tend not to dissolve into surface water. Typically, metals adhere to soil via physical adsorption, oxidation to hydrous oxide compounds, and formation of insoluble organic complexes. The transport of metal and adsorbed heavier organic constituents (e.g., PAHs, pesticides) adhered to soil and sediment may occur during surface runoff events.

The shallow groundwater in the area of the NFSS has local anaerobic zones that provide the potential for biodegradation of chlorinated compounds. Heavier organic compounds tend to adsorb to soil with slow migration in groundwater. The transport of most of the metal constituents in groundwater is likely to be minimal considering the common aerobic and nearly neutral pH conditions, as well as the high potential for adsorption and precipitation. Specific degradation characteristics of VOCs, SVOCs, PAHs, PCBs, pesticides, and metals are discussed briefly in the following paragraphs.

VOCs

The transport process for VOCs with exposure to the atmosphere is volatilization. VOCs may dissolve in groundwater. Secondary processes may occur, such as biological and chemical degradation. The VOCs detected at the NFSS mainly include acetone, 2-butanone, BTEX, methylene chloride, and chlorinated compounds such as PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride. VOC groundwater plumes are present in EU 4; however, several VOCs were also commonly detected in other media.

Acetone was widely detected in surface and subsurface soil throughout the NFSS, but is also present in groundwater in EUs 4 and 10, and in sediment and water in pipelines and utilities. 2-Butanone was widely detected in groundwater in several EUs and in surface and subsurface soil throughout the NFSS. It is also present in sediment and water in pipelines and utilities. Both acetone and 2-butanone are soluble in water and have a high vapor pressure. The short half-lives of acetone and 2-butanone are reflective of their tendency to quickly degrade in the atmosphere and to biodegrade easily. It should be noted that acetone and 2-butanone are common laboratory contaminants and detections of these two constituents at the NFSS are generally only slightly above the background UTL. Analytical data indicating the presence of acetone and 2-butanone in various media were reviewed and accepted during the data verification process. Although widely detected, acetone and 2-butanone were not identified as COCs in the BRA and are thus not considered to be a migration concern.

Toluene was the most commonly detected BTEX (benzene, toluene, ethylbenzene, xylenes) parameter detected at the NFSS. These parameters were mainly detected in surface and subsurface soils throughout the NFSS, but were also detected in sediment and water in pipelines and utilities. BTEX parameters have moderate vapor pressures and tend to volatilize. The moderate half-lives of these compounds are reflective of their moderate biodegradation potential, especially under aerobic conditions. BTEX parameters may be present due to the use and storage of fuel at the NFSS. For example, toluene was detected at depth near an area in EU 3 known to once contain fuel storage tanks. This may be indicative of residual soil contamination related to the former tanks or vertical migration of parameters through the soil column.

Chlorinated compounds were mainly detected in groundwater in EUs 4, 8, and 13, but were also detected throughout the NFSS in surface and subsurface soil, and in pipeline sediment and water. Chlorinated compounds (methylene chloride, PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride) are commonly present in industrial solvents and have a moderate solubility, vapor

pressure, and biodegradation potential. They degrade most efficiently under anaerobic conditions. Methylene chloride and vinyl chloride have the highest vapor pressures and shortest half-lives of these compounds (on the order of weeks to months). Methane, a biodegradation indicator parameter, was detected in groundwater in EU 4 along with TCE/PCE degradation products; therefore, it appears that biodegradation is occurring. Additionally, the presence of VOCs in various media at the NFSS suggests a connection between pipelines, groundwater, and soil.

SVOCs

Bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, carbazole, dibenzofuran, di-n-octylphthalate, and phenol were the most commonly detected SVOCs in various media at the NFSS. Bis(2-ethylhexyl)phthalate was detected in all media in almost every EU. SVOCs generally adsorb more readily to soil and have lower solubilities compared to VOCs, with the exception of the non-chlorinated phenolic compounds. Surface transport of SVOCs bound to soil can occur through soil erosion by runoff or dust generation by wind erosion. However, no SVOCs were detected in surface water at the NFSS; therefore, erosion by surface runoff does not appear to be occurring. Erosion by wind is also not likely because of the presence of vegetation across most of the site.

Based on the SESOIL modeling as presented in Appendix E of the BRA (SAIC 2007), carbazole is the only SVOC identified as a migration chemical of potential concern (mCOPC) in EU 8. However, due to its low concentration and relatively high distribution coefficient, it is not a migration concern.

PAHs

PAHs were commonly detected in surface and subsurface soil throughout the NFSS, and in sediment and water in pipelines and utilities. PAHs were detected far less frequently in groundwater. These compounds are typically persistent in the environment due to low solubilities and high partition and sorption coefficients (Table 6-1). PAH half-lives can be extended by sorption to organic carbon. Consequently, the ultimate fate of these compounds is most likely sorption to soil, followed by slow biodegradation. Surface transport can occur through soil erosion by runoff or dust generation by wind erosion. Analytical data in EU 8 indicate that PAHs present in surface soil may be migrating to surface water. Erosion by wind is not likely because of the presence of vegetation across most of the site.

Based on the SESOIL modeling as presented in Appendix E of the BRA (SAIC 2007), PAHs are identified as mCOPCs in EUs 2, 8, and 11. However, due to their low solubilities and relatively high distribution coefficients, these compounds did not migrate to groundwater based on the modeling results.

Pesticides

Dieldrin, 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT were the most commonly detected pesticides in surface soil, subsurface soil, groundwater, and pipeline sediment and water throughout the NFSS. Pesticides are persistent compounds that readily adsorb to soil and tend not to leach to groundwater; however, it is possible that pesticides can eventually leach into groundwater or surface water. Pesticides contain low vapor pressures and low solubilities, relatively high octanol-water partition coefficients, high soil-water partition coefficients, and high soil adsorption coefficients. These compounds strongly partition from water into particulate and organic matter; therefore, there is a low potential for groundwater transport of these pesticides. Consequently, the ultimate fate is most likely sorption to soil, followed by slow biodegradation.

Pesticides were detected in sediment from Building 401 drain samples and in groundwater in EU 13; therefore, a connection between the drains and groundwater appears to exist. Pesticides were also detected in groundwater in EU 10, likely as a result of continued maintenance of the IWCS cap. Runoff from the IWCS cap may have reached groundwater in nearby wells where

sand lenses are present within the clay and silt. Detections of pesticides in wells near the cap are generally less than three times the background UTL.

PCBs

Aroclors-1254 and -1260 were commonly detected in surface soil, subsurface soil, and pipeline sediment across the NFSS. PCBs strongly adsorb to soil with negligible leaching to groundwater. Transport of PCBs may occur through surface erosion of impacted soil by runoff or wind. However, this does not appear to be occurring at the NFSS.

Metals

Due to the complexity of the chemistry of metals in soil and water, considering their various oxidation states and mechanisms for adsorption and precipitation, a complete understanding of the specific metal mobility and chemistry is well beyond the scope of this RI.

In general, the distribution or sorption coefficient of a metal is an indicator of the relative affinity of a metal to solids and, therefore, its immobility. Distribution coefficients for selected metals estimated from laboratory studies (ORNL 2001) are presented in Table 6-2. Factors controlling the metals transport process include the soil-water chemistry and the charge deficiency on adsorbent surfaces (i.e., soil or sediment). Specific factors such as soil texture, soil chemistry, pH, redox potential, and solute and ligand concentrations in pore water further control the mobility of a particular metal species. In general, the solubility of metals tends to increase with increasing acidity, and conversely, lower mobility under neutral and slightly alkaline conditions.

Chemical processes for metals include ion exchange, organic complexation, precipitation and co-precipitation, solid-state diffusion, and isomorphic substitution. Organic compounds can be formed with metals in soil, such as methyl-mercury. Metals may also sorb to sediment via interaction with the organic matter or clay particles to form stable complexes that are relatively insoluble in water. Colloidal transport of metals may also occur.

Many of the metals detected in surface water and sediment at the NFSS are essential nutrients (calcium, magnesium, potassium, and sodium) and metals commonly present in soil (aluminum, iron, and selenium). However, some metals potentially related to site operations (arsenic, barium, boron, lead, and zinc) were detected in surface water. Boron was detected in Building 401 drain samples and is the likely source of the boron plume in EU 13.

Radionuclides

The most common radionuclides that exceeded background UTLs in various media at the NFSS include isotopes of uranium (234, 235, and 238), radium (226 and 228), thorium (228, 230, and 232), and cesium-137. Radionuclides that exceeded background UTLs far less frequently include actinium-227, americium-241, cobalt-60, plutonium-239/240, protactinium-231, and strontium-90. Table 6-3 provides chemical properties for several radionuclides.

Radium-226 is a naturally occurring isotope that is a daughter product in the decay series of uranium-238 to lead-206. The aqueous chemistry of radium is similar to barium, strontium, and calcium (Fetter 1993). It is more soluble than uranium or thorium and can be bioconcentrated by plants. Radium can be strongly exchanged through cation exchange.

Thorium is naturally occurring and typically has a very low solubility. The mobility of thorium increases through complexation with organic compounds. Adsorption of dissolved thorium increases with increasing pH. The sorption of thorium onto clays, oxides and soil organic matter is nearly total at a pH of 6.5 or higher (Fetter 1993). Based on a brief review of well monitoring logs

(Appendix U), typical values of pH for groundwater at the NFSS range from approximately 6 to 8. Therefore, it is likely that thorium has a high sorption rate in the subsurface at the NFSS.

Uranium occurs primarily as uranium-238. The decay series of uranium-238 ends with lead-206, a stable isotope. The chemistry of dissolved uranium is complex. Uranium occurs in three valence states and undergoes oxidation-reduction reactions. It forms soluble complexes with a wide variety of anions, including fluoride, phosphate, carbonate, hydroxide and sulfate. Under reducing conditions, uraninite, a solid uranium oxide compound, may form, which would remove uranium from solution (Fetter 1993). Migration of uranium, one of the principal contaminants at NFSS, is discussed more fully in subsequent sections.

6.2 SOIL

The presence of constituents in soil identified as SRCs is documented in Section 5. These constituents are, as is discussed in the groundwater fate and transport section (Section 6.5), subject to a number of processes that can affect their movement in the environment. The primary processes impacting the movement of constituents in soil are leaching and adsorption.

Large numbers of surface soil samples discussed in Section 5 contain SRCs exceeding their respective background UTLs. Few of these constituents are found in soils below 2 feet; however, in EUs 1, 2, 4, 5, 7, 8, 10, 11, 12 and 13 SRCs above background UTLs are found at depths greater than 10 feet bgs. Due to the nature of historical operations at NFSS, i.e., several previous remedial actions were conducted (see Section 1.5.3), the presence of SRCs at depth cannot solely be attributed to leaching. In fact, contaminants are often found randomly at depth with little or no corresponding surface contamination.

SESOIL modeling was conducted in the BRA (SAIC 2007) to predict the migration of contaminants in the vadose zone to groundwater. The timing of the maximum predicted radionuclide concentration in leachate, at the water table, derived from the SESOIL runs, varies among the EUs. Of the radionuclides modeled, those that migrate most quickly reach their maximum predicted leachate concentrations within 35 to 194 years. These include uranium-234, uranium-235 and uranium-238. Based on the modeling, uranium is predicted to leach to groundwater in all EUs. This leaching is directly dependent on the conservative (i.e., low) K_d value used in the modeling. Some radionuclides including radium-226, radium-228, thorium-230, and actinium-227 do not reach predicted maximum concentrations until well after the 1,000 year modeling timeframe due to soil partitioning. Boron is predicted to move faster than the radionuclides and may have peak leachate concentrations in 20 years while methylene chloride is predicted to migrate even faster and may have peak leachate concentrations in as little as 5 years. The PAH compounds are not predicted to migrate to groundwater.

As mentioned earlier, the organic compounds found in soil are not only subject to leaching but are also subject to degradation by chemical and bacteriological processes in soil. These processes act over many years and the rates depend on the soil conditions. It is documented in Section 5 that organic compounds are present in soil depths greater than 2 feet in EUs 4 and 13. The organics in these EUs are present in the UWBZ. In addition, the methylene chloride present in the vadose zone in EUs 4, 8, and 13 is predicted to continue to leach to the groundwater, based on SESOIL modeling.

Surface soils contain constituents that may be entrained by surface water and moved into the sedimentary media; however, the site is heavily vegetated and erosion in most areas is highly unlikely. The heavy vegetation also makes the airborne dispersal of surface soil constituents

unlikely; however, direct release of gases and resuspension of particulates from surface soil can promote transport of gaseous and organic contaminants via air emissions. Radon-222 is generated by the radioactive decay of radium-226 in the K-65 and metal oxide residues; therefore the IWCS is regularly monitored for radon emissions. The site also has a monitoring program for gamma radiation exposure. Monitoring results are reviewed upon receipt and if any results ever indicate a concern, they will be immediately addressed. The results of this monitoring are reported annually to the public.

Surface soil constituents may be transported by runoff to surface water. The heavy vegetation and the low rates of water infiltration at the site, documented in Section 6.5, may inhibit this process. However, there is evidence that uranium and radium isotopes may have migrated to surface water in the West Ditch, although the timeframe for this migration cannot be determined. The West Ditch was remediated in 1983 (BNI 1990) prior to construction of the IWCS. The sediment and surface water contaminants identified in the West Ditch could be a result of IWCS construction activities rather than current ongoing migration.

6.3 SEDIMENTS

In general, the sediments and their associated SRCs can be expected to move downstream and eventually exit the site to the north due to northerly surface water flow. As the sediments travel, some dilution of the concentrations of these SRCs is to be expected unless there is additional input from surface soil. Some of the sediments are in ponded areas where flow is minimal, and there they can be expected to remain. If the sediments remain in the ponded area there is an increased potential for SRCs to leach to groundwater or to migrate to deeper soils. Volatile organics in sediments have the potential to migrate to soil or groundwater, or to volatilize into the air or be leached by surface water.

Sediments on the site contain metals, radionuclides and VOCs above their respective background UTLs. Some sediments containing SRCs at concentrations slightly above background UTLs could migrate offsite through the ditches, though the RI data show little evidence that this is occurring. The sample closest to the site boundary in the Central Ditch (EU 2) has one metal above its background UTL. A sample in the swale leading north and offsite from EU 5 contained cesium-137 above its background UTL and uranium-238 at its background UTL. Two samples in EU 9 are only slightly above their UTLs for radium-228 and thorium-228.

The BRA (SAIC 2007) indicates that no sediment constituents from the interconnected drainage ways (EU 15) become COCs or ROCs due to the short duration of exposure for individuals who may come in contact with sediment at NFSS. However, because several metals in sediment have the potential to pose ecological risk and the potential for offsite migration exists, further evaluation in the FS of sediment SRCs is recommended. In addition, the site does have an annual monitoring program for sediments (see Section 2) which includes the Central Ditch at the point where it exits the site. Monitoring results are reviewed upon receipt and if any results ever indicate a concern, they will be immediately addressed. The results of this monitoring are reported annually to the public.

6.4 SURFACE WATER

The interconnected drainage ways and ditches contain surface water. The surface water at the site was measured for both total and dissolved metals and radionuclides as well as other constituents. As discussed in Section 5, dissolved metal SRCs are frequently found above their respective background UTLs in surface water. VOCs and SVOCs are also found in surface water.

Those constituents in ponded water may adsorb to soil or eventually infiltrate to groundwater while those in flowing water are more likely to flow downstream than to migrate to soil or sediments. However, if the concentration of a constituent in surface water is fairly consistent it can infiltrate into soil and eventually into groundwater.

As measured in the most northerly surface water sample in the Central Ditch, dissolved metals greater than background UTLs are migrating off site to the north in surface water. Thirteen total metals and 4 dissolved metals exceeding their background UTLs were measured in that sample; however, none of the results except for dissolved silver was more than 5 times the background UTL. The BRA (SAIC 2007) indicates that no surface water constituents from the interconnected drainage ways (EU 15) become COCs or ROCs due to the short duration of exposure for individuals who may come in contact with surface water at NFSS. However, because metals above background concentrations have the potential to migrate offsite, further evaluation in the FS is recommended. In addition, the site does have an annual monitoring program for surface water (see Section 2) which includes the Central Ditch at the point where it exits the site. Monitoring results are reviewed upon receipt and if any results ever indicate a concern, they will be immediately addressed. The results of this monitoring are reported annually to the public.

6.5 UTILITIES AND PIPELINES

Both water and soil/sediment samples were taken from the many pipelines and buried utilities on the site. These samples are unique in a way since there is the chance for water or sediment to migrate along the pipe or in the coarse fill around the pipes. This migration along pipes is evidenced by the presence of a uranium plume along the water line crossing the SE corner of EU 10 (Figure 5-4). The potential exists for SRCs to migrate along the pipelines, particularly the storm sewer lines, until they intersect a drainage ditch or the water table. There is also the possibility that some of these will leach to groundwater. The potential exists for broken pipes, allowing infiltration by groundwater. Many of the pipes are below at least the seasonal high water table making the migration into and out of the pipes possible.

Other areas on site where migration of constituents along the pipelines may be occurring are EU 4 and 13. Boron and VOC groundwater plumes identified in these EUs include water samples from manholes. As explained below, several other constituents were found in pipeline media at concentrations above background.

For the construction worker, the BRA (SAIC 2007) indicates that one PCB (Aroclor-1254) is a COC in pipeline sediment and pipeline water. None of the other SRCs in pipeline sediment and water were determined to pose risks sufficient to be identified as COCs or ROCs. No COCs or ROCs were identified for the subsistence farmer scenario primarily because the risk analysis assumes no exposure to the sediments or water within the pipelines. The construction worker scenario assumes a fairly short (1 day/week for 1 year) exposure to pipeline media and therefore, high levels of contaminants must be present in order to pose significant risk. Even with full-time outdoor occupancy and exposure duration by the construction worker, consistent with assumptions used for LOOW pipeline exposures, risk levels were still within the acceptable risk range and no additional COCs or ROCs were identified.

As seen in Figures 4-22 through 4-24, pipeline surface water and sediment samples consistently exceed background UTLs for most classes of compounds (metals, SVOCs, radionuclides, etc.) in every EU that contains pipelines. In many cases, the exceedances range from 1 to 20 times the background UTL. The following bullets summarize the instances where SRCs are present in

pipeline media at high concentrations and have the potential to migrate or where data suggests a connection between pipelines and groundwater already exists.

- EU 4: PAHs, pesticides, VOCs (especially PCE, TCE, cis-1,2-dichloroethene, and methylene chloride), SVOCs,
- EU 13: Metals (especially boron and mercury), PCBs (aroclor-1254 and -1260), pesticides,
- EUs 10 and 11: Uranium and thorium isotopes, and
- EU 8: PAHs and uranium isotopes.

6.6 GROUNDWATER

The migration of constituents to groundwater and their movement over time is complex and is often evaluated using groundwater models developed to simulate these processes. A computer model was developed as part of the RI process and is described in detail in the *Draft Groundwater Flow and Contaminant Transport Modeling Report* (HGL 2007). Results of the modeling are summarized here. The report should be consulted for greater detail. In addition to the modeling, which addresses the long term fate and transport of constituents in groundwater, the site groundwater is monitored annually (see Section 2) to determine if there are any issues that need to be addressed. The results of this monitoring are reported annually to the public.

A multi-step process was used to simulate source releases and unsaturated zone transport, within the IWCS, and elsewhere on the NFSS. This approach used separate modeling codes to estimate the water flux through the IWCS and to predict vertical transport of contaminants through the unsaturated zone outside of the IWCS. Collectively, the modeling tools were used to predict the long-term rates of contaminant mass-loading to the water table over the entire NFSS site. Predicted mass-loading rates were assigned as time-varying source terms in the NFSS 3-D transport model. The 3-D model was subsequently used to simulate the transport of the contaminants within the saturated zone.

6.6.1 Model Inputs

The inputs to the models included information from a number of sources. The site conceptual model, which is briefly described in Section 2 and in more detail in the modeling report, details the stratigraphy, geology and hydrology of the NFSS site along with information from various reports on the residues and the construction of the IWCS.

Three “source terms” were used to represent initial conditions in the model:

1. The results of Hydrologic Evaluation of Landfill Performance (HELP; Schroeder et al. 1994) and one dimensional (1-D) MODFLOW-SURFACT modeling. The HELP model and 1-D model were applied to the IWCS and estimated vertical transport of contaminants assuming IWCS contents (residues, contaminated soils, and other materials) were unsaturated..

2. The results of SESOIL modeling. The SESOIL model results represent estimated leachate concentrations predicted to reach the UWBZ within the 1,000-year timeframe considered in the RI/FS.
3. The existing plume maps. As presented in Section 5, the plume maps identify limited areas onsite where current concentrations of constituents exist in groundwater above the background UTLs or MCLs, as appropriate.

Water flux through various waste zones in the IWCS was estimated using the HELP model, which is specifically designed to conduct water balance analyses of waste containment facilities like the IWCS. Application of the HELP model provided an estimate of the water flux through the IWCS, based on known waste zone layering, engineering design parameters and pertinent information regarding vegetation, precipitation, cover soils and other variables impacting flow through the system.

Flow rates through the IWCS predicted by the HELP model were input into a MODFLOW-SURFACT 1-D transport model, which was applied to predict the vertical movement of contaminants through the unsaturated zone to the water table. The MODFLOW-SURFACT model accounts for dispersion, sorption, degradation and in the case of radionuclides, radioactive decay and the transport of both radioactive parent and daughter products. The model simulates the release of contaminants from sources within the unsaturated zone and the transport of these contaminants to the water table. Where concentrations were known to be in excess of solubility limits, the MODFLOW-SURFACT solubility-limited simulation option was invoked to account for continuous dissolution of contaminants present in a non-aqueous phase.

The SESOIL (Bonazountas and Wagner 1981 and 1984; Hetrick, Scott, and Barden 1993) model was applied to predict the contaminant flux to the water table from specific areas of soil contamination outside the IWCS. SESOIL is a 1-D vertical transport model for unsaturated soil zones for use in determining solute distribution in soil profiles. The SESOIL model was input with representative soil concentrations for each of the 14 terrestrial EUs on the NFSS. These representative concentrations were developed using an aggregate data set consisting of soil, sediment, and manhole sediment sample results from each EU. Only samples from the vadose zone, which varies across the site, were considered in the SESOIL model. Representative concentrations (i.e., exposure point concentrations) were calculated and compared against a generic soil screening level, which was refined using a dilution attenuation factor of 20. Those constituents with the potential to leach to the water table at unacceptable concentrations were then modeled in SESOIL.

The SESOIL model results provided a time-varying source term for each EU that is representative of concentrations at the water table derived from the leaching of contaminants in soil. Because the SESOIL modeling was done for the BRA, the infiltration rates used in the groundwater model differed from those used in SESOIL; therefore, adjustments were made to the contaminant flux for each constituent before it was input to the groundwater transport model. Only constituents estimated to leach to groundwater within 1,000 years were input as sources to the 3-D transport model.

As previously discussed in Section 5, a groundwater plume was defined to be a group of wells or groundwater samples in proximity to each other which exhibited groundwater concentrations of a given SRC that exceeded the associated background screening level, or MCL, as appropriate. Where appropriate, plume extent also considered water results taken from manholes. For metal and radionuclide SRCs, both total and dissolved concentrations were considered when evaluating

the existence of any given groundwater plume. However, only the dissolved concentrations were used to define isoconcentrations (i.e., the shape and extent of the plumes) used in the groundwater model.

Additional details on the HELP, 1-D MODFLOW-SURFACT and 3-D transport model setup and application are provided in the *Draft Groundwater Flow and Contaminant Transport Modeling Report* (HGL 2007). Details of the SESOIL model approach and methodology are summarized in the NFSS BRA (SAIC 2007).

6.6.2 Model Results

The modeling report describes model results under baseline conditions and four failure scenarios. However, this RI report focuses on the baseline condition only. Table 6.4 summarizes the results of the 3-D groundwater flow and transport model for the uranium (uranium-238) decay series, actinium (uranium-235) decay series, and thorium (thorium-232) decay series. Table 6.5 summarizes results of the 3-D groundwater flow and transport model for metals, VOCs, and SVOCs. These tables provide the site-wide maximum concentration for each radionuclide or chemical constituent for each model layer at three time references: (1) the first time the radionuclide/constituent is detected above the screening level to identify short term concerns, (2) at 1,000 years to correspond to the potential ARAR timeframe to be evaluated in the FS, and (3) at 10,000 years. For chemical constituents, the maximum concentration is also provided for the first time that the constituent's concentration decreases to a level below the screening level, if applicable. Included on the table is a description of the NFSS site locations that correspond to the maximum concentrations for these time references. The model results presented in these tables are discussed in the following sections. The Model Report (HGL 2007) presents graphical representations of model simulations for constituent concentrations over time.

6.6.2.1 Radiological Constituents

Visual interpretations of groundwater fate and transport modeling results appear to indicate that offsite migration of radionuclides may occur at four site areas within a 1,000-year evaluation period. The four locations include the northwest corner of EU 1, the west side of EU 7, the east side of EU 8, and the south side of EU 11. To more accurately evaluate this potential offsite migration, groundwater modeling results using data obtained from the model post-processor were used to predict maximum uranium isotope concentrations at these four boundary locations within 1,000 years. Conclusions are summarized below; however, this data is discussed in detail in the BRA Report (SAIC 2007).

Based on model simulations, uranium isotopes are predicted to migrate offsite within 1,000 years in EUs 1 and 11 at concentrations that exceed screening and risk levels. Offsite migration in EUs 1 and 11 is the result of continued migration of existing groundwater contamination with additional contributions predicted from SESOIL modeling. Uranium isotope concentrations in the UWBZ on the boundaries of EUs 7 and 8 are expected to remain below screening and risk levels within the next 1,000 years. However, the conclusions made regarding the fate and transport of uranium isotopes in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils.

Within 1,000 years, the maximum concentrations of uranium isotopes are predicted to occur in the Brown Clay Till beneath the IWCS, near Building 411 (see Table 6.4). Additionally, model results indicate that the screening levels for uranium-234 and uranium-235 will be exceeded in

even the deepest of the aquifers (the upper Queenston Formation) within 1,000 years. This is likely the result of potential leaching of residues within Building 411 in the IWCS. Other than the uranium-isotopes, thorium-230 is the only radionuclide that exceeds its screening level in the Brown Clay Till within 1,000 years, likely due to existing groundwater contamination in EU 7. However, thorium-230 is not expected to migrate below the Brown Clay Till within 1,000 years at concentrations that exceed the screening level.

All modeled radionuclides are predicted to exceed screening levels in the Brown Clay Till in 10,000 years. Of these constituents, only uranium isotopes and thorium-230 are predicted to migrate below the Glacio-Lacustrine Clay at concentrations that exceed screening levels, with the maximum concentrations of the isotopes being below the IWCS. Within 10,000 years, uranium isotopes are predicted to exceed screening levels in the Queenston Formation and thorium-230 is predicted to slightly exceed its screening level in the Alluvial Sand and Gravel. The rest of the daughter products do not approach their respective screening levels in any layer below the Glacio-Lacustrine Clay. Concentrations of actinium-227 and protactinium-231 in groundwater increase within each model layer up to 10,000 years due to ingrowth.

6.6.2.2 Metal Constituents

Seven metals (arsenic, barium, boron, iron, lead, molybdenum and manganese) present in residues within the IWCS were modeled using the HELP and 1-D model. For many of these metals, the baseline leachate concentrations are well below the background UTLs at 1,000 years. Groundwater modeling results indicate that there is only minor dispersion of these metals over 1,000 years due to minimal infiltration rates. Modeling predicts that these metals will not migrate offsite in groundwater at concentrations above screening levels in the vicinity of the IWCS.

The groundwater flow and transport model indicates that boron and manganese are the only two metals that exceed screening levels in groundwater within 1,000 years at the NFSS. The existing boron and manganese plumes in EUs 3, 4, and 13 also exhibit little dispersion over 1,000 years, and the maximum concentrations of these metals in groundwater are not expected to increase above the current concentrations of the plumes. Concentrations of boron and manganese that exceed the screening levels are not expected to migrate vertically below the base of the Brown Clay Till (i.e., to a depth of approximately 15 feet in EUs 3, 4, and 13).

Based on SESOIL modeling results, levels of cadmium in groundwater reach peak leachate concentrations in 6,000 years; however, this is beyond the timeframe evaluated in this RI.

6.6.2.3 Organic Constituents

A number of organic compounds are present in the groundwater outside the IWCS, including PCE, TCE, cis-1,2-DCE, vinyl chloride, bis(2-ethylhexyl)phthalate, and methylene chloride. PCE, TCE, cis-1,2-DCE, and vinyl chloride are all present within the same plume in EU 4. Groundwater modeling results indicate that only minor dispersion of this VOC plume occurs due to low infiltration rates. This plume is not predicted to migrate off-site. Concentrations of cis-1,2-DCE and vinyl chloride, degradation products of PCE and TCE, temporarily increase in groundwater during the 1,000 year time period due to biodegradation processes.

As biodegradation occurs, PCE and TCE concentrations gradually decline while degradation products (cis-1,2-DCE and vinyl chloride) increase slightly in the first 50 years. PCE, TCE, cis-1,2-DCE, and vinyl chloride are all expected to degrade to levels less than the screening values

within 300 years in the Brown Clay Till. However, these VOCs continue to migrate downward into the Glacio-Lacustrine Clay. TCE and vinyl chloride further migrate to the Alluvial Sand and Gravel and Queenston Formation in the first 150 years. Vinyl chloride is predicted to degrade to below screening levels by 200 years.

According to groundwater fate and transport modeling results, the bis(2-ethylhexyl)phthalate plume in EU 10 exhibits only minor dispersion and migration within the Brown Clay Till within 1,000 years, and the maximum concentration of this organic compound in groundwater is not expected to increase above the current concentrations of the plume. Vertical migration of this SVOC below the base of the Brown Clay Till at concentrations exceeding the screening level is not expected within 1,000 years or beyond.

SESOIL modeling results indicate that methylene chloride may leach to groundwater within 50 years; however, concentrations never exceed the screening level. Additionally, the groundwater fate and transport model indicates that concentrations of methylene chloride never exceed the screening level in groundwater.

6.6.3 Model Independent Review and Comparison

An independent review of the groundwater modeling results was performed using the RESRAD-OFFSITE computer code. This code is one of the RESRAD family of computer codes (Argonne 2001) that has been used at a number of FUSRAP sites. The hydrologic model in this computer code is not nearly as sophisticated as that developed for the NFSS as presented in the modeling report (HGL 2007), but has been shown to provide reasonable estimates of future radionuclide concentrations in groundwater. In addition, the radionuclide decay and ingrowth algorithms in RESRAD have been extensively reviewed and verified. This review was largely limited to radionuclides in the uranium-235 decay series, i.e., uranium-235, protactinium-231 and actinium-227, in Bay D of Building 411. This review focused on two aspects of the HGL groundwater model, radionuclide decay and ingrowth, and the general shape and magnitude of the radionuclide concentrations in groundwater beneath Bay D.

The HGL model clearly addresses radionuclide ingrowth and decay, as is evident in the predicted concentrations of protactinium-231 and actinium-227 in groundwater beneath Bay D. Since actinium-227 has a very short half-life of about 22 years, the concentration of this radionuclide would be essentially zero in several hundred years without accounting for ingrowth. But this is not what the HGL model indicates. Rather, the HGL groundwater model indicates that the actinium-227 is indeed present in groundwater at the end of the modeling period, i.e., 10,000 years in the future. In addition, the activity profiles through 10,000 years for several radionuclides in the uranium-238 decay series (i.e., radium-226 and lead-210, and thorium-230 and radium-226) as determined by the HGL model, were reviewed. The relative concentrations of these two pairs of radionuclides were consistent with expectations.

In comparing the results for the uranium-235 decay series in Bay D, a fairly close match was obtained between the HGL model and RESRAD-OFFSITE for uranium-235. The breakthrough curves had a similar shape, and the magnitude of the maximum concentrations differed by about a factor of 5. The predicted results by HGL were higher than those estimated by RESRAD-OFFSITE. The results for protactinium-231 were also comparable, with RESRAD-OFFSITE predicting a higher concentration at earlier times than the HGL model through 10,000 years. The maximum concentration predicted by RESRAD was higher than that predicted by the HGL model by less than a factor of 5 through 10,000 years. RESRAD-OFFSITE indicates a maximum concentration occurring at about 5,000 years. The HGL estimates are still increasing at 10,000

years, so the maximum predicted concentrations are likely closer than indicated by this comparison beyond 10,000 years.

The predicted concentrations for actinium-227 show the largest discrepancy between these two models. RESRAD-OFFSITE predicts that the actinium-227 concentration in groundwater beneath Bay D is essentially equal to that of protactinium-231 through the first 5,000 years. After 5,000 years, the actinium-227 concentration exceeds that of protactinium-231. The predicted maximum concentration of actinium-227 is about 10 times greater than the predicted maximum concentration for protactinium-231 through 10,000 years. In contrast, the HGL model predicts that the actinium-227 concentration in groundwater beneath Bay D will be less than that for protactinium-231 by about a factor of 100. The shapes of the breakthrough curves for these two radionuclides are generally the same in the HGL model, indicative of the ingrowth of actinium-227 from protactinium-231 as both radionuclides move downward through Bay D.

There are a number of possible explanations for this difference and for discrepancies in results between other radionuclides described above. One explanation deals with how each model handles differences in infiltration through the system. The HGL model employed a time-varying water flux, based on predictions of flow through the layered system from the HELP model. The flux rate in the HGL model varied temporally through each 10,000 year simulation; however, the water flux for any given time period was constant through all layers, including the underlying concrete floor. The RESRAD-OFFSITE model was assigned a constant infiltration rate (i.e., not time-varying) to the upper most model layer, and the flux rate through each layer was set equal to this infiltration rate.

Another explanation is related to the manner in which the two models account for the coupling effect of transport and ingrowth in the concrete layer at the bottom of Bay D. Because of the large differences in transport speeds among parent and progeny radionuclides (in this case, the K_d s for uranium-235, protactinium-231, and actinium-227 are 3.6, 1500, and 450 mL/g, respectively), ingrowth in the concrete layer could not be accounted for satisfactorily in RESRAD-OFFSITE without further dividing the concrete layer into numerous smaller sublayers. Most of the actinium-227 reaching groundwater is from protactinium-231 (as shown in both models), which in turn comes from uranium-235. Uranium moves quite quickly with groundwater, and the ability of the model to accurately account for radionuclide ingrowth at the very bottom of the concrete layer is very important for accurately predicting future groundwater concentrations for actinium-227 beneath the IWCS. In addition, there are a number of differences in the modeling approaches in these two codes, which could account for this discrepancy.

Once these contaminants reach groundwater there will be considerable dilution from dispersion and differences between the IWCS-based contaminant outflow rate and the ambient groundwater flow rate. The dilution process should minimize any potential future radiation exposures. It has been concluded that the groundwater modeling results (HGL 2007) are reasonable predictions of future groundwater concentrations at the site from releases of radioactive contaminants in the residues and wastes contained in the IWCS.

6.6.4 Uncertainties in Groundwater Modeling Results

This RI report was written using groundwater modeling results assuming a K_d value of 3.6 L/kg the uranium isotopes. A sensitivity analysis was conducted to evaluate the effect of the uranium K_d value on predictions made regarding the fate and transport of uranium isotopes in site soil and groundwater. The sensitivity analysis was done for the uranium-238 isotope only since similar results would be expected for all of the uranium isotopes. Two sensitivity cases were studied;

Sensitivity Case 1 used a K_d value of 8.7 L/kg for uranium-238 and Sensitivity Case 2 used a K_d value of 46 L/kg. The baseline case ($K_d=3.6$ L/kg) included all contaminant sources including groundwater plumes. Cases 1 and 2 included only soil based plumes and IWCS sources. Conclusions predicted by the model include:

- In Case 1, beneath the IWCS where no groundwater plumes are present, an approximate two-fold increase in K_d (i.e. from 3.6 to 8.7 L/kg) resulted in more than a four-fold reduction in the maximum on-site concentration.
- In Case 2, beneath the IWCS where no groundwater plumes are present, an approximate one order of magnitude increase in K_d (i.e. from 3.6 to 46 L/kg) resulted in over a two order of magnitude reduction in the maximum on-site concentration.
- The time predicted for the initial screening level exceedance below the IWCS was extended 150 years (from 200 to 350 years) for Case 1 ($K_d=8.7$ L/kg) relative to the baseline case ($K_d=3.6$ L/kg).
- The time predicted for the initial screening level exceedance below the IWCS was extended 950 years (from 200 to 1,150 years) for Case 2 ($K_d=46$ L/kg) relative to the baseline case ($K_d=3.6$ L/kg).
- No screening level exceedances were predicted at the NFSS property boundary within 1,000 years (assuming no groundwater plumes were considered).

A groundwater modeling simulation was also performed to evaluate the effects of saturation of the IWCS. A water level of 320.09 ft was used for this simulation, which resulted in saturation of approximately 66% of the residues in Buildings 411, 413 and 414. Saturated IWCS simulation results predict an increased lateral extent of the contaminants compared to the Baseline Case (unsaturated conditions). Despite the increased extent, however, there were no IWCS-related screening level exceedances within 1,000 years. Saturated IWCS simulations results also indicate increased vertical migration relative to the Baseline Case. This is attributed to the modeling approach where the constant head is specified only within the IWCS waste zones, creating a mounding condition, and increased vertical gradient.

More detailed descriptions of the K_d sensitivity analysis and the saturated flow simulation are provided in the groundwater modeling report (HGL 2007).

7.0 CONCLUSIONS AND RECOMMENDATIONS

This section provides a logical transition from the extensive list of SRCs discussed in Section 5 to a reduced list of site constituents posing risk to human health (i.e. COCs and ROCs). This section incorporates results from the BRA and the groundwater fate and transport modeling, and provides recommendations for those EUs and media that should be carried forward for further evaluation in the FS. SRCs have previously been identified and discussed in Sections 4 and 5 of this document. Groundwater fate and transport modeling results were presented in Section 6 of this document. COCs and ROC were determined and identified in the BRA.

Table 7-1 provides a comprehensive summary of SRCs identified at the NFSS site for each investigative media within each EU. This table also identifies constituents that are COCs or ROCs as defined by the BRA. To be consistent with the BRA methodology, the “SB” column in Table 7-1 includes both surface soil and subsurface SRCs (i.e., 0-10 foot depth interval). To distinguish the surface soil SRCs from the subsurface SRCs, an open circle was used to represent SRCs from 0-0.5 feet, whereas a solid dot was used for SRCs from 0.5-10 feet. It should be noted that those constituents identified as SRCs in subsurface soil (0.5-10 feet) were identified by screening against the subsurface soil background UTL that defines subsurface soil as 0-10 feet.

7.1 SUMMARY OF RI FINDINGS FOR EACH EU

A separate summary (for each EU) that addresses the following topics with respect to RI findings is presented in Section 7.3.

- SRCs of significance,
- Nature of occurrence of SRCs,
- Relation of SRC occurrence to site history,
- Groundwater fate and transport modeling results,
- Determination of COCs and ROCs from the BRA, and
- Recommendations for further investigation.

A brief description of these topics and the nature of information provided for each are included in the following sections.

7.1.1 SRCs of Significance

SRCs of significance were identified for each media including soil, groundwater, sediment, surface water, and subsurface utility pipelines. Criteria used to determine significance of SRCs may include, but are not limited to:

- High frequency of detection,
- High magnitude of observed concentrations,
- Widespread occurrence,
- Multiple depth occurrences in soil,
- Clustered concentrations,
- Constituent of an identified groundwater plume, and
- High probability of media interaction (i.e. migration of constituents between media).

Although SRCs may have been identified in a particular media within an EU, no SRCs of significance may have been identified in that media if the above criteria were not met for any of

the SRCs. For example, if one or two SRCs were identified in a particular media within an EU, these SRCs may not have been considered SRCs of significance if they exhibited relatively low concentrations and were sporadic in occurrence.

7.1.2 Nature of Occurrence

It is important to note that, for soil samples, the RI soil sampling gamma survey results were used to select locations that exhibited higher radiation levels. As such, the sample results don't really represent "typical" conditions at the site, but rather are indicative of the "worst case" locations defined by biased sampling.

The nature of occurrence for SRCs of significance is briefly summarized for each media, and the descriptions of nature of occurrence expand on the criteria used to determine SRCs of significance. The nature of occurrence may include a description of the frequency of SRC exceedances above the background UTL, how widespread the SRC is within separate media, at what depths the SRC is found, whether or not the SRC is found in multiple media, and the magnitude of SRC Exceedances above background UTLs.

7.1.3 Relation to Site History

An explanation as to the presence of SRCs within the EU is provided based on available knowledge of the EU's operational history as well as investigative findings that may include field observations or results of historical record searches.

7.1.4 Groundwater Fate and Transport Modeling

The results of groundwater fate and transport modeling are discussed with respect to groundwater SRCs of significance and groundwater plumes identified for the EU.

7.1.5 BRA – Determination of COC and ROCs

The U.S. EPA and USACE guidance used to prepare the BRA relied on modeled risk estimates for representative receptors that may come into contact with chemical and radiological constituents at the site. The risk estimates were not based on observed impacts to actual people, plants, or animals at the site, nor were they based on measured levels of chemicals within the tissues of these potential receptors. The risk estimates were developed using mathematical models as opposed to actual observed or measured effects. Therefore, these risk estimates should be used only within the CERCLA framework for which they are intended and not for any other purpose such as wildlife management or the development of health advisories.

The COCs and ROCs identified in the BRA are discussed in each EU summary and represent the RME cancer risk for the adult/child subsistence farmer scenario. The subsistence farmer land use scenario is overly conservative for the NFSS and is highly unlikely due to proximity of the site to surrounding landfills and poor yield and quality of on-site groundwater resources. The subsistence farming scenario includes the development of a working farm with livestock for meat and dairy products plus cultivated land for grains, fruits, and vegetables. It is assumed that a subsistence farmer could be exposed to contaminated surface soil, surface water/sediment, impacted home-grown produce, impacted meat and dairy products, and upper and lower groundwater while on site. The carcinogenic COCs are constituents that exceed the 10^{-5} risk level. A risk of 10^{-5} is defined as the probability that one additional person in a population of 100,000 people may develop cancer as a result of exposure to contaminants at the NFSS. The non-

carcinogenic COCs are constituents that show risks exceeding a hazard index of one, the level of concern for potential adverse non-carcinogenic health effects (EPA 1989). For ROCs, if total cancer risk exceeds 10^{-4} , only those ROCs exceeding 10^{-5} risk levels are identified. Risk was determined for the following media pathways: surface soil (0-0.5 feet), soil (0-10 feet), sediment, surface water, groundwater, and food. COCs identified for the food pathway correspond to soil samples collected from 0-0.5 feet. COCs and ROCs identified for the food pathway represent a hypothetical future scenario where food is grown on site. No current risk from food is implied. COCs and ROCs identified by the BRA as risk drivers are presented in the EU summaries. The BRA did not evaluate soils greater than 10 feet deep; however, they are presented in the nature of occurrence discussions in this section in order to evaluate SRCs of significance.

No dissolved metals or dissolved radionuclides were identified as COCs or ROCs in groundwater or surface water because the dissolved fractions were not evaluated in the BRA. COCs and ROCs were identified in the BRA with respect to the total fraction in groundwater and surface water samples.

Table 7-1 and the EU summaries presented in this section include ROCs which were not detected in NFSS RI samples or which were not analyzed for in NFSS RI samples, but were identified by the BRA as contributing to human health risk. These ROCs were identified as posing a risk to human health based on the equilibrium of radioactive decay chains.

Most of the radionuclides found at the NFSS are parts of radioactive decay chains. In nature, these chains are assumed to be in equilibrium with all members of a chain existing at the same activity level. Some members of the uranium-235 and uranium-238 chains were either not analyzed from samples collected during the RI or were not detected in the data used for establishing ROCs at the NFSS site. This scenario occurred most commonly for lead-210 and protactinium-231. The long-lived members missing from the uranium-235 and uranium-238 chains, i.e. protactinium-231 in the uranium-235 chain and lead-210 in the uranium-238 chain, were assumed to be in equilibrium with their nearest long-lived chain member. Thus, protactinium-231 was assumed to be in equilibrium with actinium-227 and lead-210 was assumed to be in equilibrium with radium-226. In such cases, lead-210 and protactinium-231 were identified as ROCs, but not as SRCs. This scenario may occur with other radionuclides as well, but less frequently.

For the purpose of this RI document, it is assumed that future land use on the site will be dominated by human use; therefore, COCs and ROCs identified in this document reflect human health concerns. However, surface water drainages may represent a portion of the site for which protection of ecological receptors is more important. Based on the SERA, no radionuclide SRCs had the potential to pose adverse effects to ecological receptors. The SERA did not eliminate the possibility for ecological risk for some chemical SRCs in surface water and sediments; however, further evaluation using a weight-of-evidence (WOE) assessment revealed relatively healthy and functioning terrestrial and aquatic systems. The WOE assessment concluded no further action is necessary for managing ecological resources at NFSS.

7.1.6 Recommendations

A recommendation for further evaluation of COCs and ROCs in the FS, or a determination of no further action is identified for each media.

7.2 GENERAL CONSIDERATIONS

Through the course of evaluating data collected during this RI, it became apparent that residual radionuclide contamination in soil and the presence of various constituents in pipelines and subsurface utilities are conditions that affect a large portion of the NFSS site. Specific considerations concerning both issues are discussed in the following sections.

7.2.1 Evaluation of Pipelines and Subsurface Utilities

SRCs present in sediment and water within pipelines and subsurface utilities may indicate that pipelines and subsurface utilities act as preferred pathways for the migration of constituents. Therefore, SRCs within pipelines and subsurface utilities should be further addressed in the FS with respect to groundwater and subsurface soil contamination.

7.2.2 Residual Radionuclide Contamination

Residual radionuclide contamination in soil could be the result of difficulties encountered during historical cleanup activities. In addition, the soils may have been cleaned up to standards deemed appropriate by DOE at the time; however, technology improvements and the conservative screening criteria used during this RI indicate that further evaluation of the contaminants in soil may be warranted.

During the RI, unexpected, rare occurrences of elevated cesium-137, strontium-190, plutonium-239/240 and enriched uranium were identified. These constituents will be included in the FS evaluation and in remedial design efforts.

7.3 EU SUMMARIES

EU summaries of SRCs, COCs/ROCs, and recommendations for further investigation follow. Additionally, the background data set (EU 18) was discussed previously in this report and therefore is not discussed in this section.

7.3.1 EU 1 (Baker-Smith Area and Vicinity) Summary of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	Radionuclides	None Identified	None Identified	Not Applicable
VOCs				
Pesticides				

Nature of Occurrence

Soil

- Actinium-227, radium-226, thorium-230, and uranium isotopes exceeded background UTLs by factors near 100 or more near the former Baker-Smith building foundations and near the West Ditch. Thorium and uranium isotopes exceeded background UTLs at depths greater than 10 feet along the northern boundary of the EU and near the former building foundations. Cesium-137 was present mainly near building foundations and in the southeastern corner of the EU.
- VOCs were detected in the upper 2 feet of soil and at depths greater than 10 feet mainly near former building foundations or roads.
- Pesticides were present at scattered locations within the upper 2 feet of soil.

Groundwater

- A dissolved total uranium plume extends from the west-central portion of EU 2 through the northwest portion of EU 1.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Relation to Site History

Radionuclides detected in EU 1 may be related to past radioactive waste storage in this area. The slightly elevated levels of cesium-137 in soils may be attributed to the storage of KAPL wastes. The presence of VOCs may be due to the use of chemicals in the pipe shop, machine shop, or welding shop located in the former Baker-Smith area, or related to the use of the former rail line in the area. It is possible that pesticides were used to control insects near the former Baker-Smith buildings.

Groundwater Fate and Transport Modeling

Based on model simulations, uranium isotopes are predicted to migrate offsite within 1,000 years at concentrations that exceed screening and risk levels [MCLs and 10^{-5} PRGs; See Section 5.5 of the BRA (SAIC 2007) for a detailed description of potential risk to offsite groundwater receptors]. This conclusion is consistent with concentrations of uranium isotopes currently

observed in the UWBZ in EU 1. Predicted offsite migration in EU 1 is the result of continued migration of existing groundwater contamination, with minor additional contributions from SESOIL modeling predicting leaching from existing soil contamination. The existing groundwater contamination only slightly exceeds the MCL; however, the contribution from soil leaching indicates that concentrations of uranium will increase with time. It should be noted that the conclusions made regarding the fate and transport of uranium isotopes in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils. The results of a sensitivity analysis for the uranium K_d value are discussed in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

BRA – Determination of COCs and ROCs

No COCs were identified for EU 1; only ROCs in soil (0-10 feet) and food were identified for EU 1. ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Actinium-227	Radium-226	Uranium-234
Cesium-137	Radium-228	Uranium-235
Protactinium-231	Thorium-230	Uranium-238
Lead-210	Thorium-232	

ROCs identified by the BRA that pose risk in food include:

Actinium-227	Radium-226	Thorium-232
Protactinium-231	Radium-228	Uranium-234
Lead-210	Thorium-230	Uranium-238

Of the ROCs, radium-226 was identified as a risk driver contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	Due to the potential for future risk to offsite groundwater receptors, the presence of radionuclides in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	Not Applicable

7.3.2 EU 2 Summary (Baker-Smith Area and Vicinity) of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides VOCs PAHs PCBs Pesticides	Radionuclides	None Identified	None Identified	Radionuclides PAHs

Nature of Occurrence

Soil

- The most commonly detected radiological SRCs in both surface and subsurface soil were thorium-230 and radium-226. These two radionuclides were also detected at depths greater than 10 feet bgs. Actinium-227, cesium-137, radium-228, and uranium isotopes were also found in surface and subsurface soils throughout the EU. Radionuclides in EU 2 generally exceeded the background UTLs by factors less than 10.
- VOCs were detected mainly in the eastern portion of the EU in the likely area of the former sellite manufacturing buildings and storage tanks. VOCs were found within surface and subsurface soils including depths greater than 10 feet bgs. PAH compounds were also found in surface and subsurface soils in this area.
- PCBs and pesticides were found within the upper two feet of soil at widespread locations within the EU.

Groundwater

- A dissolved total uranium plume extends from the west-central portion of EU 2 through the northwest portion of EU 1. Dissolved thorium-228 was also detected above the background UTL at one location within the EU.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- Uranium isotopes were detected above the background UTLs in sediment in a sanitary sewer line southwest of the intersection of O Street and Campbell Street. Cesium-137 was detected above the background UTL in sediment in a storm sewer line near Campbell Street. Radium-226 was detected above the background UTL in surface water from one manhole location.
- Several PAHs were detected in sediment from two locations on the storm sewer system.

Relation to Site History

Presence of radionuclides at levels above background UTLs in EU 2 are likely due to activities conducted nearby at the former radium storage vault (Building 433) in EU 3 and due to the EU's proximity to neighboring EUs where radioactive wastes were once used or stored. However, historical references indicate that radium sources stored in the radium storage vault were sealed sources and were not a source of radiological contamination (Aerospace Corporation 1982). Historical references also indicate that the radium storage vault was also uncontaminated (Battelle 1981). The presence of VOCs, PAHs, and PCBs may be due to industrial activities and the use or storage of chemicals in the former sellite manufacturing buildings and storage tanks. An abandoned drum investigated in the southeastern corner of EU 2 could be a source of some localized PAH compounds, PCBs, and pesticides. A small portion of the New Naval Waste Area, where construction debris was stored, is located in EU 2 and represents a possible source for some SRCs present in the EU. It is possible that pesticides were used to control insects in areas of the EU. Constituents in the subsurface utility lines may be related to activities within the EU or may have been transported through the sewer or storm systems from neighboring EUs.

Groundwater Fate and Transport Modeling

The dissolved total uranium plume that extends from the west-central portion of EU 2 through the northwest portion of EU 1 is predicted to migrate offsite in EU 1 within 1,000 years at concentrations that exceed screening and risk levels [MCLs and 10^{-5} PRGs; See Section 5.5 of the BRA (SAIC 2007) for a detailed description of potential risk to offsite groundwater receptors]. This offsite migration in EU 1 is the result of continued migration of existing groundwater contamination in EUs 1 and 2, with minor additional contributions from SESOIL modeling predicting leaching from existing soil contamination. The existing groundwater contamination only slightly exceeds the MCL; however, the contribution from soil leaching indicates that concentrations of uranium will increase with time. It should be noted that the conclusions made regarding the fate and transport of uranium isotopes in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils. The results of a sensitivity analysis for the uranium K_d value are discussed in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

BRA – Determination of COCs and ROCs

COCs and ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Benzo(a)anthracene	Actinium-227	Thorium-230
Benzo(a)pyrene	Cesium-137	Thorium-232
Benzo(b)fluoranthene	Protactinium-231	
Dibenz(a,h)anthracene	Lead-210	
Indeno(1,2,3-cd)pyrene	Radium-226	
Boron	Radium-228	

COCs and ROCs identified by the BRA that pose risk in food include:

Benzo(a)anthracene	Dibenz(a,h)anthracene	Actinium-227	Radium-226
Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Protactinium-231	Radium-228
Benzo(b)fluoranthene	Boron	Lead-210	Thorium-232
Benzo(k)fluoranthene			

Of the COCs, benzo(a)pyrene was identified as a risk driver in soil (0-10 feet) and in food. Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet). These risk drivers contribute 50% or more of the cancer risk in these media in the adult/child subsistence farmer scenario. The following are recommendations for addressing the COCs and ROCs.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	Due to the potential for radionuclide contribution to the dissolved uranium plume that could potentially migrate offsite in EU 1 and pose future risk to offsite groundwater receptors, the presence of radionuclides in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	No Further Action

7.3.3 EU 3 (Acid Area and Vicinity) Summary of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	Manganese	Not Applicable	Not Applicable	None Identified
VOCs				
PCBs				
Pesticides				

Nature of Occurrence

Soil

- Actinium-227, radium-226, and thorium and uranium isotopes were detected above the background UTLs in surface and subsurface soils throughout the EU. Actinium-227 and radium-226 exceeded surface soil background UTLs by factors between 10 and 40 in some locations. Most radionuclides detected in surface and subsurface soil exceeded the background UTLs by factors less than 10. No radionuclides were identified as SRCs at depths greater than 10 feet bgs.
- VOCs, PCBs and pesticides were detected most frequently near trenching locations at depths less than 10 feet bgs. All VOCs detected above the background UTLs were found in soils at depths greater than 2 feet bgs, and five VOCs were detected above the background UTLs at depths greater than 10 feet bgs.

Groundwater

- A manganese plume was identified in the central portion of the EU. Manganese exceeded the background UTL in groundwater in both the total and dissolved phases at two wells.

Subsurface Utilities

- No SRCs of significance were identified in subsurface utilities in this EU.

Relation to Site History

Most of the SRCs present in EU 3 may be due to activities conducted and waste stored at the New Naval Waste Area and from activities at the former radium storage vault (Building 433). However, historical references indicate that radium sources stored in the radium storage vault were sealed sources and were not a source of radiological contamination (Aerospace Corporation 1982). Historical references also indicate that the radium storage vault was also uncontaminated (Battelle 1981). Radionuclide SRCs present within the EU may also be related to waste streams that were transported and stored at the NFSS. VOCs, PCBs, and pesticides were detected in Trench 403 where organic matter, bricks, gravel and wood were observed during excavation activities. Cinders and a ballast layer were also found in Trench 413. These materials may account for the organic constituents observed in soil. Dissolved manganese, detected above the background UTL within the manganese plume near Trench 403, could be related to debris observed in the trench. SRCs may also be present due to the proximity of the EU to the former acid area which was located nearby in EU 4. It is possible that pesticides were used to control insects in areas of the EU.

Groundwater Fate and Transport Modeling

The groundwater flow and transport model indicates that manganese will exceed its screening level in groundwater within 1,000 years at the NFSS. However, the existing manganese plume in EU 3 also exhibits little dispersion over 1,000 years, and the maximum concentration of this metal in groundwater is not expected to increase above the current concentrations of the plume. Concentrations of manganese that exceed the screening level are not expected to migrate vertically below the base of the Brown Clay Till (i.e., to a depth of approximately 15 feet).

BRA – Determination of COCs and ROCs

No COCs were identified by the BRA for this EU, only ROCs were identified for soil (0-10 feet) and food. ROCs that pose risk in soil (0-10 feet) and food in EU 3 include:

Actinium-227
Protactinium-231
Lead-210
Radium-226

Of the ROCs, radium-226 was identified as a risk driver, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. The following are recommendations for addressing the ROCs.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	No Further Action	Not Applicable	Not Applicable	No Further Action

7.3.4 EU 4 (Acid Area and Vicinity) Summary of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides Boron PAHs PCBs Pesticides VOCs	Radionuclides Metals SVOCs VOCs	Not Applicable	None Identified	Radionuclides PAHs PCBs Pesticides VOCs

Nature of Occurrence

Soil

- Cesium-137, radium-226, and thorium-230 were widely distributed in surface soils, and also found in subsurface soils. Americium-241, thorium-228, thorium-232, and uranium isotopes were found in surface and subsurface soils; however, as discussed in Section 5.9.3.1, the detections of americium-241 may be false positives. Radium-228, uranium-235, and thorium isotopes were also found in subsurface soils at depths greater than 10 feet bgs. Radionuclides exceeded background UTLs in surface and subsurface soils by factors less than 10.
- Boron was widely detected above the background UTL in surface and subsurface soils including depths greater than 10 feet bgs. Boron exceeded the background UTL by factors greater than 10 in two samples collected at depths less than 10 feet bgs at abandoned drum locations.
- Fourteen PAH compounds were detected above background UTLs in surface and subsurface soils in the central portion of the EU.
- Aroclor-1254 and Aroclor-1260 were frequently detected in surface and subsurface soils.
- Pesticides and several VOCs were detected in surface and subsurface soils including depths greater than 10 feet bgs.

Groundwater

- A dissolved total uranium plume was identified in the north-central portion of the EU near the former nitric acid concentrator. Dissolved thorium-228 and dissolved thorium-230 were also detected in groundwater in the north-central portion of the EU.
- A boron plume was identified in the central portion of EU 4. Detections of aluminum, barium, cobalt, manganese, and nickel were also found in the total and dissolved phases within EU 4.
- Four SVOCs were detected in groundwater; however, bis(2-ethylhexyl)phthalate was the only SVOC detected above the background UTL in multiple locations within the EU.

- Seventeen VOCs were detected in groundwater at multiple locations within the EU. Southeast to northwest trending groundwater plumes were identified for PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride near wells MW415 and MW415A, and manhole MH 32. The plumes are within the UWBZ at a depth of approximately 10 to 15 ft bgs and appear to be located in a topographic low in the GLC near monitoring well 415 (see Figure 2.15 in the Groundwater Flow and Contaminant Transport Modeling Report (HGL 2007)). Sand lenses greater than 5 ft in depth were encountered in borings 415 and 415A in addition to other less extensive lenses encountered in other borings in this EU. Although not confirmed, DNAPL in the topographic low could be dissolving into the groundwater present in the more permeable sand lenses in the area and contributing to the VOC plumes. The possible contribution of VOCs to groundwater from DNAPL is supported by field data which indicates that no correspondingly high VOC contamination was observed in soils above the groundwater table. PID readings used to guide soil sample collection in boring 415 indicated that no organic vapors were detected in the vadose zone between 0 and 5 feet bgs. Detections of organic vapors were first observed at a depth of 5 feet, which corresponds to the depth of groundwater in the boring. PID readings ranged from 1.4 ppm to 165 ppm at depths of 5 feet to approximately 10 feet bgs, respectively. High levels of VOCs were detected in the subsurface soil samples that correspond with the depth of the groundwater.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- Cesium-137, radium-226, and uranium isotopes were detected above the background UTLs in sediment in subsurface utility lines throughout the EU. Cesium-137, radium-226, thorium isotopes, and uranium isotopes were detected above background UTLs in water from the subsurface utilities within the EU. These radionuclides exceeded the background UTLs by factors less than 10 in both sediment and water.
- Aroclor-1260 was detected in sediment at multiple locations in subsurface utilities at concentrations that exceeded the background UTL by a factor of 20 or more.
- Several PAH compounds and pesticides were detected in sediment at multiple locations in subsurface utilities. Most of these detections exceeded the background UTLs by factors less than 10; however, 4,4'-DDE and 4,4'-DDT exceeded background UTLs by factors of 20 or more, while dieldrin exceeded the background UTL by factors over 200. Several PAH compounds and one pesticide were also detected in water from the subsurface utilities within the EU. PAH compounds exceeded the background UTLs in water by factors of 100 or more.
- VOCs were detected in manholes located in close proximity to the PCE/TCE plume. MH-32 is approximately 12 ft bgs which corresponds to the screened interval for MW 415. Thus, a hydraulic connection between the groundwater plume and the subsurface utilities likely occurs in this area. However, there is no evidence of extensive lateral migration of VOC contamination along or within the pipeline. Any remediation of the VOC contamination in EU 4 also should include remediation of the pipelines in the immediate vicinity of the plume.

Relation to Site History

Many SRCs identified in EU 4 were related to abandoned drum locations and trenching locations. Five abandoned drum locations investigated within EU 4 indicated the presence of metals, PAHs, PCBs, pesticides, SVOCs, VOCs, and radionuclides. Organic SRCs, metals, and radionuclides were also identified at several trenching locations where the following items were observed: vitrified clay piping, concrete piping, rebar, steel, PVC, bricks, rubble, ash, oily gravel, and foam. SRCs within the EU may be related to the general industrial operations performed around the former buildings, or may be related to waste streams that were transported and stored at the NFSS. SRCs may also be present in EU 4 due to activities conducted at the former acid area where nitric acid and other materials related to the manufacture of TNT were stored. Radionuclides may also be present in the EU because uranium rods were once stored in former Buildings 431 and 432. Hydraulic connections may exist between groundwater plumes and subsurface utilities.

Groundwater Fate and Transport Modeling

PCE, TCE, cis-1,2-DCE, and vinyl chloride are all present within the same plume in EU 4. Groundwater modeling results indicate that only minor dispersion of this VOC plume occurs due to low infiltration rates. This plume is not predicted to migrate offsite. As biodegradation occurs, PCE and TCE concentrations gradually decline while degradation products (cis-1,2-DCE and vinyl chloride) increase slightly in the first 50 years. PCE, TCE, cis-1,2-DCE, and vinyl chloride are all expected to degrade to levels less than the screening values within 300 years in the Brown Clay Till. However, these VOCs continue to migrate downward into the Glacio-Lacustrine Clay. TCE and vinyl chloride further migrate to the Alluvial Sand and Gravel and Queenston Formation in the first 150 years. Vinyl chloride is predicted to degrade to below screening levels by 200 years.

The groundwater flow and transport model indicates that boron will exceed its screening level in groundwater within 1,000 years at the NFSS. However, the existing boron plume in EU 4 also exhibits little dispersion over 1,000 years, and the maximum concentration of this metal in groundwater is not expected to increase above the current concentrations of the plume. Concentrations of boron that exceed the screening level are not expected to migrate vertically below the base of the Brown Clay Till (i.e., to a depth of approximately 15 feet).

A thorium-230 plume located near the site boundary in EU 4 was evaluated for future risks due to ingrowth because it is feasible that radium concentrations in groundwater could increase in the presence of parent thorium isotopes. It is concluded that existing reported radium concentrations in the EU 4 plume are less than the MCL now (considering both total and dissolved results) and the potential for ingrowth would not result in an exceedance over the next 1,000 years without the introduction of a secondary source of contamination.

BRA – Determination of COCs and ROCs

COCs and ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Arsenic	Cesium-137
Aroclor-1260	Lead-210
Benzo(a)pyrene	Radium-226

COCs and ROCs identified by the BRA that pose risk in food include:

Arsenic	Benzo(a)pyrene	Lead-210
Boron	Benzo(b)fluoranthene	Radium-226
Aroclor-1254	Indeno(1,2,3-cd)pyrene	
Aroclor-1260	PCE	

COCs and ROCs identified by the BRA that pose risk in groundwater include:

Arsenic	Vanadium	Lead-210
Barium	Bis(2-ethylhexyl)phthalate	Radium-226
Boron	cis-1,2-DCE	Radium-228
Copper	Methylene Chloride	Thorium-228
Lead	PCE	Uranium-234
Manganese	TCE	Uranium-238
Nickel	Vinyl Chloride	

Of the COCs, Aroclor-1260 was identified as a risk driver in soil (0-10 feet) and in food, and PCE was identified as a risk driver in groundwater. Aroclor-1260 and PCE contribute 50% or more of the cancer risk in these media in the adult/child subsistence farmer scenario, as well as 50% or more of the non-cancer risk in the individual scenarios for the adult and child subsistence farmers. Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet) and groundwater, contributing 50% or more of the cancer risk in these media in the adult/child subsistence farmer scenario. The following are recommendations for addressing the COCs and ROCs.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	Not Applicable	No Further Action	The presence of SRCs should be further evaluated in the FS with respect to the VOC plumes in groundwater.

7.3.5 EU 5 (Panhandle Area) Summary of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	None Identified	Radionuclides	None Identified	None Identified
PCBs				
VOCs				

Nature of Occurrence

Soil

- The most commonly detected radiological SRCs in surface soil were cesium-137, radium-226, and thorium-230. Uranium isotopes and actinium-227 were also detected above background UTLs in surface soils. In general, radionuclide SRCs in surface soil exceeded the background UTLs by factors less than 10; however, actinium-227 and radium-226 infrequently exceeded the background UTL by factors greater than 100. All of the surface soil radionuclides were detected above the background UTLs in subsurface soil except actinium-227 and cesium-137. Radium-226 exceeded the background UTL in subsurface soil by factors greater than 60. Only radium-226 and thorium-230 were detected in soils at depths greater than 10 feet bgs; however, these results only slightly exceeded the background UTLs.
- PCBs and VOCs were detected in multiple locations in surface and subsurface soils. Only one VOC was detected at a depth greater than 10 feet bgs.

Groundwater

- Several metals exceeding their background UTLs were found in the groundwater; however, no metal plumes were identified. Silver was consistently found at levels at least 10 times greater than the background UTL in groundwater across the EU; however, all concentrations were less than the secondary MCL of 0.1 mg/L.

Sediment

- Cesium-137 and total uranium exceeded the background UTLs in sediment by factors less than 10.

Surface Water

- Dissolved silver was detected at levels 20 times greater than the background UTL in four samples collected from the O Street North Pond and a pond in the northern portion of the EU; however, metals, in general, are not considered SRCs of significance in surface water.

Subsurface Utilities

- One manhole was sampled in EU 5 for sediment and only a few radionuclides slightly exceeded the background UTL; therefore, no SRCs of significance were identified in subsurface utilities at this EU.

Relation to Site History

Radionuclides may be present in EU 5 due to transportation and storage practices employed at the NFSS prior to the remedial activities in the 1980's. PCBs and VOCs may also be related to the transportation of material along haul roads, activities conducted in the vicinity of the former ammonia plant, or activities conducted at Building 434 in EU 6.

Groundwater Fate and Transport Modeling

No groundwater contaminant plumes were identified in EU 5. Furthermore, groundwater modeling results did not indicate any exceedance of screening or risk levels associated with the fate and transport of contaminants in EU 5.

BRA – Determination of COCs and ROCs

No COCs were identified by the BRA for this EU. ROCs that pose risk in soil (0-10 feet) include:

Actinium-227	Radium-226
Cesium-137	Radium-228
Protactinium-231	Thorium-232
Lead-210	

ROCs that pose risk in food include:

Actinium-227	Radium-226
Protactinium-231	Radium-228
Lead-210	Thorium-232

Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	No Further Action	No Further Action	No Further Action	No Further Action

7.3.6 EU 6 (Panhandle Area) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	None Identified	None Identified	None Identified	Not Applicable
PCBs				
Pesticides				
VOCs				

Nature of Occurrence

Soil

- Radiological SRCs were restricted to the upper 2 feet of soil and occurred in the surface soil at scattered locations across the EU.
- A localized area of elevated radioactivity at the intersection of McArthur Street and O Street in the southeastern corner of the EU contained high concentrations of actinium-227, cesium-137, radium-226, thorium-230, total uranium and uranium isotopes in the surface soil. Concentrations of these radionuclides exceeded their respective background UTL by factors of 20 to 236 times. Protactinium-231, radium-226, thorium-230, total uranium and uranium isotopes exceeded their background UTLs by a factor of 10 to 58 times at depths of up to two feet in this area.
- PCBs were detected in surface soils at five locations with three of the locations either near the northern property boundary with CWM or in a drainage way flowing onto the NFSS from CWM.
- Pesticides are present at scattered locations within the upper 2 feet of soil.
- VOCs were found at three locations in surface soil and two locations in the subsurface soil greater than 10 feet bgs.

Groundwater

- No SRCs of significance were identified in groundwater at this EU.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Relation to Site History

Radionuclides in the soil in EU 6 may be related to the storage of K-65 residues in Building 434 and the use of N Street, O Street and McArthur Street as haul roads for residues. The PCBs are found near ditches and may be the result of spills during transportation or from PCB containing oil that may have been used for dust control on the adjacent roads. The pesticides appear to also be related to ditches along the haul roads and may be the results of insect control efforts in these

wet areas. The VOCs were found near haul road ditches or near Building 434 and may be a result of activities conducted at or near this building.

Groundwater Fate and Transport Modeling

No groundwater contaminant plumes were identified in EU 6. Furthermore, groundwater modeling results did not indicate any exceedance of screening or risk levels associated with the fate and transport of contaminants in EU 6.

BRA – Determination of COCs and ROCs

No COCs were identified for EU 6; only ROCs in soil (0-10 feet) and food were identified for EU 6. ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Actinium-227	Lead-210	Uranium-234
Cesium-137	Radium-226	Uranium-235
Protactinium-231	Thorium-230	Uranium-238

ROCs identified by the BRA that pose risk in food include:

Actinium-227	Radium-226	Uranium-234
Protactinium-231	Thorium-230	Uranium-238
Lead-210		

Of the ROCs, radium-226 was identified as a risk driver, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	No Further Action	No Further Action	No Further Action	Not Applicable

7.3.7 EU 7 (IWCS and Vicinity) Summary of SRCs, COC/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides VOCs	Radionuclides	None Identified	Radionuclides	Not Applicable

Nature of Occurrence

Soil

- Radium-226 and thorium-230 are widespread in surface soil with many concentrations exceeding background UTLs by factors of 20 to 400. Uranium isotopes are present in surface soils, but are at low concentrations and at a lower frequency than radium and thorium. Actinium is also present in surface soil at 20 to 300 times the background UTL. The same is true for the aforementioned radionuclides in deeper soils. That is, radium-226 and thorium-230 are most frequently detected and at concentrations 20 to 100 times the background UTL. Actinium is present at 10 to 70 times the background UTL. Uranium isotopes were detected at low concentrations and at a much lower frequency than radium and thorium. Three samples contained elevated concentrations of cesium-137 ranging from 1.07 to 5.15 pCi/g.
- VOCs were detected in several surface soil samples and at depths greater than 10 feet at scattered locations throughout the EU.

Groundwater

- A dissolved thorium-230 plume is present in the southern portion of EU 7. This plume spans the boundary with EU 10 at concentrations that exceed the background UTL by a factor of 2 to 3.
- A small dissolved total uranium plume was noted in the northwest corner of the EU near the West Ditch.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- Thorium-228 and thorium-230 were identified in surface water at this EU at concentrations greater than 40 times their respective background UTLs.

Relation to Site History

Trenching activities conducted in the western portion of EU 7, known as the DOE Organic Burial Area, identified a large volume of wood debris, general demolition debris, an overpack drum containing unused sample containers and sampling equipment, ash-like material, and other miscellaneous debris. Some of the buried materials may be a source of elevated concentrations of radionuclides in soil at EU 7. Approximately 150 field gamma scan results are recorded in the field notes with most of them being consistent with background levels. Also, there were elevated

“hotspots” in the surface soil that may be attributed to contamination not associated with the fill materials. For example, supplementary field investigations of “hotspots” identified in the SAIC Site Wide Gamma Survey, performed during the installation of Trench 808, determined that many of the elevated readings were attributable to small chips in the top few inches of surface soil. These small chips were not found in association with the filled materials. The presence of cesium-137 may be related to the EU’s proximity to EU 1 where KAPL waste was stored or to the buried debris. The elevated concentration of thorium isotopes in surface water can likely be attributed to runoff from surface soil in EU 7. The samples containing VOCs were taken primarily from areas known to contain former settling ponds and water storage pits used during construction of the IWCS.

Groundwater Fate and Transport Modeling

Groundwater modeling results were used to evaluate potential offsite migration on the west side of EU 7 due to continued migration of existing contamination. Modeling results indicate that uranium isotope concentrations in the UWBZ on the boundary of EU 7 are not expected to exceed screening or risk levels within the next 1,000 years.

A thorium-230 plume located near the site boundary in EU 7/10 was evaluated for future risks due to ingrowth because it is feasible that radium concentrations in groundwater could increase in the presence of parent thorium isotopes. It is concluded that existing reported radium concentrations in the EU 7/10 plume are less than the MCL now (considering both total and dissolved results) and the potential for ingrowth would not result in an exceedance over the next 1,000 years without the introduction of a secondary source of contamination. Additionally, thorium-230 is not expected to migrate below the Brown Clay Till within 1,000 years at concentrations that exceed the screening level.

BRA – Determination of COCs and ROCs

No COCs were identified for EU 7. ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Actinium-227	Radium-226
Cesium-137	Thorium-230
Protactinium-231	
Lead-210	

ROCs identified by the BRA that pose risk in food include:

Actinium-227	Radium-226
Protactinium-231	Thorium-230
Lead-210	

Of the ROCs, radium-226 was identified as a risk driver, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	Due to the presence of a thorium-230 plume near the site boundary, the presence of radionuclides in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	Not Applicable

7.3.8 EU 8 (Shops Area) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides Metals PAHs PCBs Pesticides SVOCs VOCs	Radionuclides	None Identified	None Identified	Radionuclides PAHs VOCs

Nature of Occurrence

Soil

- Radiological SRCs occurred at the highest concentrations in EU 8 in the vicinity of Building 430 near W and X Streets. Several soil samples from this area contained concentrations of actinium-227, radium-226, thorium-230, and various uranium isotopes ranging from approximately 20 to over 100 times the background UTLs. The highest radionuclide SRC concentrations were encountered at the surface, with concentrations decreasing at depth. Cesium-137 was detected above the background UTL in scattered surface soil and subsurface soil locations with concentrations ranging from just above the background UTL to 14 times the background UTL.
- Metals are present in the surface and subsurface soil at several widely scattered locations. Metals occur at depths greater than 10 feet bgs in the vicinity of the shops area and the debris pile.
- Several PAHs were detected at concentrations that greatly exceeded the background UTLs in the upper 3 feet of soil. The majority of these were around the shops area.
- Aroclor-1260, a PCB, is found at several locations across the EU at depths up to 3 feet.
- Pesticides are present at scattered locations across the EU. Most exceedances are less than 3 feet deep; however, three exceedances occur at 8 feet bgs.
- SVOCs occur in the upper 3 feet of soil at several locations around the shops area and in the western portion of the EU.
- VOCs are present in the surface and subsurface soil at several widely scattered locations. Five VOCs occur at depths greater than 10 feet bgs primarily in the vicinity of the shops area and debris pile.

Groundwater

- A dissolved total uranium plume is present in the southeastern portion of the EU near the area of the former storehouse Buildings 420 and 421 and the debris pile.

- A dissolved total uranium plume is present in the southwestern portion of the EU near former Building 423. This plume may be associated with the utility lines in this area.
- Several metals exceeding their background UTLs were found in the groundwater; however, no metal plumes were identified. Silver was consistently found at levels at least 20 times greater than the background UTL in groundwater across the EU; however, all concentrations were less than the secondary MCL of 0.1 mg/L.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- Dissolved silver was detected at levels 20 times greater than the background UTL in three samples taken from small ditches in the north and east portions of the EU.

Subsurface Utilities

- Radiological SRCs were detected above the background UTLs in several pipeline sediment and water samples.
- PAHs were also detected in elevated levels in the pipeline sediment; however, these do not appear to be mobile.
- VOCs were detected above the background UTL at four locations in this EU. Three VOCs exceeded their background UTL by more than 10 times.

Relation to Site History

Radionuclides in the soil, groundwater and subsurface utilities are probably the result of storage of residues in some of the buildings, as well as from their transportation to and from those buildings. The vehicle maintenance and repair shops as well as the machining operations conducted in these buildings may account for the presence of PAHs, metals, SVOCs and VOCs in the soil. These compounds are prevalent in oils, solvents, paints and lubricants that were used at the former building locations. Pesticides may be present in the EU from possible pesticide storage in the buildings or pesticide use in the ditches. PCBs may be present due to the historical use of transformers in the shops area. Constituents in the subsurface utility lines may be related to activities within the shops area buildings or with other activities within the EU.

Groundwater Fate and Transport Modeling

Groundwater modeling results were used to evaluate potential offsite migration on the east side of EU 8 due to leaching from existing soil contamination as predicted by SESOIL modeling. Modeling results indicate that uranium isotope concentrations in the UWBZ on the boundary of EU 8 are not expected to exceed screening or risk levels within the next 1,000 years.

BRA – Determination of COCs and ROCs

COCs and ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Benzo(a)anthracene	Total Uranium	Radium-226
Benzo(a)pyrene	Actinium-227	Thorium-230
Benzo(b)fluoranthene	Cesium-137	Uranium-234
Dibenz(a,h)anthracene	Protactinium-231	Uranium-235
Indeno(1,2,3-cd)pyrene	Lead-210	Uranium-238

COCs and ROCs identified by the BRA that pose risk in food include:

Aroclor-1260	Carbazole	Radium-226
Heptachlor Epoxide	Dibenz(a,h)anthracene	Thorium-230
Benzo(a)anthracene	Indeno(1,2,3-cd)pyrene	Uranium-234
Benzo(a)pyrene	Actinium-227	Uranium-238
Benzo(b)fluoranthene	Protactinium-231	
Benzo(k)fluoranthene	Lead-210	

Of the COCs, benzo(a)anthracene was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Total uranium was identified as a risk driver in soil (0-10 feet) contributing 50% or more of the non-cancer risk in the child subsistence farmer scenario. Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the COCs and ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	Due to the potential for leaching of existing soil contamination, the presence of radionuclides in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	The presence of SRCs should be further evaluated in the FS with respect to groundwater plumes and subsurface soils.

7.3.9 EU 9 (Niagara-Mohawk Property) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	Not Applicable	None Identified	Radionuclides	Not Applicable

Nature of Occurrence

Soil

- Radiological SRCs were restricted to the upper 2.5 feet of soil with most exceedances less than two times the background UTL. One location on the east bank of the West Ditch contained radium-226 and thorium-230 at concentrations approximately 20 times greater than the background UTL. Another location slightly farther north had a total uranium concentration approximately 4 times greater than the background UTL. Elevated levels of thorium-232 and radium-228 were also found at this location.

Groundwater

- No groundwater samples were taken in this EU.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- Uranium-234, uranium-235 and uranium-238 exceed the background UTL in the dissolved phase at several locations along the West Ditch.

Relation to Site History

The radiological constituents in the soil and surface water near the West Ditch are probably due to the area's proximity to the IWCS and associated construction activities. Although this area was previously remediated, the presence of radionuclides suggests that the remediation was incomplete.

Groundwater Fate and Transport Modeling

No groundwater samples were taken in this EU; therefore, no plumes were identified.

BRA – Determination of COCs and ROCs

ROCs in soil (0-10 feet) and food were identified for EU 9. ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Lead-210	Thorium-230
Radium-226	Thorium-232
Radium-228	

ROCs identified by the BRA that pose risk in food include:

Lead-210
Radium-226
Thorium-232

Of the ROCs, radium-226 was identified as a risk driver, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of ROCs identified in the RI/BRA should be further evaluated in the FS.	Not Applicable	No Further Action	No Further Action	Not Applicable

7.3.10 EU 10 (IWCS and Vicinity) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	Radionuclides	None Identified	None Identified	Radionuclides
Metals	Metals			
PAHs	SVOCs			
Pesticides				
VOCs				

Nature of Occurrence

Soil

- Almost two thirds of all soil samples collected from depths of two feet or less exceeded the background UTLs for one or more radiological SRC. Radium-226, thorium-230 and uranium isotopes were the most commonly detected radionuclides in surface and subsurface soil. The exceedances were scattered across the EU surrounding the IWCS.
- Metals and two VOCs (1,1-DCE and acetone) occurred at depths greater than 10 feet in the majority of locations. These locations were primarily south and east of the IWCS.
- Several PAH compounds exceeded their background UTLs on the east side of the IWCS, just beyond the subsurface cutoff wall and west of the Central Ditch. Elevated levels of PAHs were also found to the south of the IWCS.
- Pesticides (4,4'-DDE, and 4,4'-DDT) were present at several locations in the soil at depths of one foot or less and at depths greater than 10 feet. The majority of these exceedances were to the south and east of the IWCS.

Groundwater

- Several dissolved total uranium groundwater plumes exist in the UWBZ on all sides of the IWCS in EU 10. The large plume to the south of the IWCS has concentrations reaching approximately 70 times the background UTL.
- A possible thorium-230 plume extends from EU 11 into EU 10 in the UWBZ in the area south of the IWCS. A second possible thorium-230 plume spans the boundary between EUs 7 and EU 10. This plume has thorium-230 concentrations exceeding the background UTL by 2 to 3 times.
- Several groundwater samples contained concentrations of both total and dissolved metals that exceeded background UTLs by a factor of more than ten; however, no groundwater plumes were identified.
- Bis(2-ethylhexyl)phthalate, an SVOC, exceeds the background UTL at several locations primarily along the east side of the IWCS. A small groundwater plume was identified in this area.

- Although no plumes were identified in the LWBZ, several metals, radionuclides, SVOCs and VOCs were detected above the background UTL.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU

Subsurface Utilities

- Elevated concentrations of uranium isotopes in both the dissolved and total phases were observed in water samples collected from two sanitary sewer manholes located southeast of the IWCS. One manhole had concentrations of uranium isotopes that exceeded the background UTLs by a factor of 20 to 130 times. This manhole is located to the east of the IWCS along the sewer line that partly defines a dissolved total uranium groundwater plume (see Figure 5-4). Sediment samples collected from these two manholes had elevated levels of thorium and uranium isotopes that were approximately 2 times the background UTL.

Relation to Site History

The radionuclide, PAH, pesticide, VOC and metal constituents in the soil could be the result of construction activities that took place prior to the construction of the IWCS. The metals in groundwater appear to be isolated and may be the result of a past release which was spatially limited or has not migrated. The uranium and thorium-230 plumes may be associated with past AEC construction activities or with the slurry ponds that were used during dewatering of the residues. The large uranium plume to the south of the IWCS appears to be associated with the sanitary sewer and water lines in the area. This plume may also be associated with Building 409 which was formerly used for the storage of uranium scrap. The SVOC exceedances in the groundwater and the bis(2-ethylhexyl)phthalate plume may be associated with the settling ponds and past construction activities involving equipment crossing the Central Ditch in the approximate location of the plume. The radiological constituents in the subsurface sewer lines may be related to activities within the EU or may were transported through the sewer pipes or surrounding fill-gravel from neighboring EUs.

Groundwater Fate and Transport Modeling

Unsaturated flow groundwater modeling results indicate that leaching of contaminants from within the IWCS over the next 1,000 years is a concern. Within 1,000 years, the maximum concentrations of uranium isotopes are predicted to occur in the Brown Clay Till beneath the IWCS, near Building 411 (see Table 6.4). Additionally, model results indicate that the screening levels for uranium-234 and uranium-235 will be exceeded in even the deepest of the aquifers (the upper Queenston Formation) within 1,000 years. This is likely the result of potential leaching of residues within Building 411 in the IWCS. The results of a sensitivity analysis for the uranium K_d value are discussed in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

Little lateral movement of the leached contaminants is predicted. Moreover, the leached contaminants do not reach the site boundary within the 1,000-year modeling period. Specifically, the seven modeled metals (arsenic, barium, boron, iron, lead, molybdenum and manganese)

present in residues within the IWCS will not migrate offsite in groundwater at concentrations above screening levels in the vicinity of the IWCS. Similarly, lateral movement of radionuclides towards the site boundary does not occur to any appreciable extent. Because minimal dispersion of the existing groundwater plumes in the area adjacent to the IWCS is predicted, no additional risk beyond what is present due to current groundwater contamination is expected in this area.

According to groundwater fate and transport modeling results, the bis(2-ethylhexyl)phthalate plume in EU 10 exhibits only minor dispersion within the Brown Clay Till within 1,000 years, and the maximum concentration of this organic compound in groundwater is not expected to increase above the current concentrations of the plume.

BRA – Determination of COCs and ROCs

No COCs or ROCs were identified for EU 10 in the BRA because the subsistence farmer will not be exposed to the constituents in or around the IWCS.

Exposure to the IWCS source term was assumed to present unacceptable risk in the BRA and will be forwarded to the FS. Soil contamination occurring outside the IWCS but within the boundary of EU 10 should be screened against the soil cleanup levels developed in the FS. Recommendations for addressing the SRCs in EU 10 are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of soil SRCs should be further evaluated in the FS.	Due to the potential for leaching of contaminants from the IWCS, the presence of radionuclides and metals in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	The presence of SRCs should be further evaluated in the FS with respect to groundwater plumes.

7.3.11 EU 11 (IWCS and Vicinity) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides SVOCs PAHs	Radionuclides Metals	None Identified	None Identified	Radionuclides

Nature of Occurrence

Soil

- Essentially all the surface soil samples in this EU have one or more radionuclides exceeding a background UTL. About a third have one or more metals exceeding a background UTL, and significant numbers of samples also have SVOCs that exceed their respective background UTLs.
- Cesium-137, radium-226, thorium-230 and all three uranium isotopes as well as total uranium all exceed their respective background UTLs by factors above 100 and in one location were 10,000 times the background UTL.
- The highest uranium activities were found in the southeastern portion of the EU in a parking area. An exploratory trench in the area showed activities below the asphalt were at normal levels.
- All the above radionuclides and protactinium-231, lead-210, radium-228, total uranium, and thorium-232 are total soil ROCs in the BRA.
- A number of PAHs and other SVOCs are present as SRCs. All but one occurrence are in the surface soils. These occur predominantly near roads.

Groundwater

- All of the groundwater samples from the UWBZ in this EU exceed one or more of their respective background UTLs for total radionuclides and most for one or more total metals.
- Quite a few metals in groundwater exceed the background UTL for total concentration; however, most of these do not exceed the background UTLs for dissolved metals.
- There are two dissolved total uranium plumes in groundwater in EU 11. One is fairly small and in the vicinity of some former dewatering ponds west of EU 12 and crosses over the border with EU 10. The other is very extensive and covers portions of EU 10 as well as EU 11. It is at the south end of EU 11 along the boundary of EU 10 and includes a plume along the water line that cuts diagonally across the southeastern corner of EU 10.
- In addition to the dissolved total uranium plume, there is a thorium-230 plume in the same area along the southern boundary of EU 10 and the western leg of EU 11. Most of the plume is in EU 10.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- Two metals (lead and mercury) in utilities sediments exceed their respective background UTLs by more than a factor of 10. However, there is only one sample of each that exceeds the background UTL.
- A number of PAHs in utilities sediments exceeded their background UTLs by factors of up to 23.
- Several metals in water samples from the utilities lines exceed their respective background UTLs by factors of up to 27. The same is true of radionuclides (uranium-234, uranium-235 and uranium-238) in the water samples.

Relation to Site History

Radionuclides may be present in EU 11 because of its proximity to drainage ditches, Building 401 (EU 13) and the IWCS as well as its use for dewatering the slurried residues. SVOCs and PAHs are likely due to nearby roads and the use of EU 11 in construction activities. Metals in groundwater and metals, radionuclides and PAHs in utilities lines are likely due to the presence of broken utility lines and construction activities.

Groundwater Fate and Transport Modeling

Groundwater modeling results indicate that uranium isotopes will migrate offsite on the south side of EU 11 at concentrations that exceed screening and risk levels [MCLs and 10^{-5} PRGs; See Section 5.5 of the BRA (SAIC 2007) for a detailed description of potential risk to offsite groundwater receptors]. This offsite migration is due to continued migration of an existing groundwater plume and a source term derived from the SESOIL modeling which predicts leaching to groundwater from contaminated site soils. However, the conclusions made regarding the fate and transport of uranium isotopes in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils. The results of a sensitivity analysis for the uranium K_d value are discussed in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

BRA – Determination of COCs and ROCs

COCs and ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Total Uranium	Radium-226	Uranium-234
Actinium-227	Radium-228	Uranium-235
Protactinium-231	Thorium-230	Uranium-238
Lead-210	Thorium-232	

COCs and ROCs identified by the BRA that pose risk in food include:

Benzo(a)pyrene	Protactinium-231	Thorium-232
Benzo(b)fluoranthene	Lead-210	Uranium-234
Indeno(1,2,3-cd)pyrene	Radium-226	Uranium-235
Actinium-227	Thorium-230	Uranium-238

Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Benzo(a)pyrene was identified as a risk driver in food, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Uranium toxicity is identified as a risk driver in soil (0-10 feet), contributing 50% or more of the non-cancer risk in the child subsistence farmer scenario. Recommendations for addressing the COCs and ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	Due to the potential for offsite migration of an existing plume and for leaching of contaminants from the IWCS and from site soils, the presence of radionuclides and metals in groundwater should be further evaluated in the FS.	No Further Action	No Further Action	The presence of SRCs should be further evaluated in the FS with respect to groundwater plumes.

7.3.12 EU 12 (Building 401 and Vicinity) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides PAHs Metals VOCs	Radionuclides Metals	None Identified	None Identified	None

Nature of Occurrence

Soil

- All samples collected from 0-0.5 feet exceeded the background UTL for at least one radiological SRC.
- Thorium-230, exceeds its background UTL by a factor of 44, in surface soil, just north of where EUs 11, 12 and 13 meet north of building 401. Radium and uranium isotopes exceeded background UTLs by factors of up to 32 in surface soils but barely at all in soils deeper than 6 inches. Cesium-137 is present in surface soil samples at up to 2.5 times the background UTL and not above the background UTL in subsurface soil.
- Metals were detected throughout the soil column with slightly more than half the background UTL exceedances at depths of more than 2 feet.
- Most metals identified as SRCs are less than 3 times their respective background UTLs.
- A few PAHs occur in both surface and subsurface soil. The two samples where these occur are located along either the rail spur or Castle Garden Road.
- VOCs are present primarily below 5 feet and are clustered north of building 401 or occur along Castle Garden road or the former rail spur into building 401. Concentrations are generally less than 90 µg/kg.

Groundwater

- Dissolved uranium occurs in a number of wells and forms a distinct plume oriented northwest to southeast just north of Building 401 in EU 13 and across the northwest corner of EU 12. Portions of this plume are not only above the background UTL but also well above the MCL.
- Several metals in groundwater exceed the background UTL for total concentration; however, most of these do not exceed the background UTLs for dissolved metals.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- No SRCs of significance were identified in the subsurface utilities at this EU.

Relation to Site History

Radionuclides and metals may be present in EU 12 because of its proximity to drainage ditches, and Building 401 (EU 13). The presence of VOCs may be due to the use of chemicals in Building 401, or related to the use of the former rail line in the area. The PAHs are likely due to the presence of the road and rail spur.

Groundwater Fate and Transport Modeling

Groundwater modeling results indicate that the dissolved uranium plume located in the northwest corner of EU 12 exhibits little dispersion over the next 1,000 years. Uranium isotope concentrations are also not expected to greatly increase over time in this plume.

BRA – Determination of COCs and ROCs

ROCs and COCs identified by the BRA that pose risk in soil (0-10 feet) include:

Arsenic	Protactinium-231	Thorium-230
Benzo(a)pyrene	Lead-210	Thorium-232
Actinium-227	Radium-226	Uranium-238
Cesium-137	Radium-228	

COCs and ROCs identified by the BRA that pose risk in food include:

Arsenic	Actinium-227	Thorium-230
Benzo(a)pyrene	Protactinium-231	Thorium-232
Benzo(b)fluoranthene	Lead-210	Uranium-238
Indeno(1,2,3-cd)pyrene	Radium-226	

Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Arsenic was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario, as well as 50% or more of the non-cancer risk in the child subsistence farmer scenario. None of the ROCs or COCs contribute 50% or more of the risk in food. Recommendations for addressing the COCs and ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	The presence of the uranium plume extending from EU 13 should be further evaluated in the FS.	No Further Action	No Further Action	No Further Action

7.3.13 EU 13 (Building 401 and Vicinity) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides Metals VOCS	Radionuclides Metals SVOCS VOCs	None Identified	None Identified	Radionuclides Metals Pesticides PCBs PAHs SVOCs VOCs

Nature of Occurrence

Soil

- A majority of the surface soil samples in this EU had one or more radionuclides exceeding a background UTL. About a half had one or more metals exceeding a background UTL, and significant numbers of samples also had VOCs or SVOCs that exceed their respective background UTLs.
- Actinium-227, radium-226, thorium-230 and all three uranium isotopes as well as total uranium all exceeded their respective background UTLs by factors above 10 and reach 1200 times the background UTL for one radium-226 sample.
- The highest uranium activities were found in three areas: south of Building 401, southeast of Building 401 near a former structure, and near the intersection of Campbell Street and the north drive of Building 401.
- Only a few of the metals in this EU exceeded their respective background UTLs by more than a factor of 10.
- Metals were detected throughout the soil column with more than two thirds the samples from greater than 10 feet having metals exceeding their background UTLs. All the samples taken from beneath the building had one or more metals exceeding a background UTL.
- VOCs were present as SRCs in all depth ranges including two thirds of the samples deeper than 10 feet. In general concentrations were less than 50 µg/kg; however, in deeper soils, near 10 feet, high concentrations of TCE and cis-1,2-DCE were present in one sample. All but one sample collected from the soil column immediately beneath the building floor contain VOCs as SRCs.

Groundwater

- All of the groundwater samples from the UWBZ in this EU exceeded one or more of their respective background UTLs for either total activity for a radionuclide or total concentration of a metal.

- One groundwater sample from the LWBZ exceeded one or more dissolved background UTLs for a metal and a radionuclide.
- Quite a few metals in groundwater exceeded the background UTL for total concentration; however, only barium, boron, cobalt, manganese, nickel and thallium exceeded the background UTLs for dissolved metals. These dissolved metals exceedances were all less than a factor of 10 above the background UTL.
- One SVOC, bis(2-ethylhexyl)phthalate, was found with concentrations exceeding the background UTL in groundwater.
- There are two dissolved total uranium plumes in groundwater in EU 13. One is north of the north drive of Building 401 and extends northwest into EU 12. The other is extensive and covers the entire southwestern portion of EU 13 from Building 401 to the EU boundary.
- A boron plume is in the east central portion of the EU. This plume extends from the northern boundary of the EU south across the eastern portion of Building 401, and south of the driveway on the south side of the building.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- Three metals (boron, cadmium and mercury) in utilities sediments exceed their respective background UTLs by more than a factor of 100 and a number of others exceed their respective background UTLs by a factor of 10 to 100.
- Pesticides and PCBs in utilities sediment exceed their background UTLs by factors as much as 10,000 or more.
- Several PAHs, VOCs, and SVOCs exceed background UTLs in sediment.
- Uranium isotopes frequently exceed background UTLs in sediment by factors less than 10, and radium-226, thorium isotopes, and uranium isotopes exceeded background UTLs in water by factors generally less than 10.

Relation to Site History

Radionuclides may be present in EU 13 because of the use of Building 401 as a storage area. The wide spread presence of metals and VOCs is likely related to their use in Building 401. The non-radioactive isotope boron-10 was produced in Building 401. Boron was widely found in this EU and its presence in soil and groundwater is likely a result of the boron-10 processes performed in Building 401. The presence of bis(2-ethylhexyl)phthalate is like due to normal construction and industrial operations.

Groundwater Fate and Transport Modeling

The groundwater flow and transport model indicates that the existing boron plume in EU 13 exhibits little dispersion over 1,000 years, and the maximum concentration of this metal in groundwater is not expected to increase above the current concentration of the plume. Concentrations of boron that exceed the screening level are not expected to migrate vertically below the base of the Brown Clay Till (i.e., to a depth of approximately 15 feet in EU 13).

Groundwater modeling results indicate that the dissolved uranium plume located in the southern portion of EU 13 exhibits little dispersion over the next 1,000 years, and uranium isotope concentrations are not expected to greatly increase over time in this plume.

BRA – Determination of COCs and ROCs

ROCs identified by the BRA that pose a risk in soil (0-10 feet) include:

Actinium-227	Radium-226
Protactinium-231	Thorium-230
Lead-210	Uranium-238

COCs and ROCs identified by the BRA that pose a risk in food include:

Aroclor-1254	Zinc	Lead-210
Boron	Actinium-227	Radium-226
Copper	Protactinium-231	Thorium-230

COCs and ROCs identified by the BRA that pose a risk in groundwater include:

Arsenic	Manganese	Lead-210
Boron	Lead	Radium-226
Bis(2-ethylhexyl)phthalate	TCE	Uranium-234
Cis-1,2-DCE	Vanadium	Uranium-238
Copper	Cesium-137	

Of the ROCs, radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Arsenic was identified as a risk driver in groundwater, contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Recommendations for addressing the COCs and ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	No Further Action	No Further Action	The presence of pesticides, PCBs and metals in the drains should be further evaluated in the FS. See also Section 7.3.16 (EU 16).

7.3.14 EU 14 (Building 401 and Vicinity) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
Radionuclides	Radionuclides	None Identified	None Identified	None Identified
Metals				
VOCs				

Nature of Occurrence

Soil

- The majority of SRC exceedances of the radionuclide background UTLs were present within the upper 6 inches of soil.
- Radium-226 exceeded its background UTLs by a factor of 300, in surface soil, in the southeastern most corner of the EU. Thorium and uranium isotopes exceeded background UTLs by factors of 1 to 3 in soils up to 8 feet deep along the boundary with EU 13 and 12. Cesium-137 was present in surface soil samples at up to 4 times the background UTL and also was found in a sample at 7 feet below grade in the middle of the EU.
- Metals were detected throughout the soil column with slightly more than half the background UTL exceedances at depths of more than 2 feet.
- Most metals identified as SRCs were only 2 to 5 times their respective background UTLs; however, at least one (boron) is 150 times the background UTL.
- VOCs were present primarily below 2 feet and are clustered in the area between the southern boundary of EU 13 and the former rail spur.

Groundwater

- Total uranium occurs in several wells although not in the form of a defined plume.

Sediment

- No SRCs of significance were identified in sediment at this EU.

Surface Water

- No SRCs of significance were identified in surface water at this EU.

Subsurface Utilities

- No SRCs of significance were identified in the subsurface utilities at this EU.

Relation to Site History

Radionuclides may be present in EU 14 because of its proximity to transportation routes and Building 401 (EU 13). The slightly elevated levels of cesium-137 in soils may be attributed to the transportation or storage of KAPL wastes in EU 13. The presence of VOCs and metals may be due to the use of chemicals in Building 401, or related to the use of the former rail line in the

area. The VOCs may also be related to the former AEC sludge pit that was located in the northwest portion of the EU.

Groundwater Fate and Transport Modeling

No groundwater contaminant plumes were identified in EU 14. Furthermore, groundwater modeling results do not indicate any exceedance of screening or risk levels associated with the fate and transport of contaminants in EU 14.

BRA – Determination of COCs and ROCs

COCs and ROCs identified by the BRA that pose risk in food include:

Boron	Actinium-227	Lead-210
Di-n-octylphthalate	Protactinium-231	Radium-226

ROCs identified by the BRA that pose risk in soil (0-10 feet) include:

Actinium-227	Lead-210
Cesium-137	Radium-226
Protactinium-231	

Radium-226 was identified as a risk driver in soil (0-10 feet), contributing 50% or more of the cancer risk in the adult/child subsistence farmer scenario. Boron was identified as a risk driver in food, contributing 50% or more of the non-cancer risk in the individual scenarios for the adult and child subsistence farmers. Recommendations for addressing the COCs and ROCs are presented below.

Recommendations

Soil	Groundwater	Sediment	Surface Water	Subsurface Utilities
The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.	No Further Action	No Further Action	No Further Action	Not Applicable

7.3.15 EU 15 (Interconnected Drainageways) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Sediment	Surface Water
None Identified	Metals Radionuclides VOCs

Nature of Occurrence

Sediment

- No SRCs of significance were identified in sediment at this EU. However, metals were detected in the sediment at levels slightly exceeding the background UTL at several locations in the interconnected drainageways. A VOC, methylene chloride, was detected at one sediment sample in the South 16 Ditch in EU 8.

Surface Water

- Several metals were found in the Central Drainage Ditch at levels approximately 2 times the background UTL. Dissolved silver was detected at levels approximately 20 times the background UTL at one location just inside the site boundary in the Modern Ditch and at the next three samples downstream from it in the South 31 Ditch. The three samples taken from the South 16 Ditch also exhibited dissolved silver at these levels.
- Thorium-232 was detected at five locations, three in the Central Ditch and two in the South 31 Ditch. Radium-226 was also detected at levels slightly above the background UTL at two of these locations. However, the fact that radionuclide concentrations do not exceed background UTLs at sampling locations near the northern boundary of the property suggests that radiological SRCs are not migrating off-site.
- Two VOCs, 4-methyl-2-pentanone and benzene, were detected in an isolated sample collected at the conjunction of the South 31 Ditch and the Modern Ditch.

Relation to Site History

Metals and radionuclides in the interconnected drainageways may be the result of past activities including the construction and filling of the IWCS, as well as runoff from currently contaminated surface soil. Metals, specifically dissolved silver, may also be entering the site from surface water to the east and south. The VOCs are likely a result of the nearby AEC sludge pit as surface and subsurface soil samples near this location also exhibited concentrations of VOCs above the background UTL.

Groundwater Fate and Transport Modeling

EU 15 interconnected waterway sediments and water were not addressed in the groundwater fate and transport modeling; however, SRCs in surface water and sediment within the interconnected drainageways are likely migrating offsite at concentrations above background levels. SRCs in groundwater could migrate to surface water and sediment in drainageways where the groundwater table is above the elevation of the bottom of the drainageway. This likely occurs in the Central

Ditch which appears to be hydraulically connected to the UWBZ. SRCs in surface water have the potential to migrate to groundwater only when surface water in the drainageways is flowing above the elevation of the groundwater table.

BRA – Determination of COCs and ROCs

No human health COCs or ROCs were identified for sediment or surface water at any of the 14 physical EUs or in interconnected drainageways (EU 15) due to the short duration of exposure for individuals who may come in contact with surface water or sediment at NFSS. Based on the SERA, no radionuclide SRCs in the surface water or sediment had the potential to pose adverse effects to ecological receptors. The SERA did not eliminate the possibility for ecological risk for some chemical SRCs in surface water and sediments; however, further evaluation using a WOE assessment revealed relatively healthy and functioning terrestrial and aquatic systems. The WOE assessment concluded no further action is necessary for managing ecological resources at NFSS.

Recommendations for addressing EU 15 sediments and water are addressed below.

Recommendations

Sediment	Surface Water
No Further Action	No Further Action

7.3.16 EU 16 (Pipelines and Subsurface Utilities) Summary of SRCs and Recommendations for Further Investigation

SRCs of Significance

Subsurface Utilities- Sediment	Subsurface Utilities- Surface Water
Radionuclides	Radionuclides
PAHs	PAHs
Metals	Metals
VOCs	VOCs
Pesticides	
PCBs	

Nature of Occurrence

Sediment

- Uranium isotopes were detected above the background UTLs in sediment in a sanitary sewer line southwest of the intersection of O Street and Campbell Street in EU 2. Cesium-137 was also detected above the background UTL in sediment in a storm sewer line near Campbell Street. Cesium-137, radium-226, and uranium isotopes were detected above the background UTLs in sediment throughout EU 4. Radiological SRCs were also detected above the background UTLs in several pipeline sediment samples in EU 8 with the uranium isotopes exceeding the background UTL by as many as 29 times. Sediment samples collected from two sanitary sewer manholes located southeast of the IWCS in EU 10 had elevated levels of thorium and uranium isotopes that were approximately 2 times the background UTL.
- Seven PAHs were detected in sediment from two locations on the storm sewer system in EU 2. Several PAHs were also detected in sediment from multiple locations in subsurface utilities in EU 4. PAHs exceeding the background UTL by approximately 2 to 3 times were found in the pipeline sediment at EU 8. Ten PAHs exceeded their background UTLs by a factor of 10 or more in EU 11 sediment. Several PAHs also appeared in the sediment drain samples in EU 13.
- VOCs were detected in multiple locations in sediment from the drain samples in Building 401 within EU 13 with two locations exceeding the background UTL by 20 times or greater. VOCs were also detected above the background UTL at four locations in the EU 8 subsurface utilities. Three of the VOCs exceeded their background UTL by more than 10 times.
- Three metals (boron, cadmium and mercury) in subsurface utility sediments from EU 13 exceeded their respective background UTLs by more than a factor of 100. A number of others metals exceeded their respective background UTLs by a factor of 10 to 100 in EU 13.
- Several pesticides were found in six subsurface utility samples in EU 4 with concentrations exceeding the background UTL by as many as 600 times. Pesticides were also found in the drains in Building 401 at concentrations up to approximately 27,000 times the background UTL.

- PCBs in sediment from the drains in Building 401 in EU 13 exceeded their background UTLs by factors ranging from 14 to approximately 1,400. Aroclor-1260 concentrations exceeded the background UTL in 5 locations in EU 4 by factors ranging from 14 to 100 times.

Water

- Cesium-137, radium-226, thorium isotopes, and uranium isotopes were detected above background UTLs in water from the subsurface utilities within EU 4. Radiological SRCs were detected above the background UTLs in several pipeline water samples in EU 8. Elevated concentrations of uranium isotopes in both the dissolved and total phases were observed in water samples collected from two sanitary sewer manholes located southeast of the IWCS in EU 10. One manhole had concentrations of uranium isotopes that exceeded the background UTLs by a factor of 20 to 130 times. Several radionuclides occurred at concentrations exceeding the background UTL in EU 13, with uranium-234 and uranium-238 more than 10 times the background UTL in one drain sample in Building 401.
- Several PAHs were detected in water from the subsurface utilities within EU 4 at concentrations up to approximately 280 times the background UTL.
- Several metals in water samples from the subsurface utility lines in EU 11 exceeded their respective background UTLs by factors of up to 27. The same was true of radionuclides (uranium-234, uranium-235 and uranium-238) in the water samples. Numerous metals exceeded the background UTL in both the dissolved and total phase in four drain samples from Building 401 and two samples outside the building in EU 13.
- VOCs were detected in multiple locations in water from the subsurface utilities within EU 4; two locations have concentrations of PCE greater than 20 times the background UTL. Two VOCs were also found at concentrations exceeding the background UTL in three of the drain samples in Building 401.

Relation to Site History

Radionuclides may exist in the pipeline sediments and water as a result of residues being stored and staged in various buildings onsite, primarily in EUs 4, 10, and 13. Constituents found in subsurface utilities in the EU 8 shops area, including metals, SVOC, VOCs, PCBs and PAHs, are likely from historical operations conducted in these buildings. These compounds are prevalent in oils, solvents, paints and lubricants that would have been used at the former building locations. Pesticides may be present in the subsurface utilities as a result of a possible spill in a storage area or surface drainage into manholes. It is possible that the pipelines and surrounding gravel-fill provide a pathway for SRCs to travel between EUs and may explain the existence of constituents in many of the areas. Some of the results, especially in EU 4, are very high but not wide-spread. This may be an indication of intentional, though improper, past disposal practices. Also, many manholes are damaged and allow surface water to enter the sewer system. Finally, given the age and generally poor repair of the system, infiltration and exfiltration are likely occurring.

Groundwater Fate and Transport Modeling

EU 16 subsurface utilities sediments and water were not addressed in the groundwater fate and transport modeling.

BRA – Determination of COCs and ROCs

No COCs or ROCs were identified for EU 16 because the BRA assumes that the subsistence farmer will not be exposed to the subsurface utilities. However, the high concentrations of constituents found in both the sediment and water in these utilities could remain a potential risk for construction workers exposed to the pipeline contents and a potential source for groundwater migration. Because of this, EU 16 pipeline sediments should be screened against the soil cleanup levels developed in the FS.

To be consistent with the LOOW BRA, the NFSS BRA considered increased exposure duration to contaminated sediment and surface water for the construction worker. Increasing construction worker exposure duration to sediment and surface water at the NFSS results in additional COCs. These COCs should be considered for the construction worker during development of the FS.

Recommendations

Subsurface Utilities- Sediment	Subsurface Utilities- Water
The presence of SRCs should be further evaluated in the FS with respect to groundwater plumes and soil contamination.	The presence of SRCs should be further evaluated in the FS with respect to groundwater plumes and soil contamination.

7.3.17 EU 17 (Sitewide Media) Summary of SRCs, COCs/ROCs, and Recommendations for Further Investigation

SRCs of Significance

Sitewide Groundwater

Radionuclides

Metals

SVOCs

VOCs

Over 200 groundwater samples were collected on the NFSS. These samples were analyzed for dissolved and total metals and radionuclides, semi-volatile and VOCs, pesticides and PCBs. Many of the samples were taken from TWPs in addition to the 85 permanent wells installed on the site.

Nature of Occurrence

- The UWBZ has a very erratic piezometric surface as shown in Figure 5-16. The depth to groundwater across the site varies greatly and, to a large degree, is a function of the presence or absence of sand lenses in the subsurface.
- The hydraulic conductivity in the UWBZ varies greatly across the site. In wells that did not intersect large sand lenses, the hydraulic conductivities are on the order of 10^{-7} cm/sec or less. Table 5-1 summarizes the hydraulic conductivities at the site.
- Groundwater plumes containing radionuclides, metals and organic compounds were identified in the UWBZ; however, no groundwater plumes were identified in the LWBZ.

Radionuclide groundwater plumes found in the UWBZ are shown on Figures 5-4 and 5-7. Most of these plumes are geographically associated with past site uses or activities.

- A dissolved total uranium groundwater plume was found to extend from the west-central portion of EU 2 through the northwest portion of EU 1. Based on current data, there is a potential that the plume extends off site north of EU 1.
- A dissolved total uranium groundwater plume is present in the north-central portion of EU 4 near the former nitric acid concentrator. The concentrations of dissolved total uranium in this plume are approximately twice the background UTL of 16.7 µg/L.
- A dissolved total uranium groundwater plume is present in the southeastern portion of EU 8. The plume appears to be approximately centered beneath a large debris pile located west of Castle Garden Road and south of Z Street. A second dissolved total uranium plume is present in the southwestern portion of the EU near former Building 423. This plume may be associated with the utility lines in this area.
- Several dissolved total uranium groundwater plumes were identified around the IWCS. Groundwater near the north and west sides of the IWCS is impacted with uranium. There are also minor isolated plumes east of the IWCS and in the western portion of EU 7. A

dissolved total uranium plume, located south of the IWCS in EUs 10 and 11, appears to be associated with the sanitary sewer and water lines in this area.

- A dissolved total uranium groundwater plume was identified northwest of Building 401, in EU 12. Concentrations of dissolved total uranium in this plume were approximately 2 to 3 times the background UTL of 16.7 µg/L.
- A dissolved total uranium groundwater plume was also identified in the area south of Building 401. Concentrations of dissolved total uranium in this plume were up to 3 times the background UTL of 16.7 µg/L.
- Two dissolved thorium-230 groundwater plumes are situated at the boundaries of EU 10. One extends south into EU 11, south of the IWCS, and one extends north into EU 7 near the organic burial area.
- Groundwater plumes for uranium-234 and uranium-238 were identified in the south-central portion of EU 14, in an area not previously known to be impacted by past site activities. However, these plumes are based on groundwater results from two widely separated wells. The large distance between the two wells, over 400 feet, decreases the certainty associated with the plume determination.

Groundwater plumes containing metals and organic compounds were identified in the UWBZ. Most of these plumes are geographically associated with past site uses or activities.

- The data indicate that there is a boron plume in the central portion of EU 4 as shown on Figure 5-6.
- A north-south trending boron plume was found within the central portion of EU 13 as shown on Figure 5-14. Some of the water samples collected from the Building 401 floor drains also exhibited concentrations of dissolved boron that were high relative to the background UTL.
- Seventeen VOCs and four SVOCs were detected in EU 4 groundwater samples at concentrations above background UTLs. Several of these compounds were found in several wells. Figures 5-8 through 5-12 show the extent of these plumes. Concentrations of these VOCs within these plumes greatly exceed the MCLs. Groundwater plumes containing the following compounds are present in EU 4:
 - PCE
 - TCE
 - Cis-1,2-DCE
 - Trans-1,2-DCE
 - Vinyl Chloride

Relation to Site History

All of the delineated groundwater plumes are located in areas where site history indicates that activities occurred involving the constituents identified in the plumes. Section 3 of this report indicates that many of the wells were placed specifically to investigate the impact of these site activities on groundwater. Many groundwater plumes occur near former buildings where

materials were used or stored. There are some site areas where materials were buried or where drums were found that may have contained the constituents identified in groundwater plumes. In some cases, there appears to be a relationship between buried utilities and groundwater concentrations of SRCs.

The plumes to the north-northwest and to the south-southeast of the IWCS are likely remnants of contamination present before construction of the IWCS or contamination generated during construction of the IWCS. Groundwater contamination resulting from the unprotected storage of the R-10 residues was identified in 1980 (Battelle 1981) at concentrations similar to levels detected in groundwater samples taken during this RI. Although the clay cutoff wall was installed around the R-10 pile in 1982, residual contamination in the saturated zone outside the wall persists to the north and west of the original R-10 pile. In addition, localized areas of elevated activity ranging from 15,000 to 53,000 cpm (see Figure 3-4) were identified north of the IWCS during the gamma walkover survey. Leaching from these surface soils could be affecting wells in this area.

In addition, in 1985 as the K-65 residues were transferred to Building 411 from the tower, Building 409 was used as a settling tank in the treatment of slurry water. According to construction reports (BNI 1984b, BNI 1985), treated slurry water from various bays in Building 411 was pumped to Building 409 for additional settling prior to its transfer to Ponds 3 and 4. Building 409 underwent a gross decontamination operation using a high pressure wash in October 1985 after removal of the 'yellow cake' that had accumulated during its use as an intermediate settling basin. The building, which is outside the IWCS cutoff wall, was then demolished, filled with concrete and covered with soil. This information suggests that there is a strong potential for the residual groundwater contamination present south of the IWCS to be associated with these historical operations.

Groundwater Fate and Transport Modeling

Groundwater modeling results indicate that only minor dispersion of the VOC plume in EU 4 occurs due to low infiltration rates. This plume is not predicted to migrate offsite. As biodegradation occurs, PCE and TCE concentrations gradually decline while degradation products increase slightly in the first 50 years. PCE, TCE, cis-1,2-DCE, and vinyl chloride are all expected to degrade to levels less than the screening values within 300 years in the Brown Clay Till. Modeling results also predict that the bis(2-ethylhexyl)phthalate plume in EU 10 will exhibit only minor dispersion within the Brown Clay Till within 1,000 years. SESOIL modeling results indicate that methylene chloride may leach to groundwater within 50 years; however, concentrations never exceed the screening level. Additionally, the groundwater fate and transport model indicates that concentrations of methylene chloride never exceed the screening level in groundwater.

Several metals are predicted to leach from the IWCS within 1,000 years. Groundwater modeling results predicts only minor dispersion of these metals due to minimal infiltration rates. Modeling also predicts that these metals will not migrate offsite in groundwater at concentrations above screening levels in the vicinity of the IWCS.

The groundwater flow and transport model indicates that boron and manganese are the only two metals that exceed screening levels in groundwater within 1,000 years at the NFSS. The existing boron and manganese plumes in EUs 3, 4, and 13 also exhibit little dispersion over 1,000 years, and the maximum concentrations of these metals in groundwater are not expected to increase above the current concentrations of the plumes. Concentrations of boron and manganese that

exceed the screening levels are not expected to migrate vertically below the base of the Brown Clay Till (i.e., to a depth of approximately 15 feet in EUs 3, 4, and 13).

Based on model simulations, uranium isotopes are predicted to migrate offsite within 1,000 years at concentrations that exceed the screening levels. This offsite migration is predicted to occur in EUs 1, 7 and 8. Potential offsite migration of radionuclide concentrations on the east side of EU 8 is a primary concern. Within 1,000 years, U-234 and U-238 are predicted to migrate offsite at concentrations that exceed risk levels by a factor of approximately 10. These concentrations are due to a source term derived from the SESOIL modeling which predicts leaching to groundwater from contaminated site soils. Existing dissolved uranium plumes in EUs 1 and 7 are predicted to migrate offsite within 1,000 years at concentrations that only slightly exceed risk levels. However, conclusions made regarding the fate and transport of radionuclides in site groundwater are somewhat dependant on the conservative K_d value of 3.6 L/kg that was used in the modeling simulations. Use of this K_d value causes the model to predict greater concentrations of radionuclides in groundwater due to increased leaching of site soils. The results of a sensitivity analysis for the uranium K_d value are discussed in Section 6.6.4. A modified K_d value for uranium may be used in the FS for determining cleanup criteria.

Within 1,000 years, the maximum concentrations of uranium isotopes are predicted to occur in the Brown Clay Till beneath the IWCS, near Building 411 (see Table 6.4). Additionally, model results indicate that the screening levels for uranium-234 and uranium-235 will be exceeded in even the deepest of the aquifers (the upper Queenston Formation) within 1,000 years. This is likely the result of potential leaching of residues within Building 411 in the IWCS. Other than the uranium-isotopes, thorium-230 is the only radionuclide that exceeds its screening level in the Brown Clay Till within 1,000 years, likely due to existing groundwater contamination in EU 7. However, thorium-230 is not expected to migrate below the Brown Clay Till within 1,000 years at concentrations that exceed the screening level.

All modeled radionuclides are predicted to exceed screening levels in the Brown Clay Till in 10,000 years. Of these constituents, only uranium isotopes and thorium-230 are predicted to migrate below the Glacio-Lacustrine Clay at concentrations that exceed screening levels, with the maximum concentrations of the isotopes being below the IWCS. Within 10,000 years, uranium isotopes are predicted to exceed screening levels in the Queenston Formation and thorium-230 is predicted to slightly exceed its screening level in the Alluvial Sand and Gravel. The rest of the daughter products do not approach their respective screening levels in any layer below the Glacio-Lacustrine Clay. Concentrations of actinium-227 and protactinium-231 in groundwater increase within each model layer up to 10,000 years due to ingrowth.

Two thorium-230 plumes located near the site boundary (one in EU 4 and one in EU 7/10) were evaluated for future risks due to ingrowth because it is feasible that radium concentrations in groundwater could increase in the presence of parent thorium isotopes: Th-230 for Ra-226 and Th-232 for Ra-228. It is concluded that existing reported radium concentrations in the EU 4 and EU 7/10 plumes are less than the MCL now (considering both total and dissolved results) and the potential for ingrowth would not result in an exceedance over the next 1,000 years without the introduction of a secondary source of contamination.

BRA – Determination of COCs and ROCs

The following ROCs and COCs were identified for EU 17 in the BRA.

Arsenic	Methylene chloride
Boron	Lead-210
Lead	Radium-226
Manganese	Radium-228
Vanadium	Uranium-234
Bis(2-ethylhexyl)phthalate	Uranium-238
PCE	

PCE was identified as a COC risk driver. Radium-226 was identified as an ROC risk driver.

Recommendations

Sitewide Groundwater

The presence of COCs and ROCs identified in the RI/BRA should be further evaluated in the FS.

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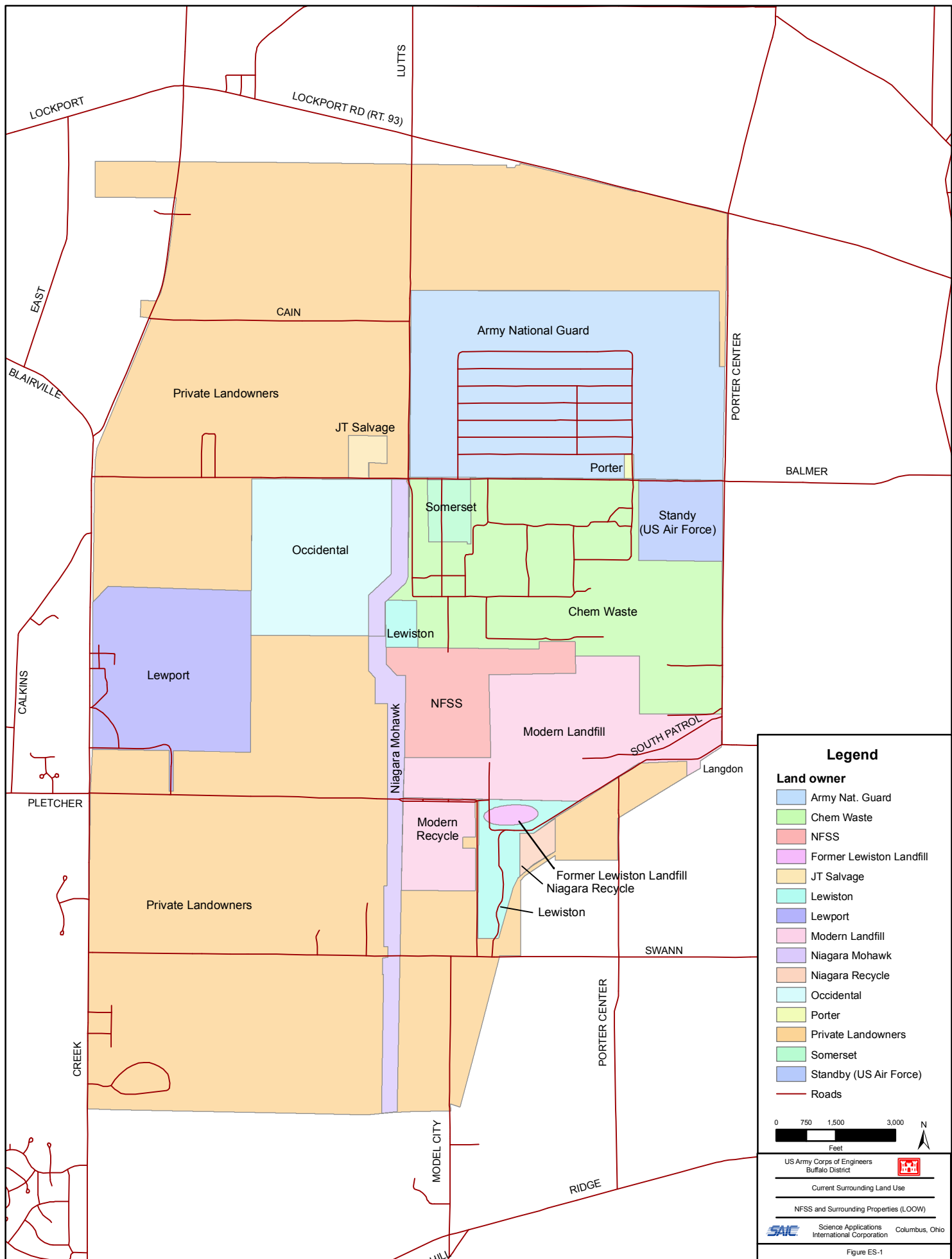
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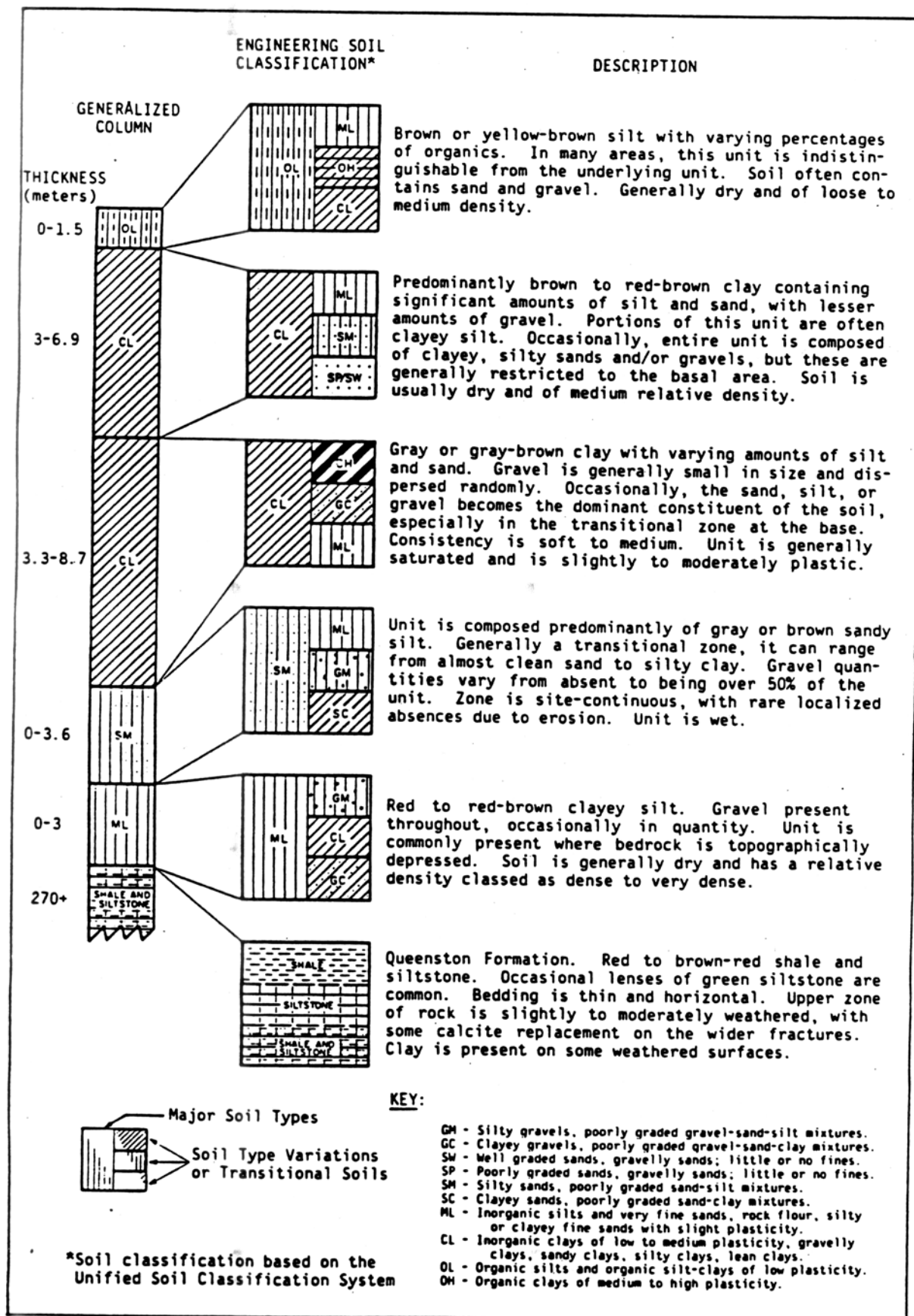
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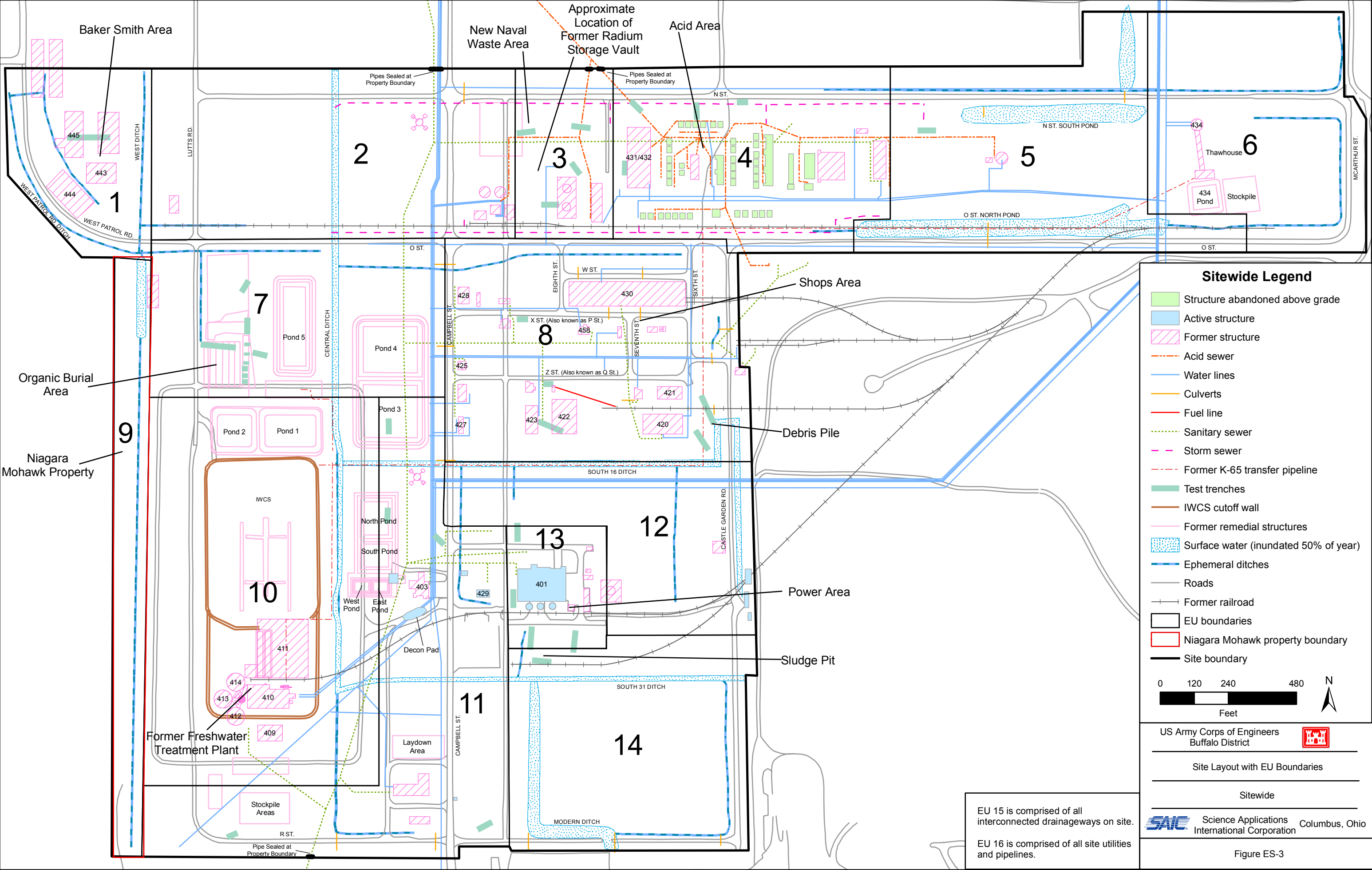
Generalized Geologic
Column of Formations
Under the Niagara Falls Storage Site

Source: Adapted From Acres American, Inc. (1981a)

MAXIM

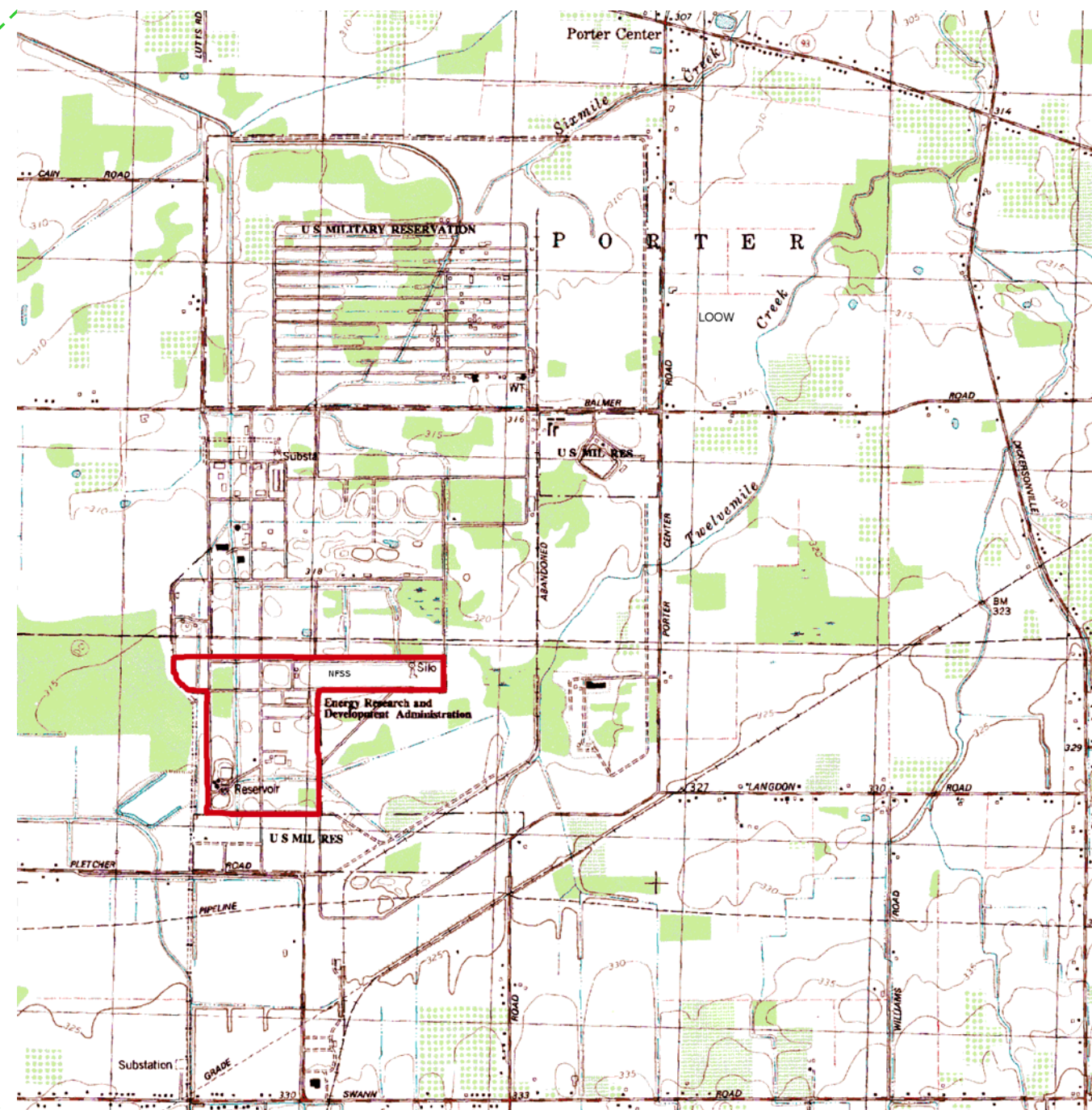
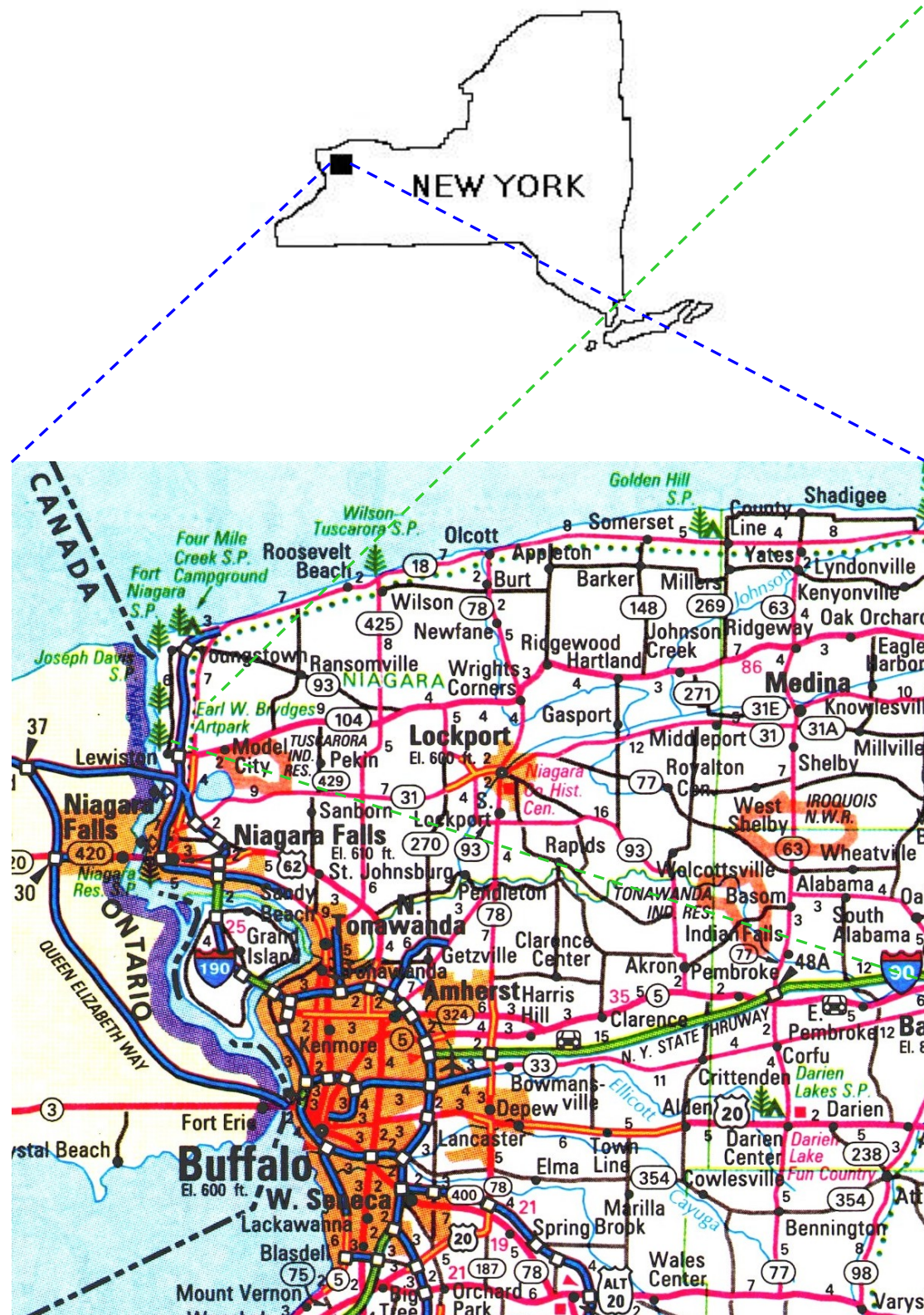
TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: ES-2
SCALE: Not to Scale	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: DEG

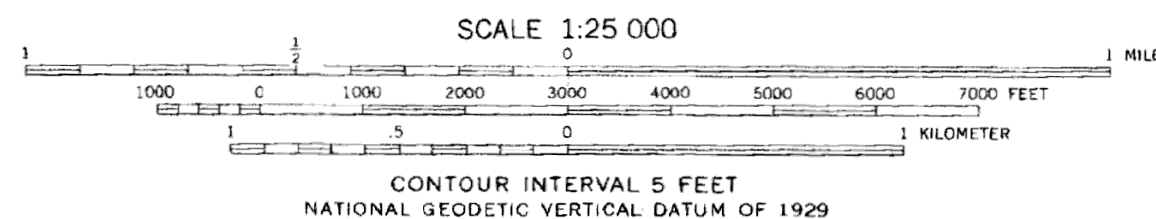



EU 15 is comprised of all interconnected drainageways on site.

EU 16 is comprised of all site utilities and pipelines.

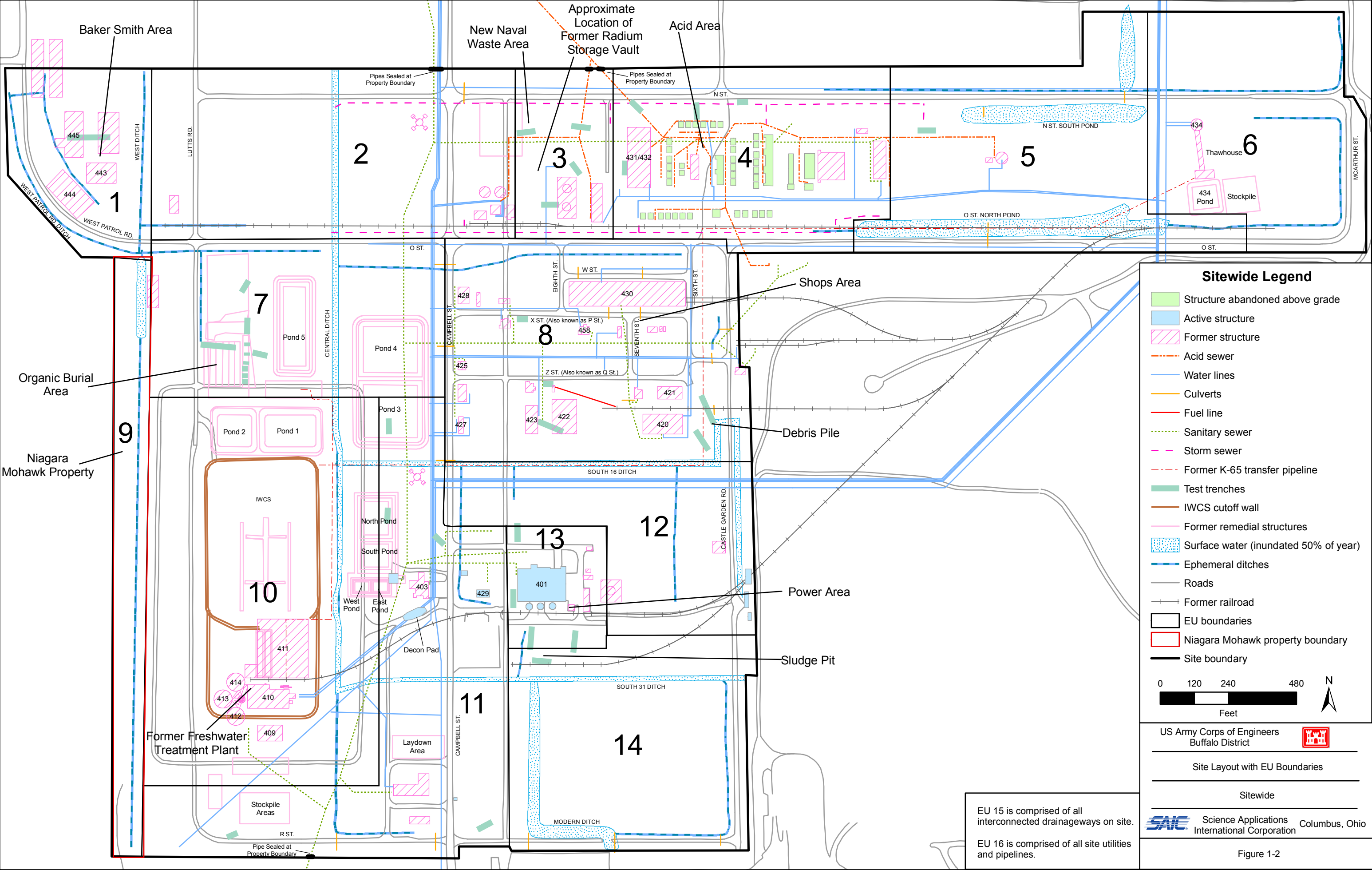


USGS Map from 1948



				Site Vicinity Map Niagara Falls Storage Site Lewiston, New York	
Drawn By:	DWC	Reviewed By:	DEG	Date:	3/02/2004
Checked By:	DWG	Approved By:	DEG	Project No.:	15892
				Figure No.:	1-1
				File Name:	Site Map

1634 Eastport Plaza Drive
Columbia, Illinois 62234
Phone: (618) 453-2300
Fax: (618) 453-1281



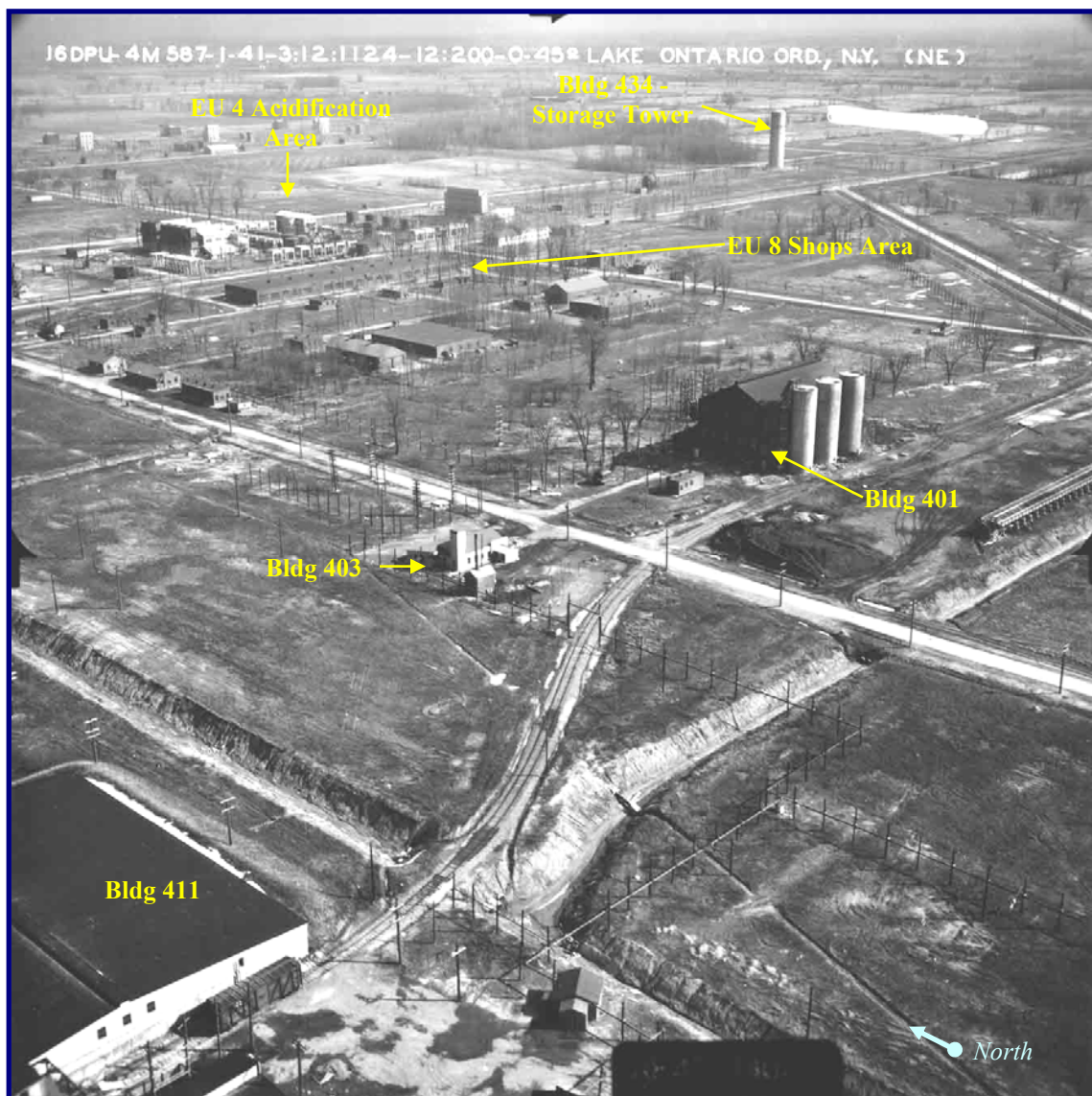


Figure 1-3. 1944 Aerial Photo of the NFSS (Looking North-East)

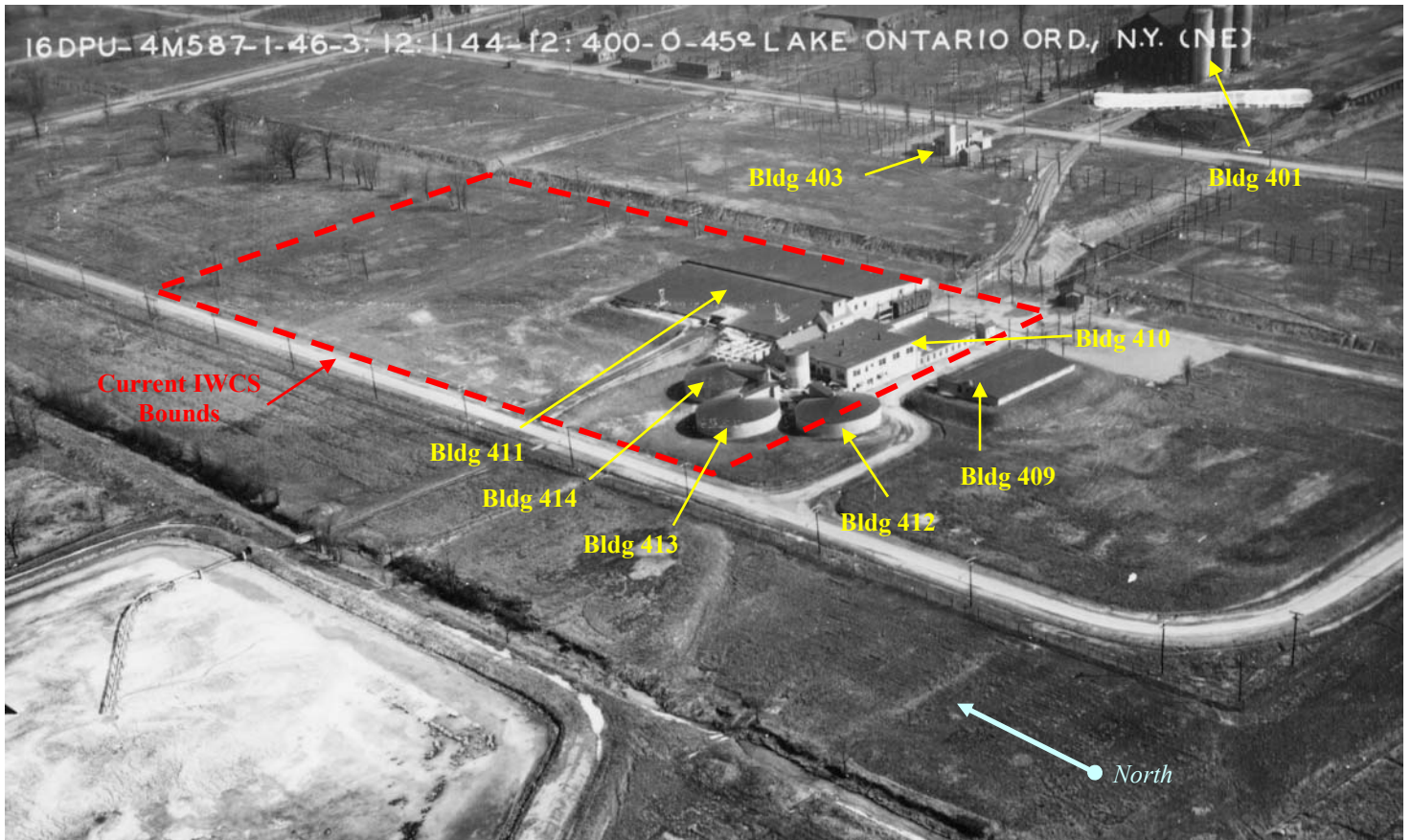
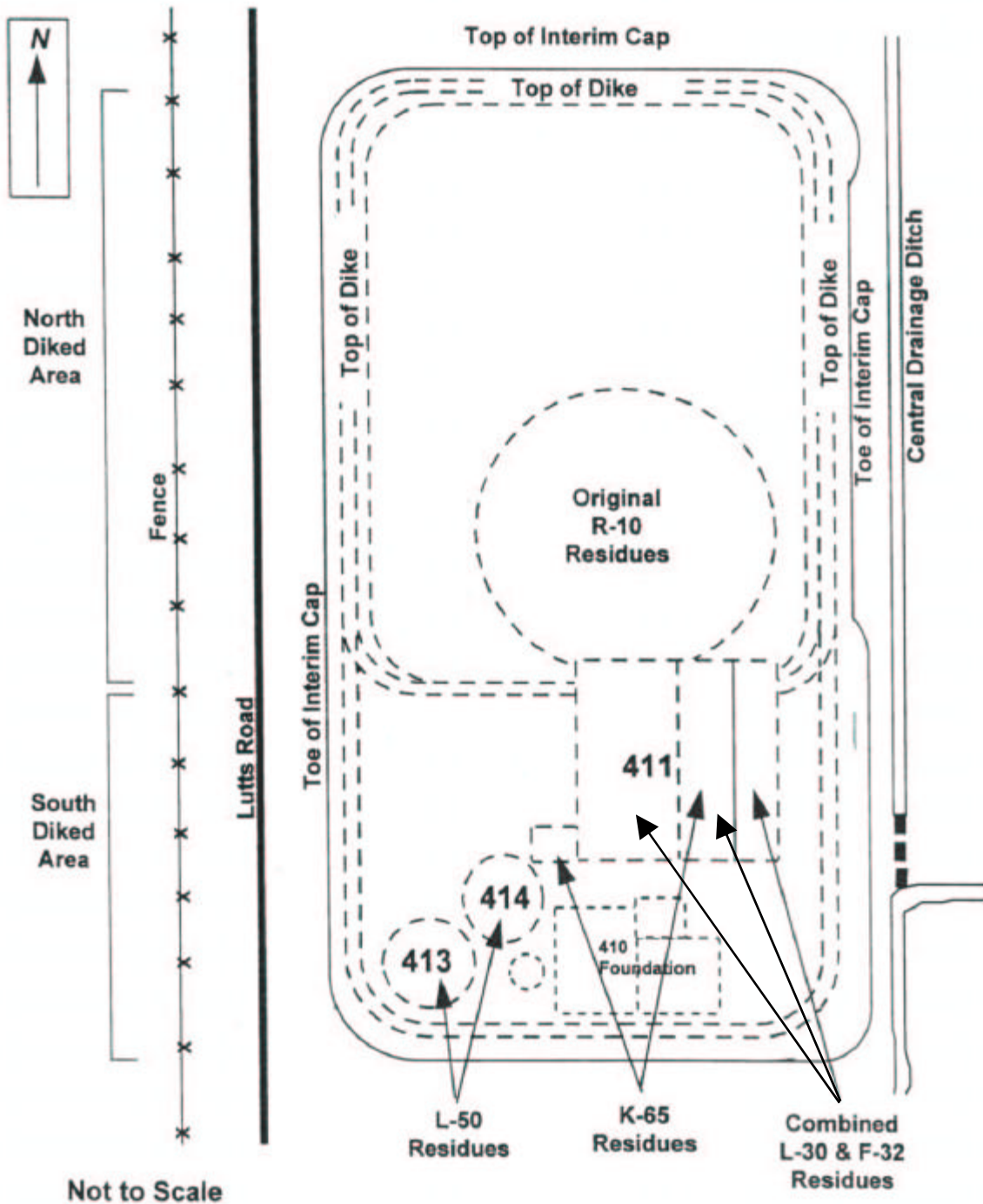


Figure 1-4. 1944 Aerial Photo of the NFSS (Looking North-East over Future Site of IWCS)



Plan View of the Interim Waste Containment Structure (IWCS),
Showing Locations of Foundations of Cellars
of Buildings 410, 411, 413, and 414 that Contain Residues
(modified from DOE 1986)

MAXIM

TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15982

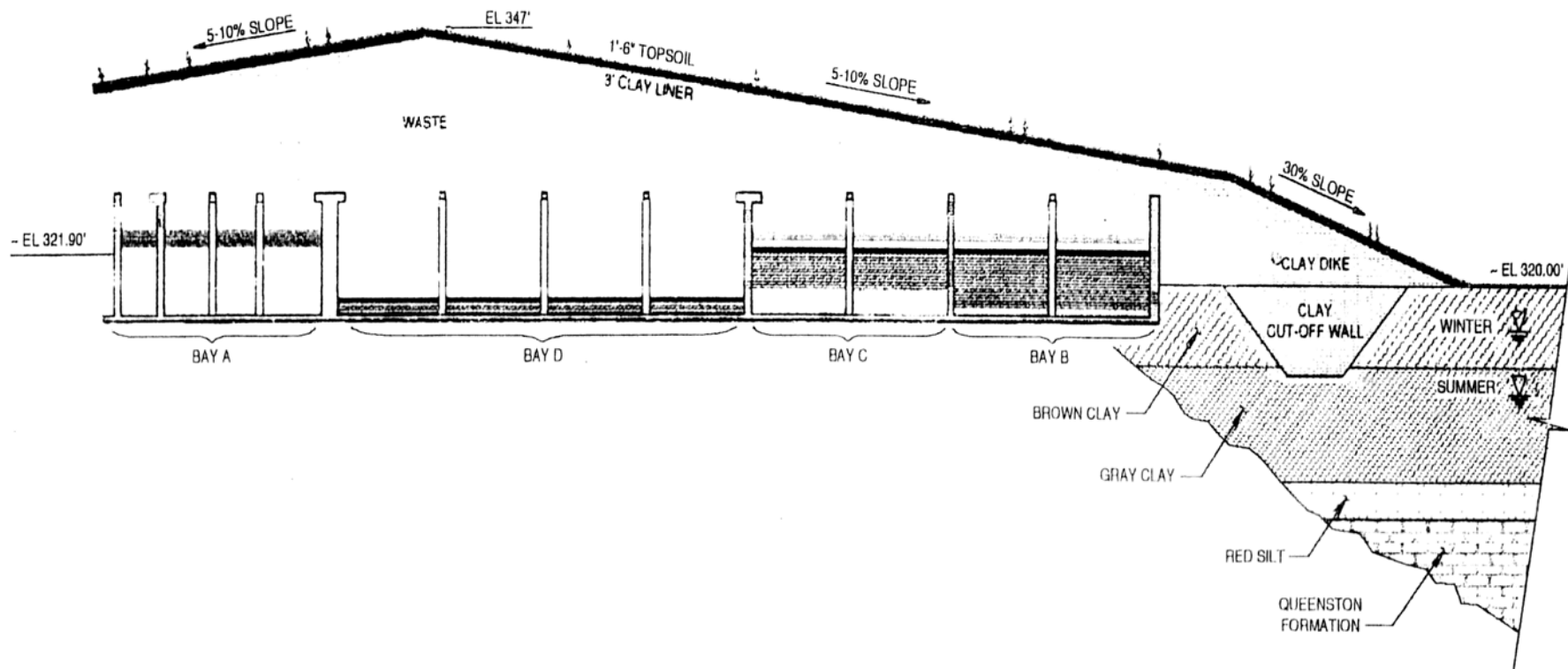
FIGURE #: 1-5

SCALE: As Indicated

DATE: 11/10/2006

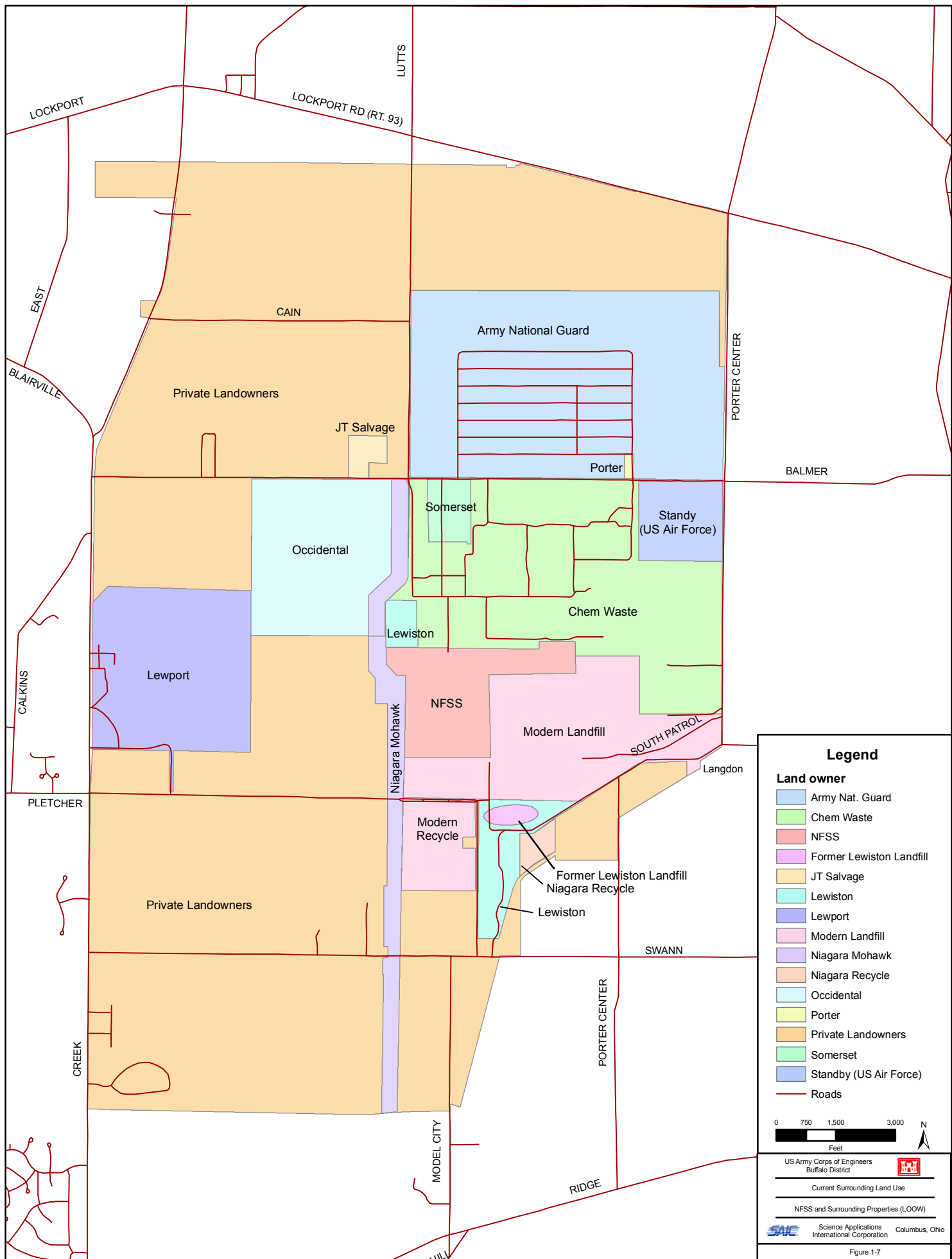
DRAWN BY: DWC

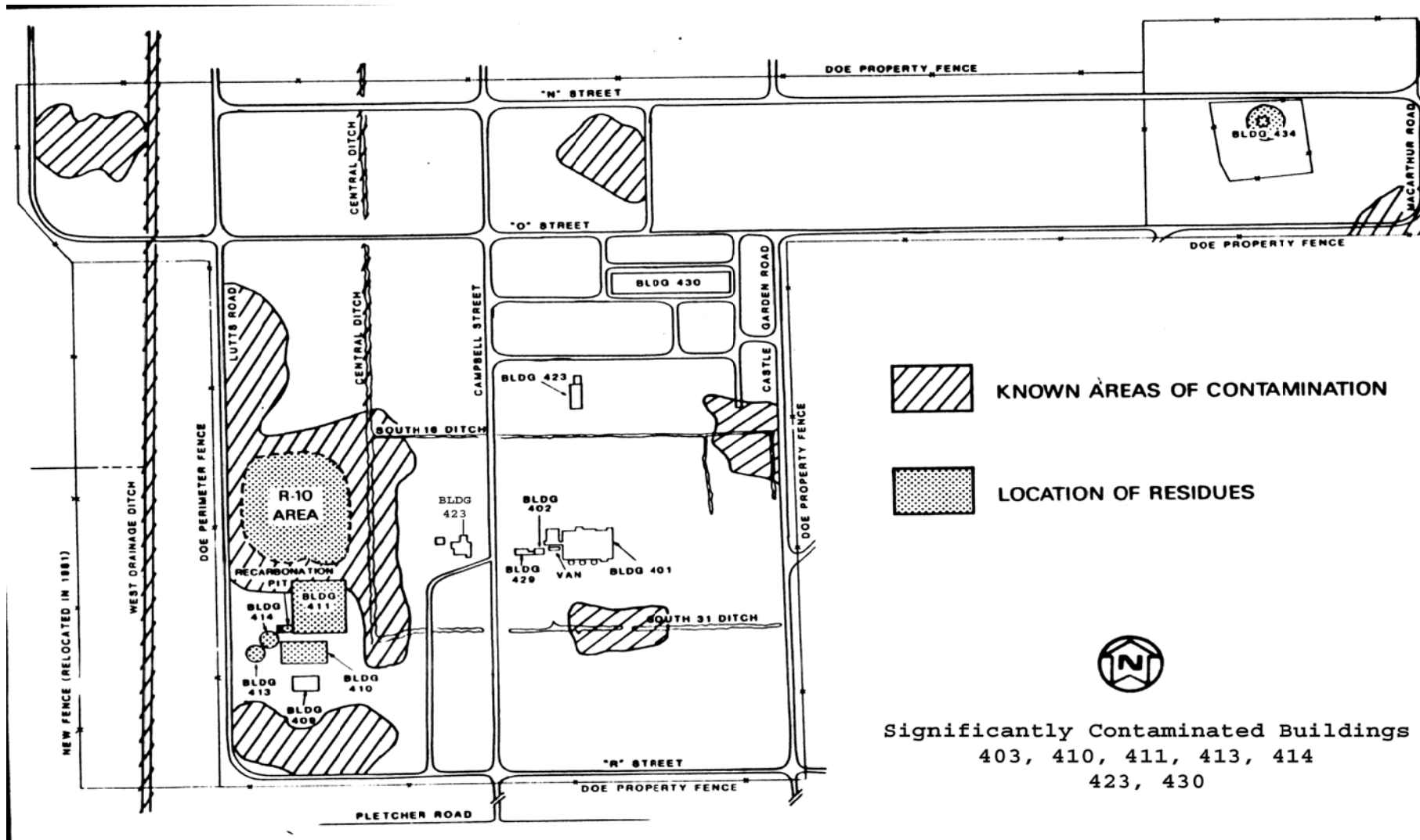
CHECKED BY: DEG



NIAGARA FALLS STORAGE SITE
 CROSS SECTION OF INTERIM WASTE CONTAINMENT STRUCTURE
 AND BUILDING 411
 SOURCE: DOE 1994

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 9905006	FIGURE #: 1-6
SCALE: Not to Scale	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: DEG





RADIOLOGICALLY CONTAMINATED AREAS IN 1979

SOURCE BATELLE 1981a

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 1-8
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: DEG



Figure 1-9. 1985 Aerial Photo of the NFSS (Looking East) Showing Construction Activities Taking Place at IWCS



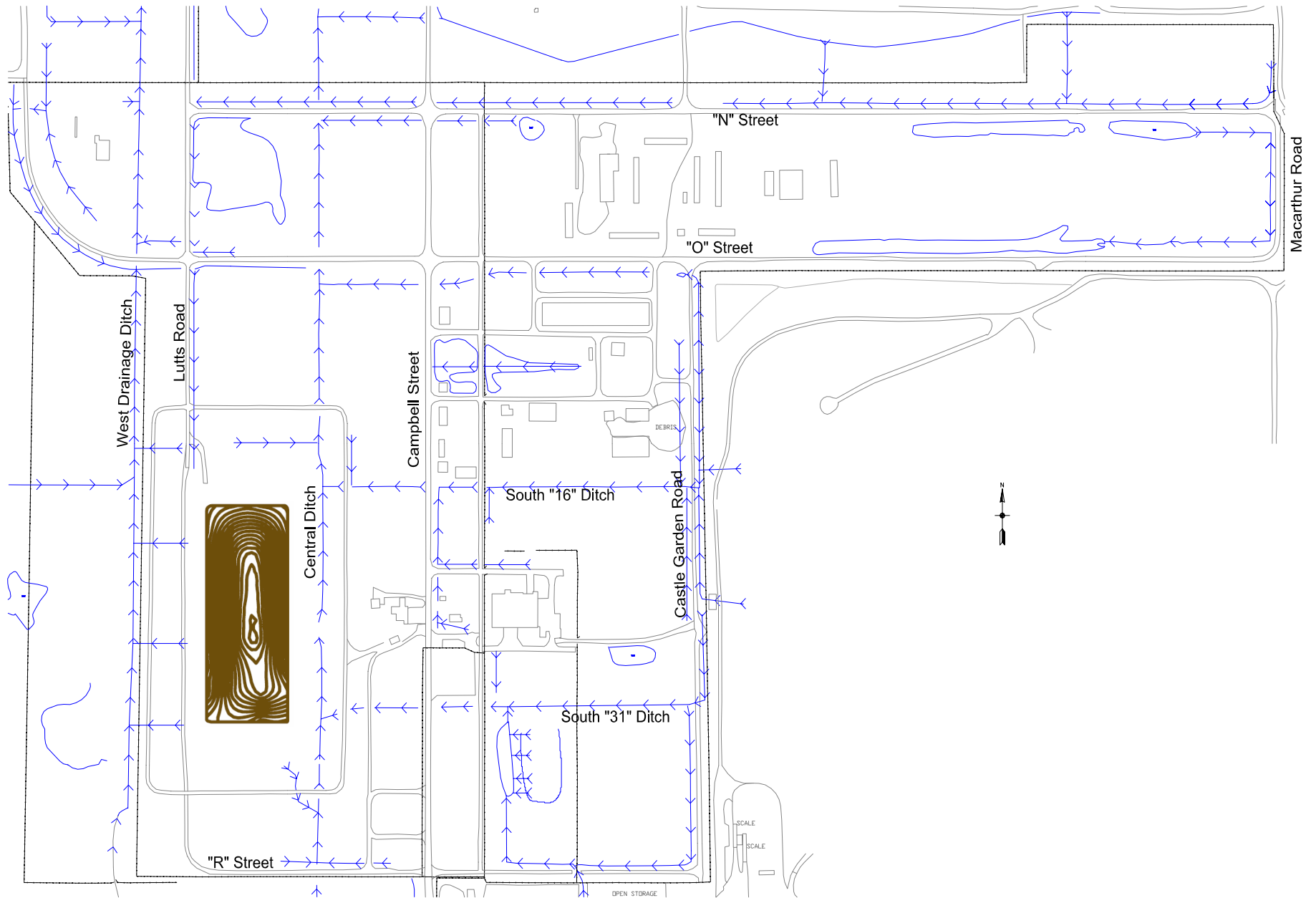
Figure 1-10. Aerial Photo of Former K-65 Storage Tower (Silo)



Figure 1-11. Former K-65 Storage Tower Being Demolished During Residue Removal



Figure 1-12. 2002 Aerial Photo of the Current IWCS



Site Surface Drainage



Tetra Tech

1634 Easport Plaza Drive
Cullerville, Illinois 62234
Phone: (618)343-2300
Fax: (618)345-1281

PROJECT NO. 15892

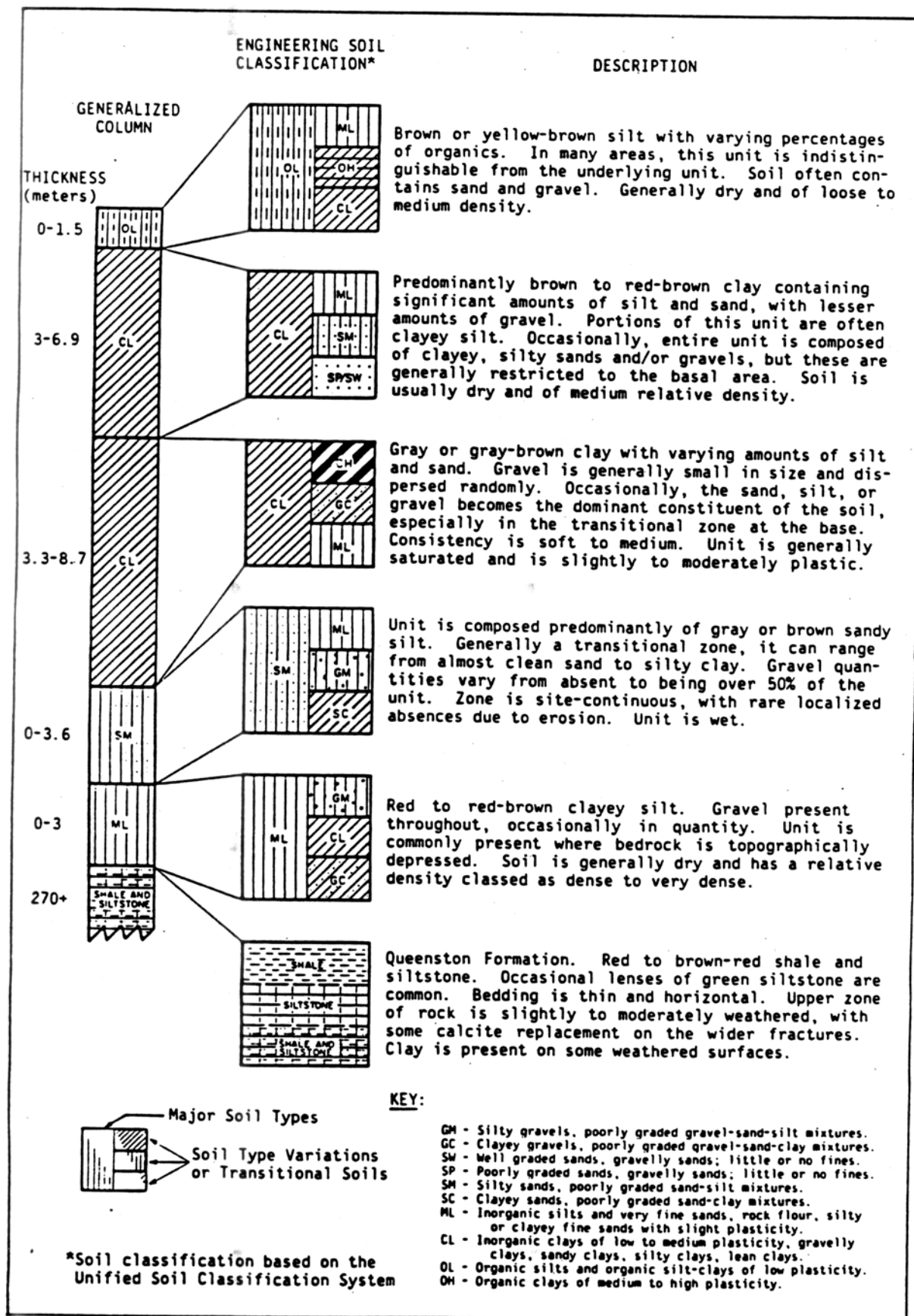
FIGURE #: 2-1

SCALE: Not to Scale

DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL



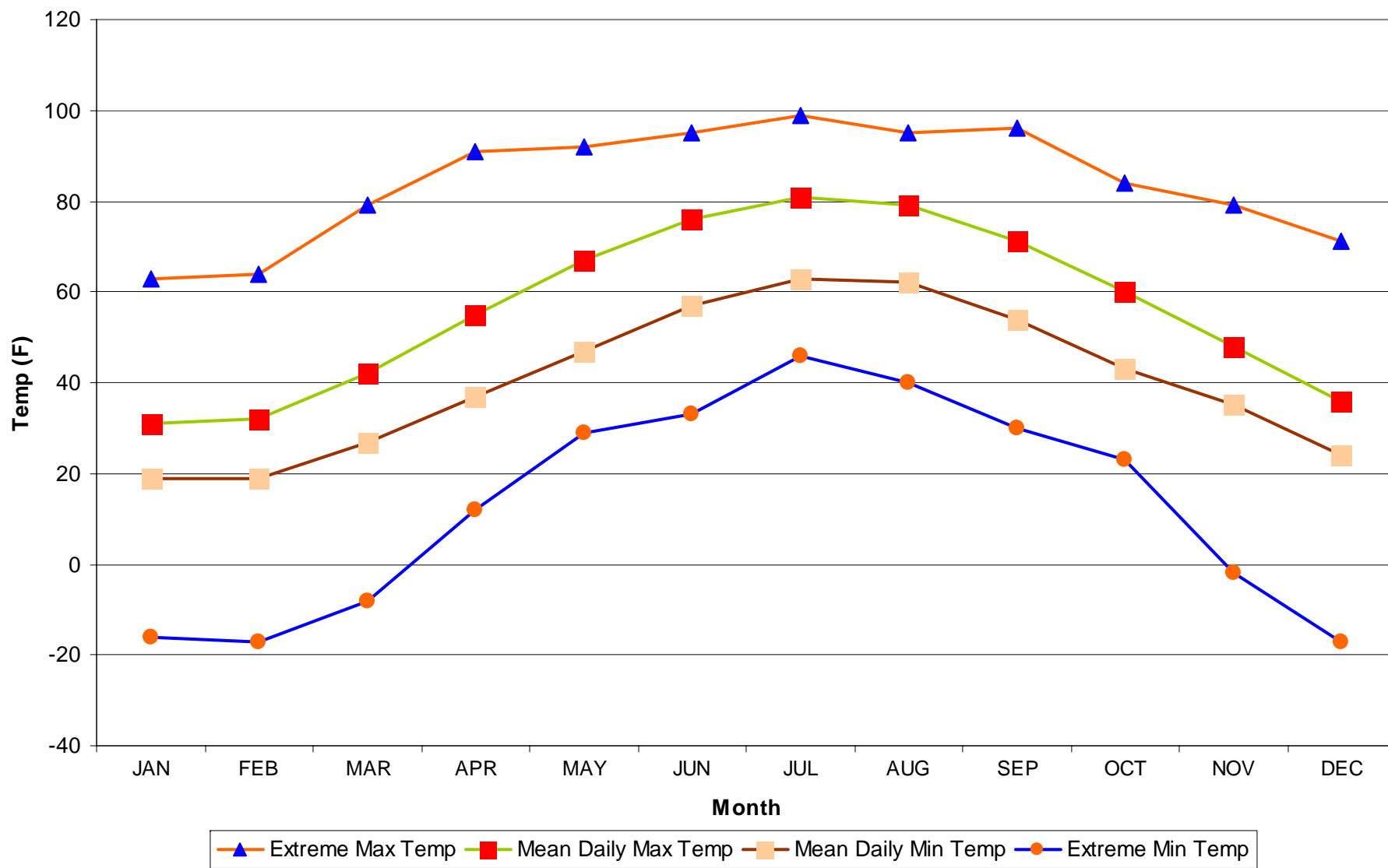
Generalized Geologic
Column of Formations
Under the Niagara Falls Storage Site

Source: Adapted From Acres American, Inc. (1981a)

MAXIM

TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 2-2
SCALE: Not to Scale	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: DEG



Period of Record 1973-1995, SOURCE: Air Force Combat Climatology Center

Maximum, Minimum and Mean Monthly Temperatures at Niagara Falls international Airport
1973-1995



Tetra Tech

1634 Easport Plaza Drive
Cobleskill, Illinois 62234
Phone: (618)343-2300
Fax: (618)345-1281

PROJECT NO. 15892

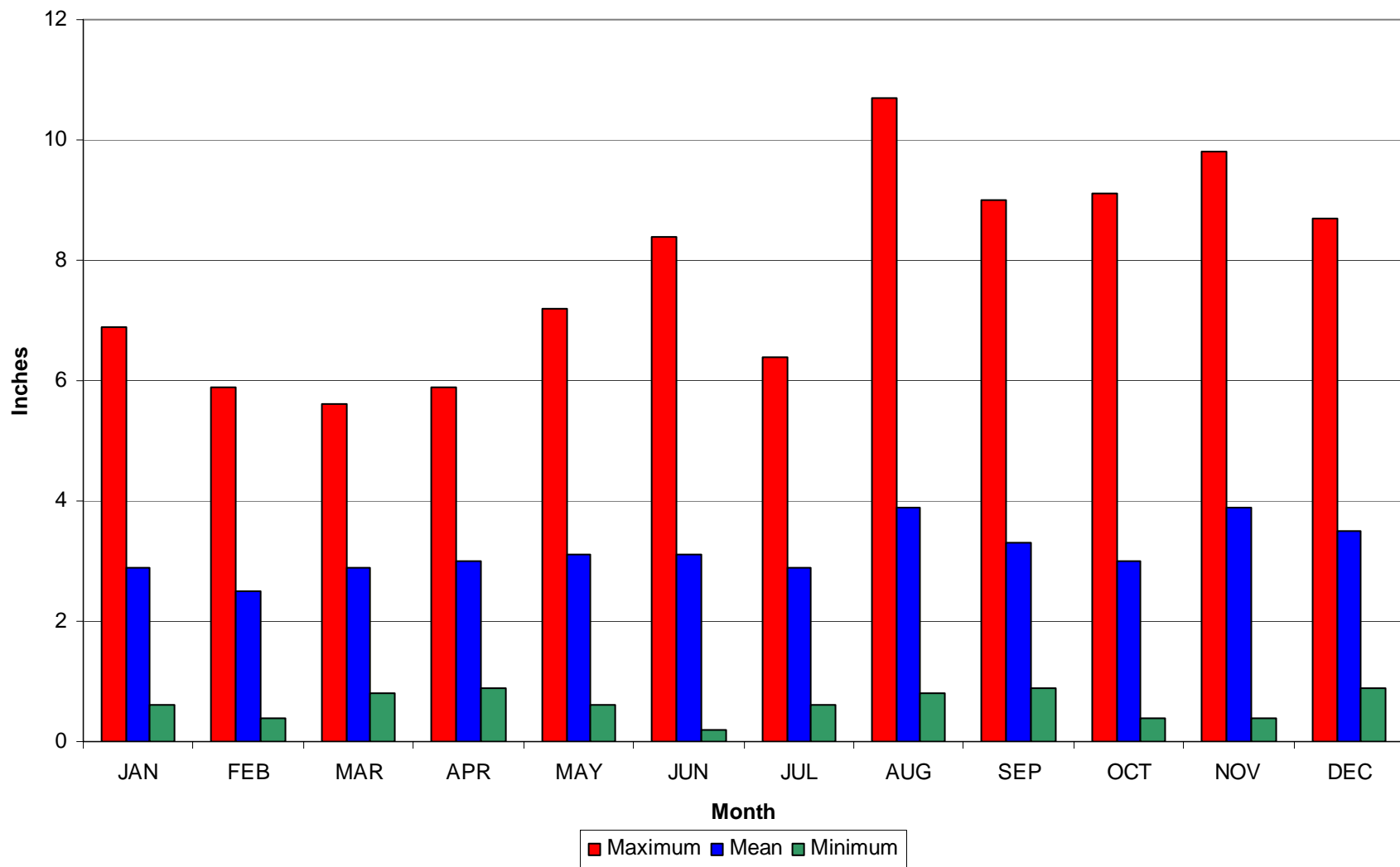
FIGURE #: 2-3

SCALE: Not to Scale

DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL



Period of Record 1973-1995, Source: Air Force Combat Climatology Center

Maximum, Minimum and Mean Monthly Precipitation at Niagara Falls International Airport
1973-1995



Tetra Tech

1634 Easport Plaza Drive
Catharineville, Illinois 62234
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Fax: (618)345-1281

PROJECT NO. 15892

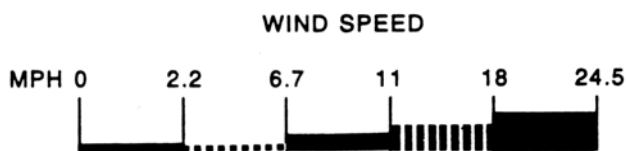
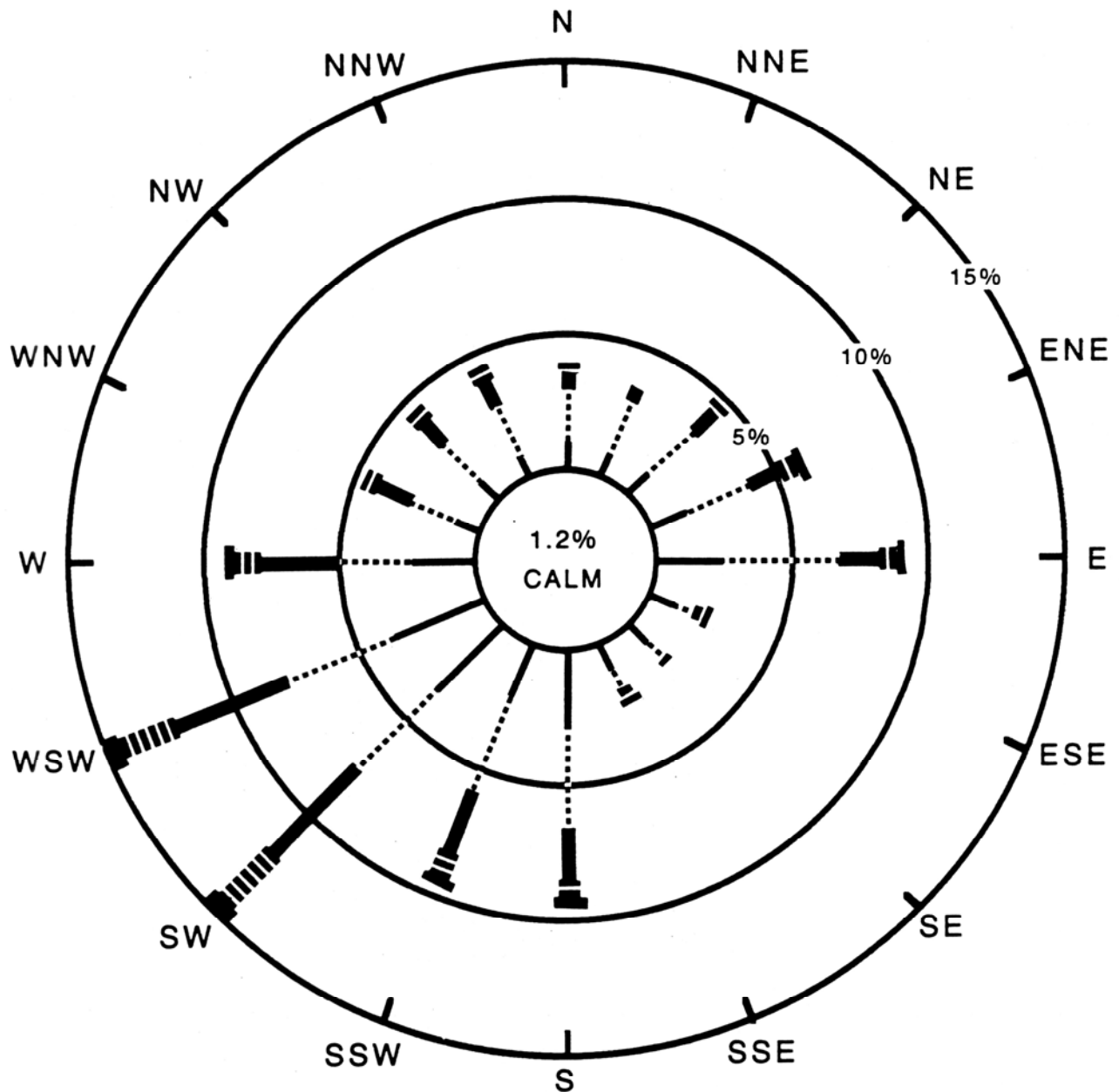
FIGURE #: 2-4

SCALE: Not to Scale

DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL



BASED ON DATA FROM
ON-SITE METEOROLOGICAL
STATION DURING 1985

Annual Wind Rose for the NFSS



Tetra Tech

1634 Easport Plaza Drive
Cathlamet, WA 98224
Phone: (618)343-2300
Fax: (618)345-1281

PROJECT NO. 15892

FIGURE #: 2-5

SCALE: NA

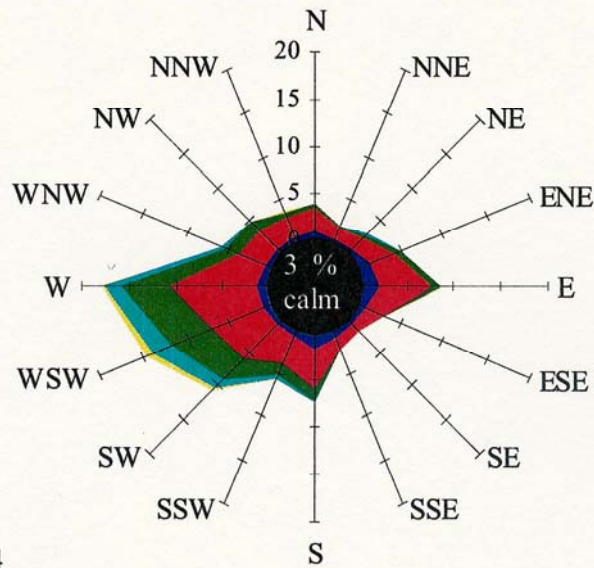
DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL

Wind Summary - December, January, and February

Labels of Percent Frequency on North Axis

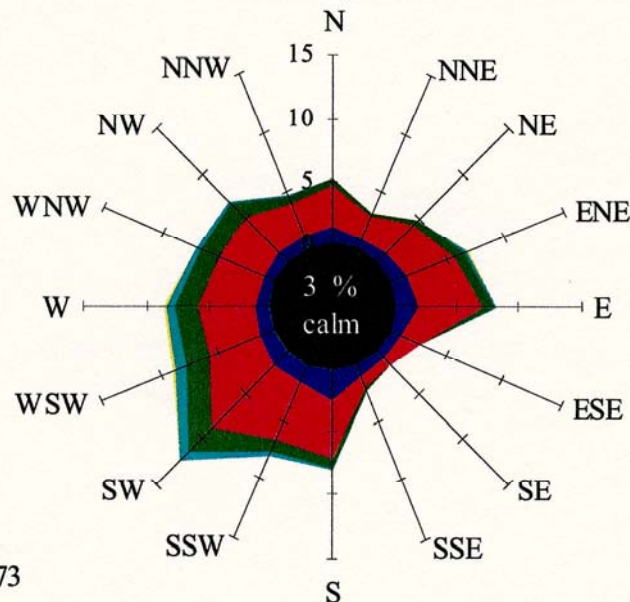


of Observations: 61064

>34 Knots 25-34 Knots 15-24 Knots 6-14 Knots 1-5 Knots Calm

Wind Summary - March, April, and May

Labels of Percent Frequency on North Axis



of Observations: 61573

>34 Knots 25-34 Knots 15-24 Knots 6-14 Knots 1-5 Knots calm

December through May Wind Summary at NFSS



Tetra Tech

1634 Easport Plaza Drive
Cullman, AL 35055
Phone: (618)343-2300
Fax: (618)345-1281

PROJECT NO. 15892

FIGURE #: 2-6

SCALE: NA

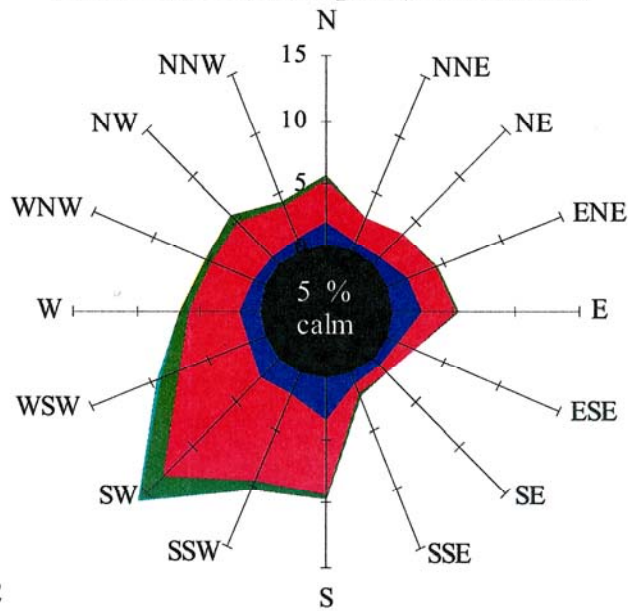
DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL

Wind Summary - June, July, and August

Labels of Percent Frequency on North Axis

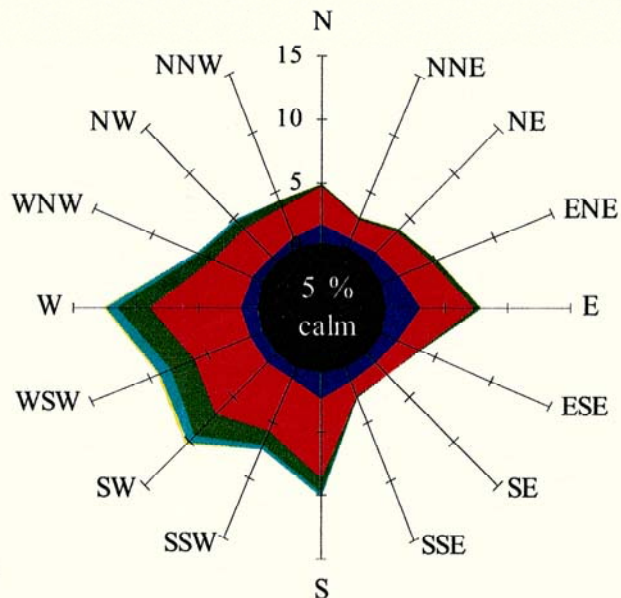


of Observations: 61422

■ >34 Knots
 ■ 25-34 Knots
 ■ 15-24 Knots
 ■ 6-14 Knots
 ■ 1-5 Knots
 ■ calm

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



of Observations: 61206

■ >34 Knots
 ■ 25-34 Knots
 ■ 15-24 Knots
 ■ 6-14 Knots
 ■ 1-5 Knots
 ■ calm

June through November Wind Summary at NFSS



Tetra Tech

1634 Easport Plaza Drive
Cullman, AL 35956
Phone: (618)343-2300
Fax: (618)345-1281

PROJECT NO. 15892

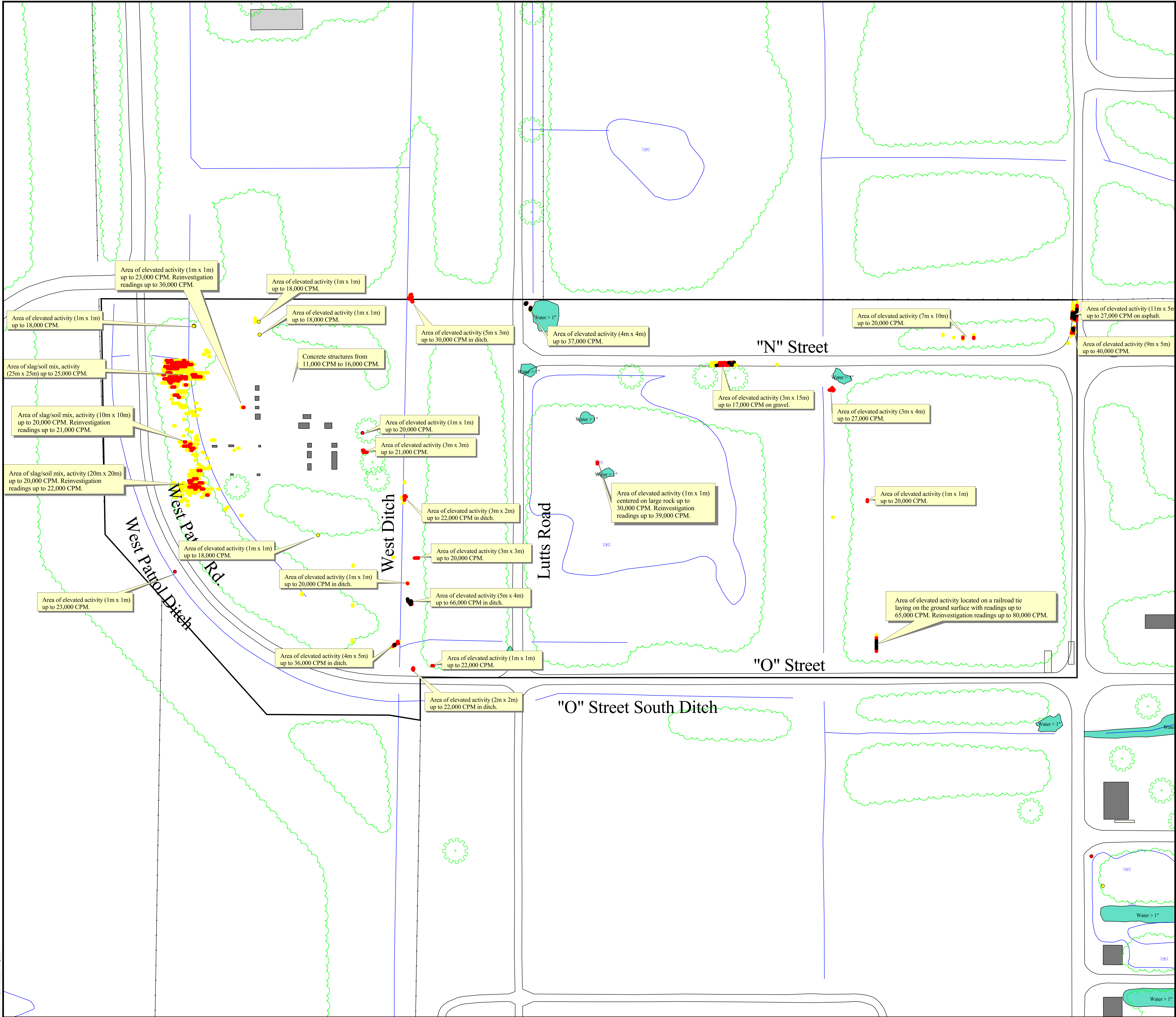
FIGURE #: 2-7

SCALE: NA

DATE: 11/13/2006

DRAWN BY: DWC

CHECKED BY: TL



General Notes:

1) Outlined circles depict elevated activity identified beyond walkover survey path.

**Niagara Falls Storage Site
Gamma Walkover Survey**

Investigation Location

- Soil
- Soil
- Soil

CPM Values on Asphalt

- 0 - 10500
- 10501 - 15750
- 15751 - 17500
- 17501 - 19500
- 19501 - 100000

CPM Values on Gravel

- 0 - 8000
- 8001 - 12000
- 12001 - 14000
- 14001 - 16000
- 16001 - 18000
- 18001 - 30000
- 30001 - 1000000

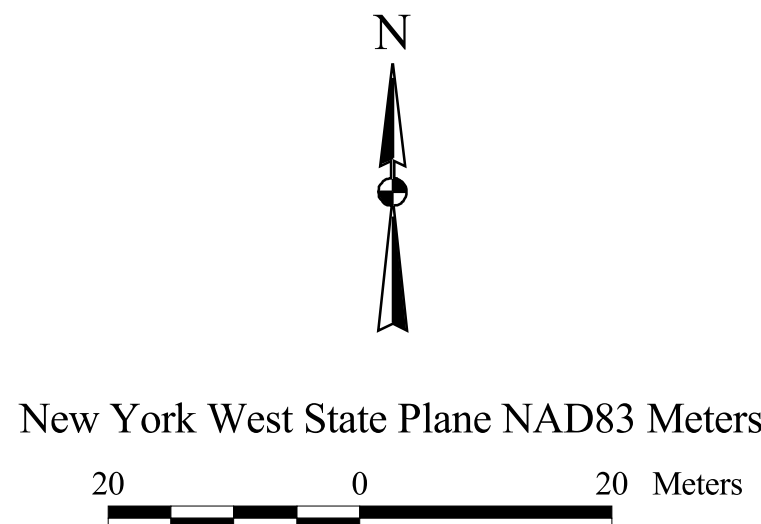
CPM Values on Soil

- 0 - 9000
- 9001 - 13000
- 13001 - 16000
- 16001 - 18000
- 18001 - 30000
- 30001 - 1000000

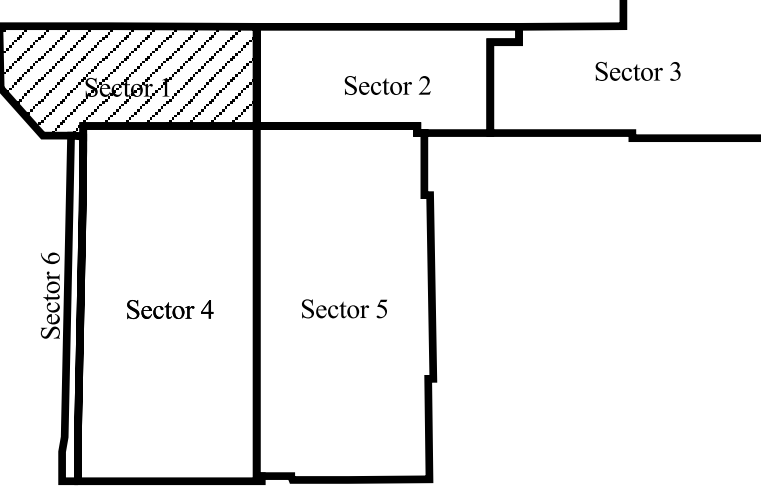
GWS Data Sector

Surface Features

- Roads
- Fence
- Tree Line
- Creek/Ditch
- Building
- Concrete Pad
- Debris Pile
- Area of Water > 1"
- Area of Slag/Soil



New York West State Plane NAD83 Meters



FUSRAP

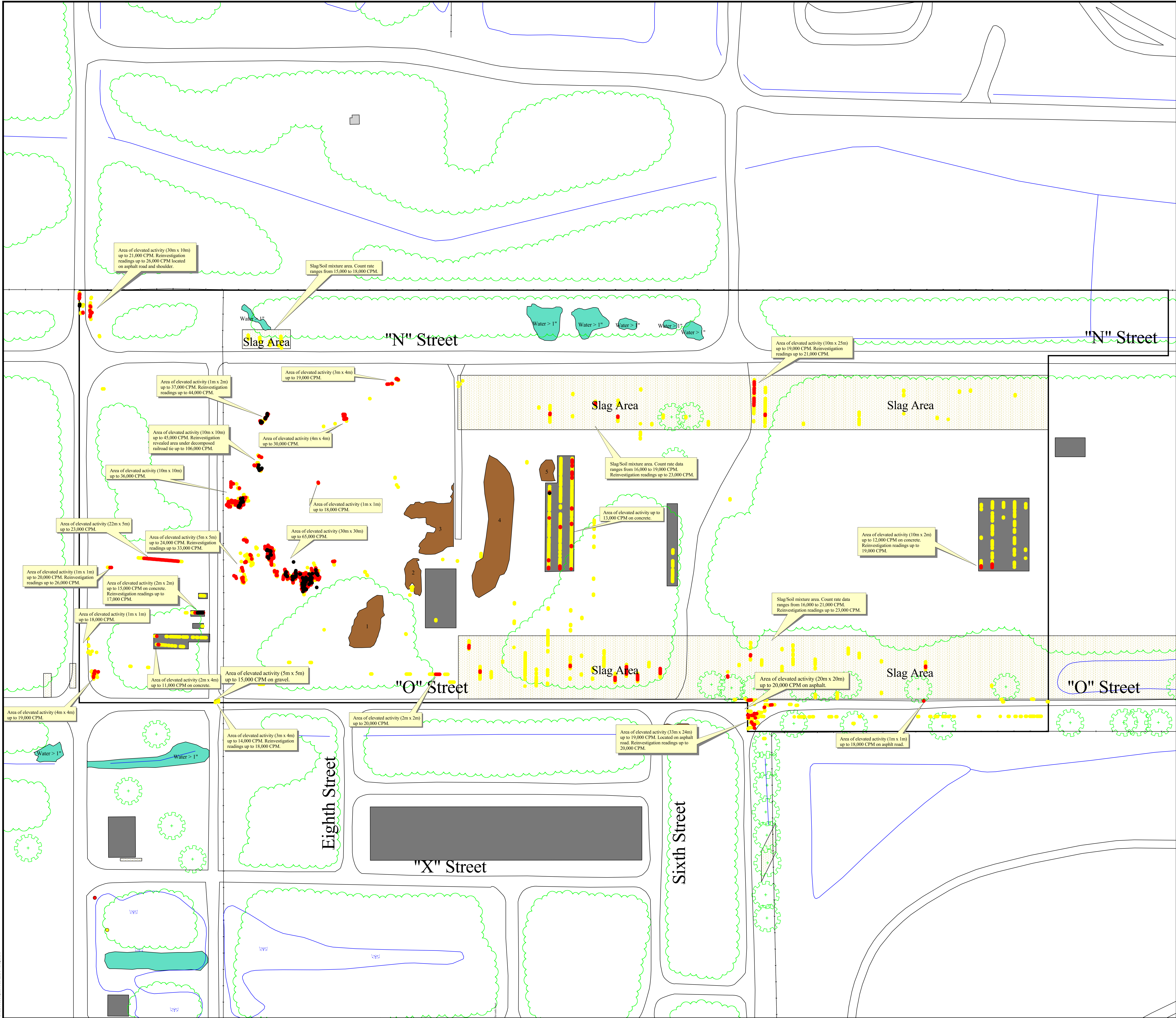


**Niagara Falls Storage Site
Gamma Walkover Survey
Elevated Areas in Sector 1
Lewiston, New York**

Source: SAIC 2003

REVISION	DRAWN BY:	CHECKED BY:	DATE
0	S. Kitchings	Doug Haas	10/02/2001
1	DWC	TL	10/30/2005

FIGURE 3-1



- General Notes:
- 1) Debris pile 1: inaccessible due to piles of rebar, concrete, and sharp metal debris.
Debris pile 2: inaccessible due to brush debris mixed with chainlink fencing and concrete piles.
Debris pile 3: inaccessible due to sharp scrap metal concrete pile and old culverts.
Debris pile 4: inaccessible due to concrete piles, asphalt pile and unknown piles of rubble.
Debris pile 5: inaccessible due to concrete piles, asphalt pile and unknown piles of rubble.
 - 2) Natural radioactivity in concrete may be higher than that of reference area concrete.
 - 3) Areas of Slag/Soil use the Soil background.

Niagara Falls Storage Site
Gamma Walkover Survey

Investigation Location

- Soil/Slag
- Soil
- Soil

CPM Values on Asphalt

- 0 - 10500
- 10501 - 15750
- 15751 - 17500
- 17501 - 19500
- 19501 - 20864

CPM Values on Concrete

- 0 - 5700
- 5701 - 8500
- 8501 - 10500
- 10501 - 12500
- 12501 - 14262

CPM Values on Gravel

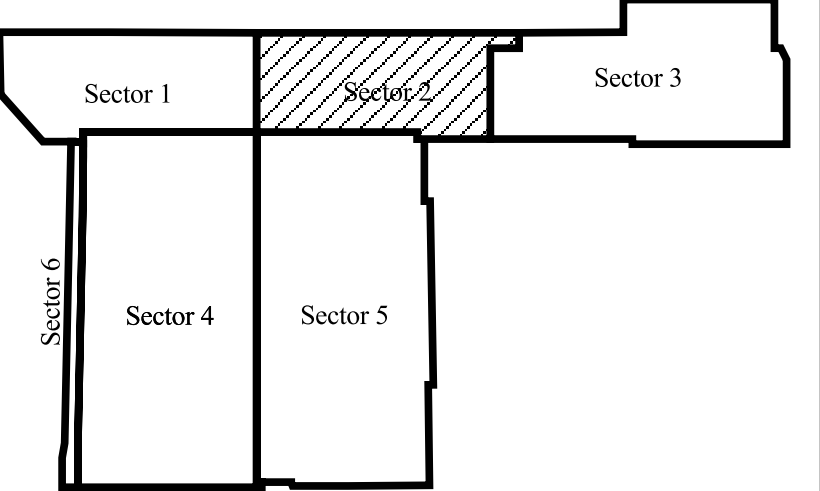
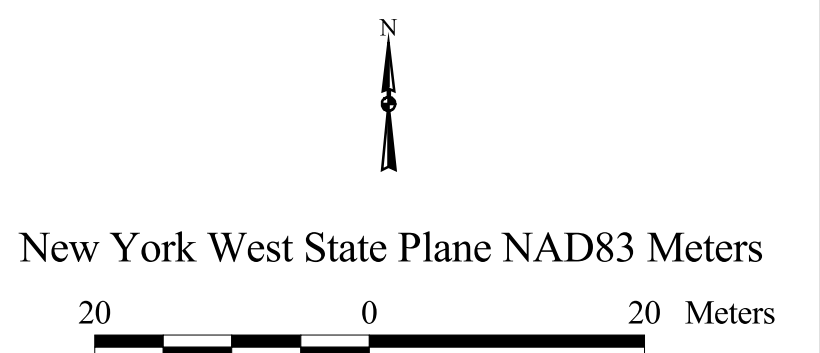
- 0 - 8000
- 8001 - 12000
- 12001 - 14000
- 14001 - 16000
- 16001 - 18000
- 18001 - 20000
- 20001 - 22000

CPM Values on Soil

- 0 - 9000
- 9001 - 13000
- 13001 - 16000
- 16001 - 18000
- 18001 - 20000
- 20001 - 22000
- 22001 - 24000
- 24001 - 26000
- 26001 - 28000
- 28001 - 30000
- 30001 - 32000
- 32001 - 34000
- 34001 - 36000
- 36001 - 38000
- 38001 - 40000
- 40001 - 42000
- 42001 - 44000
- 44001 - 46000
- 46001 - 48000
- 48001 - 50000
- 50001 - 52000
- 52001 - 54000
- 54001 - 56000
- 56001 - 58000
- 58001 - 60000
- 60001 - 62000
- 62001 - 64000
- 64001 - 66000
- 66001 - 68000
- 68001 - 70000
- 70001 - 72000
- 72001 - 74000
- 74001 - 76000
- 76001 - 78000
- 78001 - 80000
- 80001 - 82000
- 82001 - 84000
- 84001 - 86000
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- 88001 - 90000
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- 92001 - 94000
- 94001 - 96000
- 96001 - 98000
- 98001 - 100000

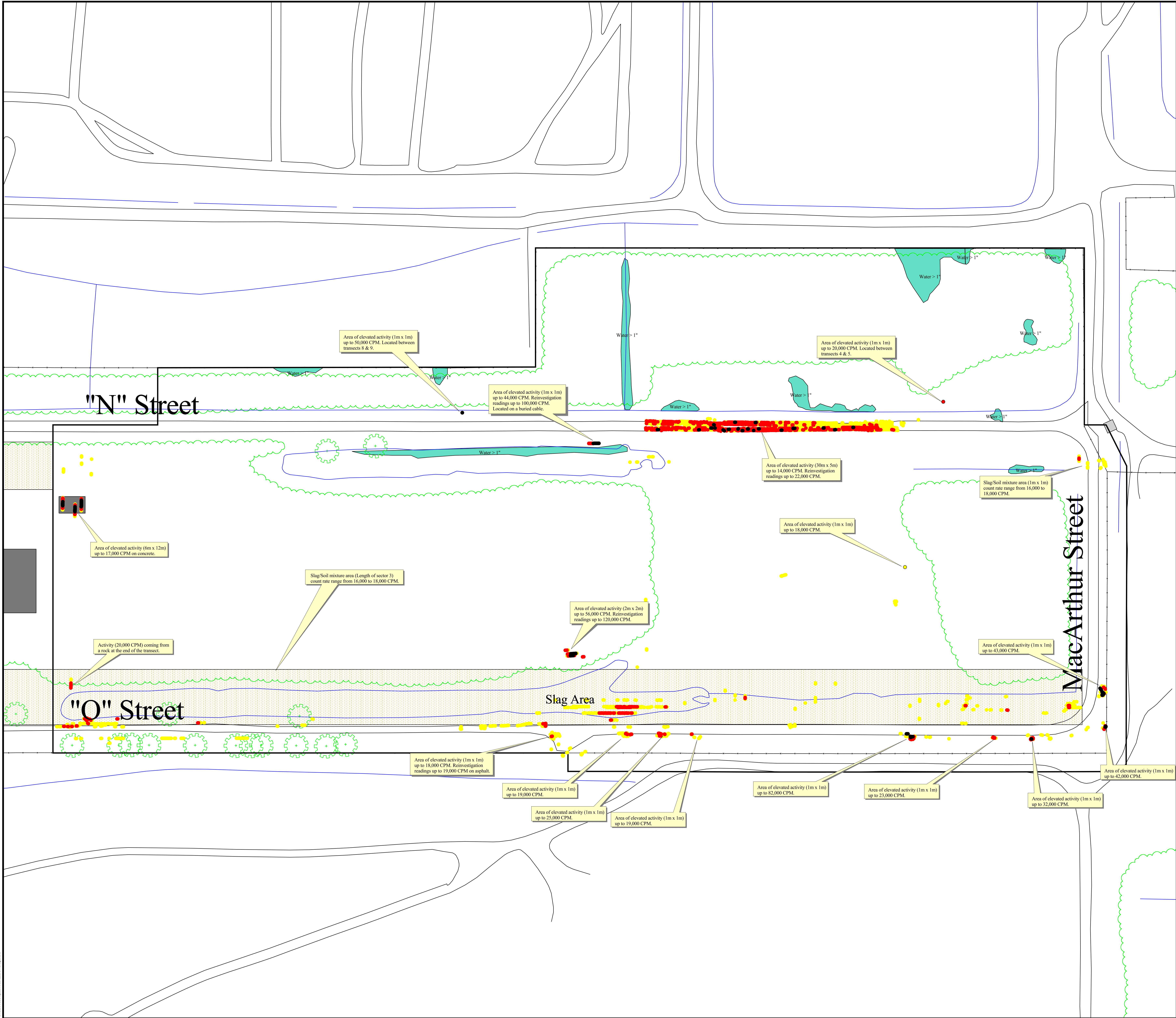
Legend

- GWS Data Sector
- Surface Features
- Roads
- Fence
- Tree Line
- Creek/Ditch
- Building
- Concrete Pad
- Debris Pile
- Area of Water > 1"
- Area of Slag/Soil



Niagara Falls Storage Site
Gamma Walkover Survey
Elevated Areas in Sector 2
Lewiston, New York
Source: SAIC 2003

REVISION	DRAWN BY:	CHECKED BY:	DATE
0	S. Kitchings	Doug Haas	10/02/2001
1	DWC	TL	10/30/2005



- General Notes:
- 1) Areas of Slag/Soil use the Soil background.
 - 2) All Survey data within the NFSS fence. Fenceline may contain positional inaccuracies.

Niagara Falls Storage Site
Gamma Walkover Survey

Investigation Location

- Soil
- Soil
- Soil

CPM Values on Asphalt

- 0 - 10500
- 10501 - 15750
- 15751 - 17500
- 17501 - 19500
- 19501 - 32405

CPM Values on Concrete

- 0 - 5700
- 5701 - 8500
- 8501 - 10500
- 10501 - 12500
- 12501 - 17065

CPM Values on Gravel

- 0 - 8000
- 8001 - 12000
- 12001 - 14000
- 14001 - 16000
- 16001 - 17710

CPM Values on Soil

- 0 - 9000
- 9001 - 13000
- 13001 - 16000
- 16001 - 18000
- 18001 - 30000
- 30001 - 81393

□ GWS Data Sector

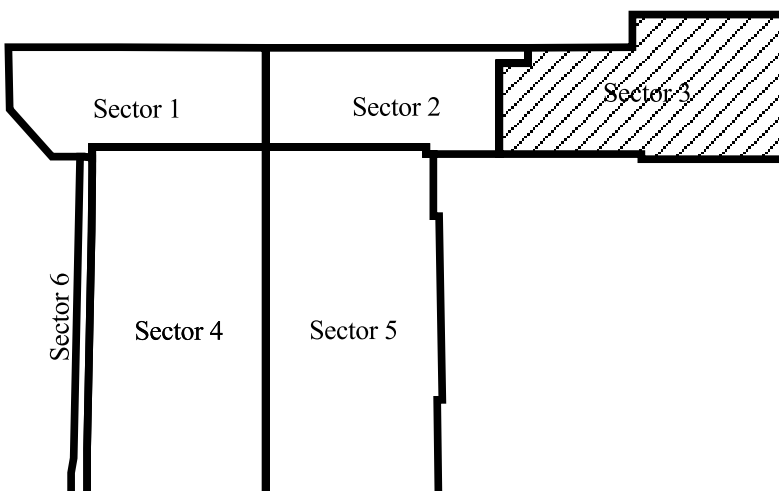
Surface Features

- Roads
- Fence
- Tree Line
- Creek/Ditch
- Building
- Concrete Pad
- Debris Pile
- Area of Water > 1"
- Area of Slag/Soil

N

New York West State Plane NAD83 Meters

20 0 20 Meters



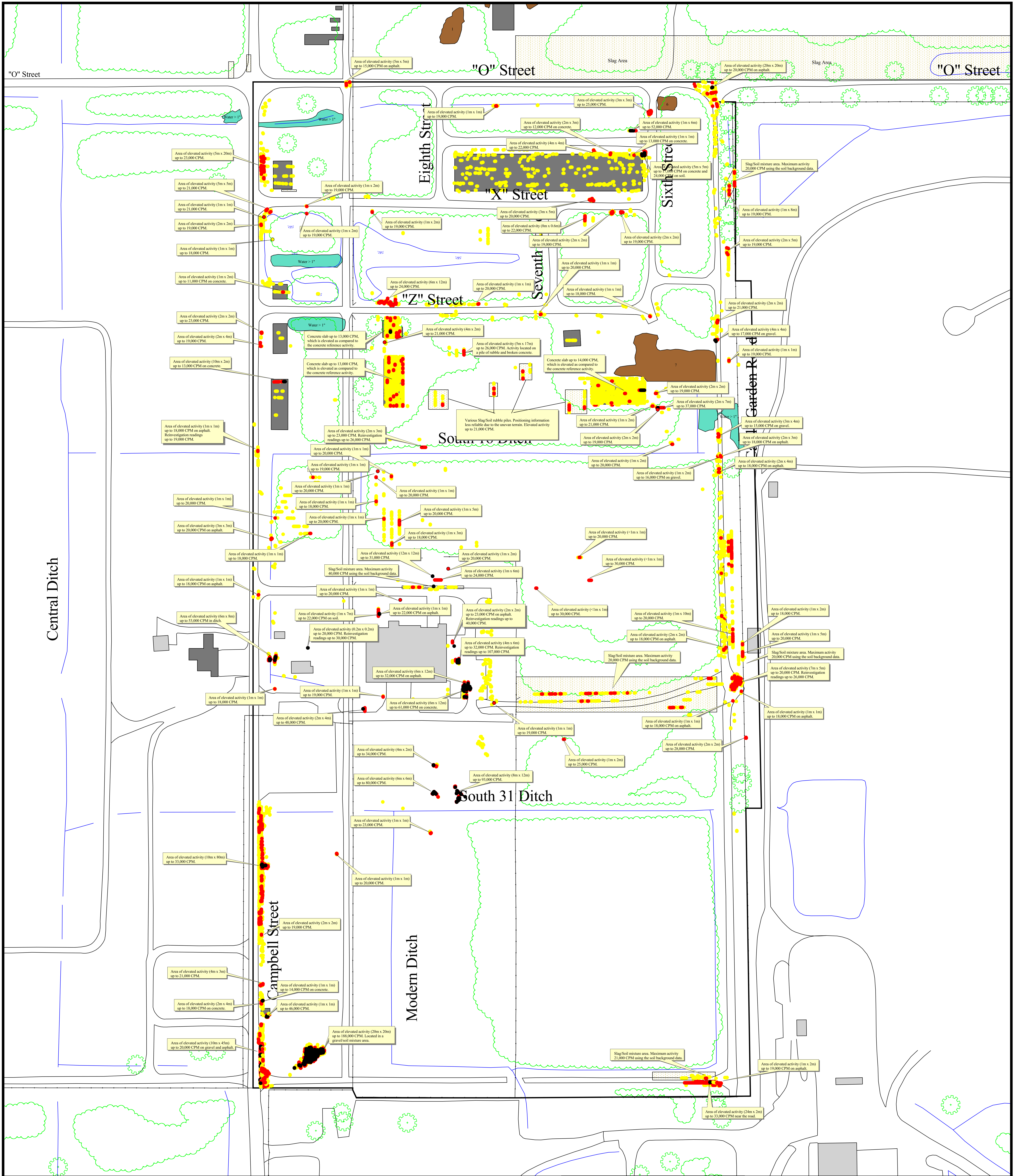
FUSRAP

Tt TETRA TECH, INC.

Niagara Falls Storage Site
Gamma Walkover Survey
Elevated Areas in Sector 3
Lewiston, New York
Source: SAIG 2003

REVISION	DRAWN BY:	CHECKED BY:	DATE
0	S. Kitchings	Doug Haas	10/12/2001
1	DWC	TL	10/30/2005

Figure 3-3



Niagara Falls Storage Site - Gamma Walkover Survey									
Investigation Location	CPM Values on Asphalt		CPM Values on Concrete		CPM Values on Gravel		CPM Values on Soil		
● Soil	● 0 - 10500	● 0 - 5700	● 0 - 8000	● 0 - 9000	● 0 - 9000	● 0 - 9000	● 0 - 9000	● 0 - 9000	■ GWS Data Sector
● Soil	● 10501 - 15750	● 5701 - 8500	● 8001 - 12000	● 9001 - 13000	● 13001 - 16000	● 16001 - 18000	● 18001 - 30000	● 30001 - 1000000	■ Surface Features
● Soil	● 15751 - 17500	● 8501 - 10500	● 12001 - 14000	● 13001 - 16000	● 16001 - 18000	● 18001 - 30000	● 30001 - 1000000	● 30001 - 1000000	■ Roads
● Soil	● 17501 - 19500	● 10501 - 12500	● 14001 - 16000	● 16001 - 18000	● 18001 - 30000	● 30001 - 1000000	● 30001 - 1000000	● 30001 - 1000000	■ Fence
● Soil	● 19501 - 808345	● 12501 - 60624	● 16001 - 187971	● 18001 - 30000	● 30001 - 1000000	● 30001 - 1000000	● 30001 - 1000000	● 30001 - 1000000	■ Tree Line
									■ Creek/Ditch
									■ Building
									■ Concrete Pad
									■ Debris Pile
									■ Area of Water > 1"
									■ Area of Slag/Soil

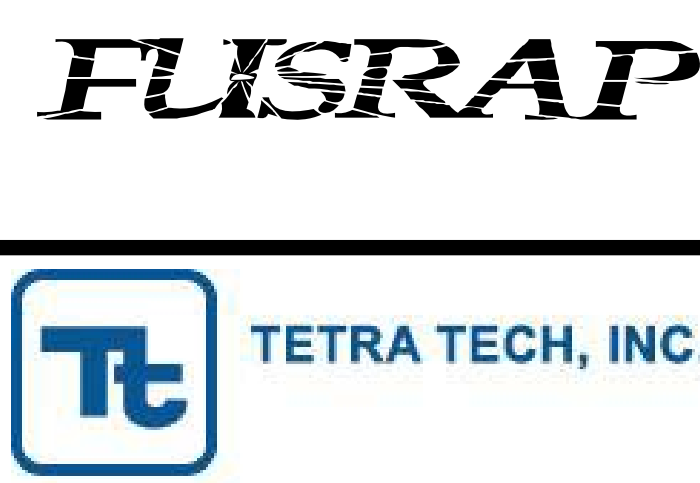
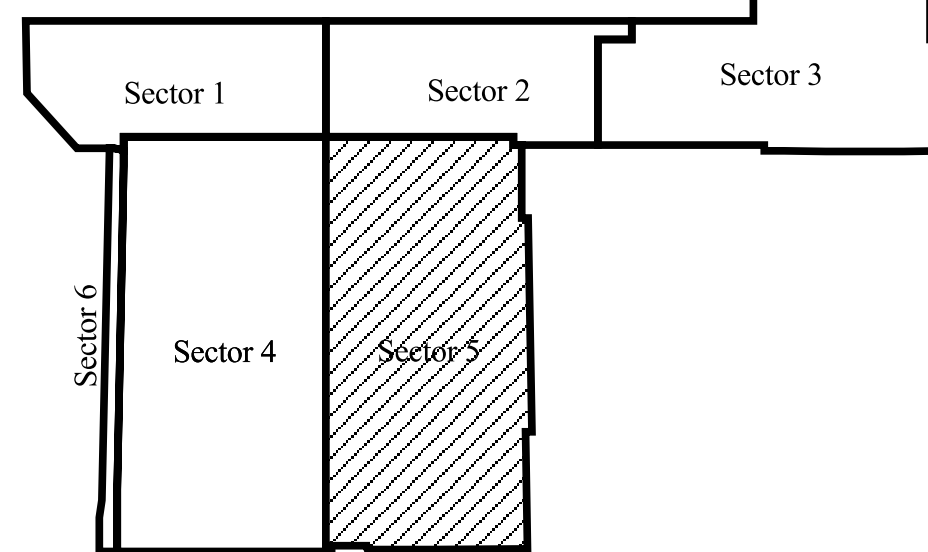
General Notes:

1) Debris pile 6: inaccessible area due to construction and demolition piles including broken concrete with rebar, asphalt piles, and brush piles.

Debris pile 7: inaccessible area due to construction and demolition piles including broken concrete with rebar, asphalt piles, and brush piles.

New York West State Plane NAD83 Meters

20 0 20 40 Meters

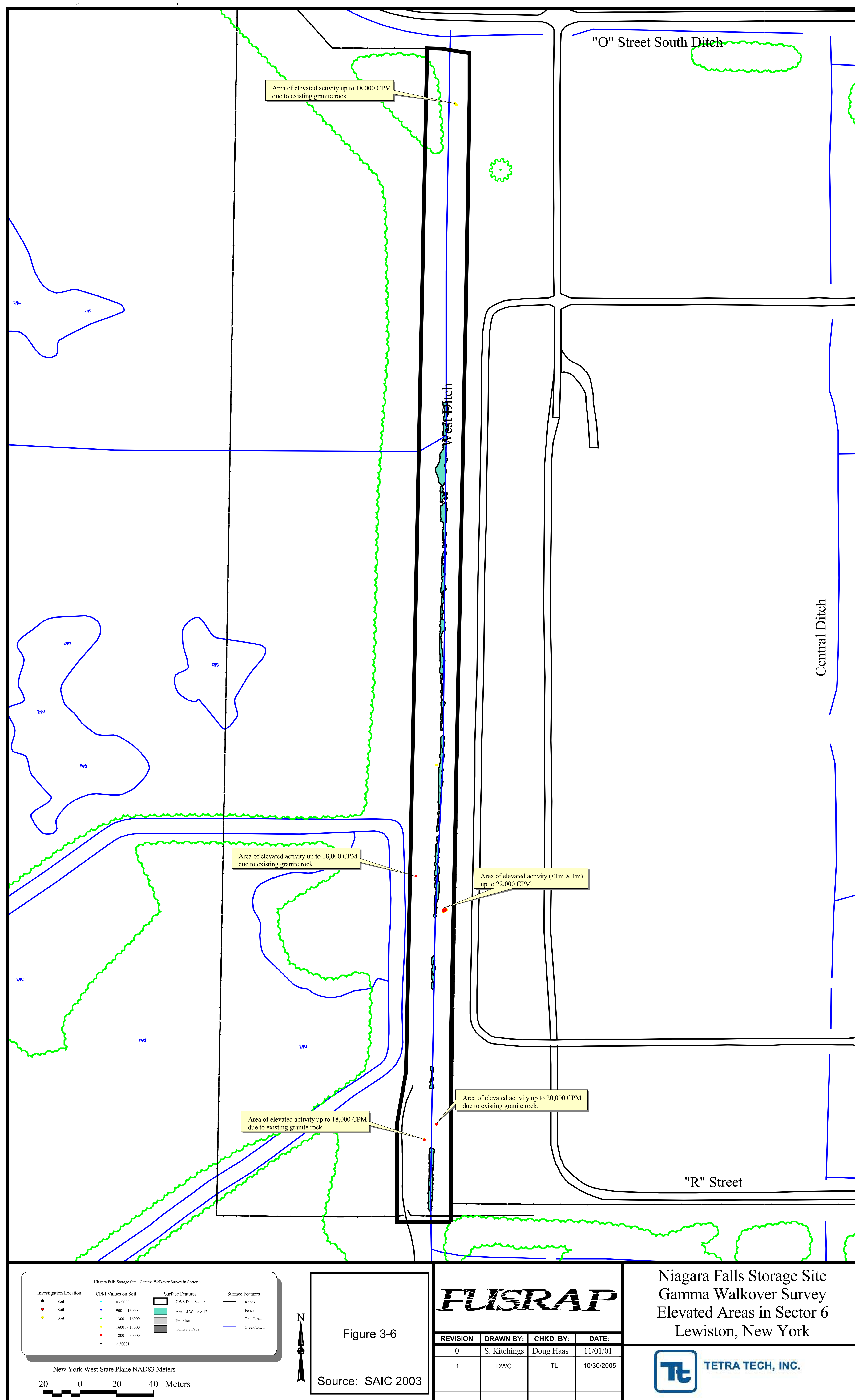


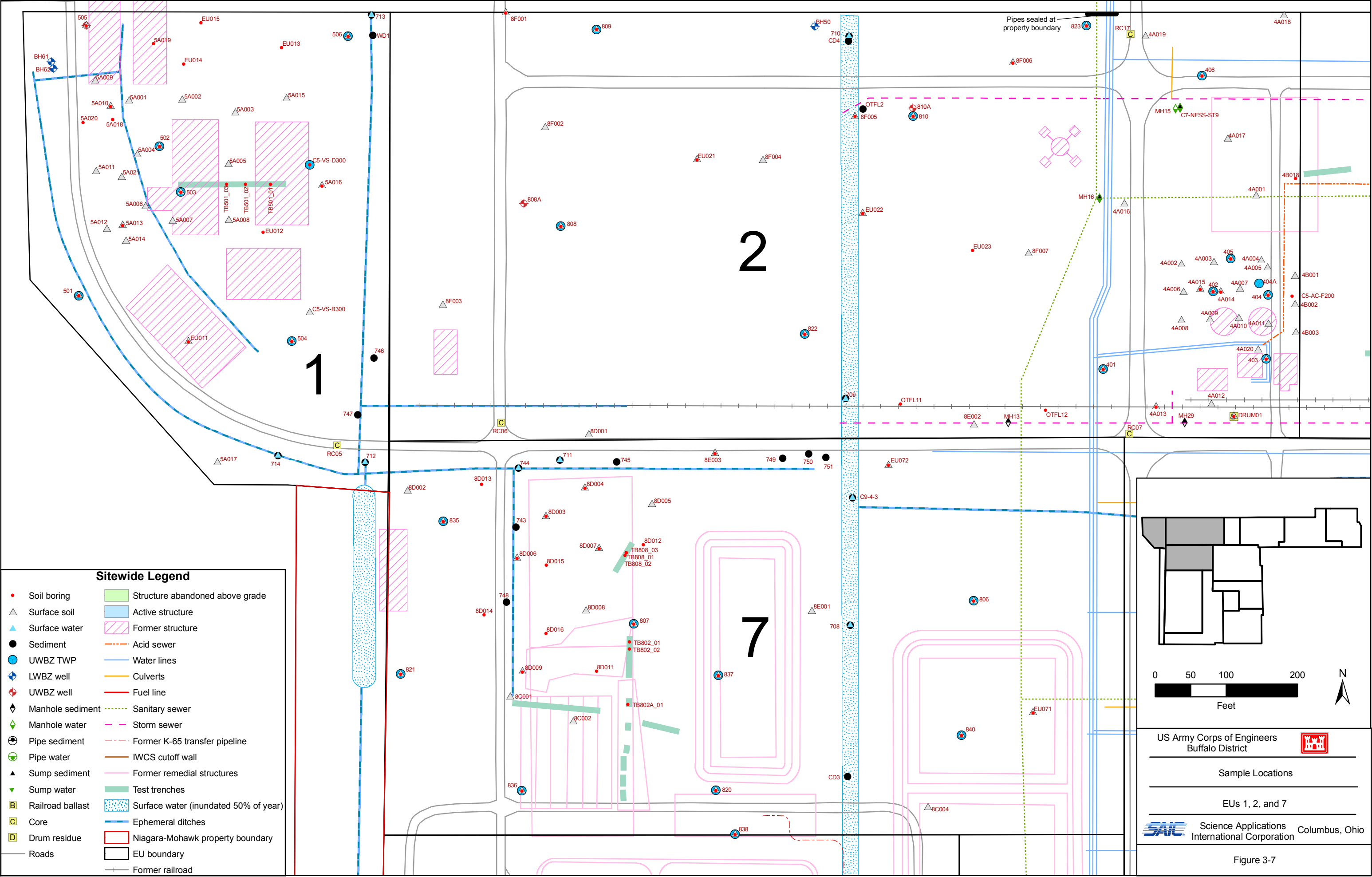
Niagara Falls Storage Site
Gamma Walkover Survey
Elevated Areas in Sector 5
Lewiston, New York

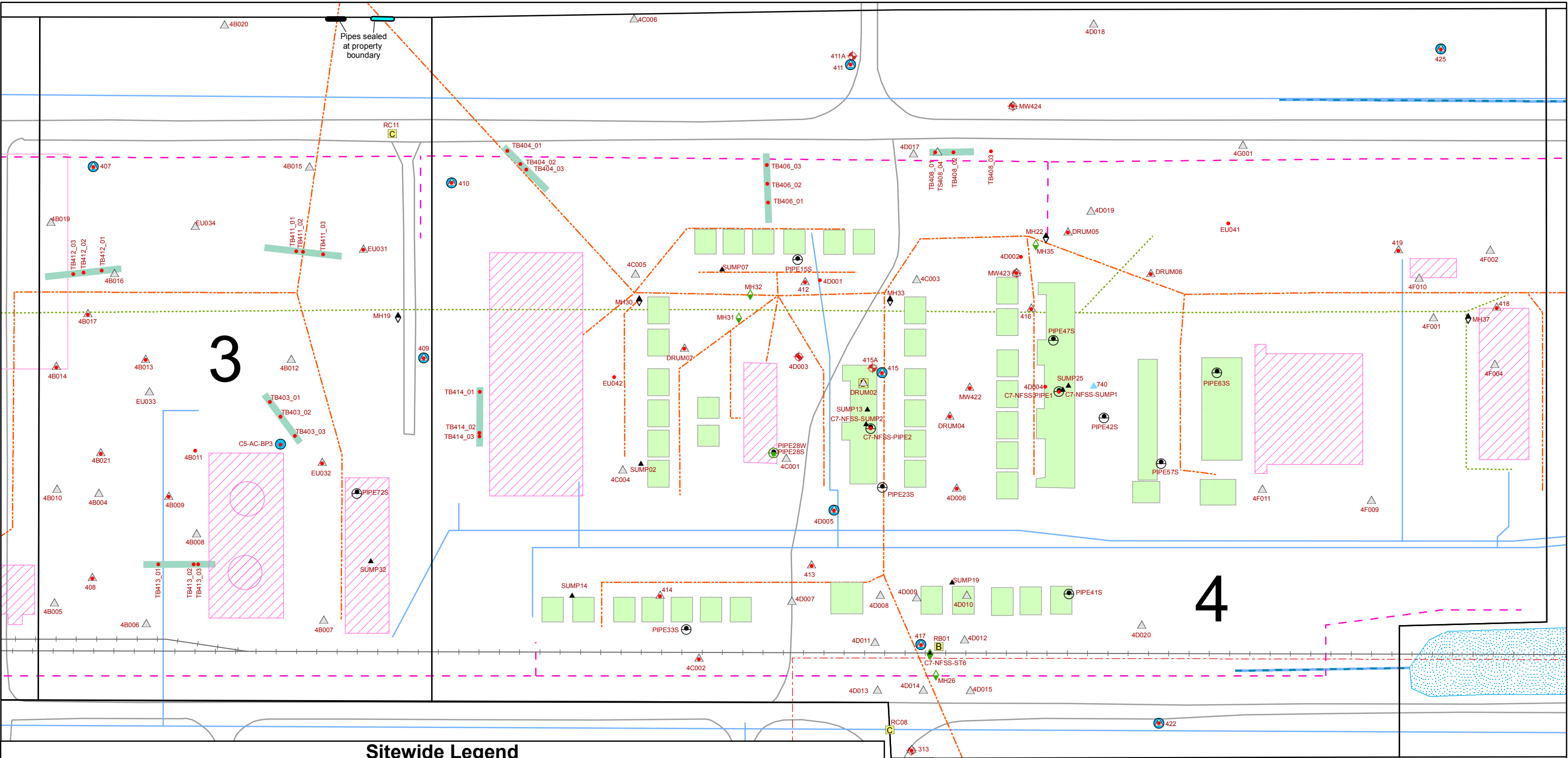
REVISION	DRAWN BY:	CHECKED BY:	DATE
0	S. Kitchings	Doug Haas	10/12/2001
1	DWC	TL	10/30/2005

Figure 3-5

Source: SAIC 2003

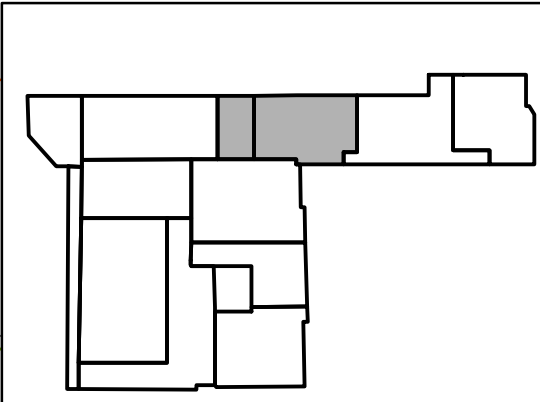






Sitewide Legend

- | | | | |
|--------------------|--------------------|---|---------------------------------|
| • Soil boring | ◆ Manhole water | ----- Acid sewer | Structure abandoned above grade |
| △ Surface soil | ⊙ Pipe sediment | — Water lines | Active structure |
| ▲ Surface water | ⊙ Pipe water | — Culverts | Former structure |
| ● Sediment | ▲ Sump sediment | — Fuel line | Former K-65 transfer pipeline |
| ⊕ UWBZ TWP | ▼ Sump water | ----- Sanitary sewer | IWCS cutoff wall |
| ⊕ UWBZ well | ■ Railroad ballast | ----- Storm sewer | Former remedial structures |
| ⊕ UWBZ well | ■ Core | ----- Surface water (inundated 50% of year) | Roads |
| ◆ Manhole sediment | ■ Drum residue | ----- Ephemeral ditches | Former railroad |
| | | ----- Test trenches | EU boundary |



0 40 80 160 Feet

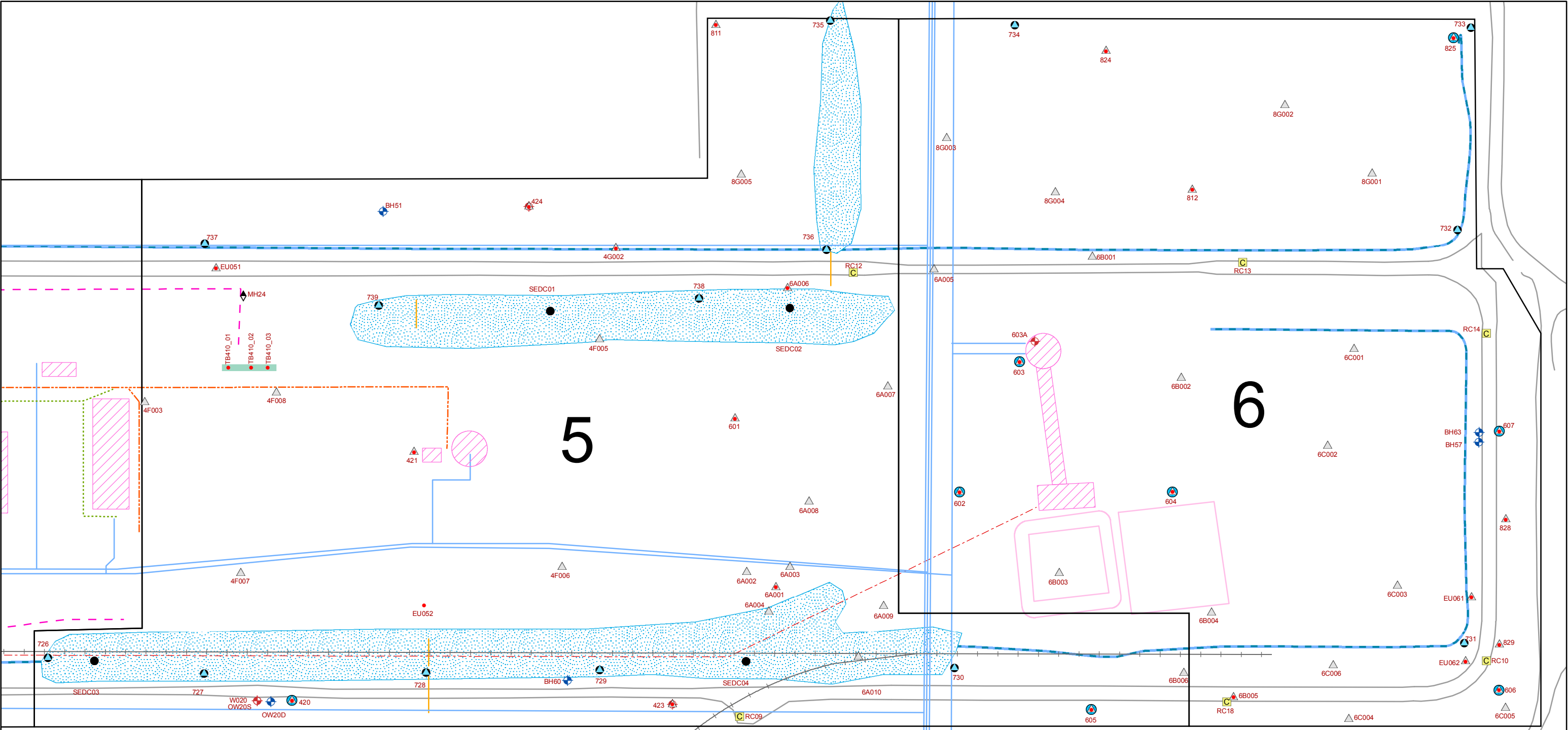
US Army Corps of Engineers
Buffalo District

Sample Locations

EUs 3 and 4

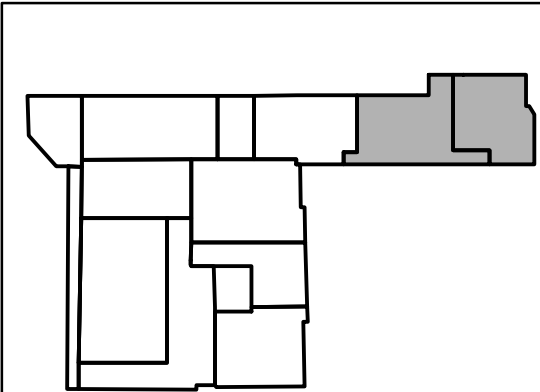
SAIC Science Applications International Corporation Columbus, Ohio

Figure 3-8



Sitewide Legend

- | | | | |
|--------------------|--------------------|---------------------------------------|---------------------------------|
| • Soil boring | ◆ Manhole water | --- Acid sewer | Structure abandoned above grade |
| △ Surface soil | ⊙ Pipe sediment | — Water lines | Active structure |
| ▲ Surface water | ⊙ Pipe water | — Culverts | Former structure |
| ● Sediment | ▲ Sump sediment | — Fuel line | Former K-65 transfer pipeline |
| ⊙ UWBZ TWP | ▼ Sump water | --- Sanitary sewer | — IWCS cutoff wall |
| ⊕ LWBZ well | ⊠ Railroad ballast | --- Storm sewer | — Former remedial structures |
| ⊕ UWBZ well | ⊠ Core | Surface water (inundated 50% of year) | — Roads |
| ◆ Manhole sediment | ⊠ Drum residue | — Ephemeral ditches | — Former railroad |
| | | — Test trenches | EU boundary |



0 60 120 240 Feet

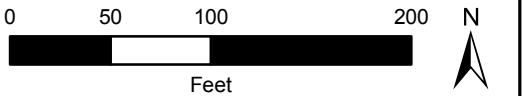
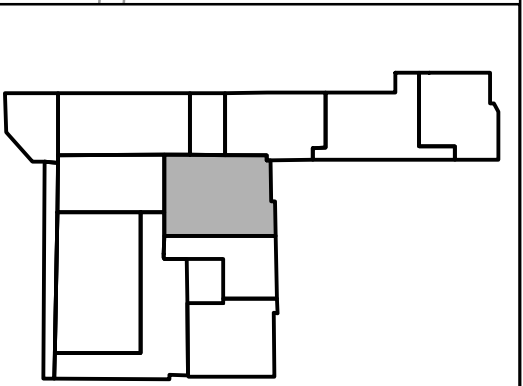
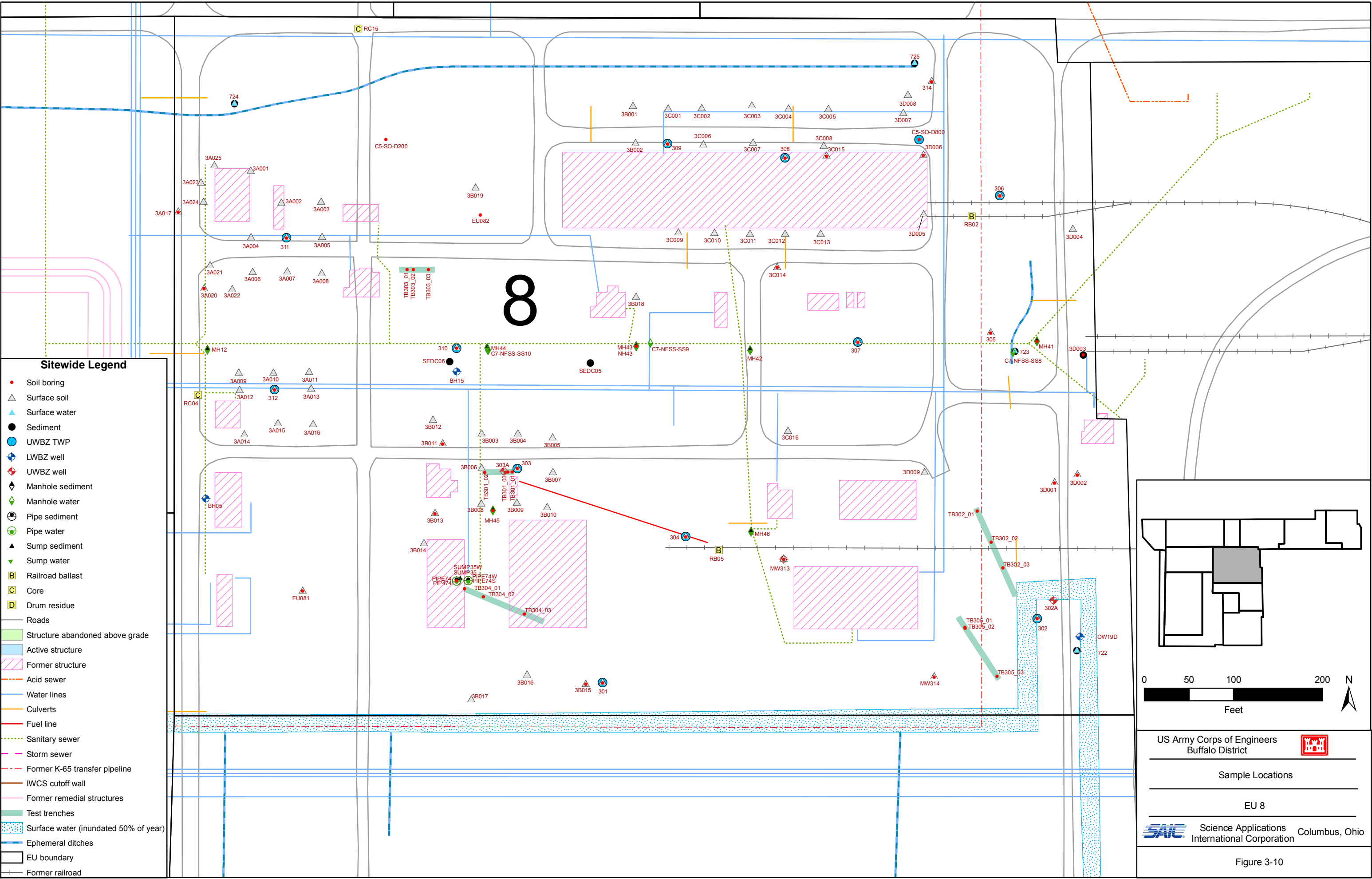
US Army Corps of Engineers Buffalo District

Sample Locations

EUs 5 and 6

SAIC Science Applications International Corporation Columbus, Ohio

Figure 3-9

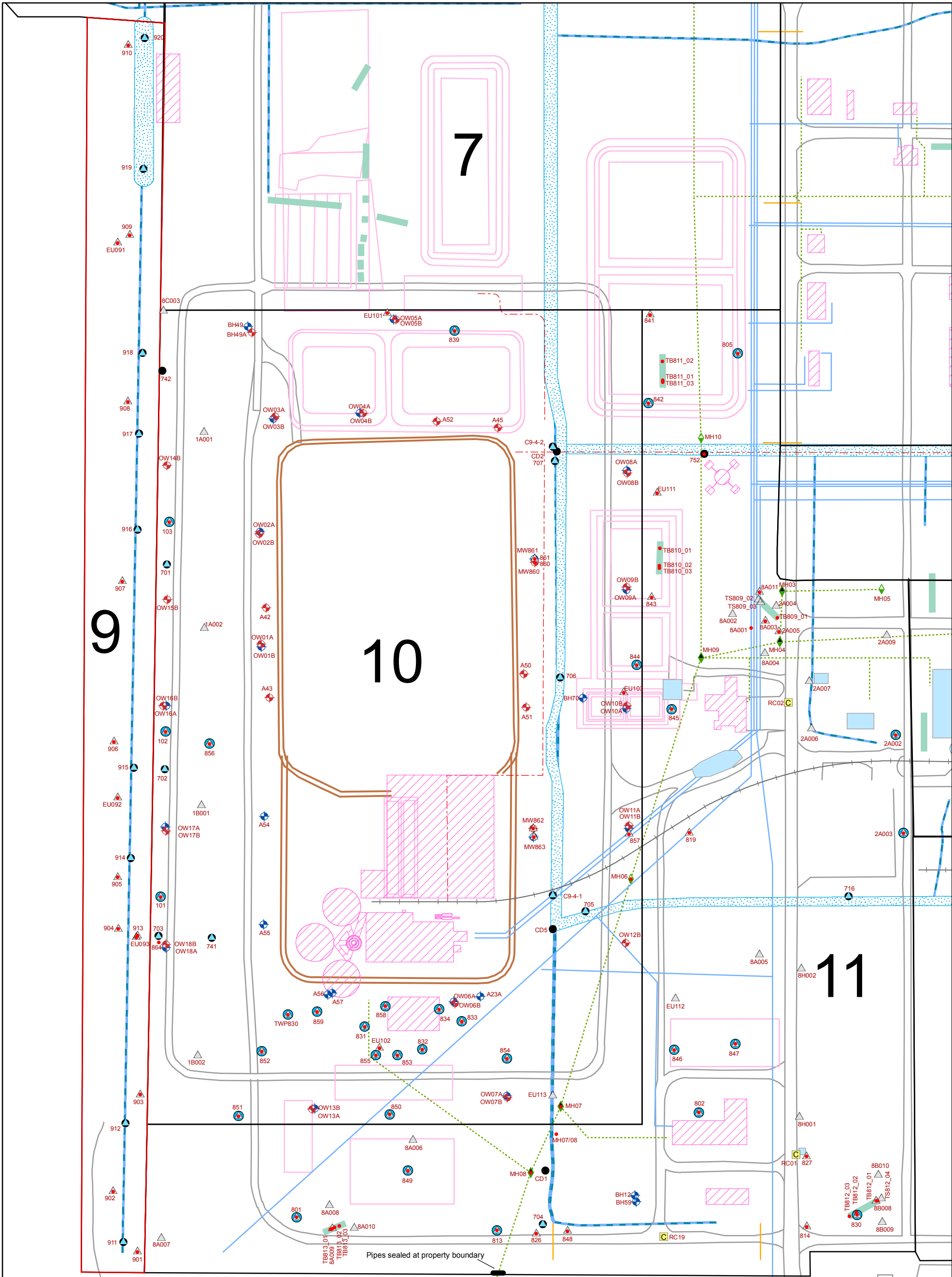


US Army Corps of Engineers
Buffalo District

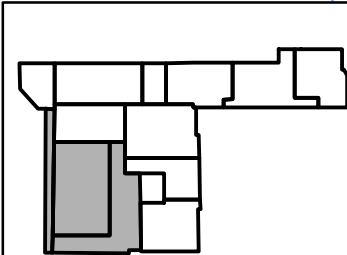
Sample Locations

EU 8

SAIC Science Applications International Corporation Columbus, Ohio



Sitewide Legend			
• Soil boring	◆ Manhole water	--- Acid sewer	■ Structure abandoned above grade
△ Surface soil	⊕ Pipe sediment	— Water lines	■ Active structure
▲ Surface water	⊖ Pipe water	— Culverts	▨ Former structure
● Sediment	▲ Sump sediment	— Fuel line	--- Former K-65 transfer pipeline
● UWBZ TWP	▼ Sump water	--- Sanitary sewer	— IWCS cutoff wall
⊕ LWBZ well	■ Railroad ballast	--- Storm sewer	— Former remedial structures
⊕ UWBZ well	■ Core	--- Surface water (inundated 50% of year)	— Roads
◆ Manhole sediment	■ Drum residue	— Ephemeral ditches	— Former railroad
		— Test trenches	■ Niagara-Mohawk property boundary
			■ EU boundary



04080160

Feet

N

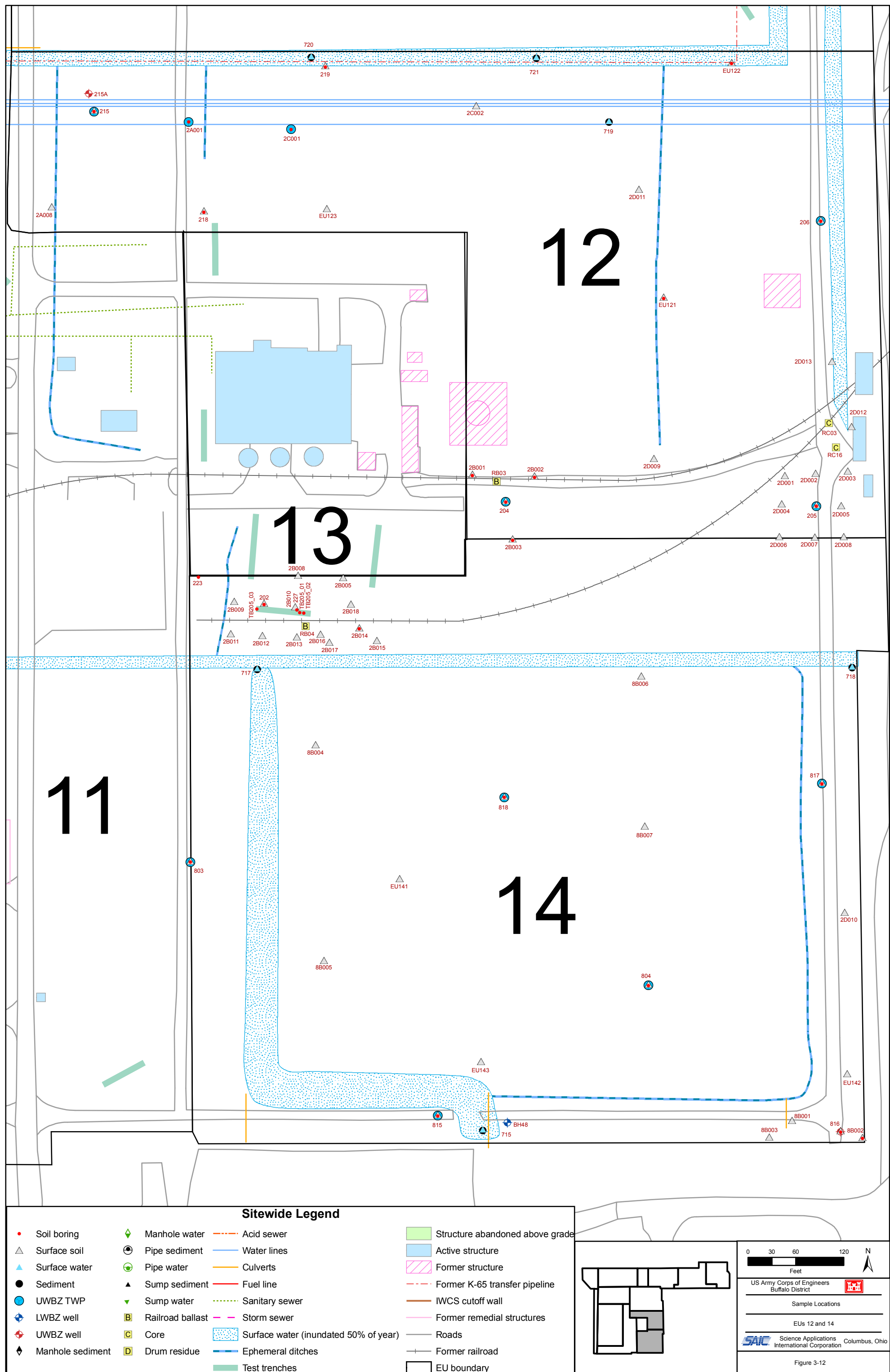
US Army Corps of Engineers
Buffalo District

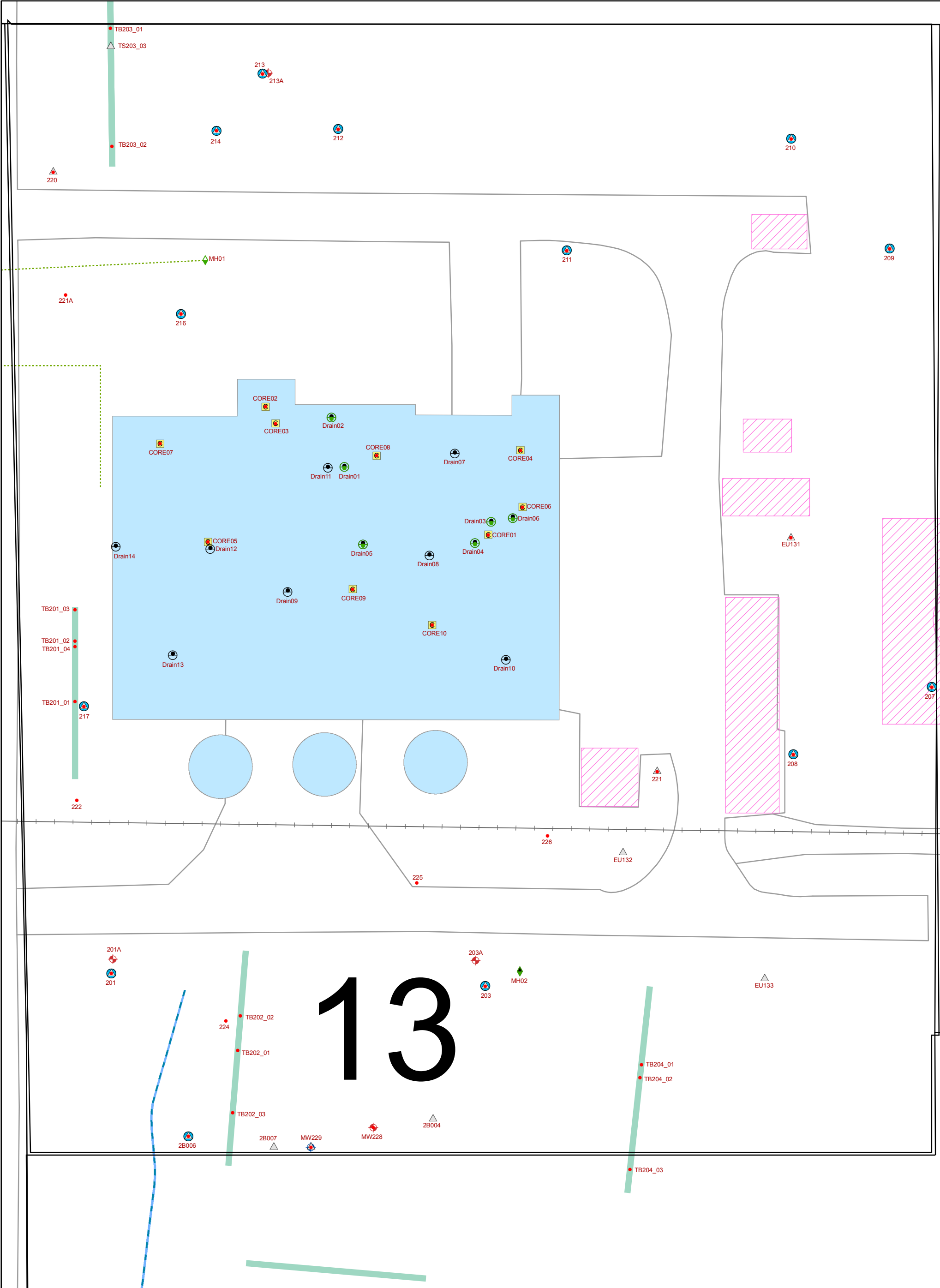
Sample Locations

EUs 9, 10, and 11

SAIC Science Applications
International CorporationColumbus, Ohio

Figure 3-11





Sitewide Legend

• Soil boring	◆ Manhole water	--- Acid sewer	Structure abandoned above grade
△ Surface soil	⊙ Pipe sediment	— Water lines	Active structure
▲ Surface water	⊙ Pipe water	— Culverts	Former structure
● Sediment	▲ Sump sediment	— Fuel line	Former K-65 transfer pipeline
⊙ UWBZ TWP	▼ Sump water	--- Sanitary sewer	— IWCS cutoff wall
⊙ LWBZ well	■ Railroad ballast	— Storm sewer	Former remedial structures
⊙ UWBZ well	■ Core	Surface water (inundated 50% of year)	— Roads
◆ Manhole sediment	■ Drum residue	— Ephemeral ditches	— Former railroad
		— Test trenches	EU boundary

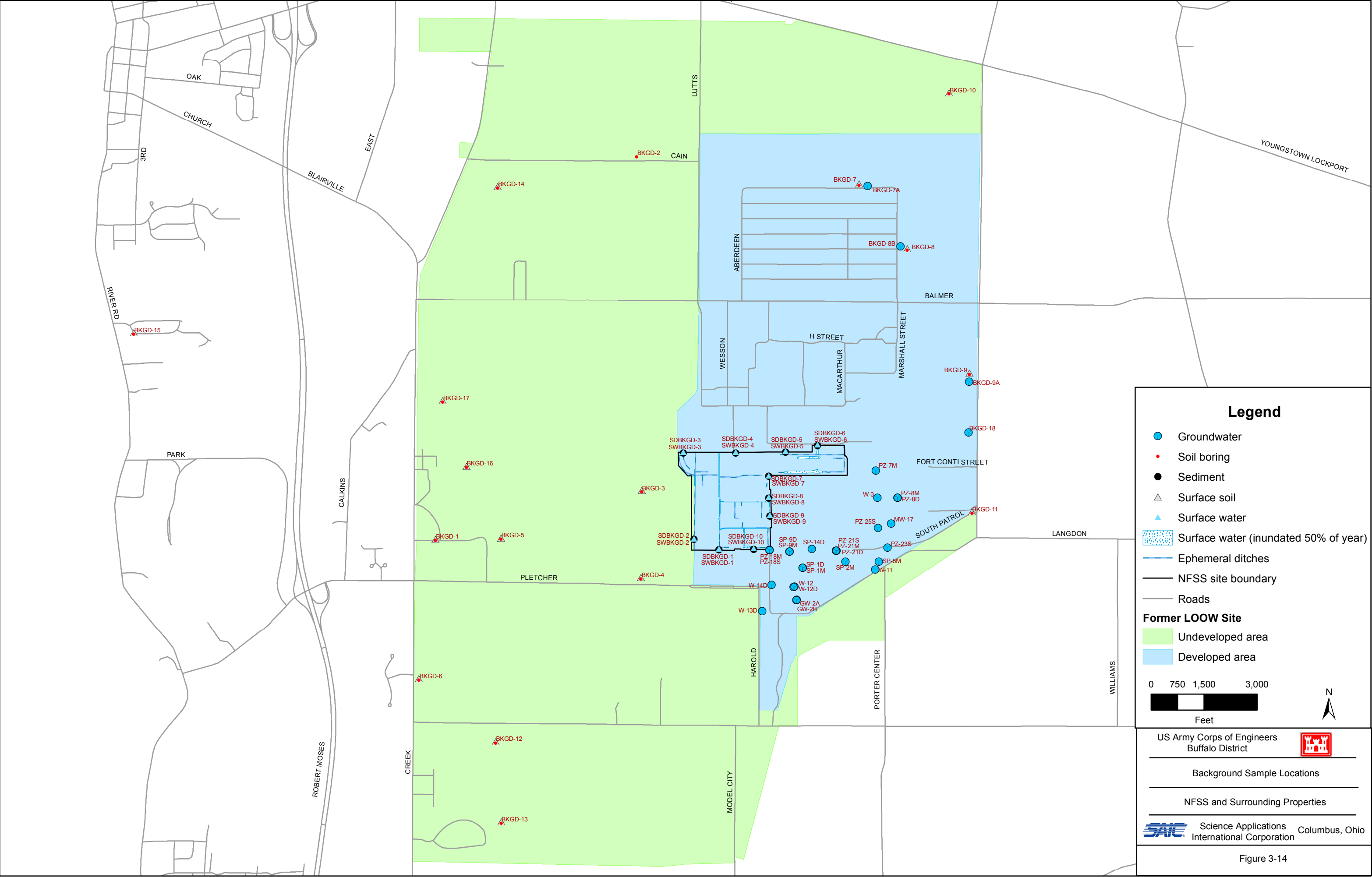
US Army Corps of Engineers
Buffalo District

Sample Locations

EU 13

SAIC Science Applications International Corporation Columbus, Ohio

Figure 3-13



Legend

- Groundwater
- Soil boring
- Sediment
- Surface soil
- Surface water
- Surface water (inundated 50% of year)
- Ephemeral ditches
- NFSS site boundary
- Roads

Former LOOW Site

- Undeveloped area
- Developed area

07501,5003,000

Feet

N

US Army Corps of Engineers
Buffalo District

Background Sample Locations

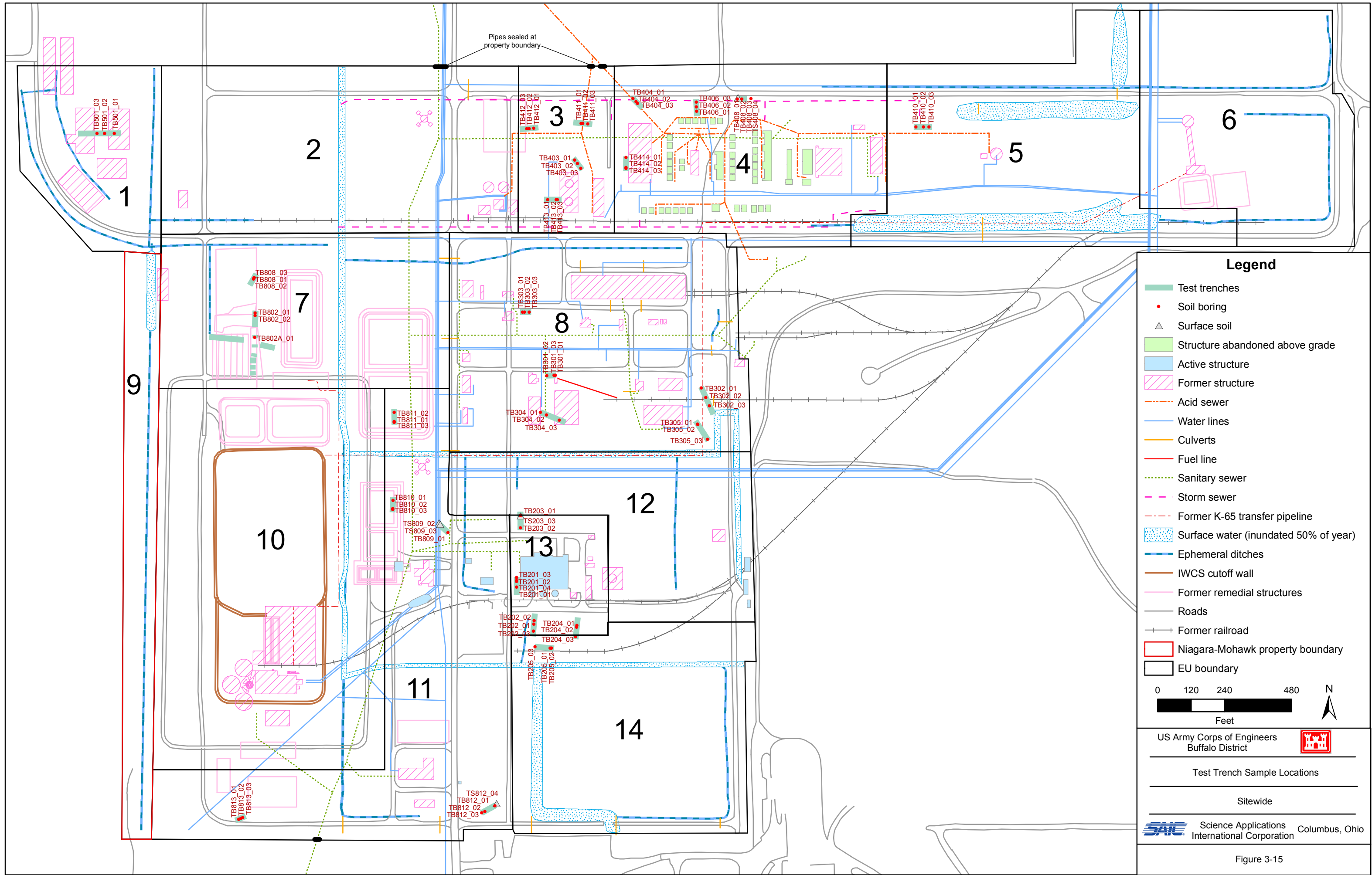
NFSS and Surrounding Properties

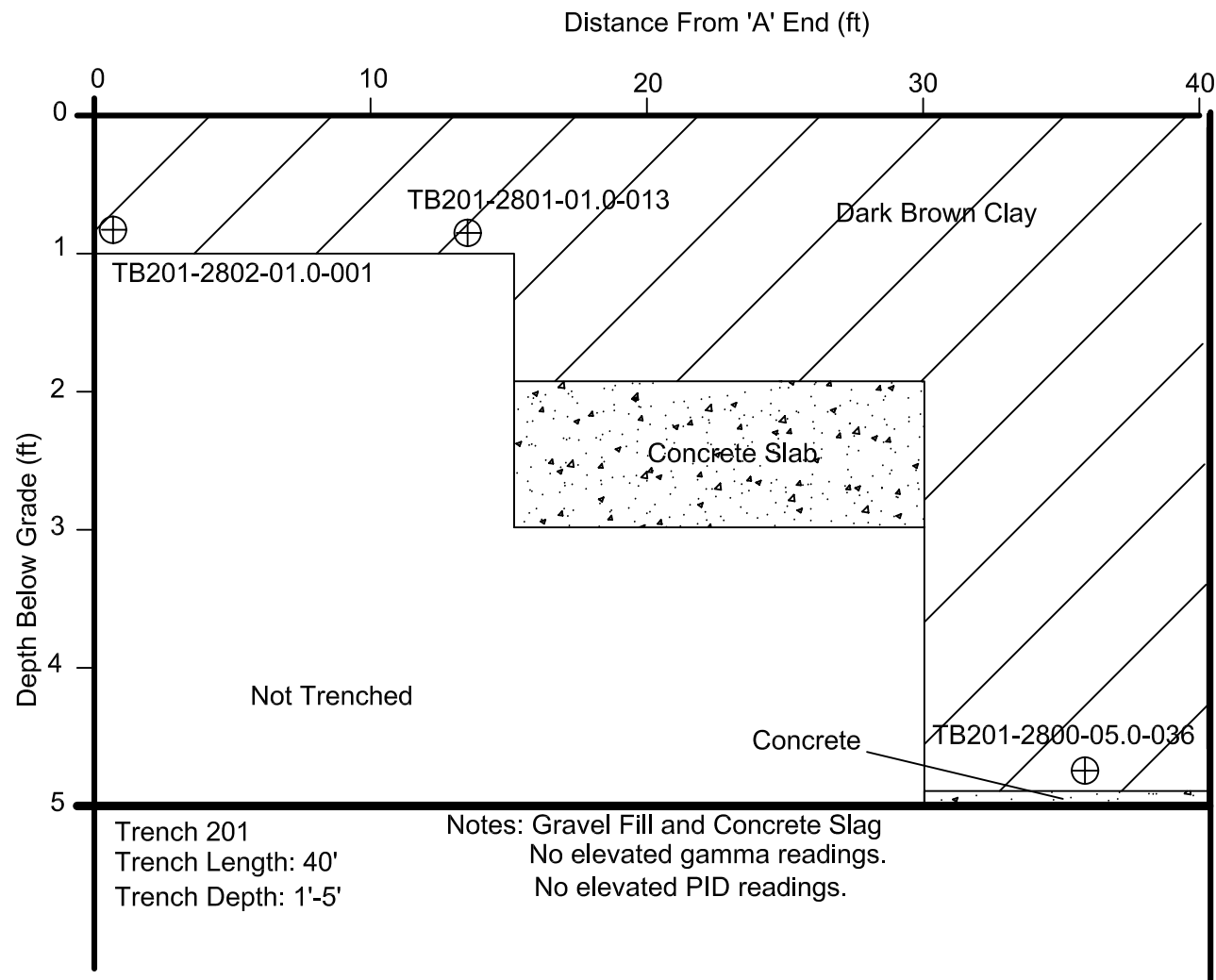
SAIC

Science Applications
International Corporation

Columbus, Ohio

Figure 3-14

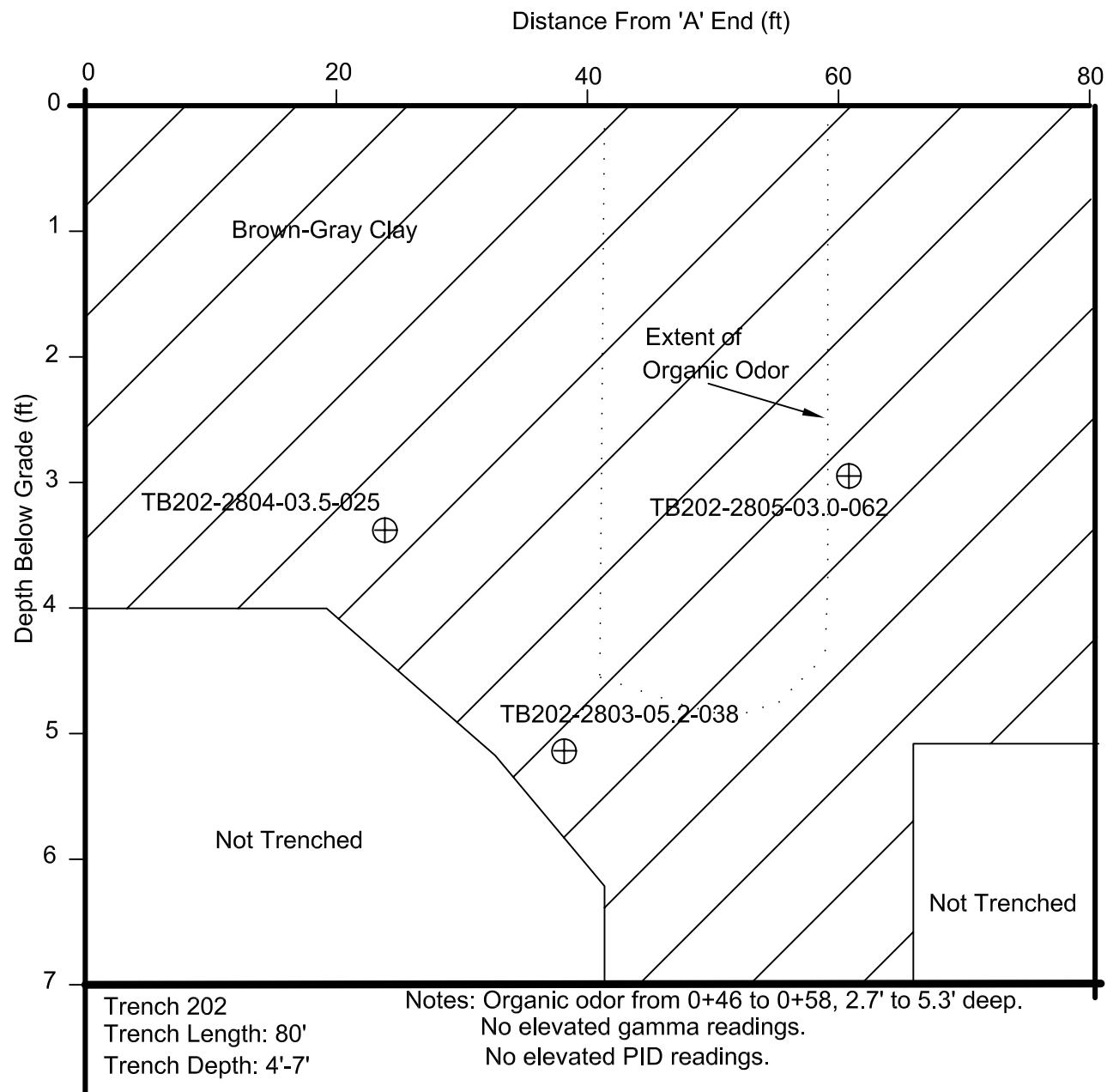




TRENCH 201
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

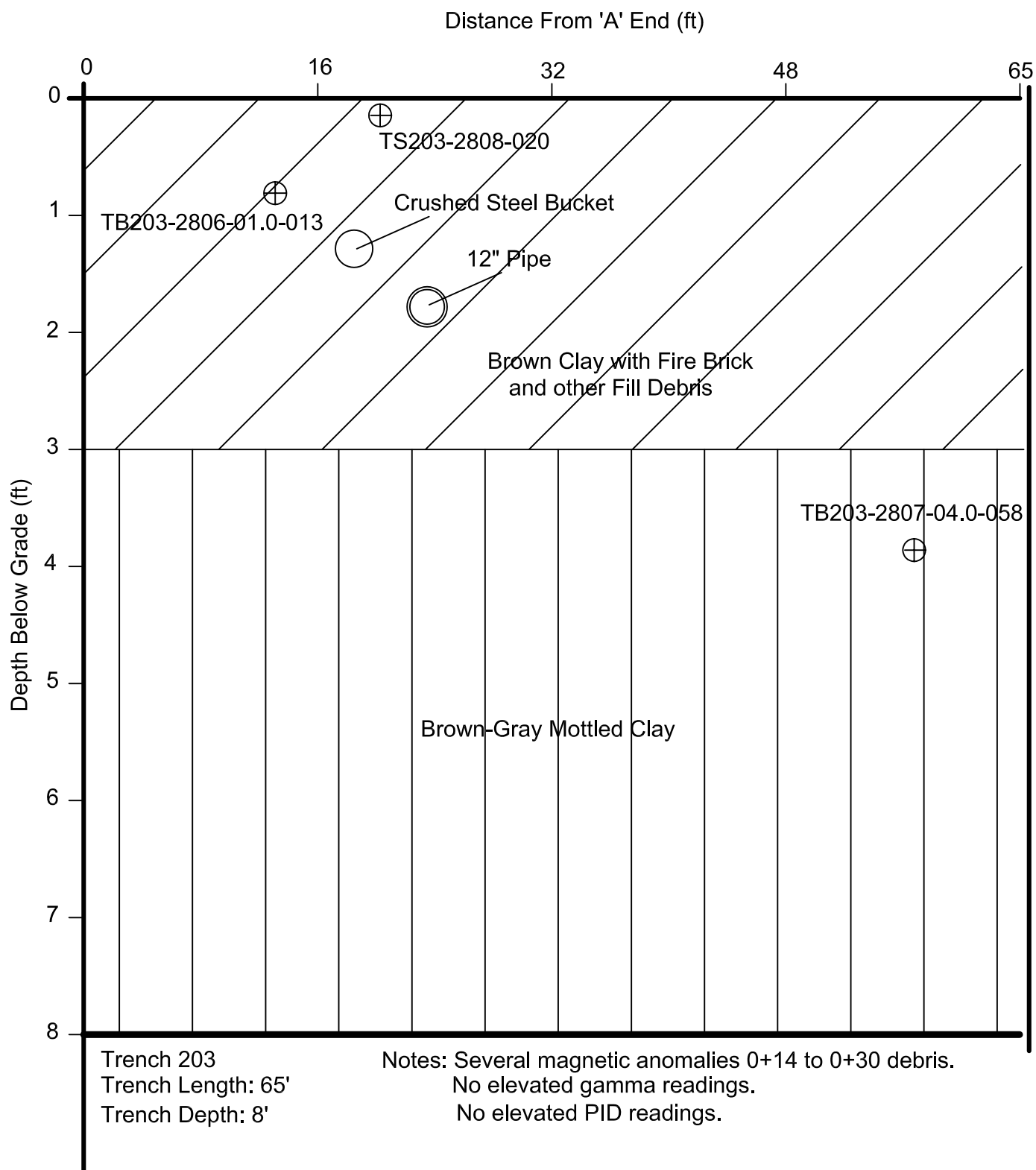
PROJECT NO. 15892	FIGURE #: 3-16
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 202
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

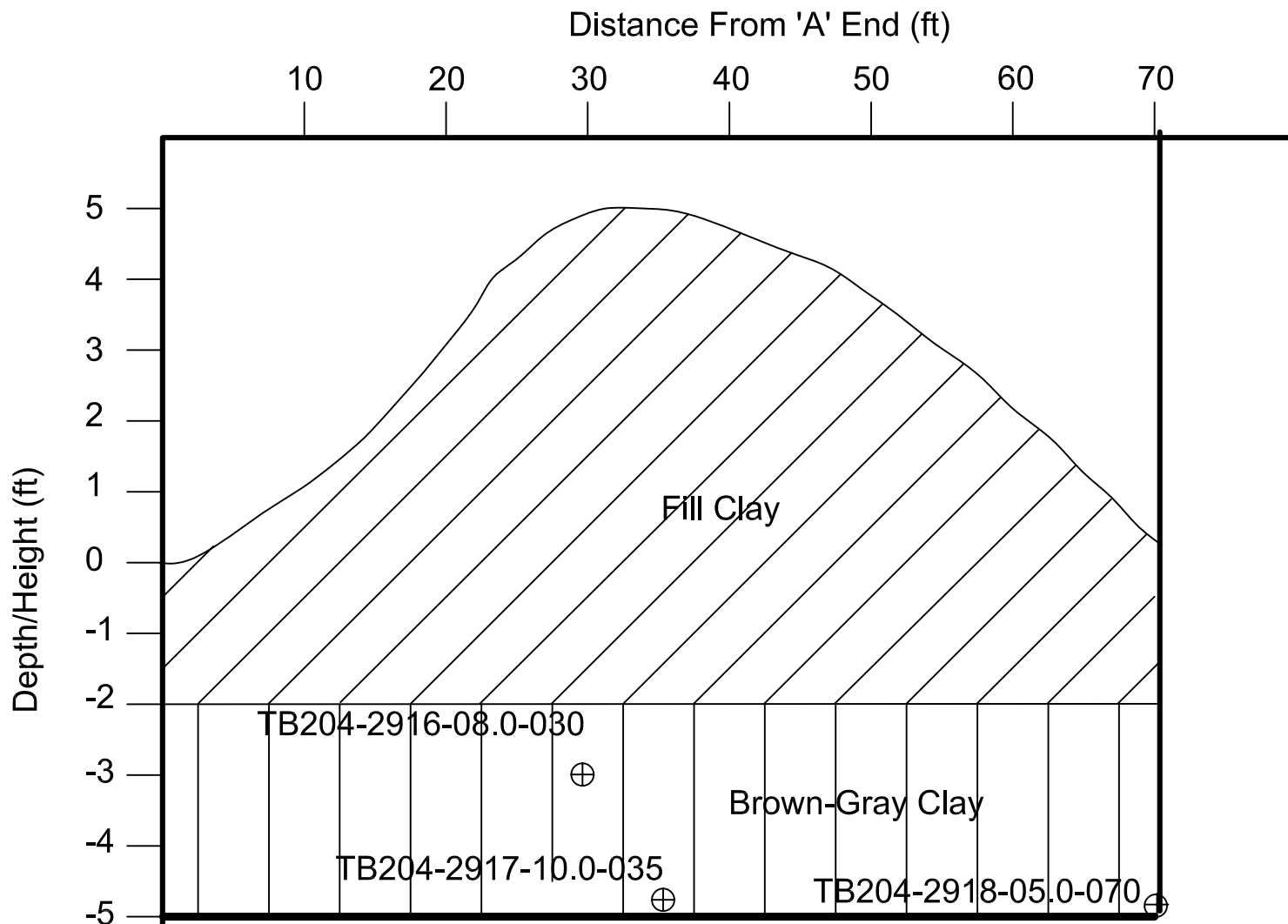
PROJECT NO. 15892	FIGURE #: 3-17
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 203
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-18
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY:

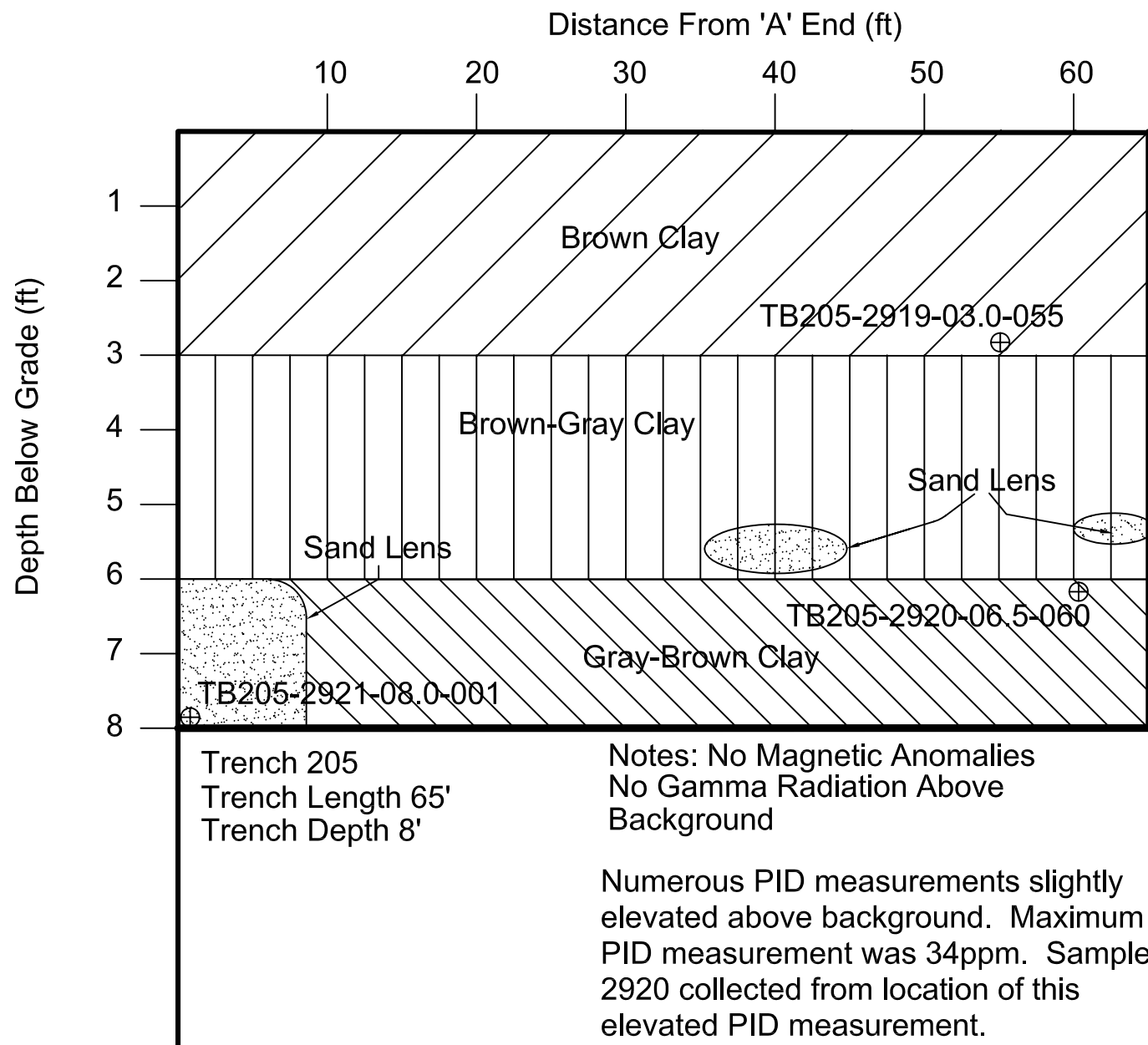


Trench 204
Trench Length: 70'
Trench Depth: 10'

Notes: Trench excavated
through spoils pile located
south of building 401.
No Magnetic Anomalies Found
No Gamma Radiation Exceeded Background
No Elevated PID measurements

TRENCH 204
NIAGARA FALLS STORAGE SITE

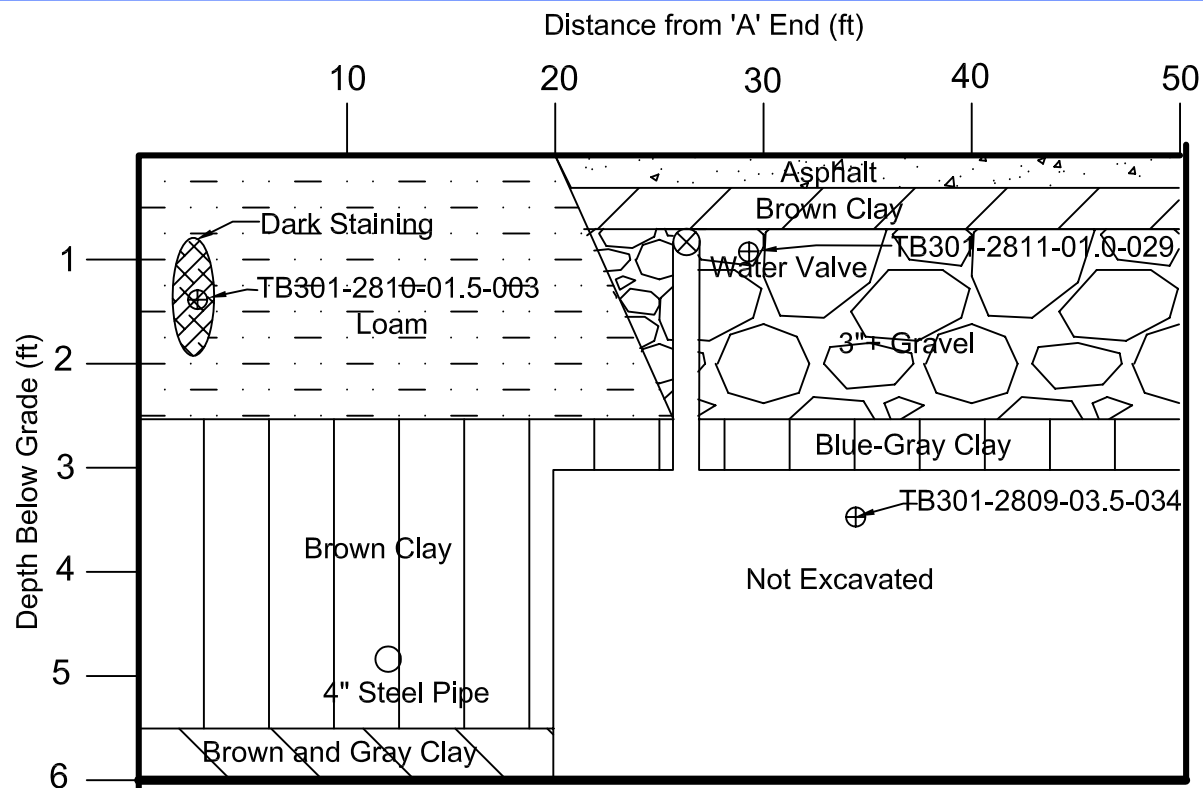
MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-19
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 205
 NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
 ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-20
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



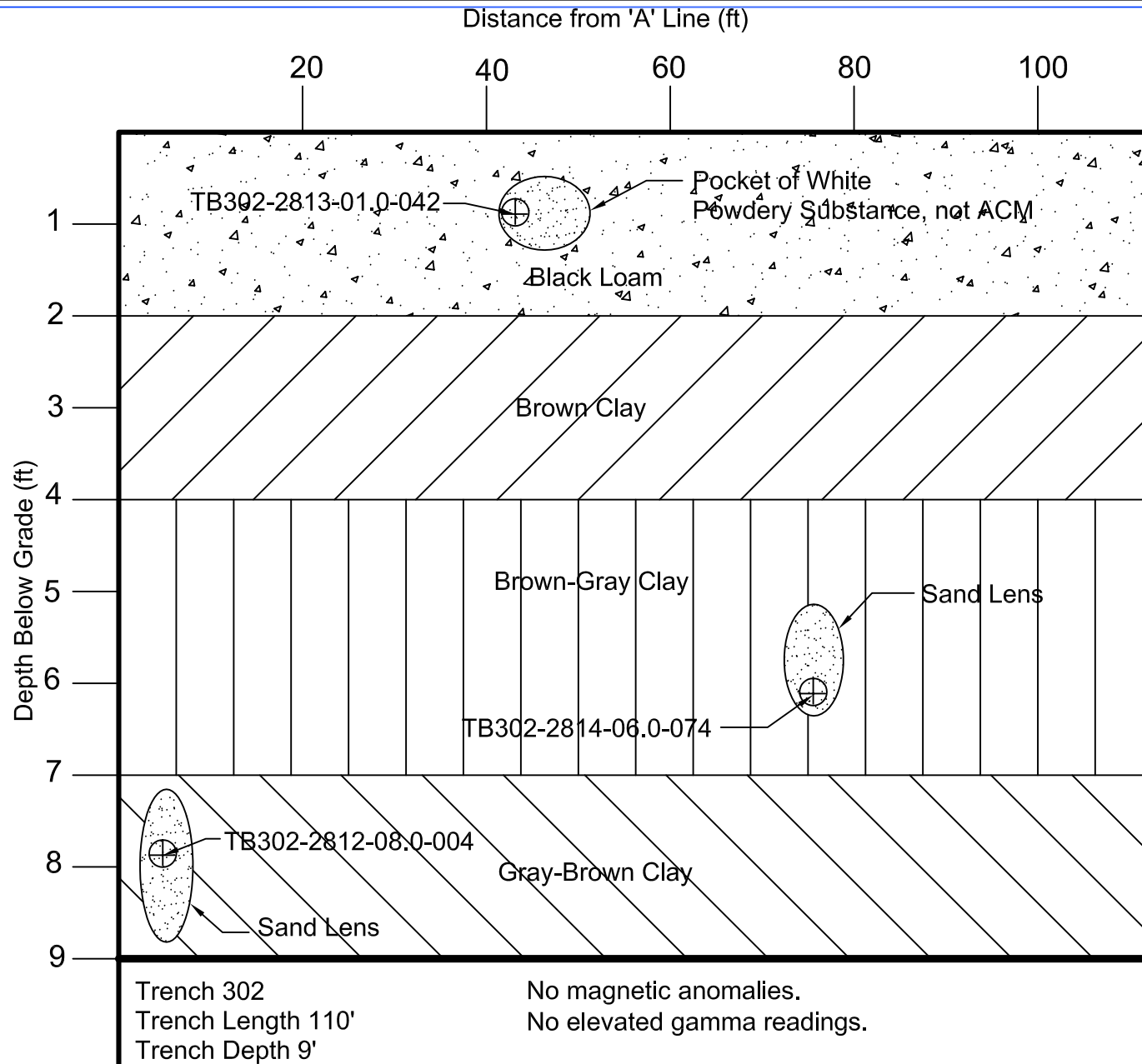
Trench 301
Trench Length: 50'
Trench Depth: 7'

Notes: Because of Infiltrating groundwater trench not excavated below 3' BGL between 0+20' and 0+50'
Trench not excavated below 1' BGL from 0+27' to 0+28' because of water valve.
Gamma hotspot of 31kcpm detected and sampled at 0+29'
No elevated PID measurements
Magnetic anomalies detected between 0+00' and 0+20'.
Attributed to steel pipe and rebar.

TRENCH 301
NIAGARA FALLS STORAGE SITE

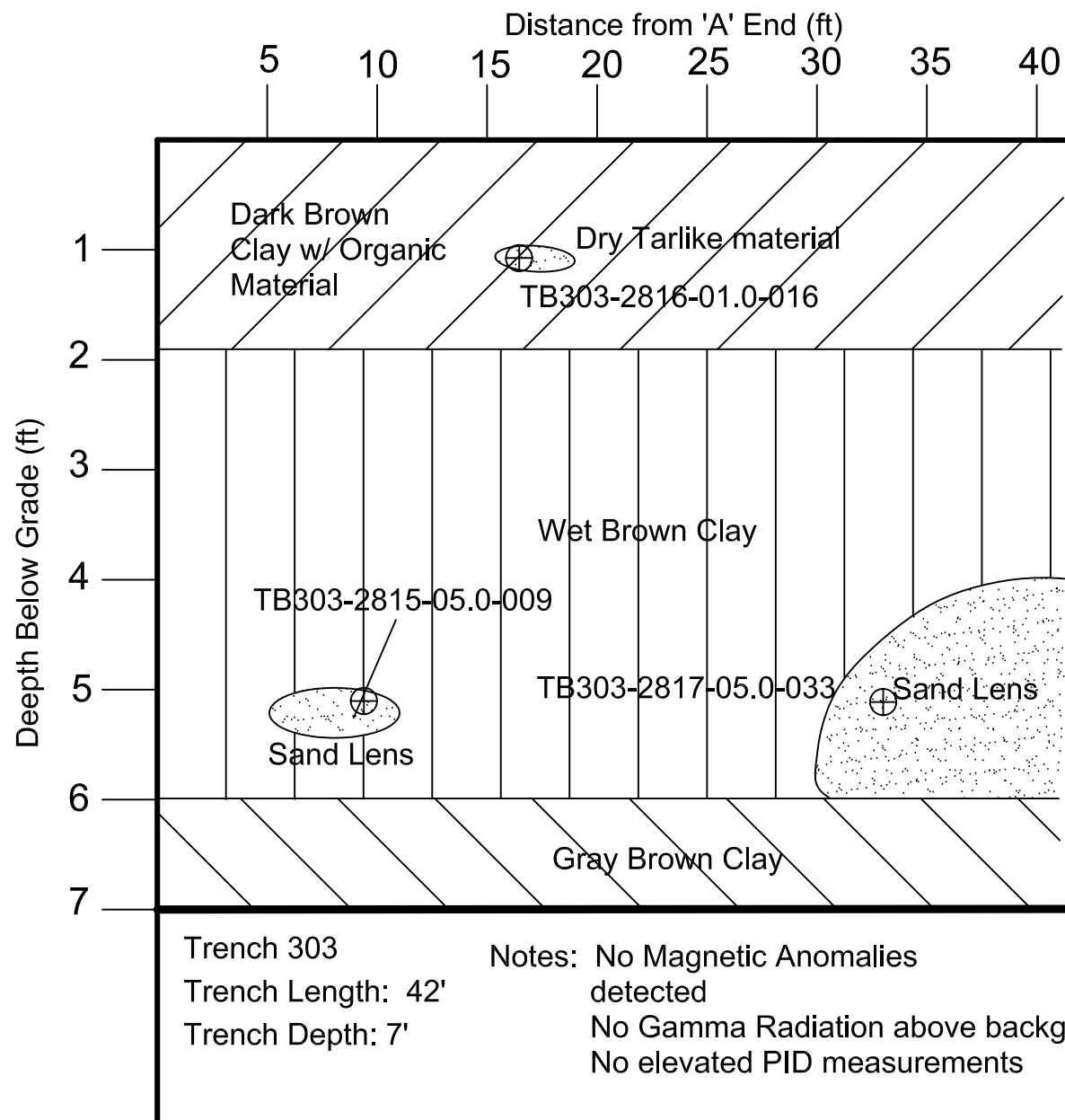
MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-21
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



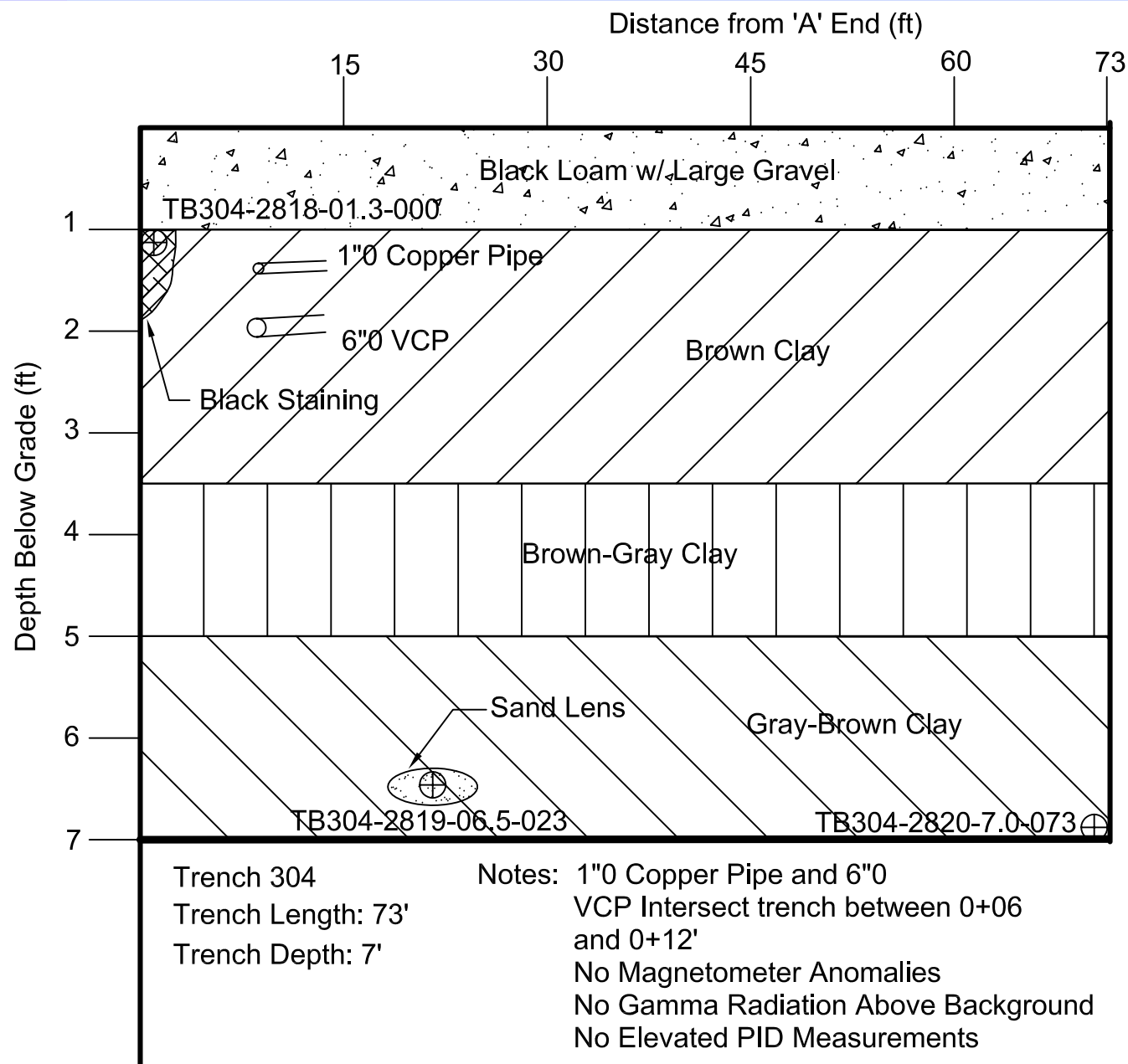
TRENCH 302
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-22
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 303
NIAGARA FALLS STORAGE SITE

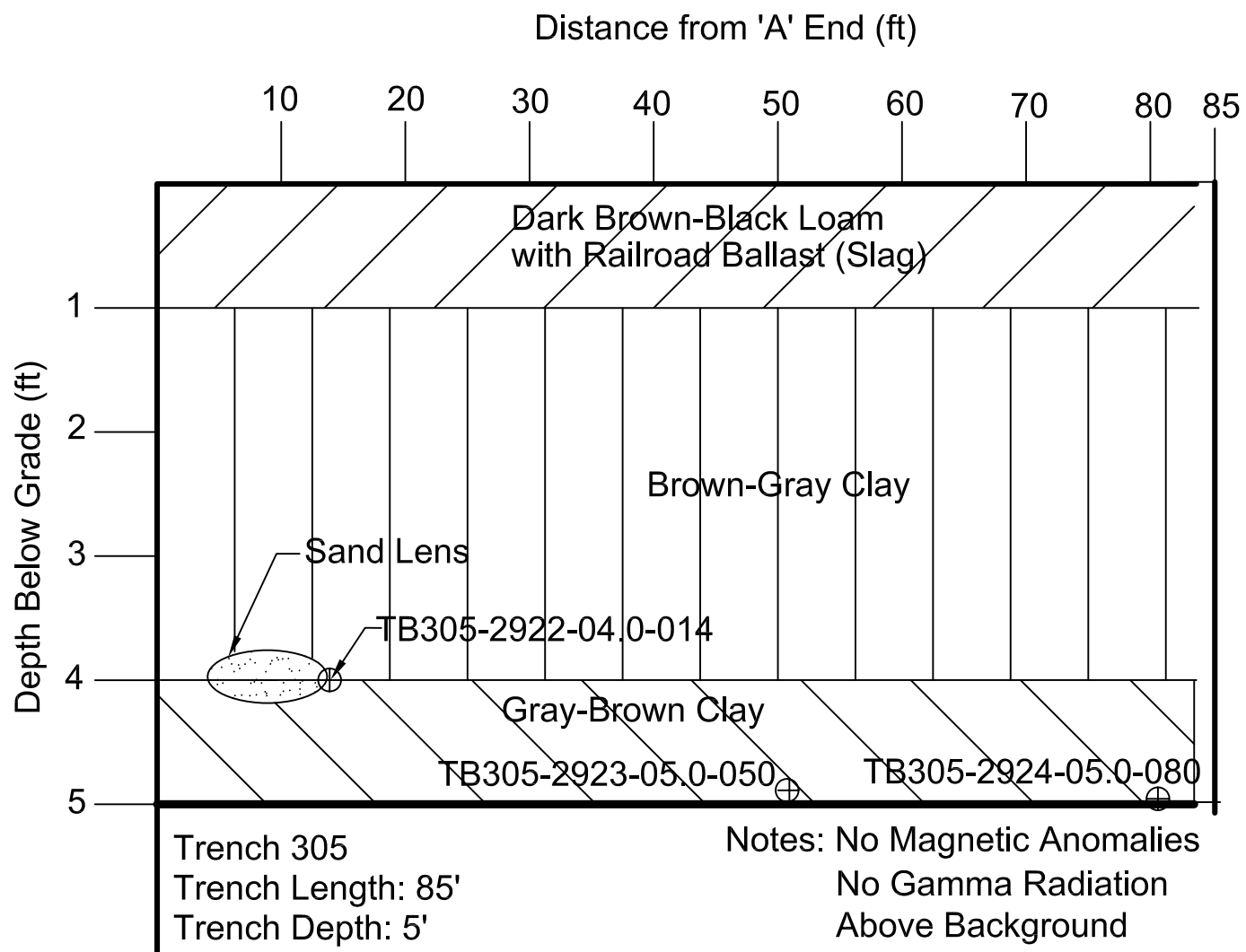
MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-23
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 304
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

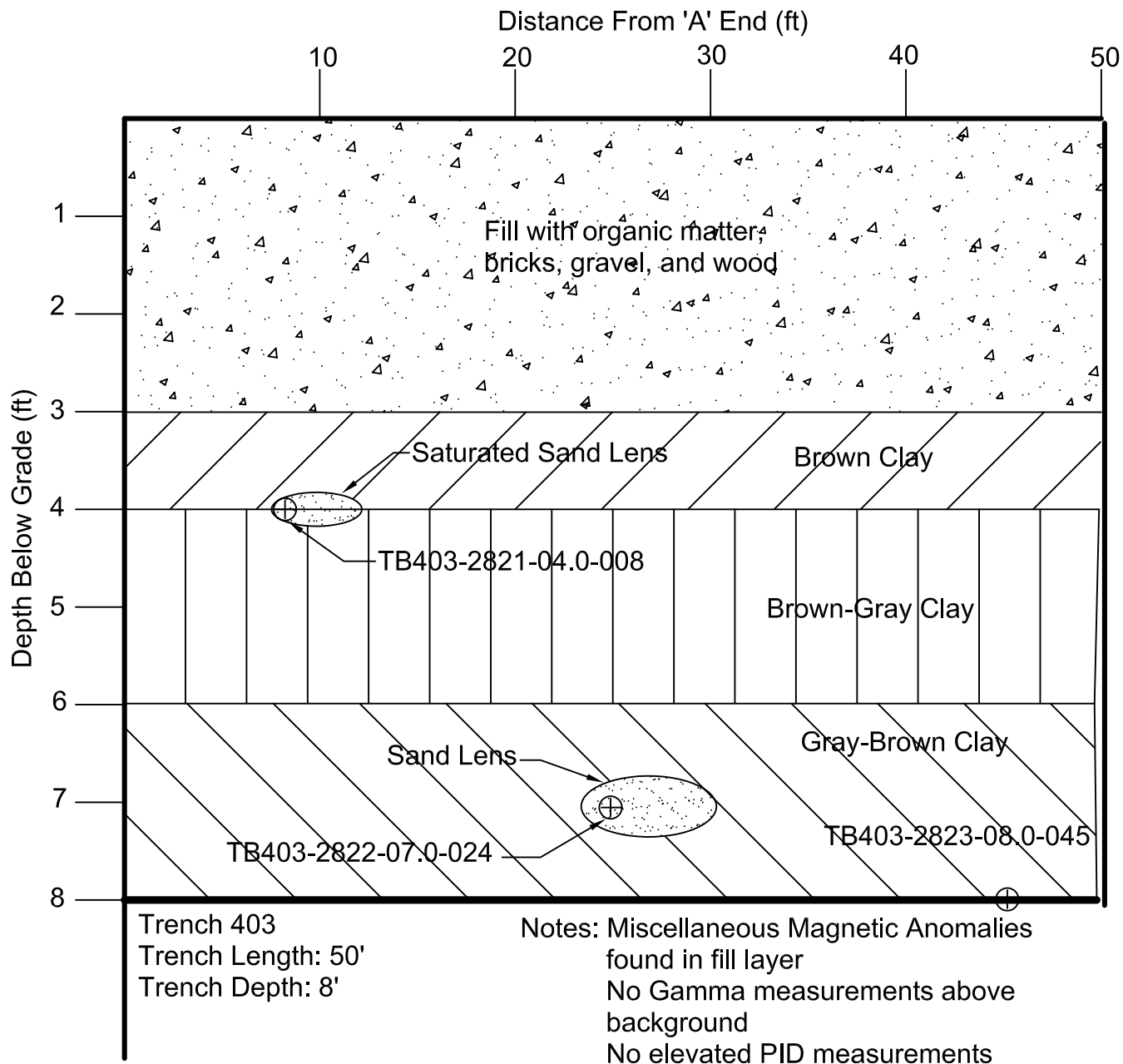
PROJECT NO. 15892	FIGURE #: 3-24
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 305
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-25
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS

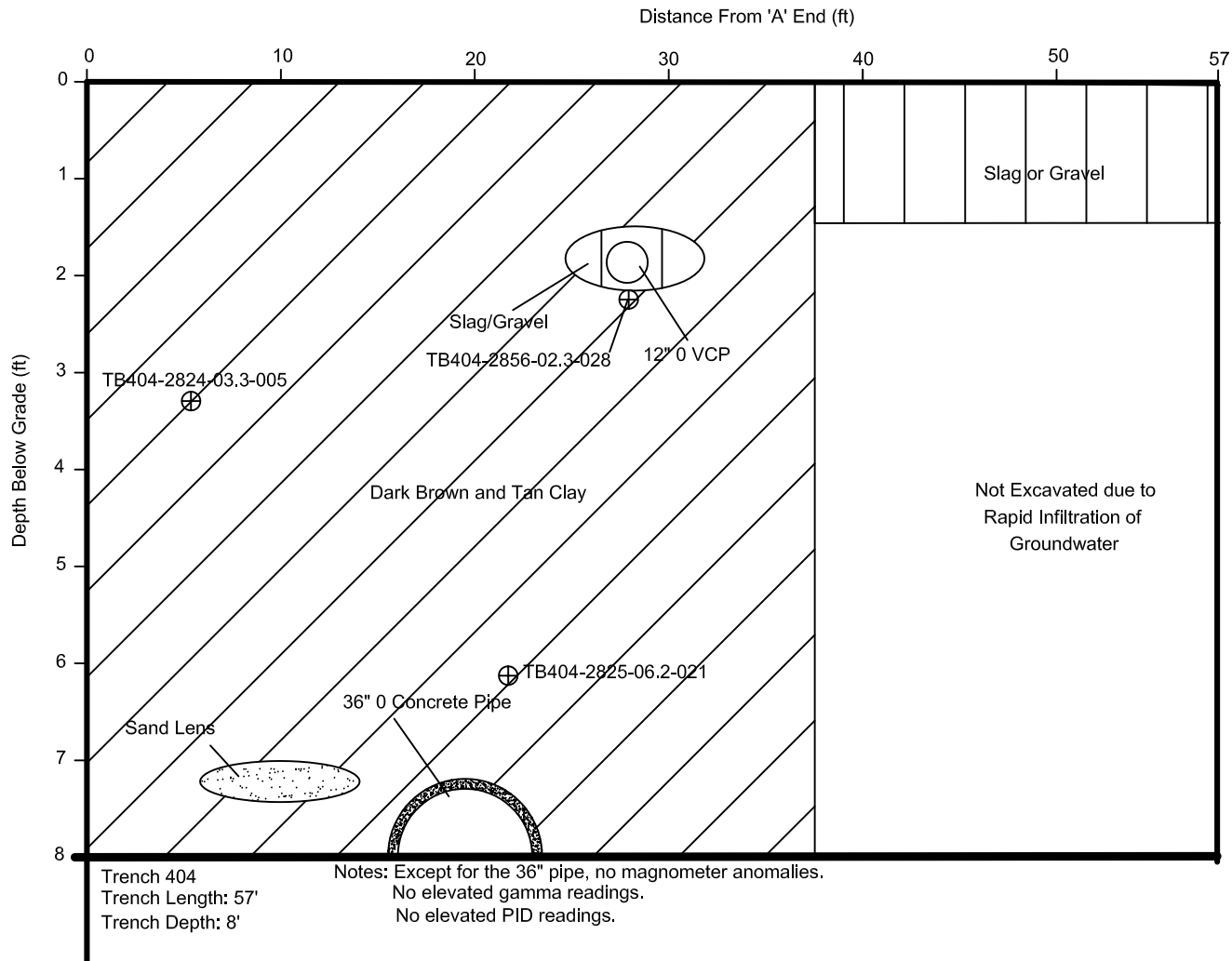


Trench 403
Trench Length: 50'
Trench Depth: 8'

Notes: Miscellaneous Magnetic Anomalies
found in fill layer
No Gamma measurements above
background
No elevated PID measurements

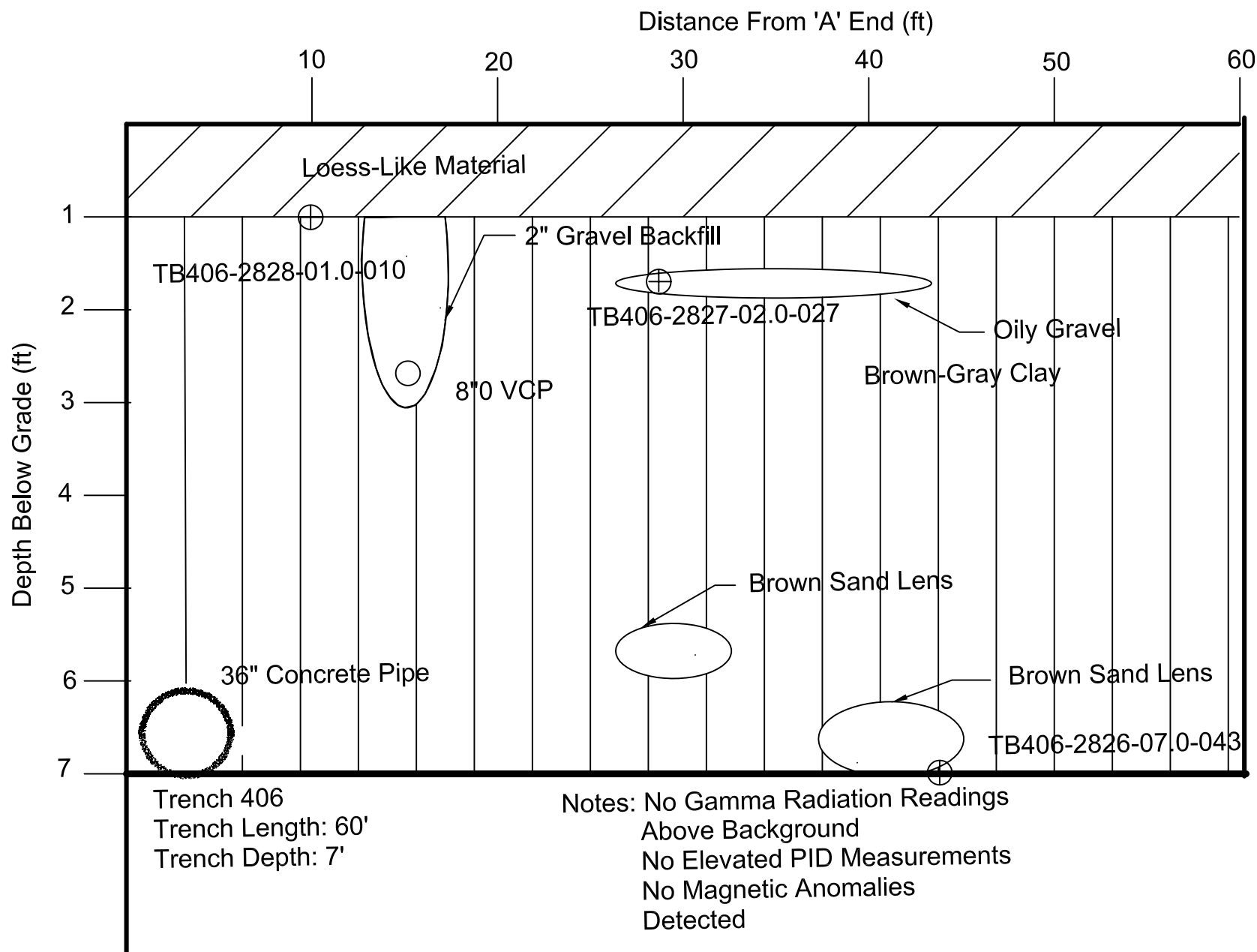
TRENCH 403
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-26
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



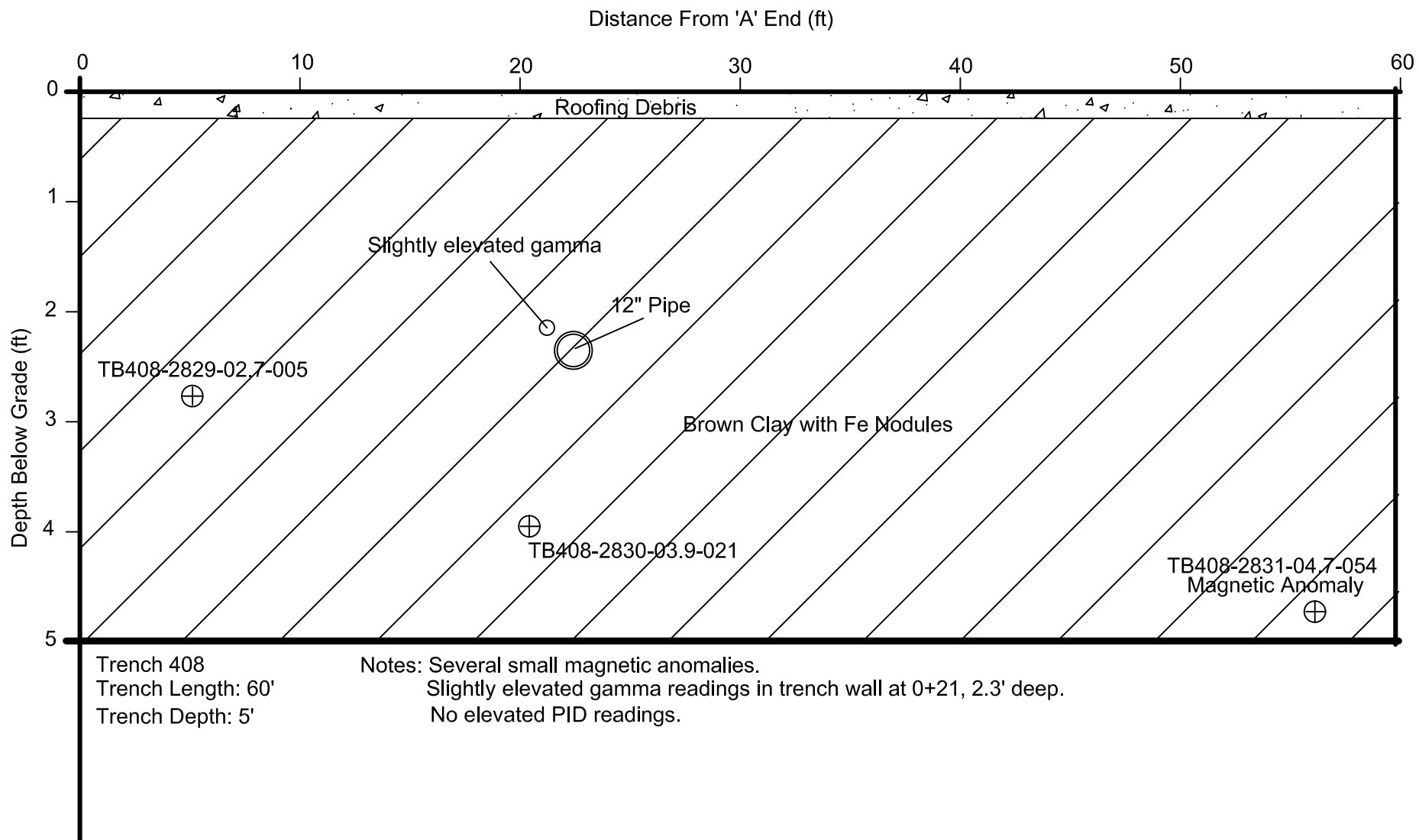
TRENCH 404
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-27
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 406
NIAGARA FALLS STORAGE SITE

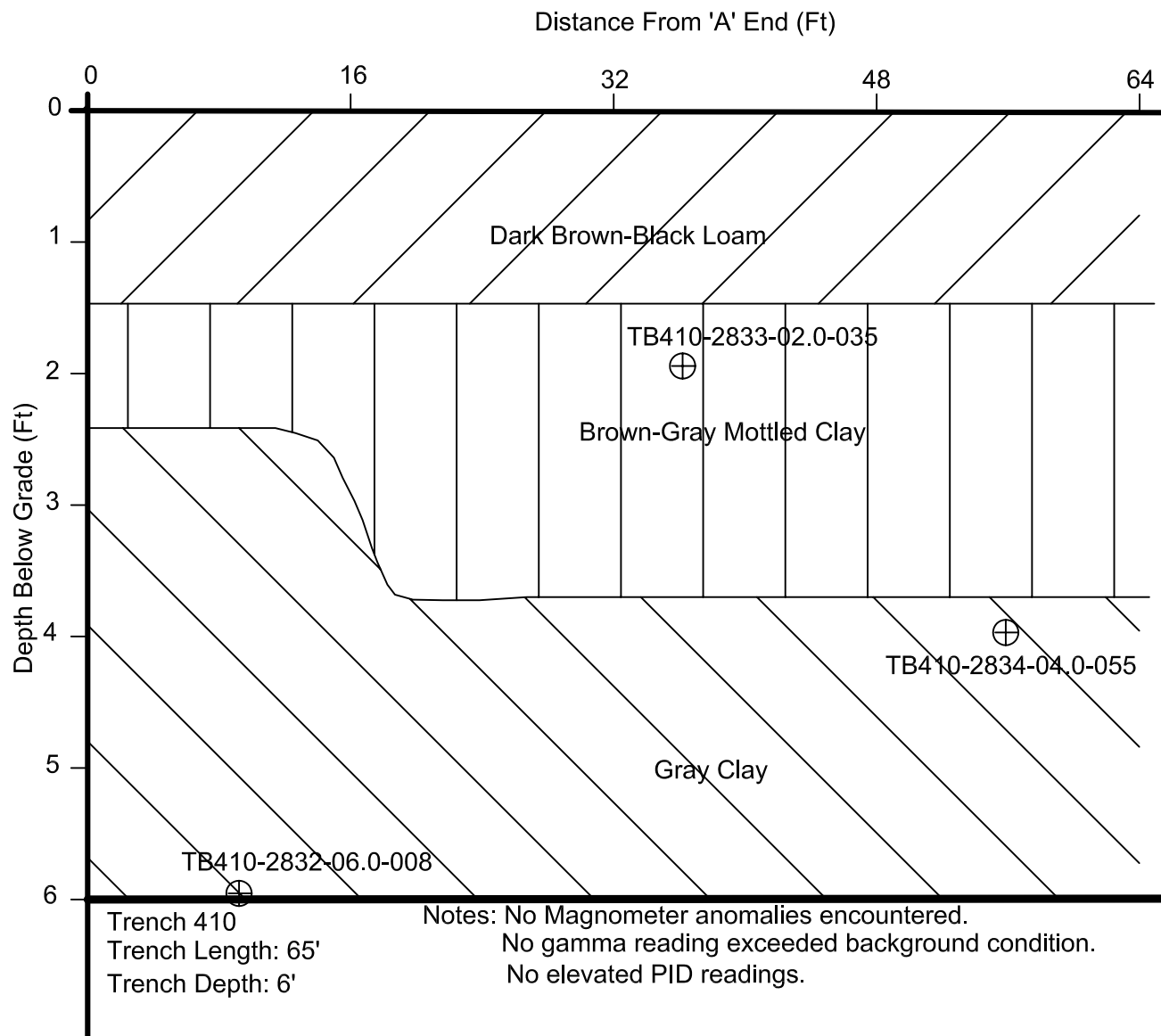
MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-28
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 408
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-29
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS

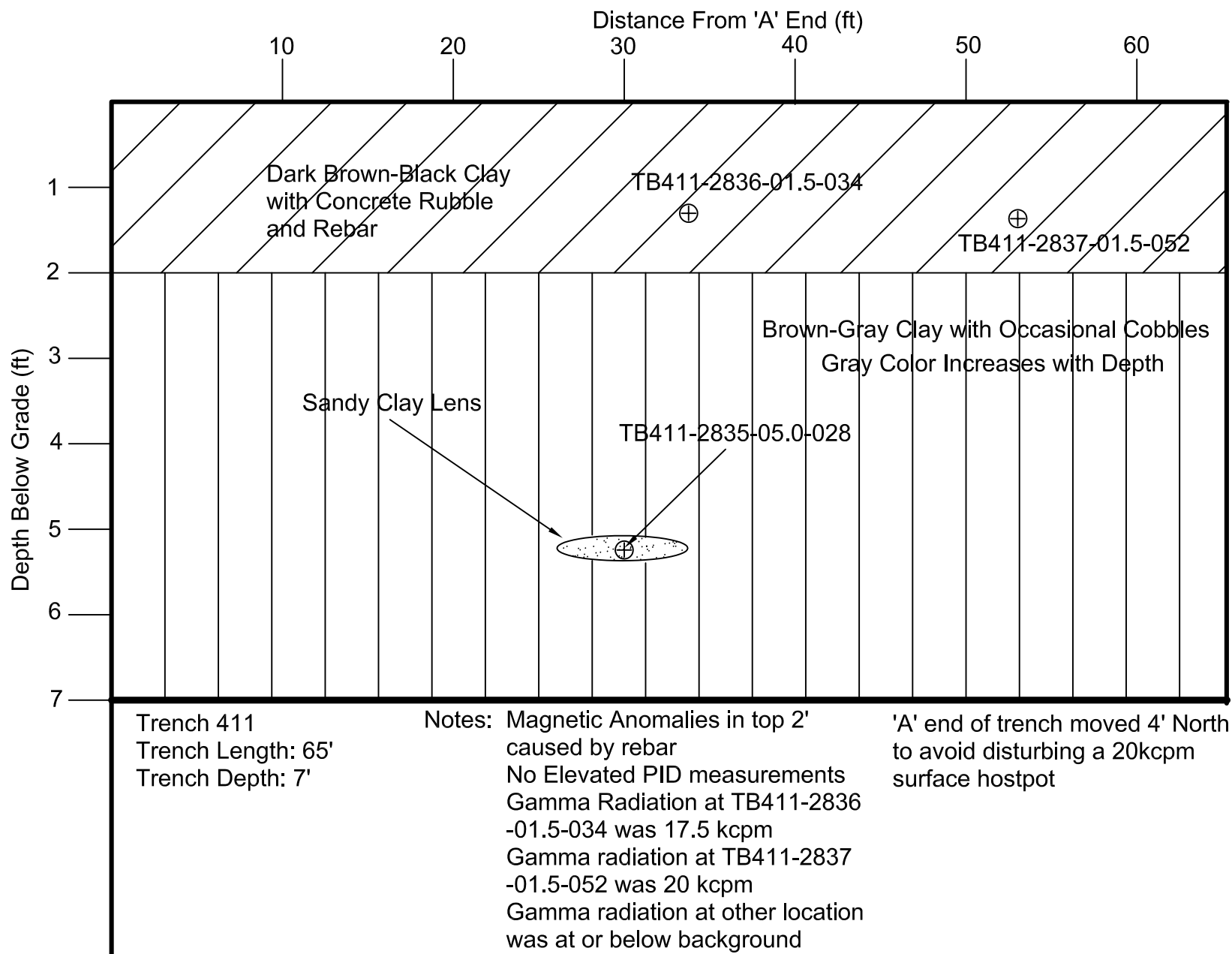


Trench 410
Trench Length: 65'
Trench Depth: 6'

Notes: No Magnometer anomalies encountered.
No gamma reading exceeded background condition.
No elevated PID readings.

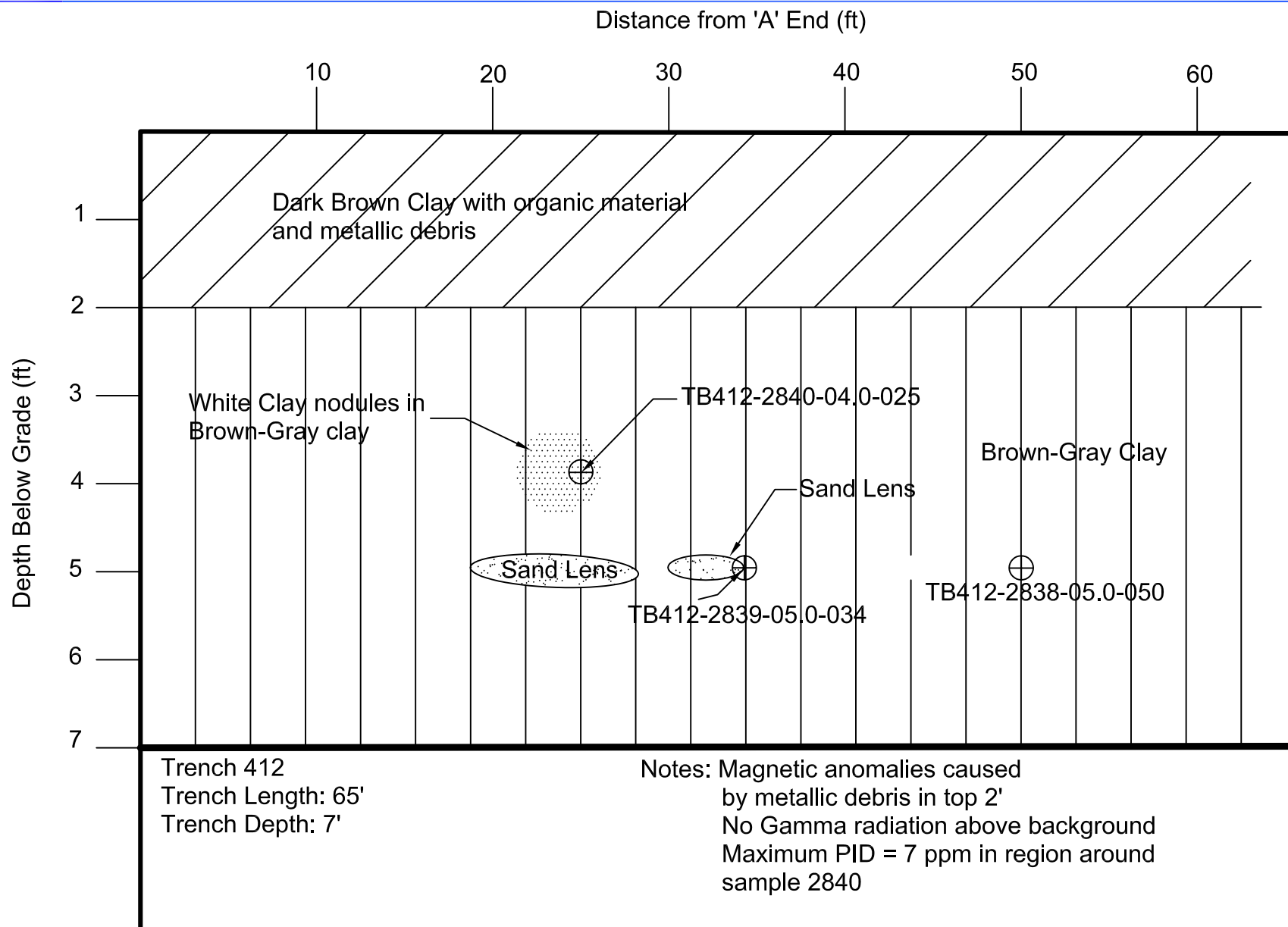
TRENCH 410
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-30
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



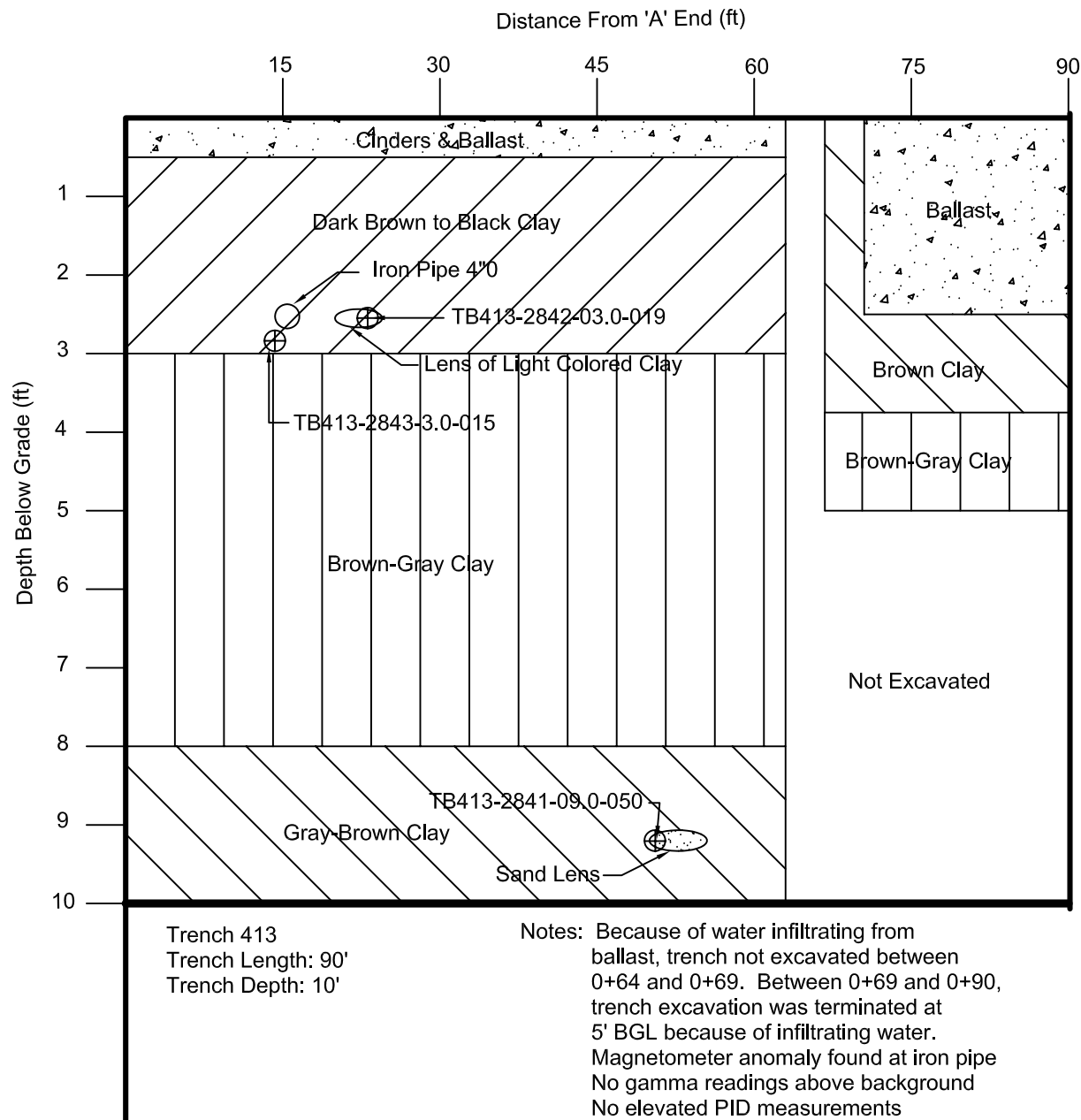
TRENCH 411
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-31
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 412
NIAGARA FALLS STORAGE SITE

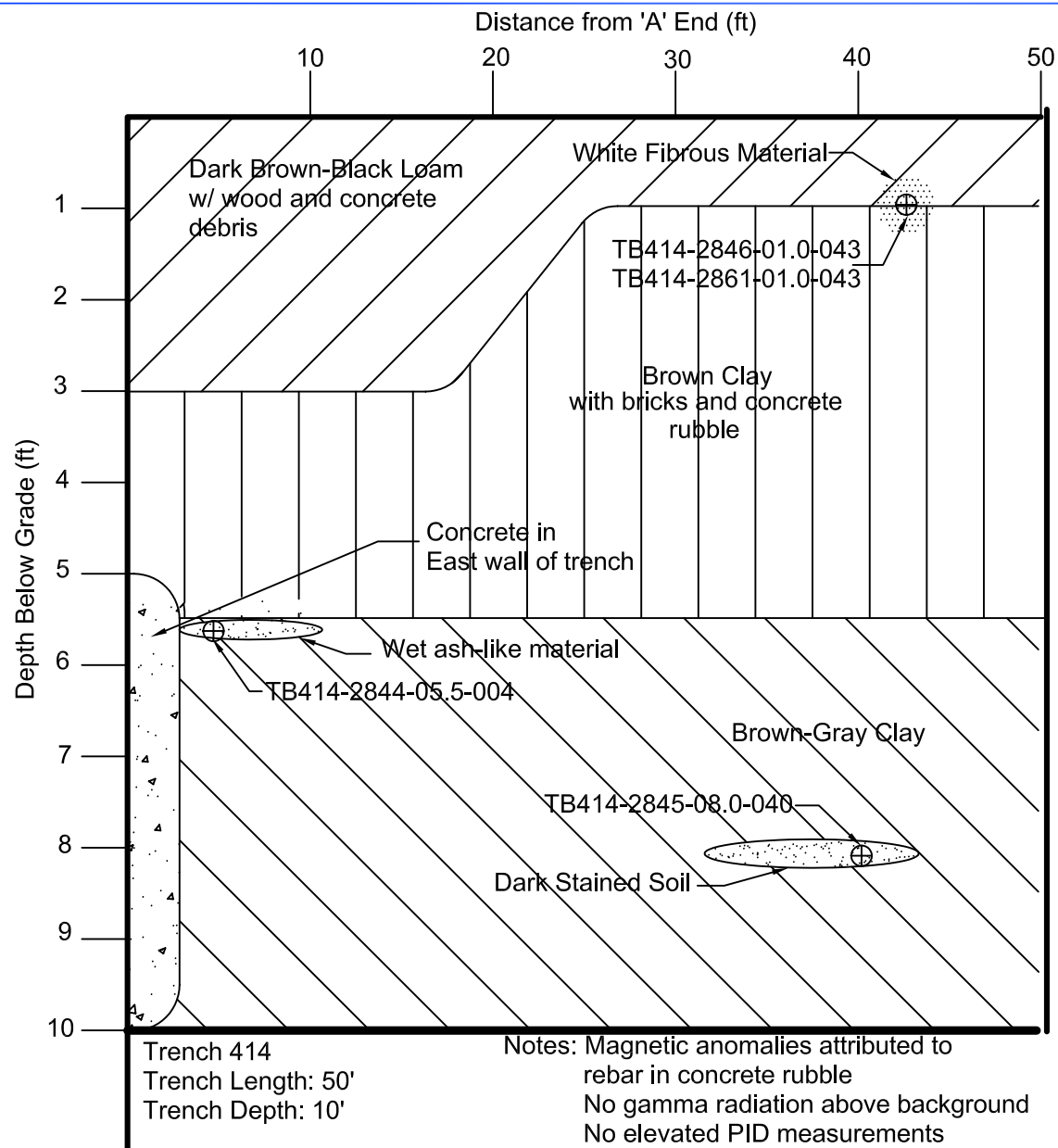
MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-32
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 413

NIAGARA FALLS STORAGE SITE

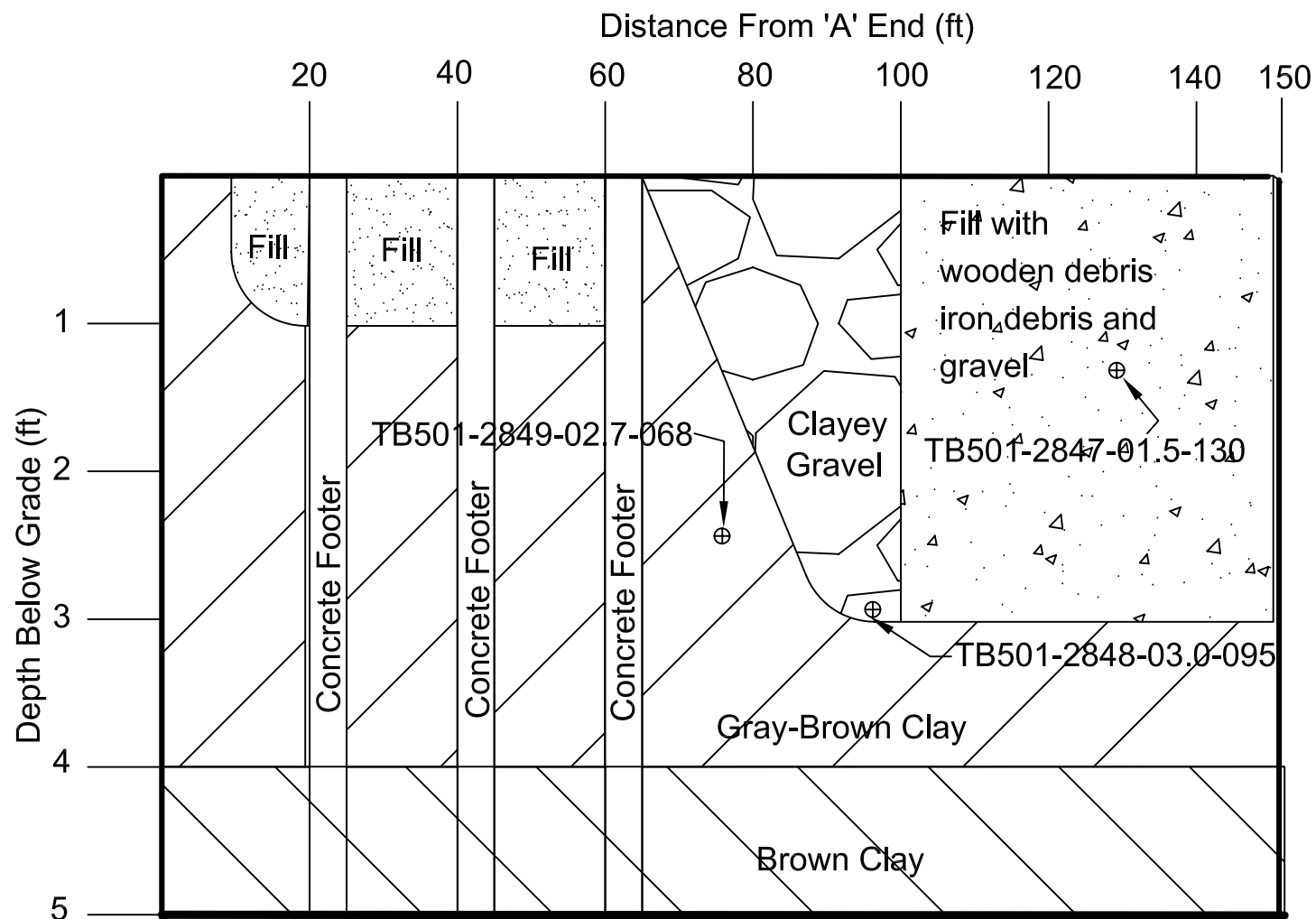
MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-33
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 414
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-34
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



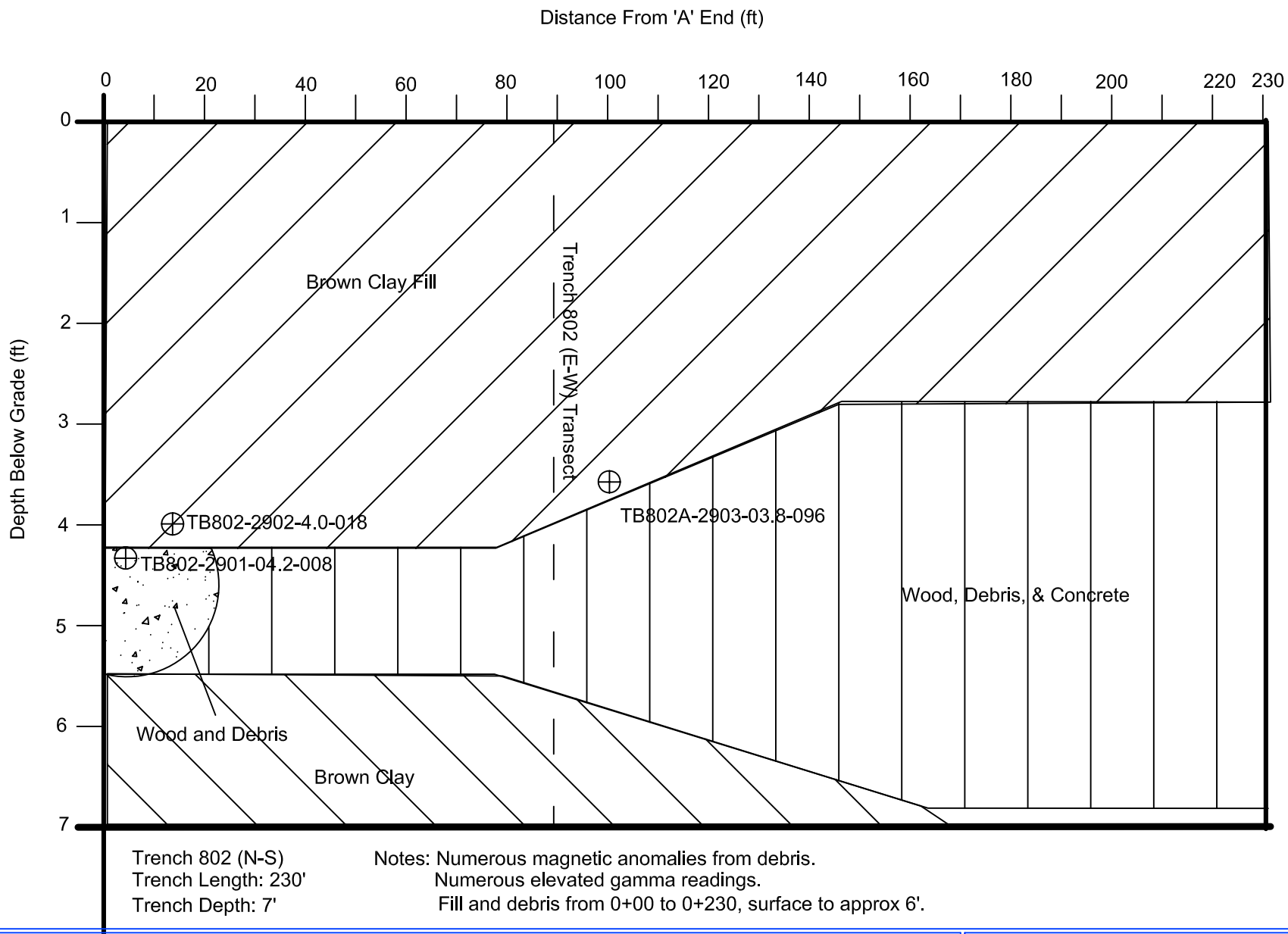
Trench 501
Trench Length: 150'
Trench Depth: 5'

Notes: Numerous small metallic items found especially prevalent between 1+35' and 1+50'
No elevated gamma readings.
No elevated PID measurements

TRENCH 501
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

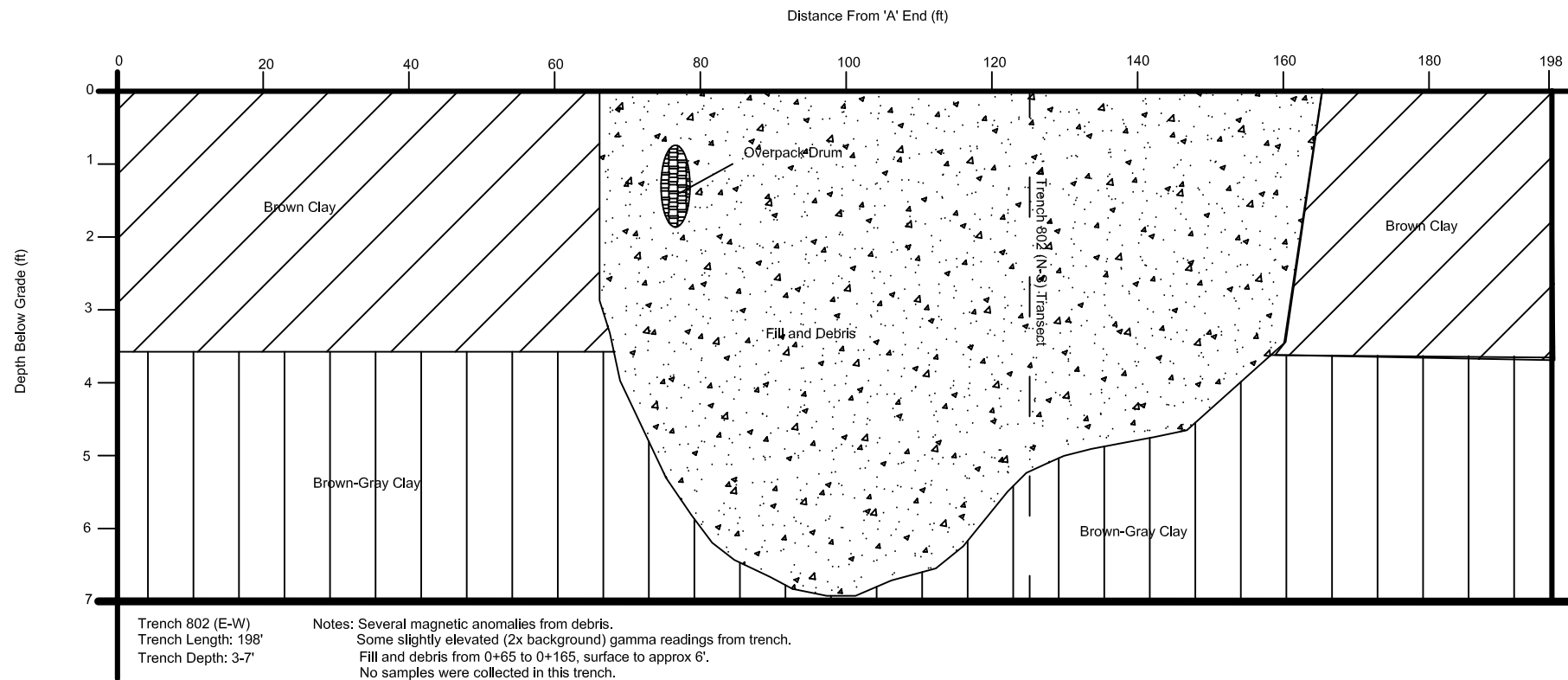
PROJECT NO. 15892	FIGURE #: 3-35
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 802 (N-S)
NIAGARA FALLS STORAGE SITE

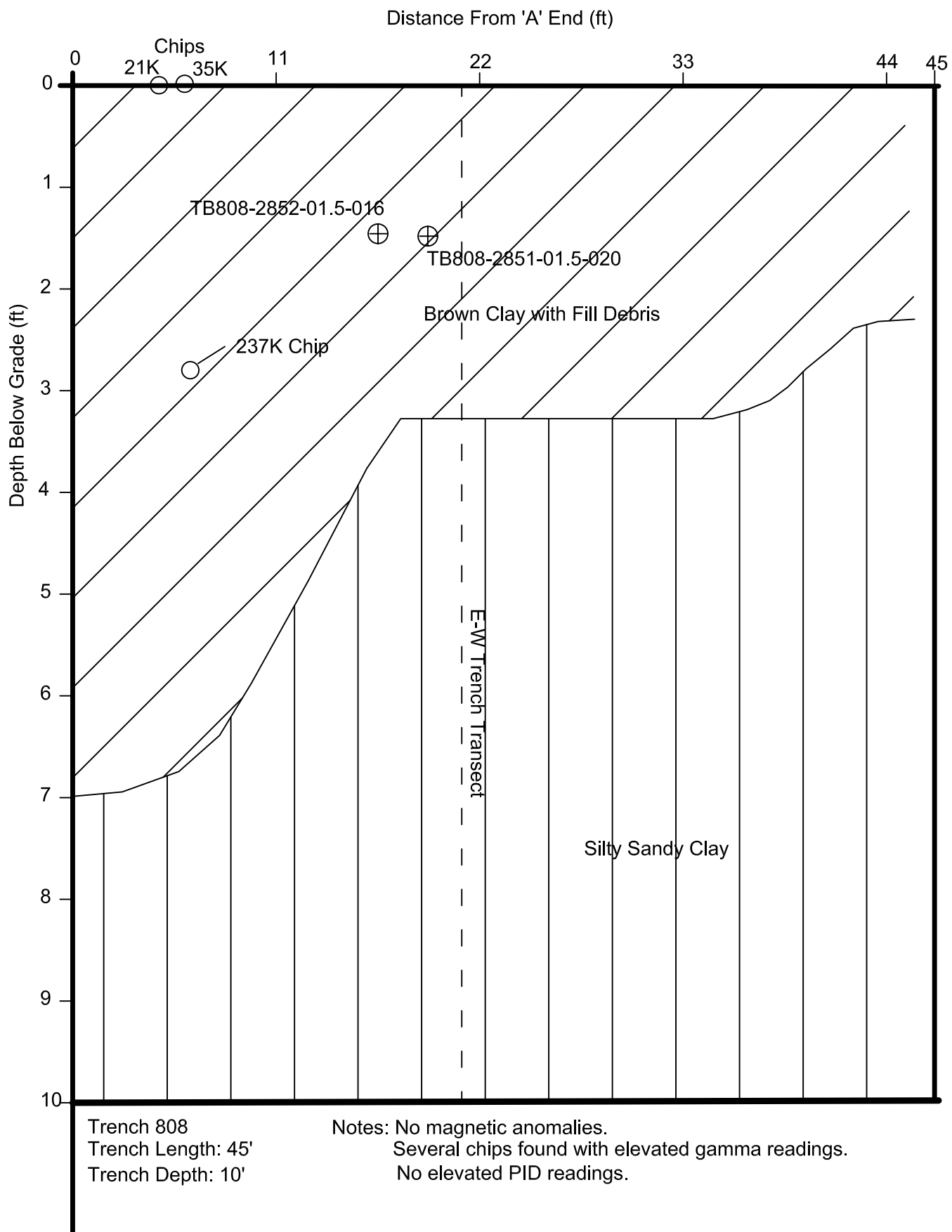
MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-36
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 802 (E-W)
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-37
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS

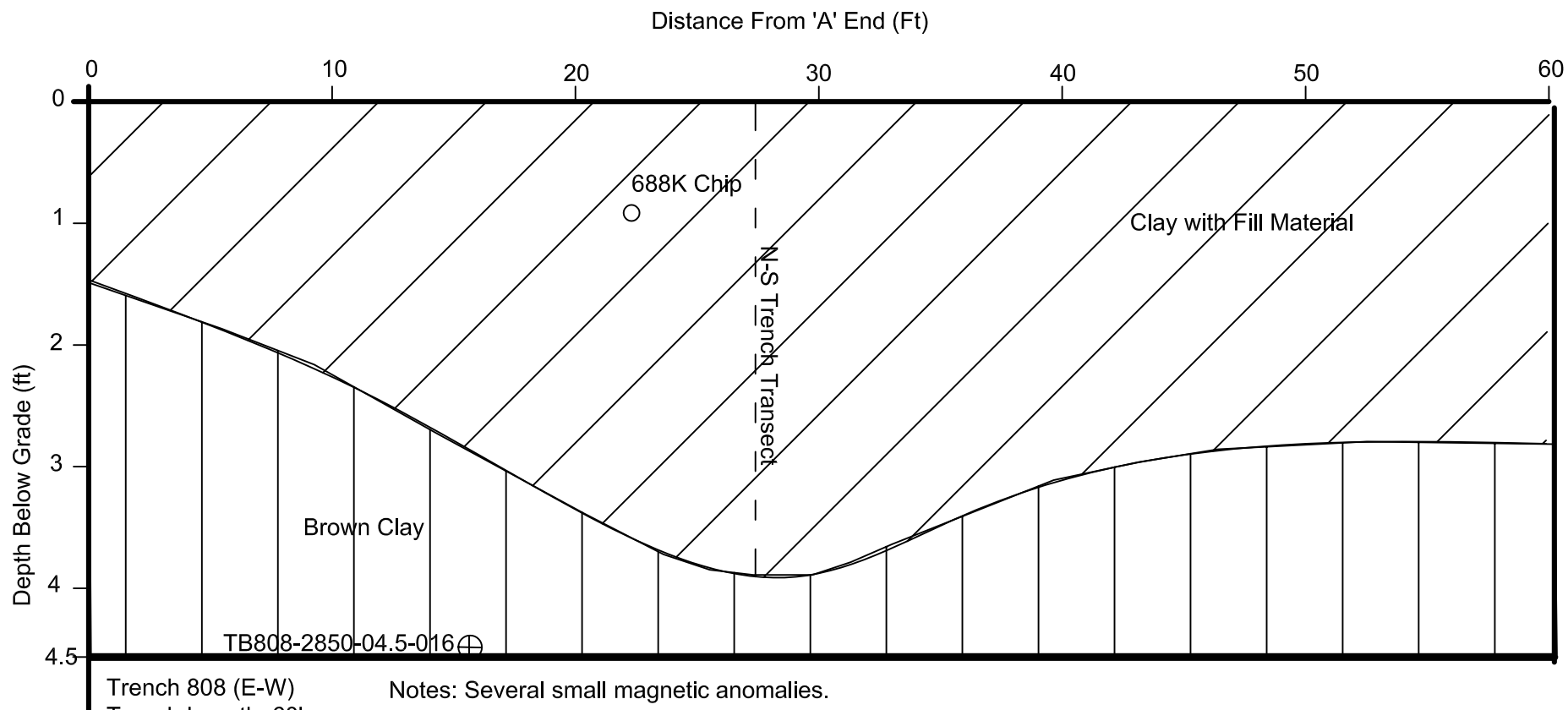


TRENCH *808 (N-S)
NIAGARA FALLS STORAGE SITE



ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-38
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



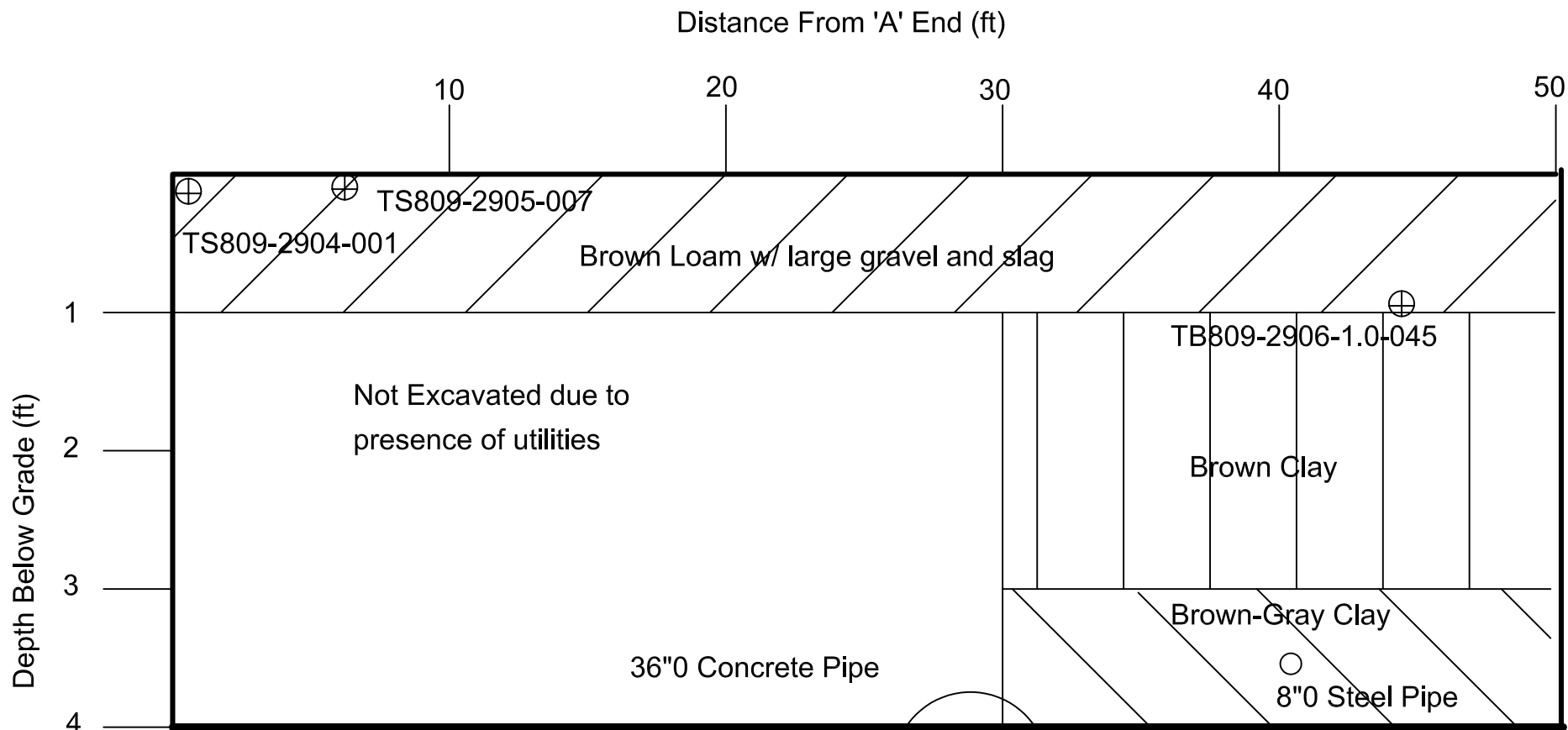
Trench 808 (E-W)
Trench Length: 60'
Trench Depth: 4.5'

Notes: Several small magnetic anomalies.
Slightly elevated gamma readings in trench wall at 0+21, 2.3' deep.
No elevated PID readings.
3 Chips found

TRENCH 808 (E-W)
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-39
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



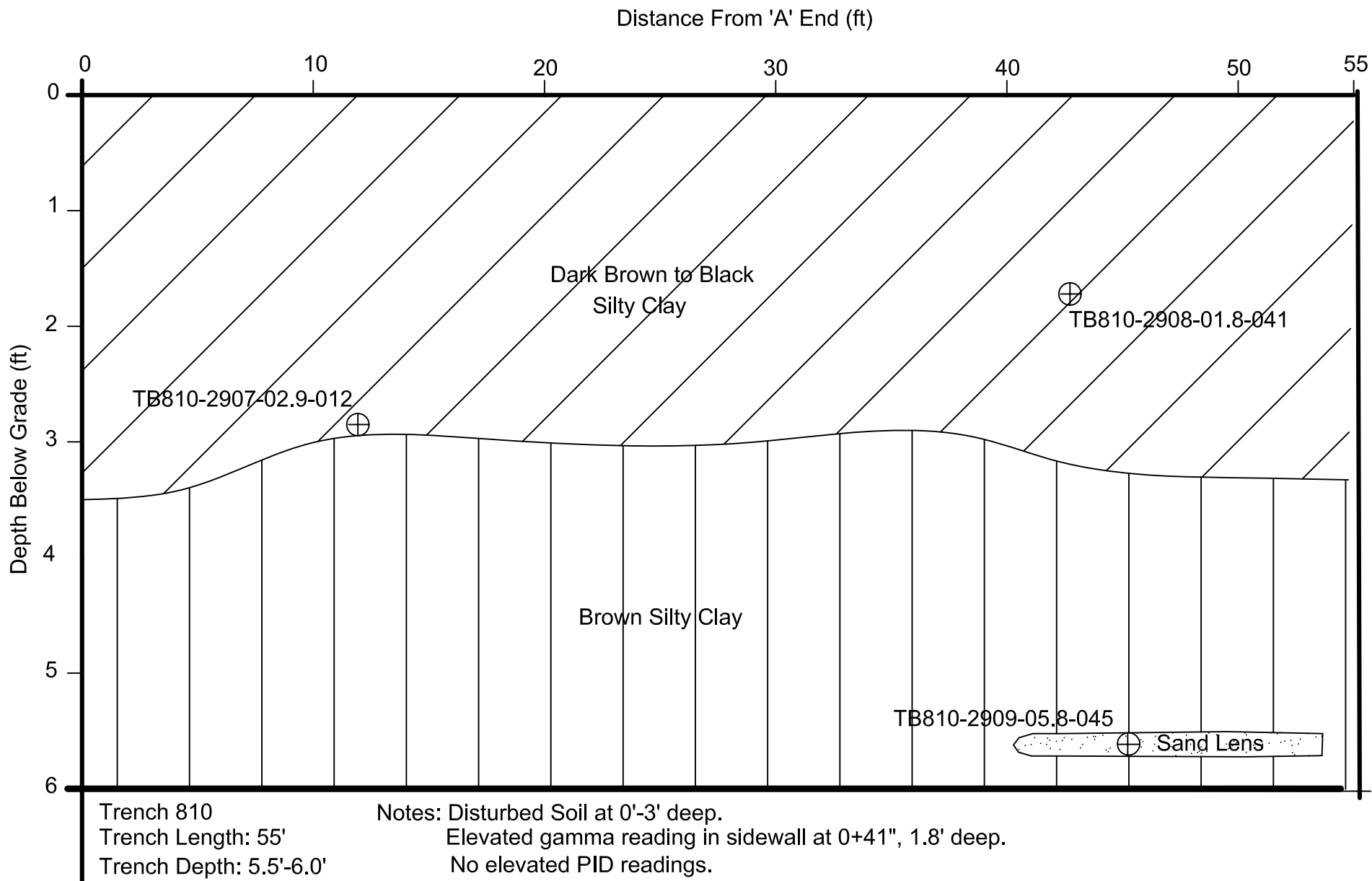
Trench 809
Trench Length: 50'
Trench Depth: 4'

Notes: Numerous small magnetic anomalies in top 1'. Magnetic anomaly at +30' attributed to reinforcement in concrete pipe
Elevated gamma radiation (20 kcpm) on surface at 0+07'
Elevated gamma radiation (50 kcpm) at 1' Bgl at 0+45'
No Elevated PID measurements

TRENCH 809
NIAGARA FALLS STORAGE SITE

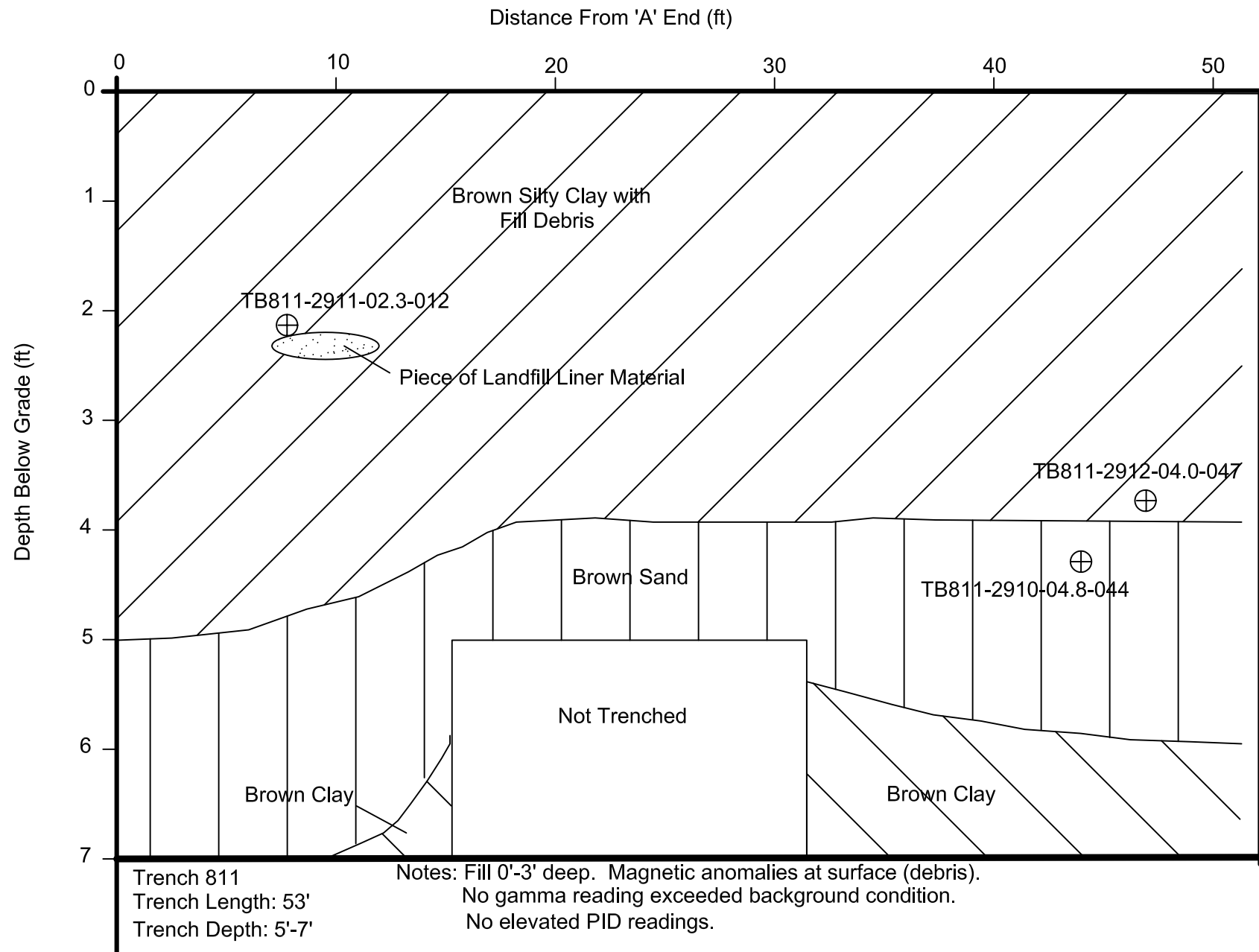
MAXIM TECHNOLOGIES INC.
ST LOUIS, MO.

PROJECT NO. 15892	FIGURE #: 3-40
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY:



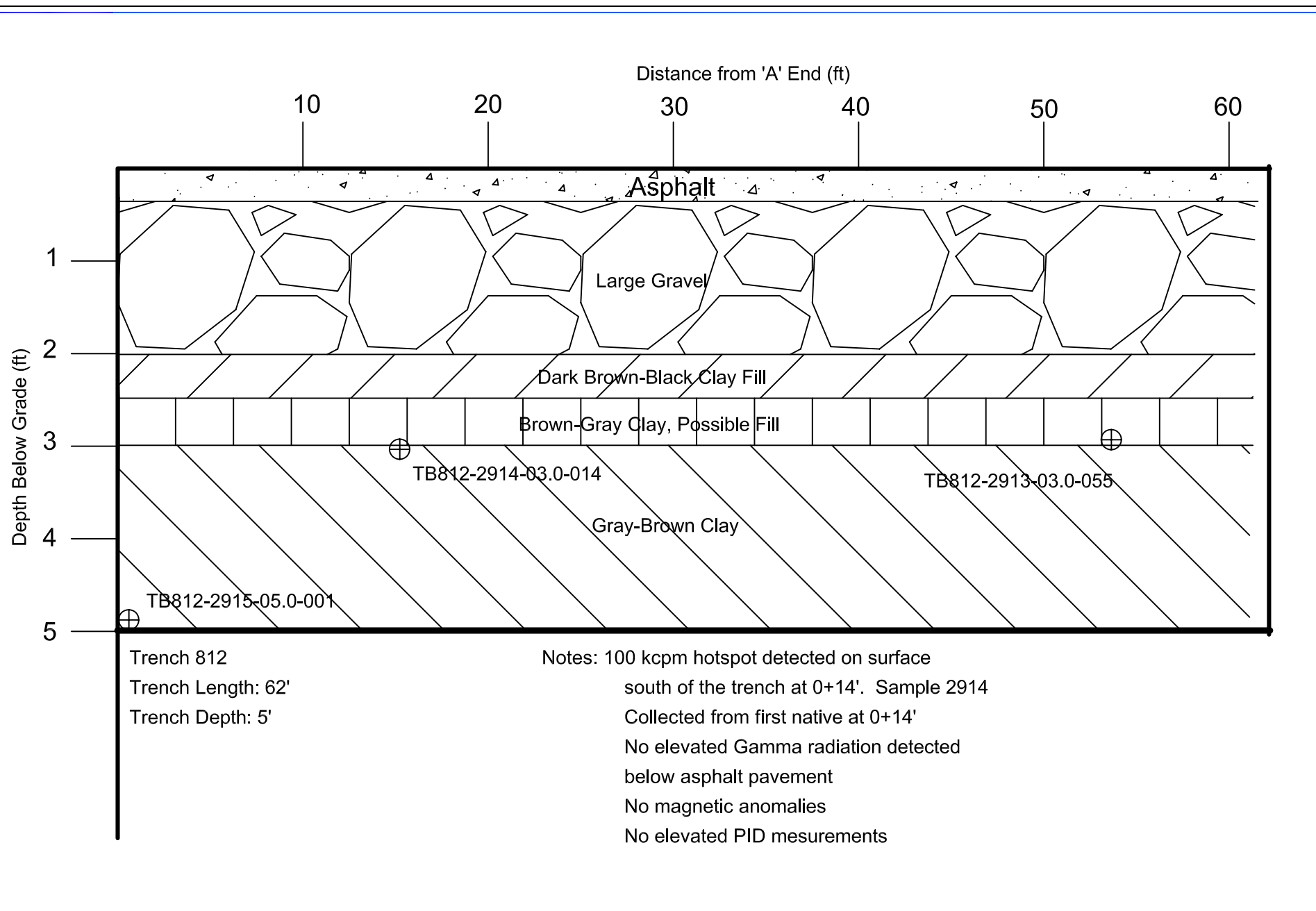
TRENCH 810
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-41
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



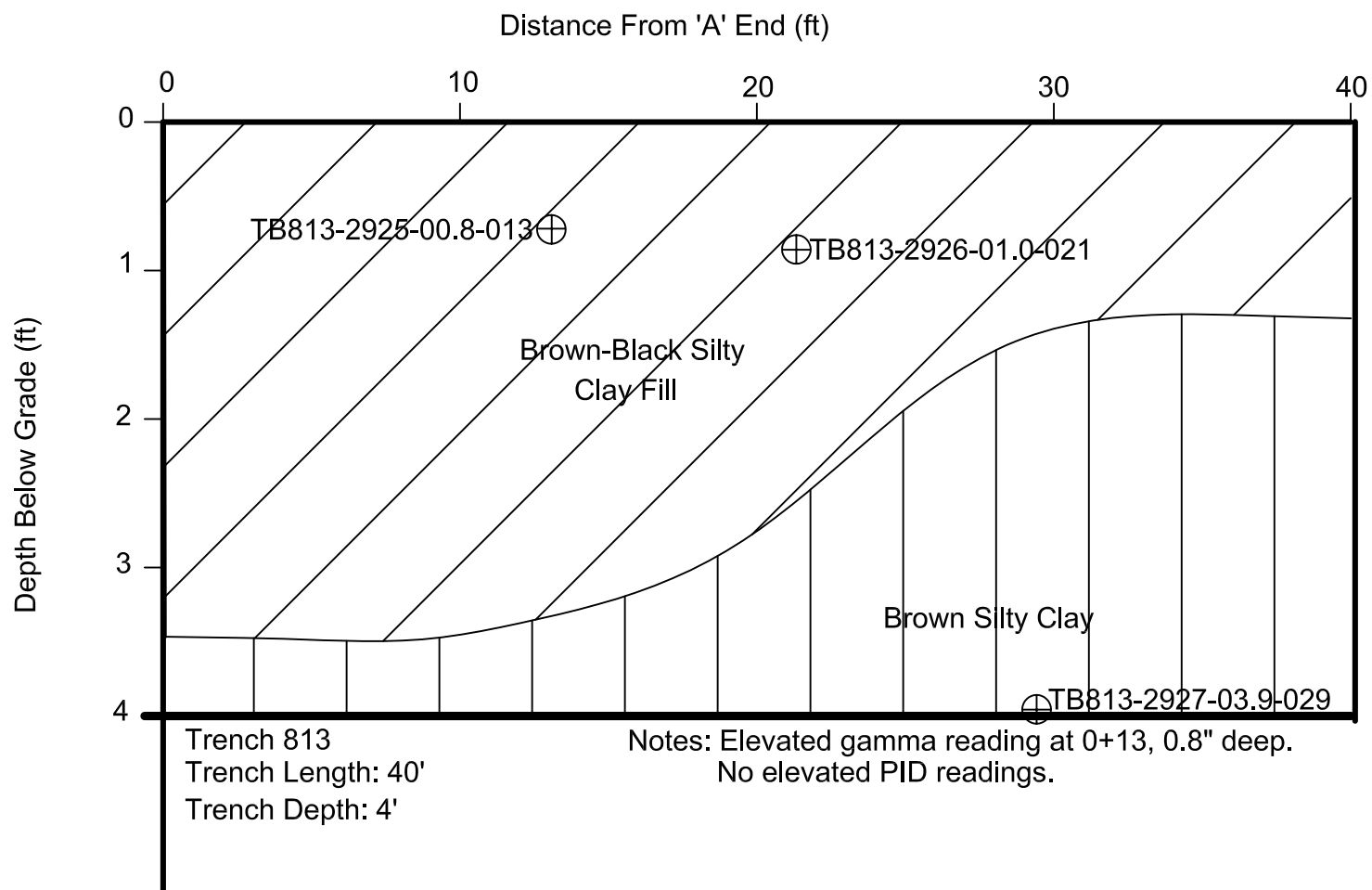
TRENCH 811
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-42
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS



TRENCH 812
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-43
SCALE: As Shown	DATE: 11/14/2006
DRAWN BY: DWC	CHECKED BY: MLS

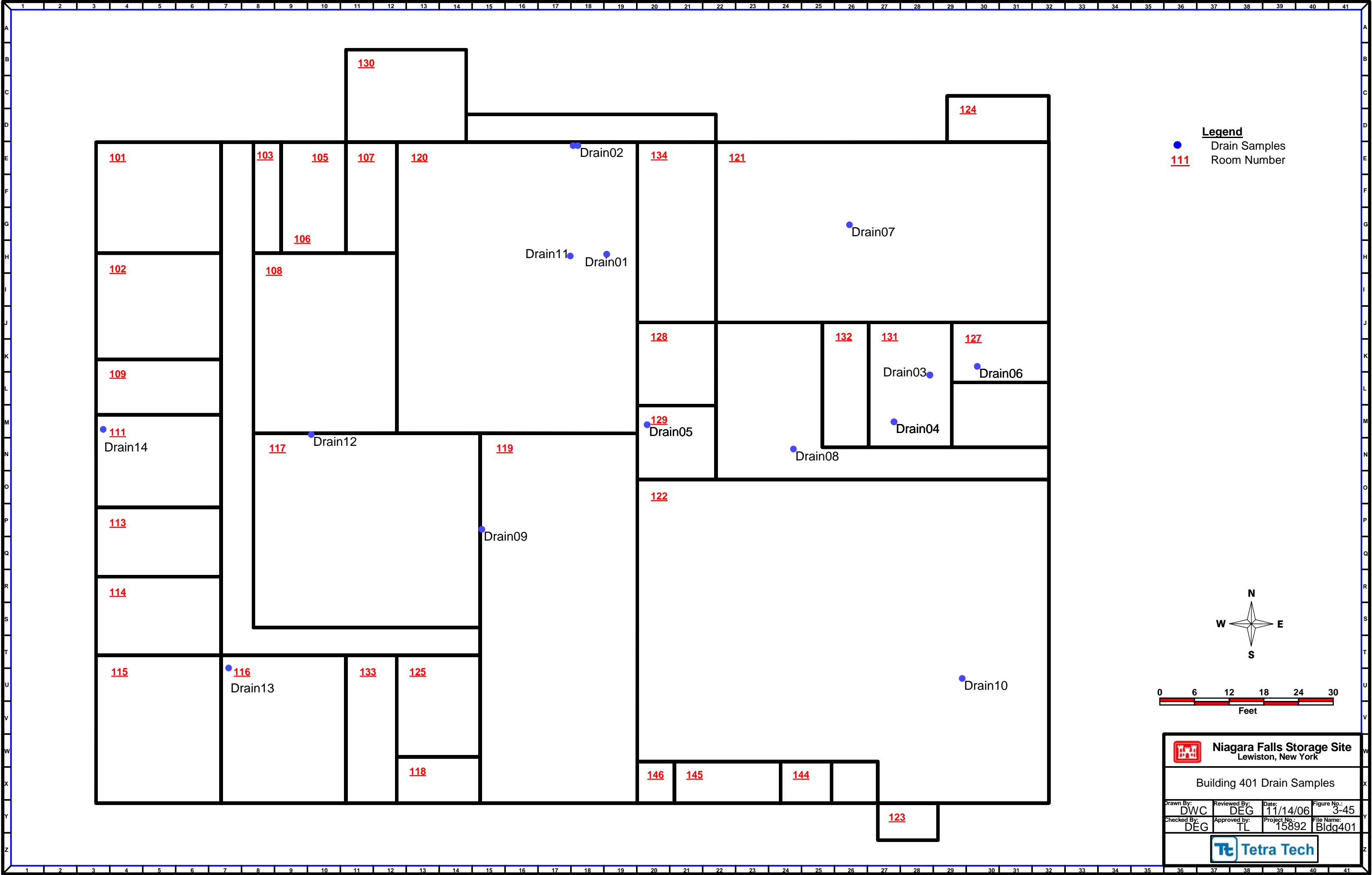


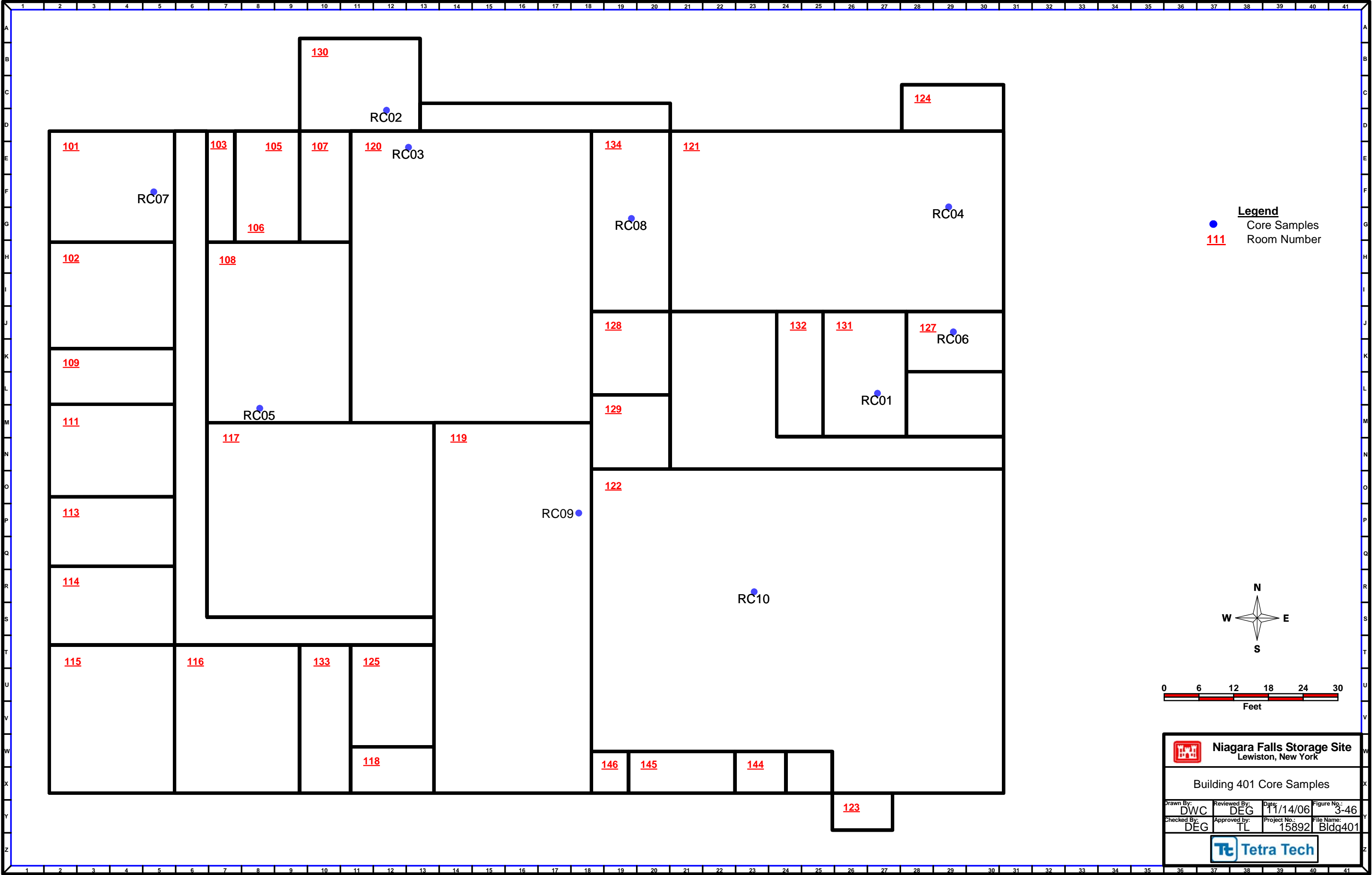
Trench 813
Trench Length: 40'
Trench Depth: 4'

Notes: Elevated gamma reading at 0+13, 0.8" deep.
No elevated PID readings.

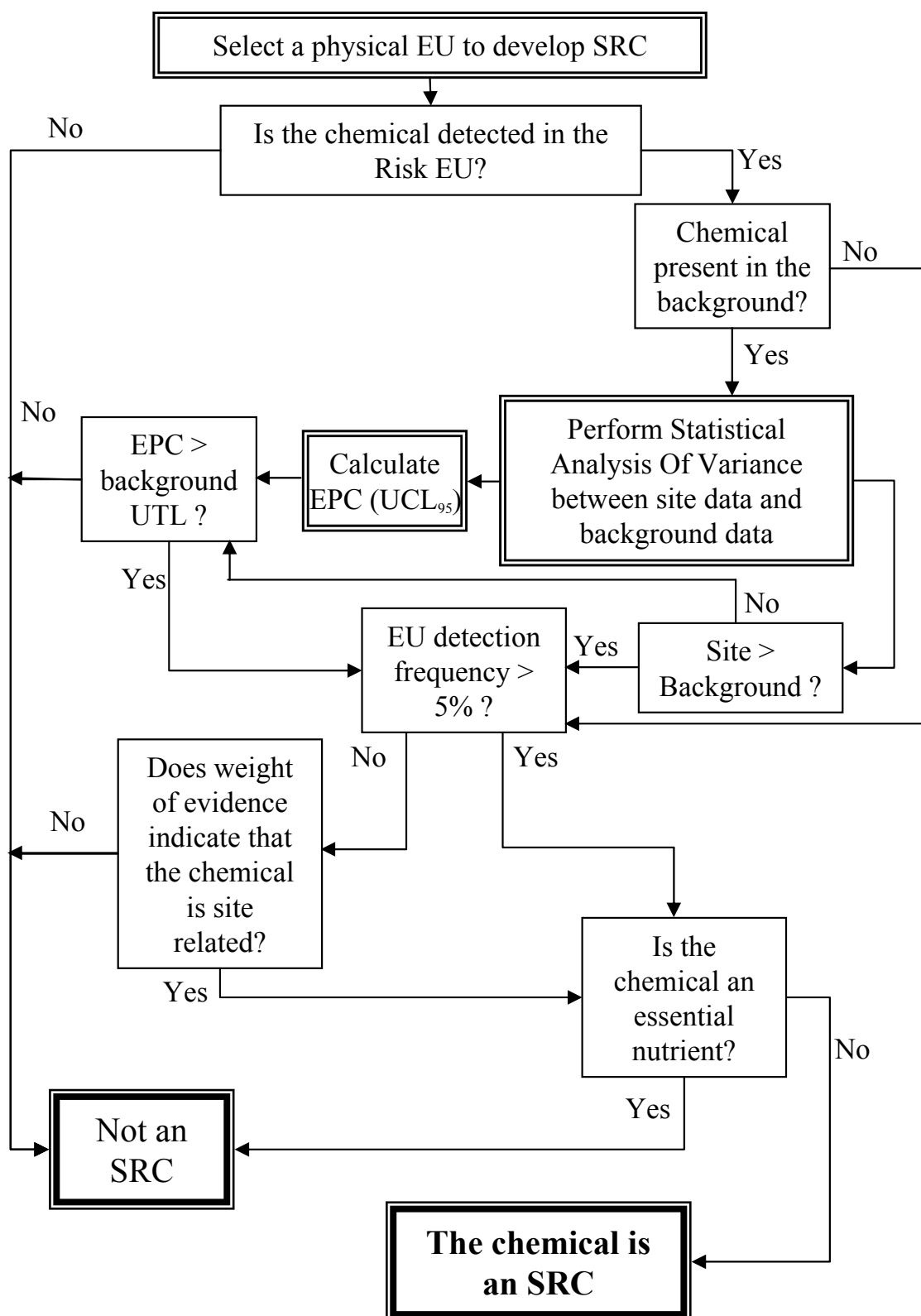
TRENCH 813
NIAGARA FALLS STORAGE SITE

MAXIM TECHNOLOGIES INC. ST LOUIS, MO.	
PROJECT NO. 15892	FIGURE #: 3-44
SCALE: As Shown	DATE: 11/13/2006
DRAWN BY: DWC	CHECKED BY: MLS





SRC Identification



EPC = exposure point concentration

EU = exposure unit

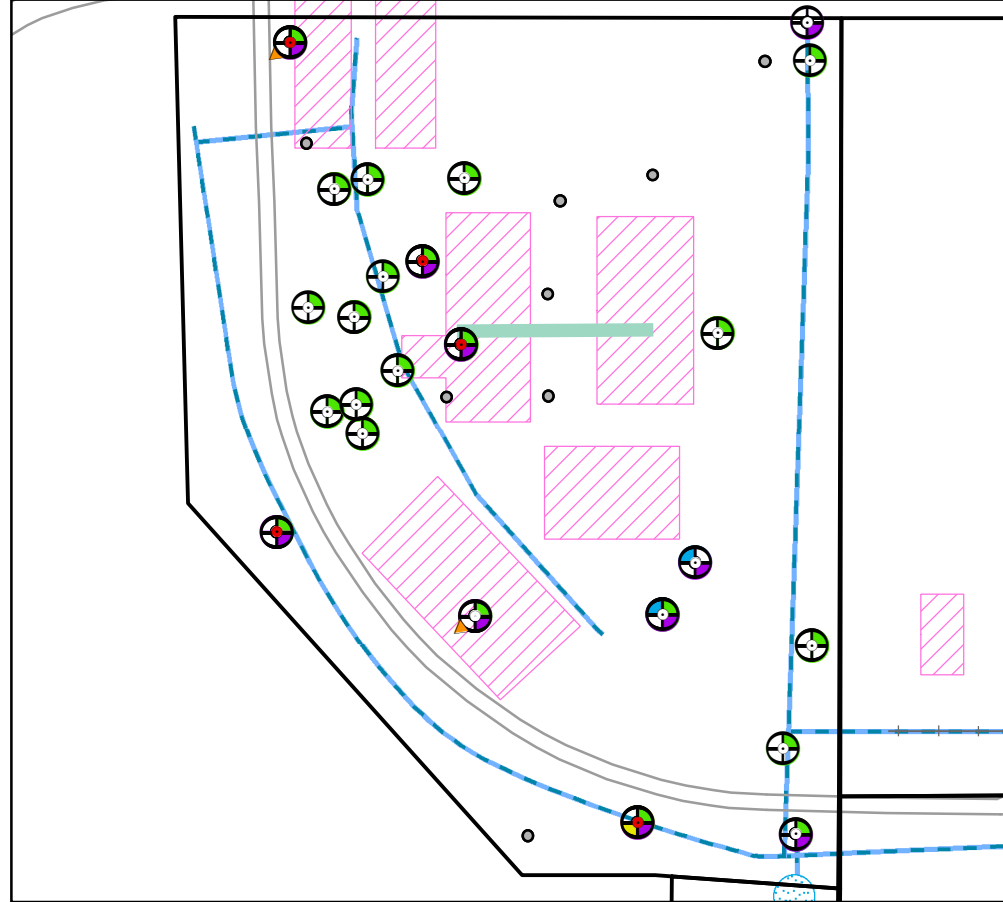
SRC = site related constituent

UCL₉₅ = 95 percentile upper confidence limit of the mean

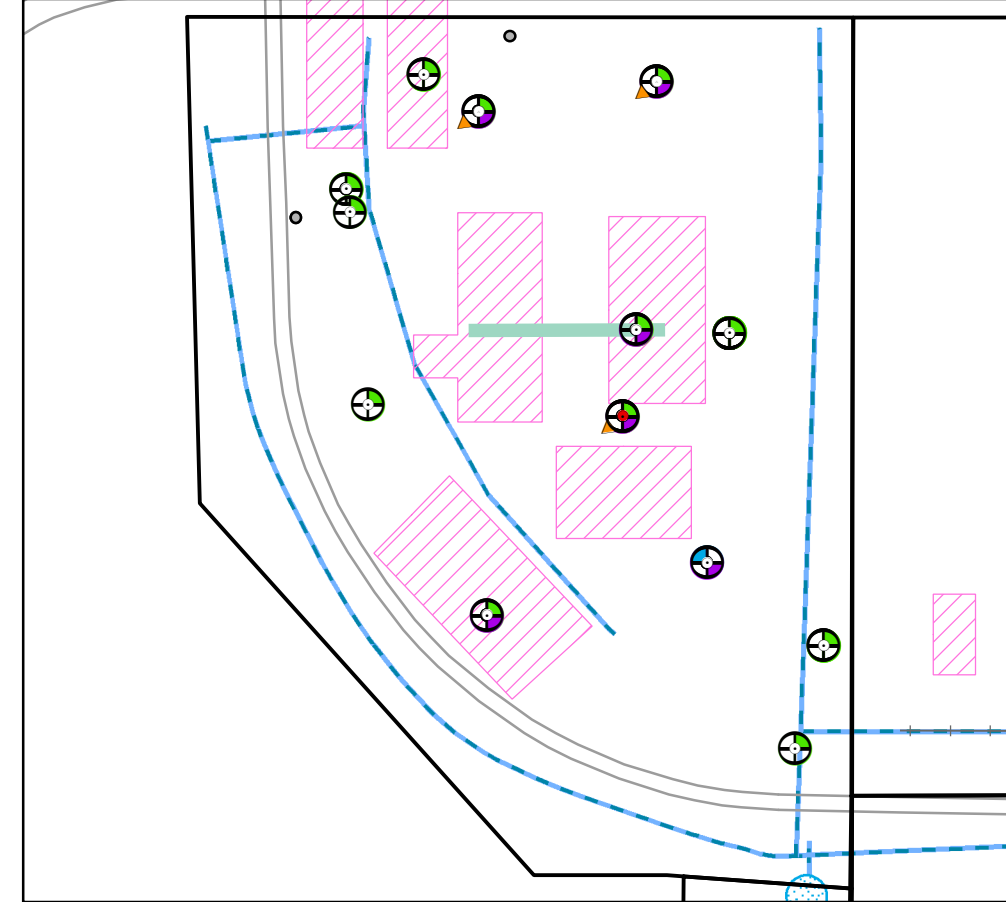
UTL = 95 percentile upper tolerance limit with 95 percentile coverage

Figure 4-1 Identification of SRCs

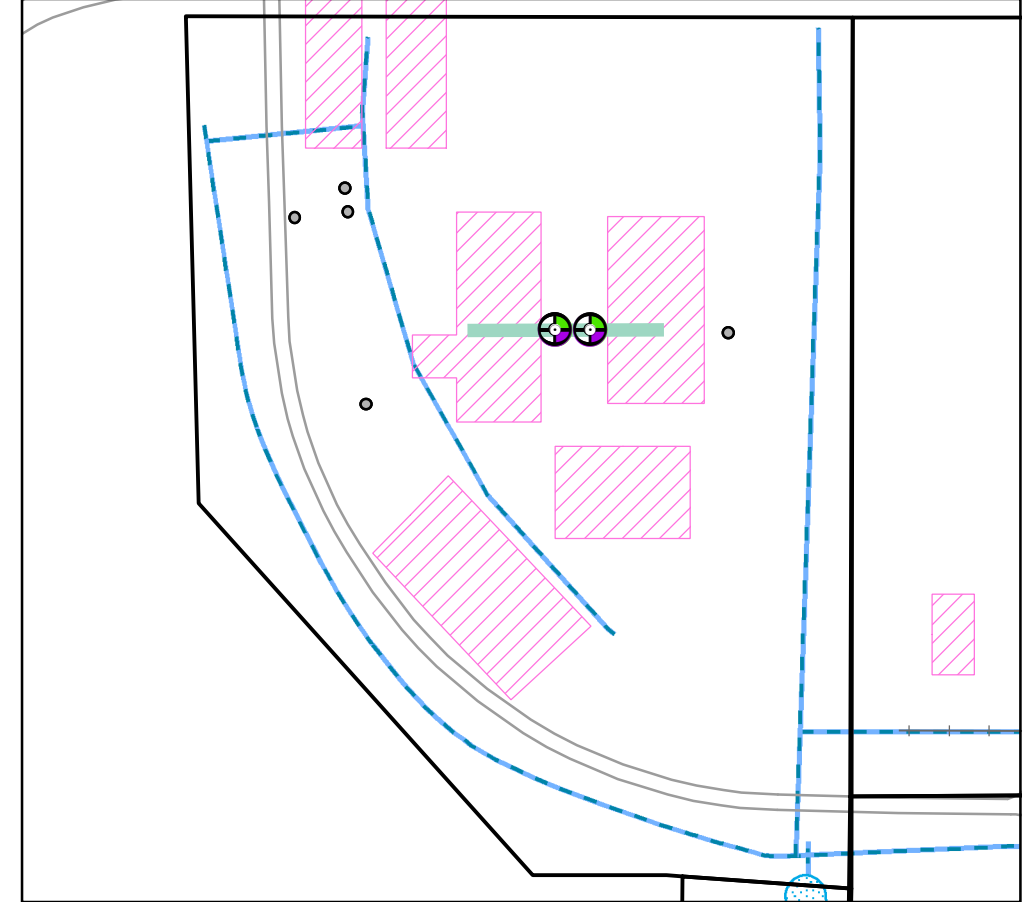
Surface Soil 0-0.5'



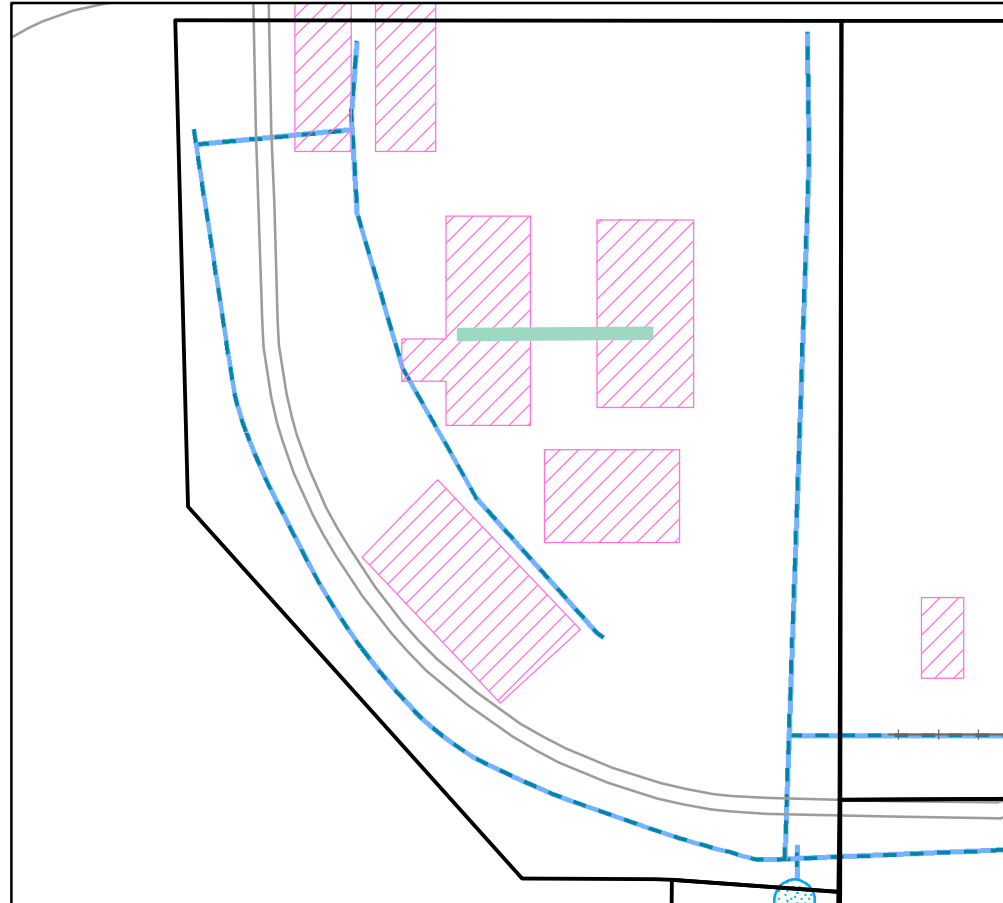
Subsurface Soil 0.5-2'



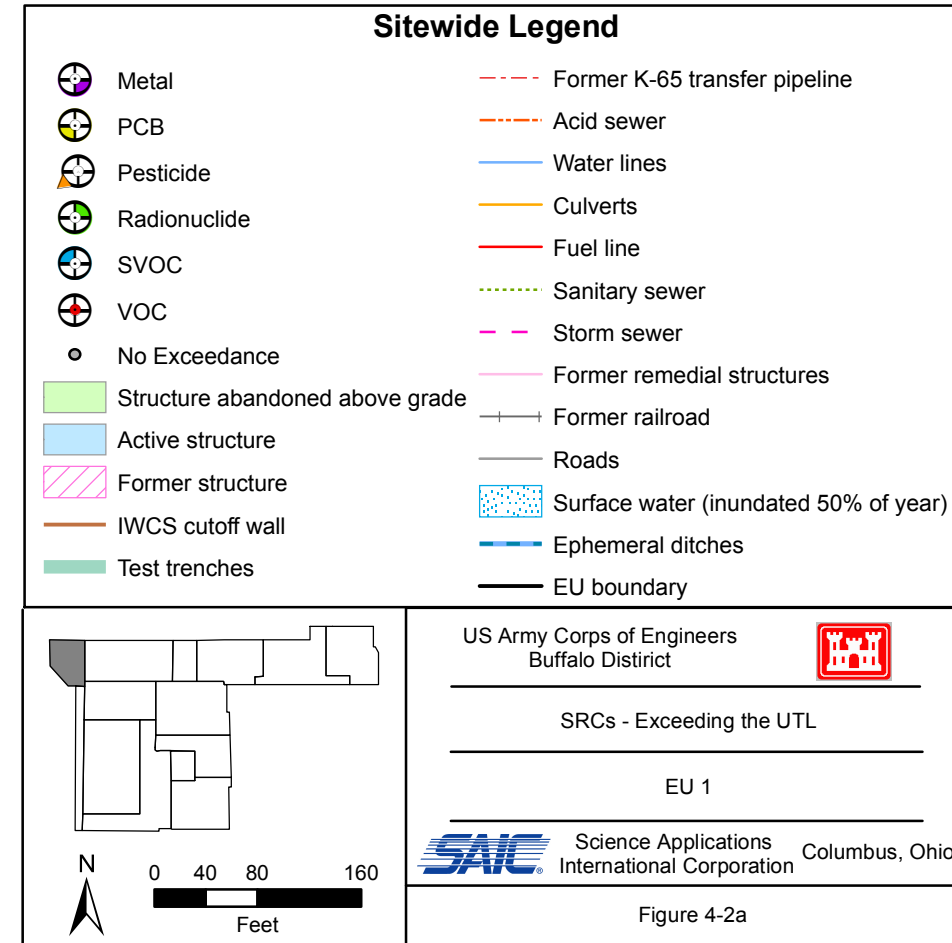
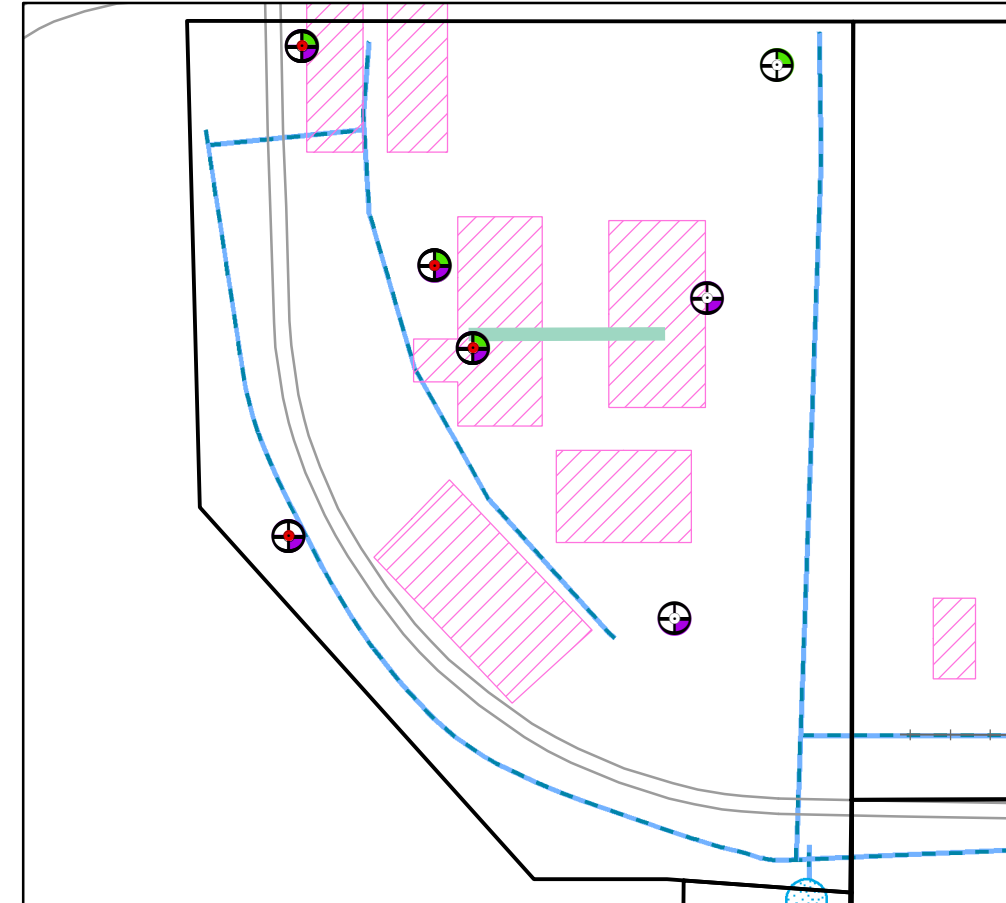
Subsurface Soil 2-5'

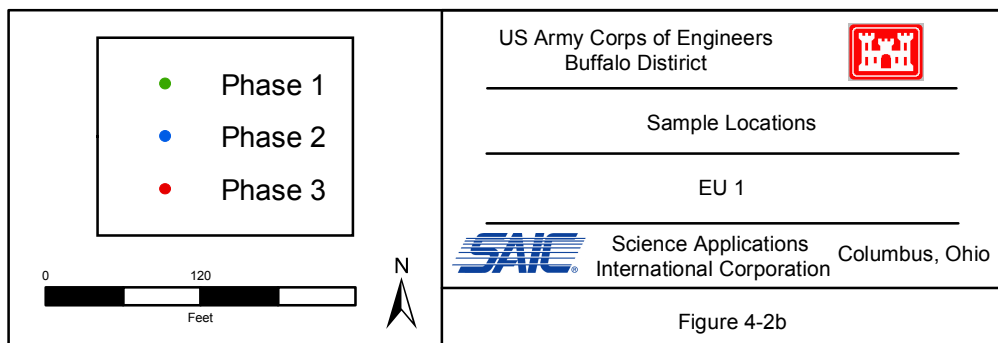
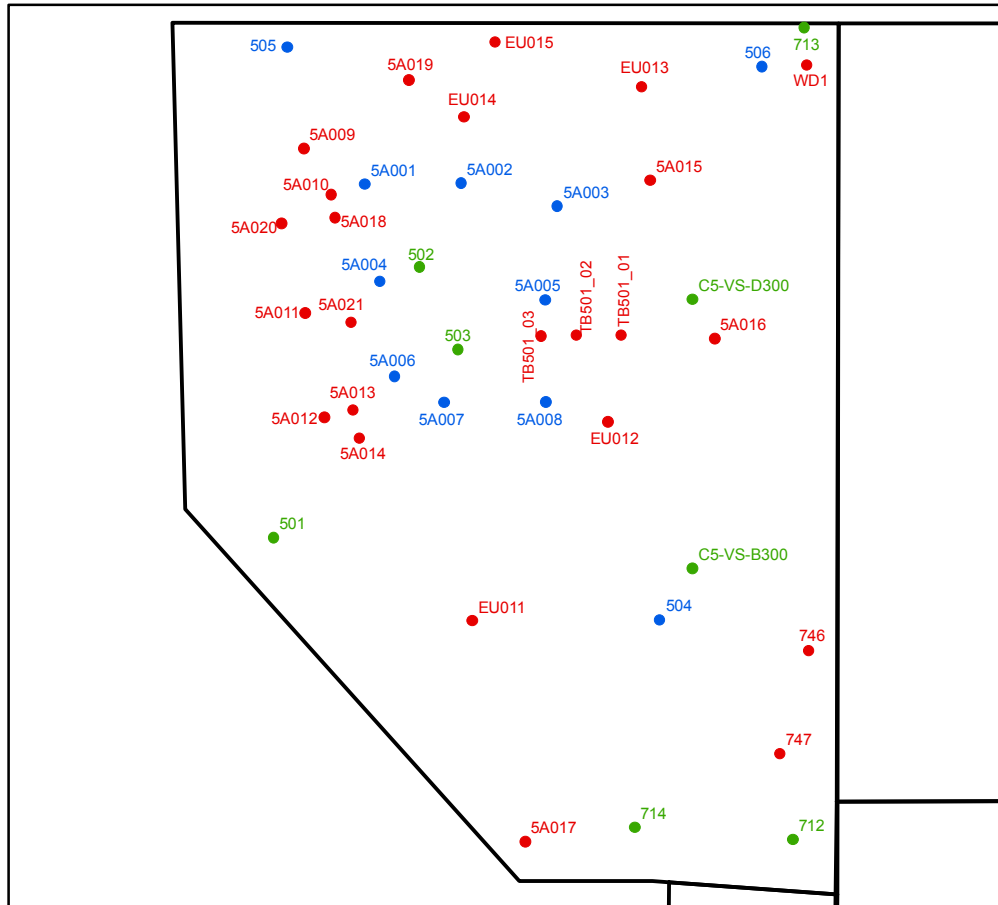


Subsurface Soil 5-10'

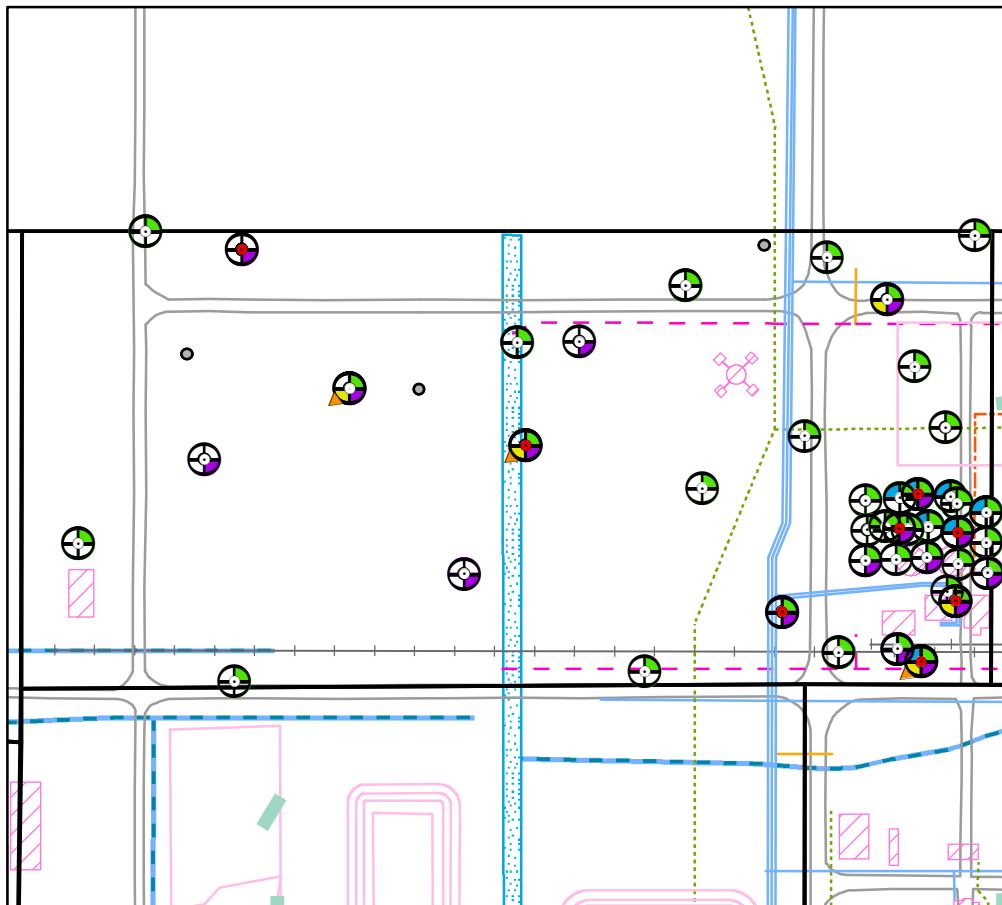


Subsurface Soil > 10'

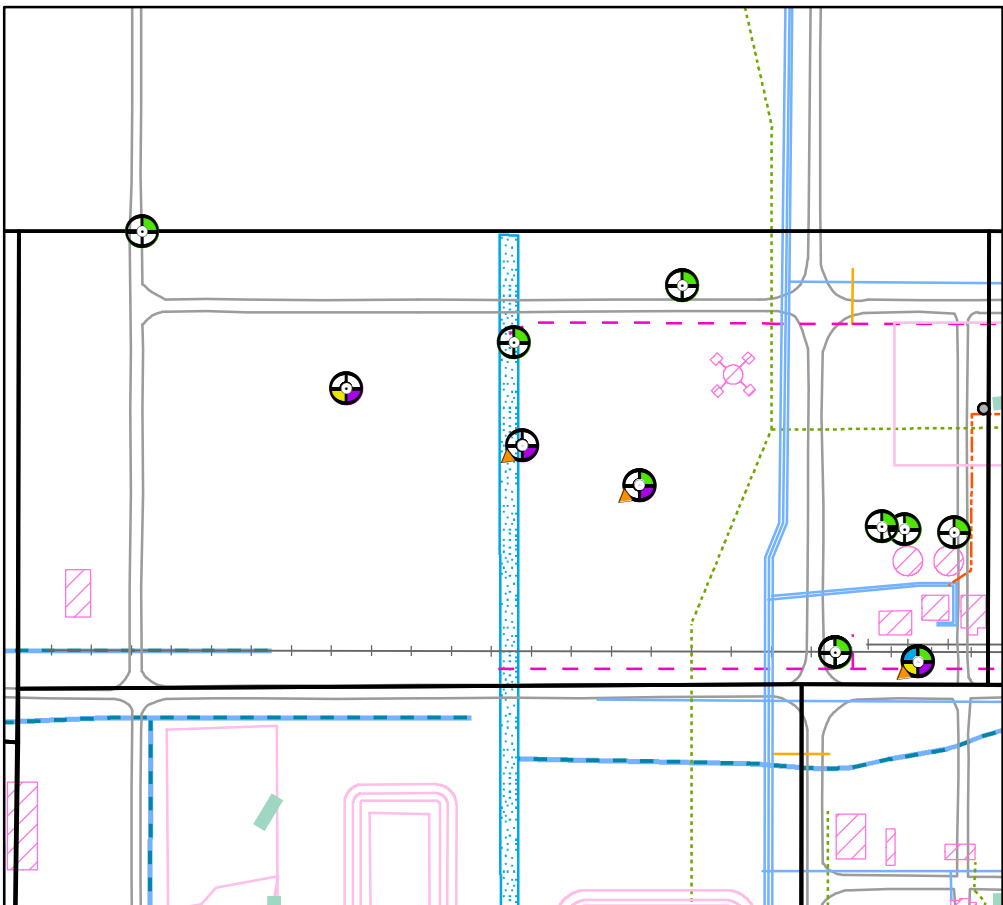




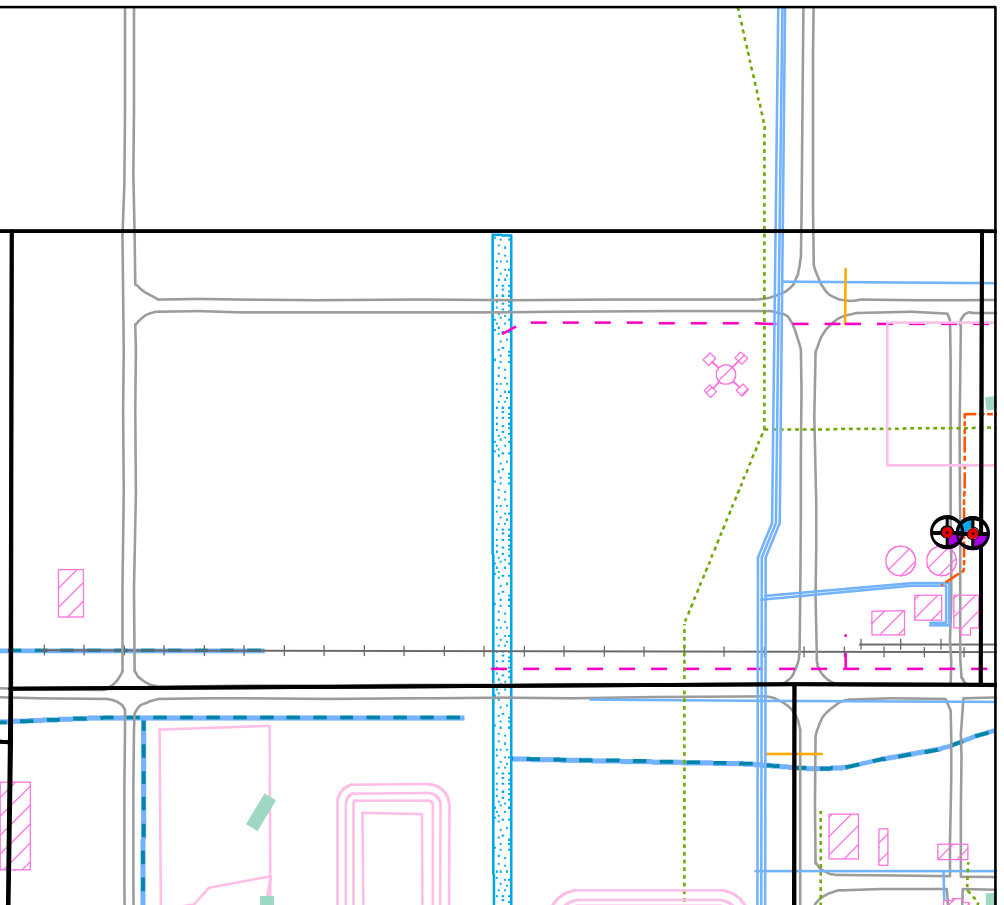
Surface Soil 0-0.5'



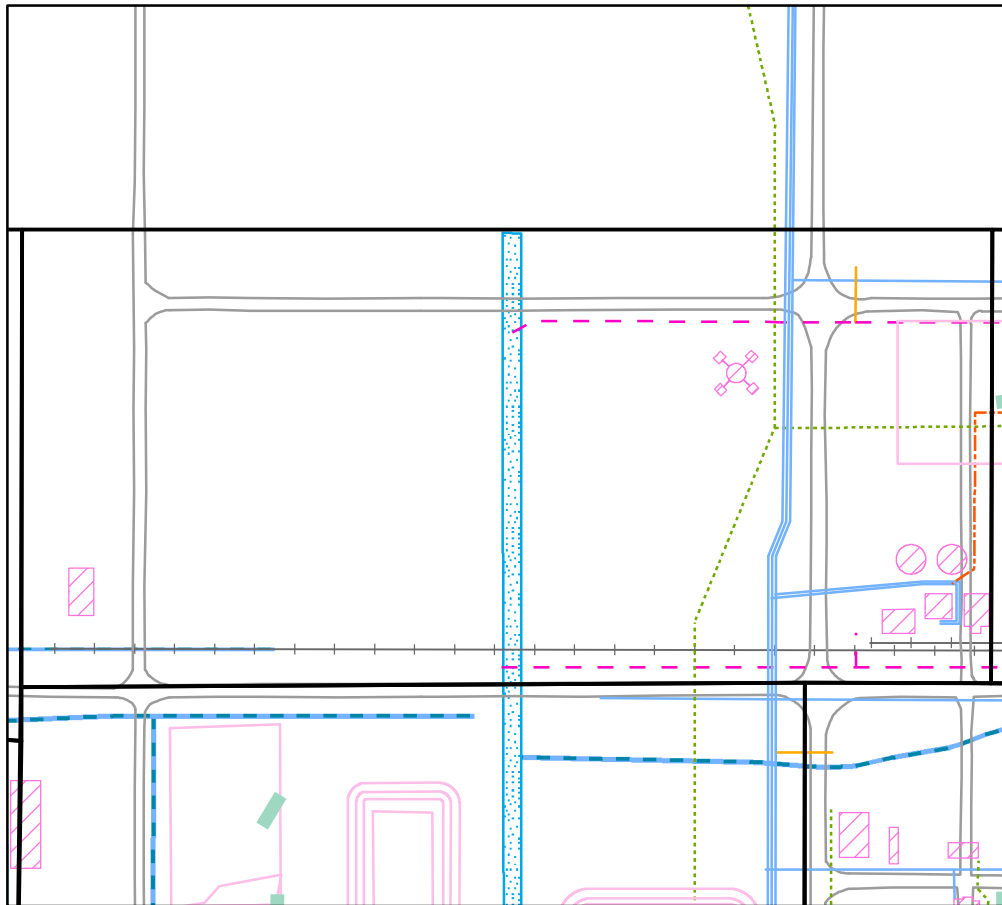
Subsurface Soil 0.5-2'



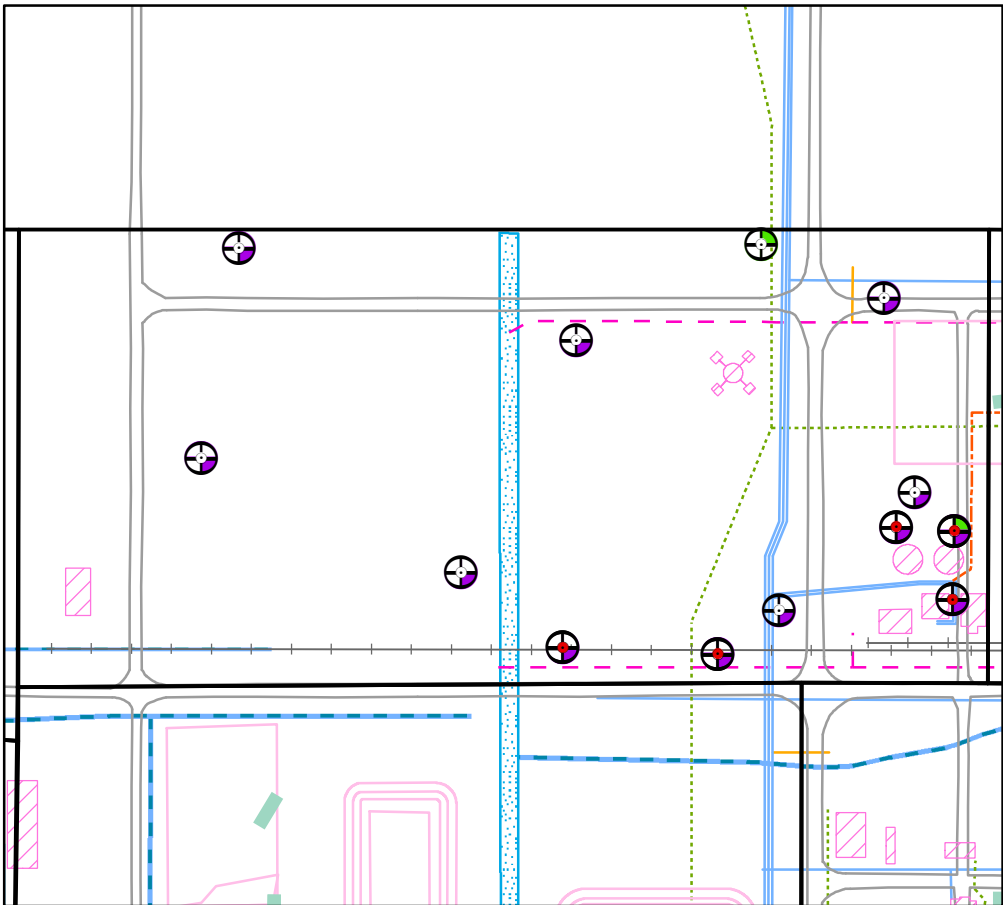
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

N
0 60 120 240
Feet

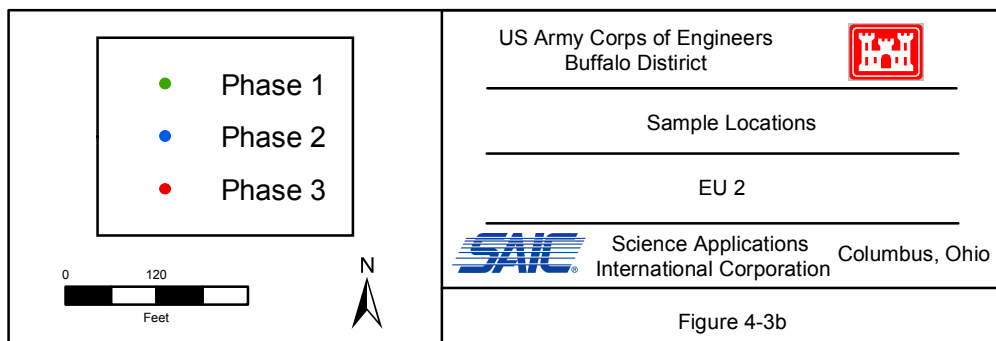
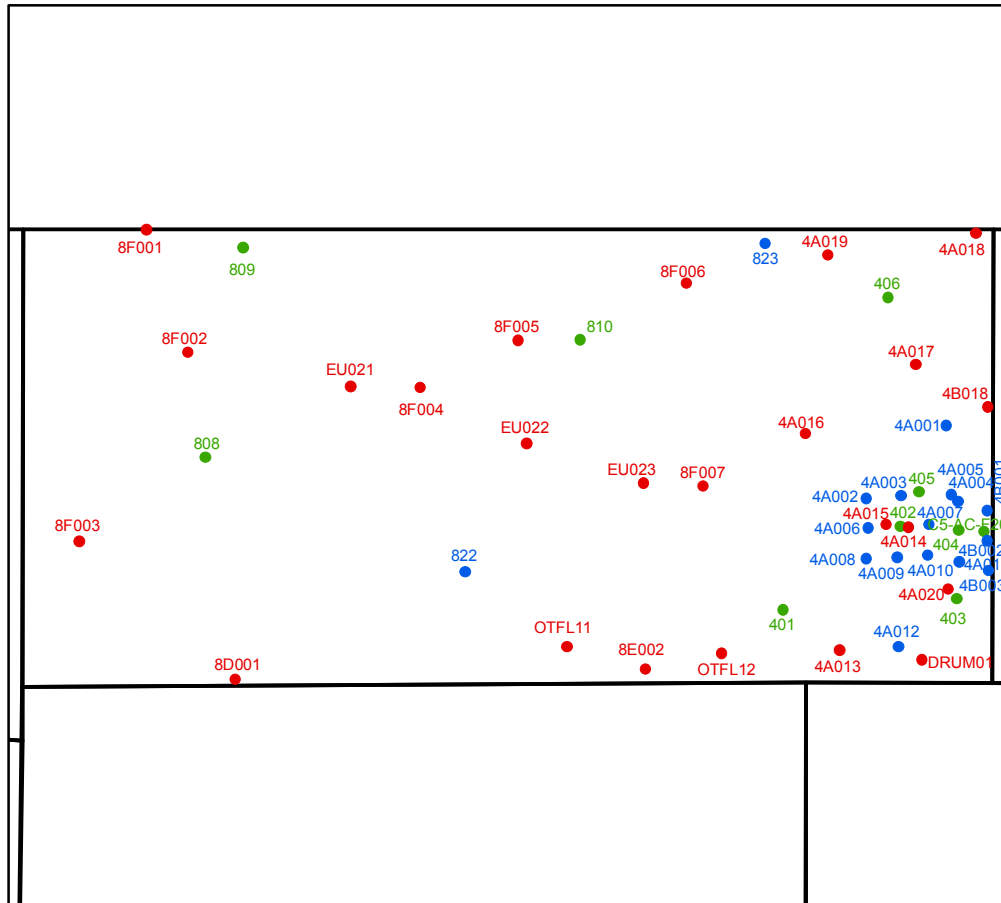
US Army Corps of Engineers
Buffalo District

SRCs - Exceeding the UTL

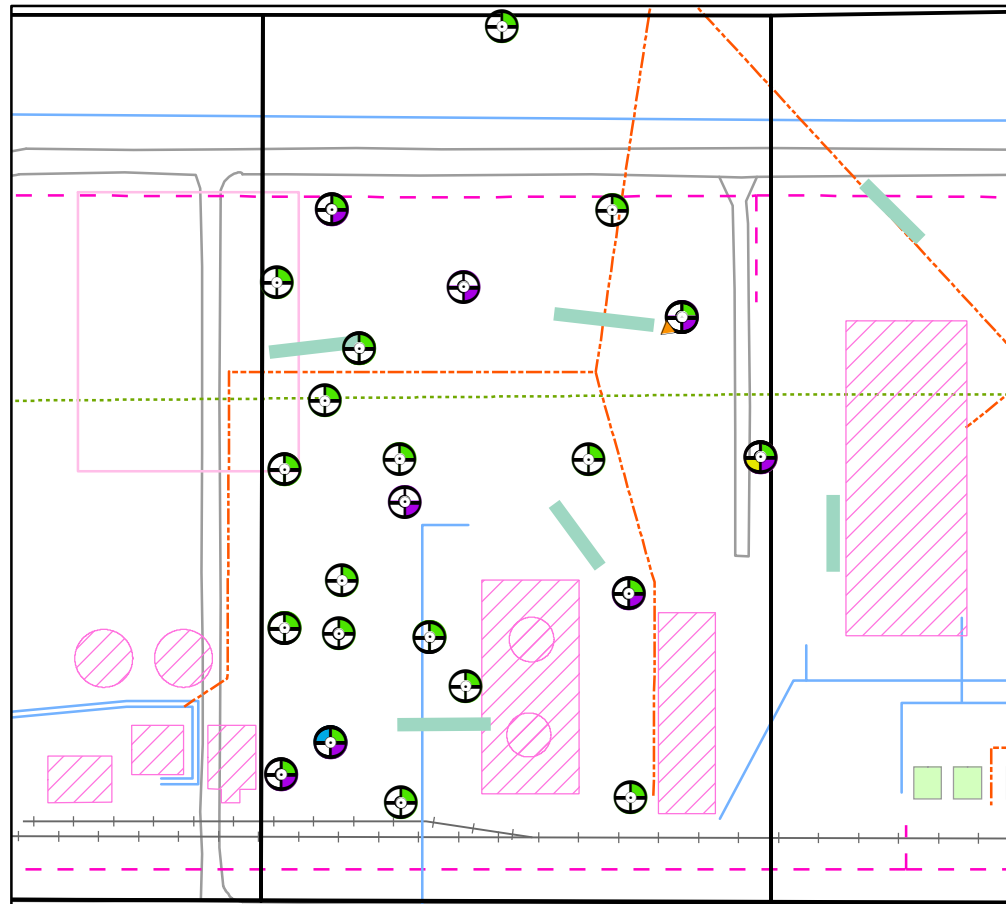
EU 2

Science Applications International Corporation Columbus, Ohio

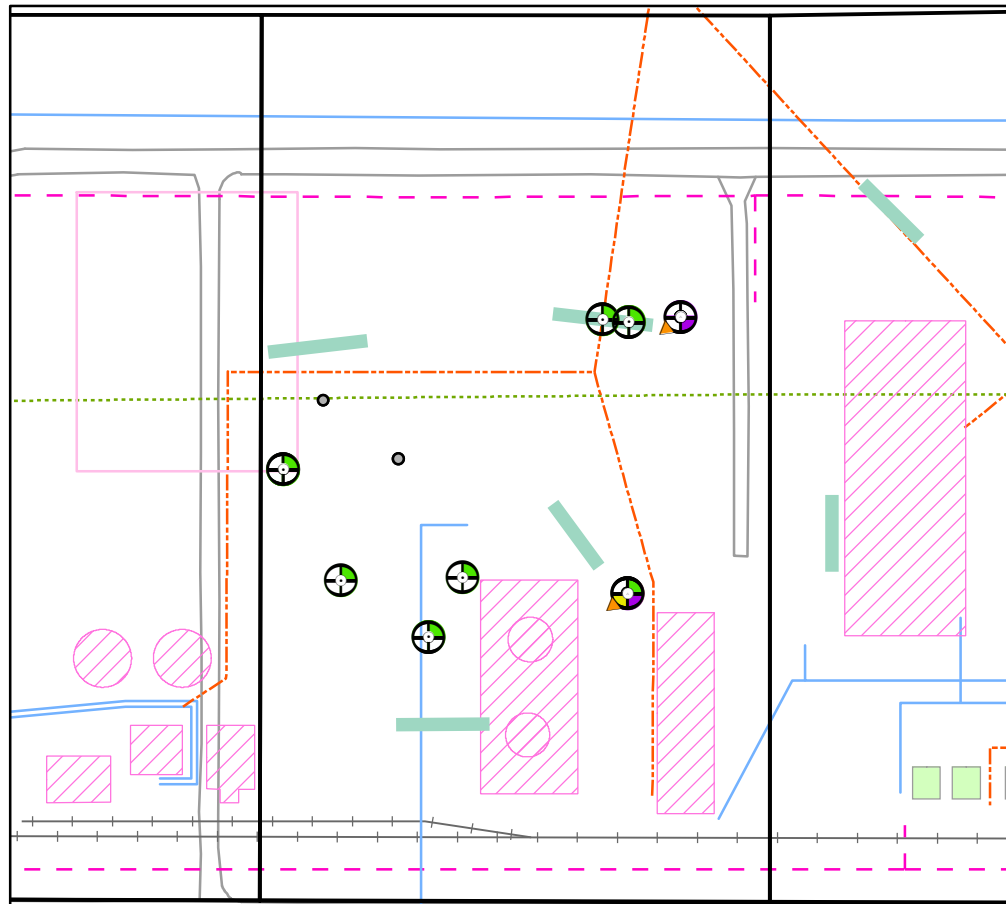
Figure 4-3a



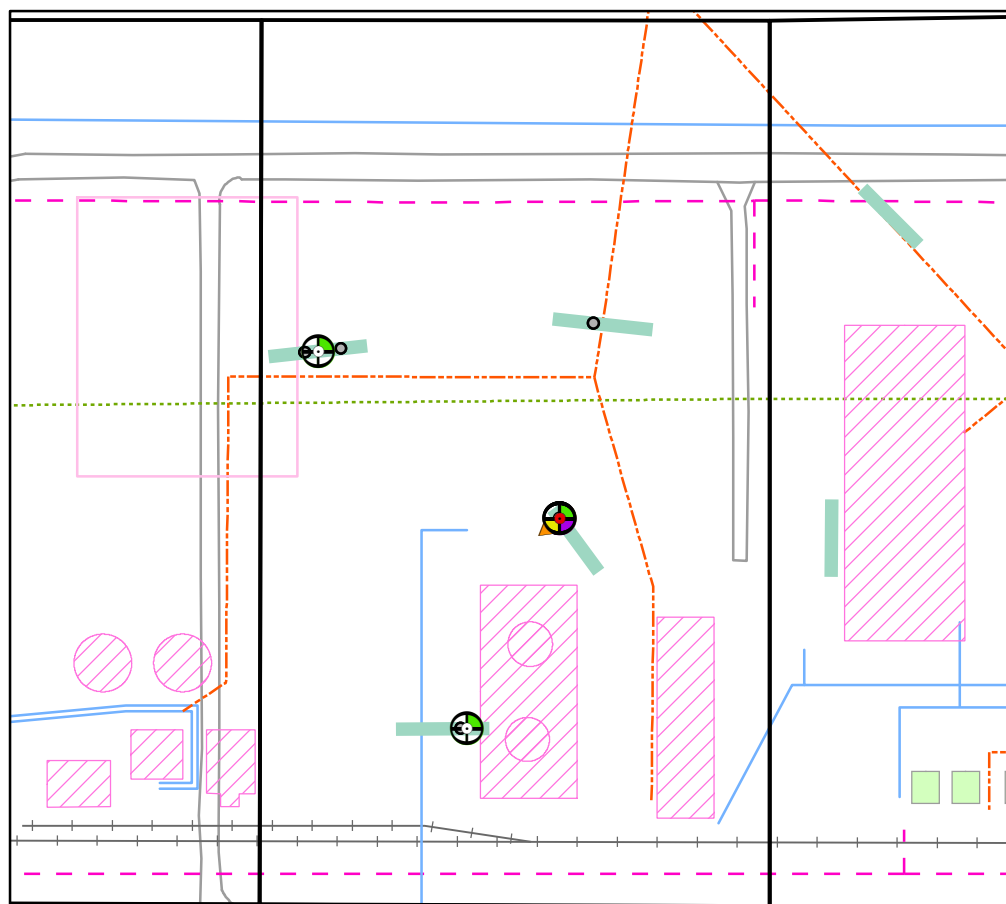
Surface Soil 0-0.5'



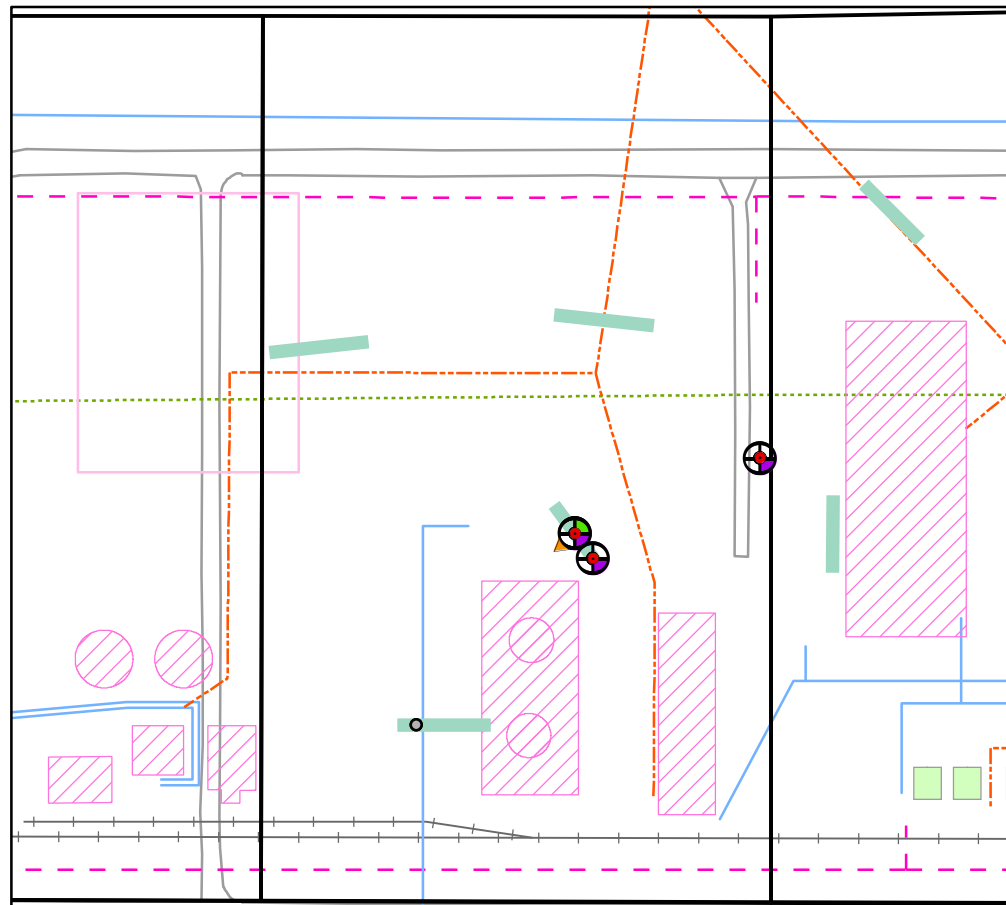
Subsurface Soil 0.5-2'



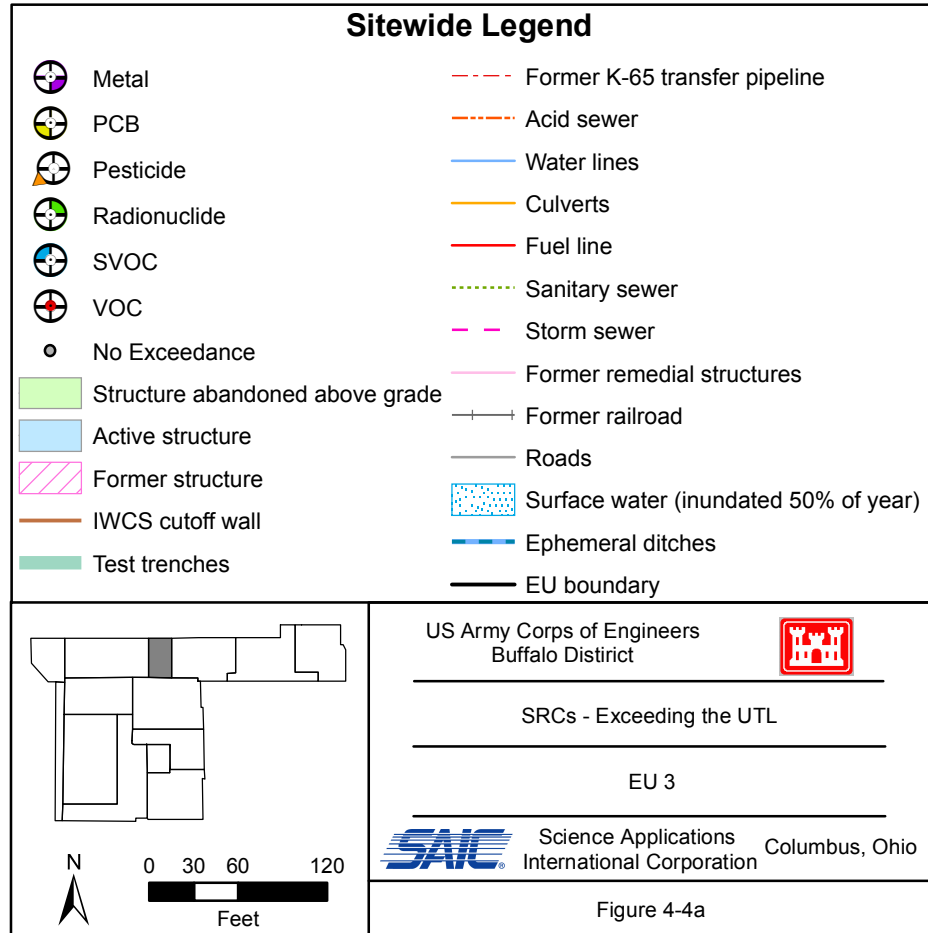
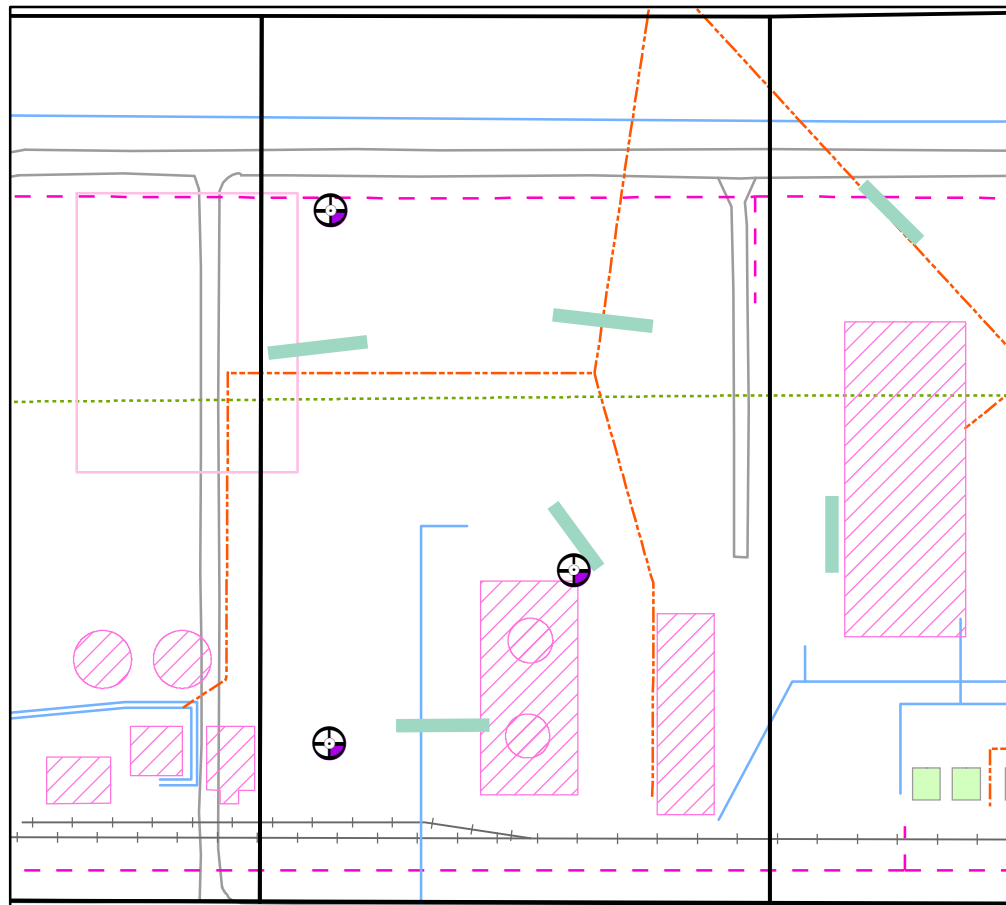
Subsurface Soil 2-5'

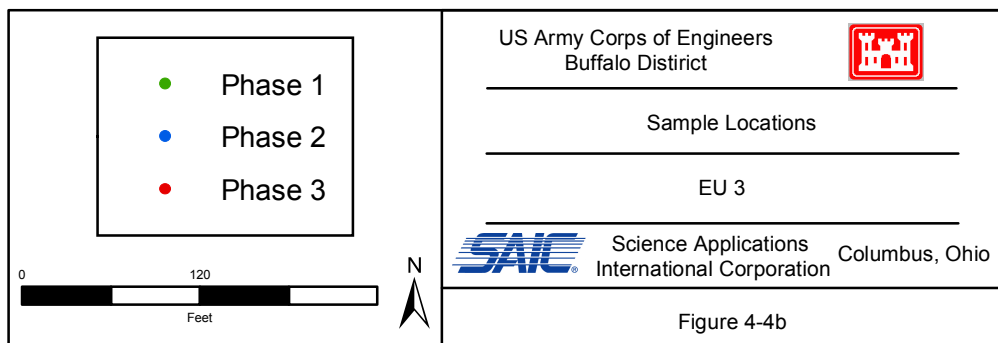
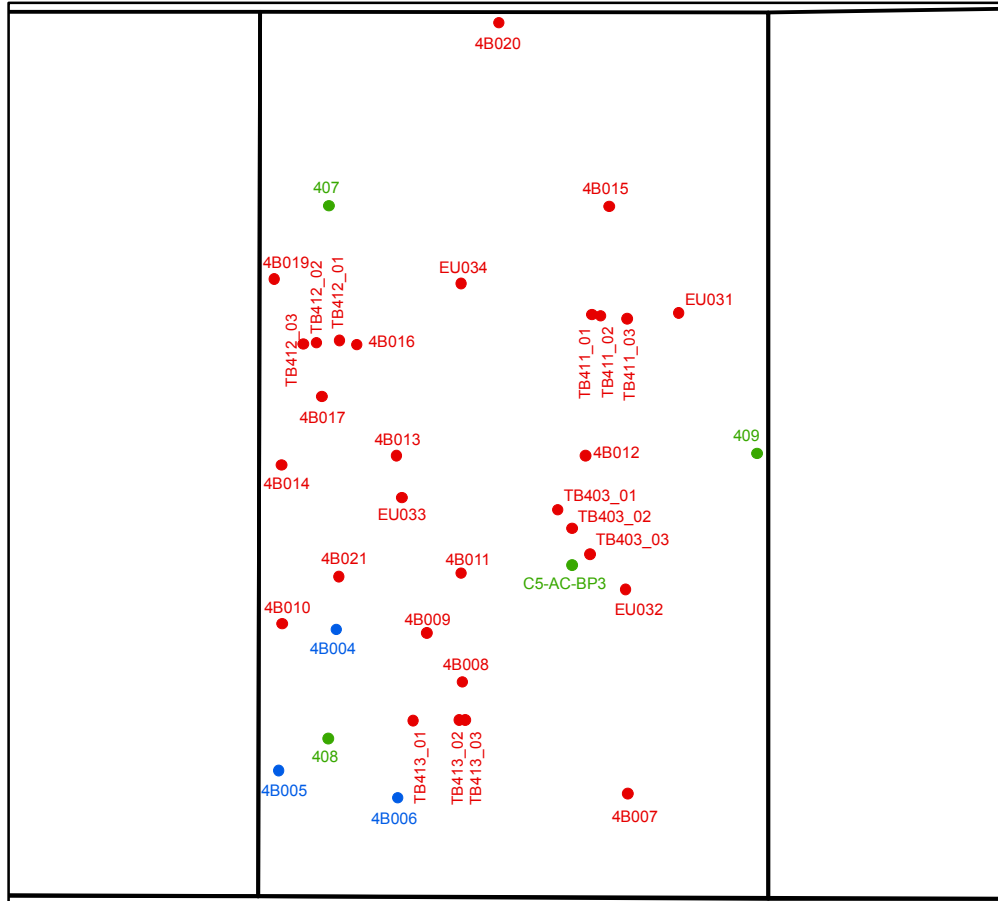


Subsurface Soil 5-10'

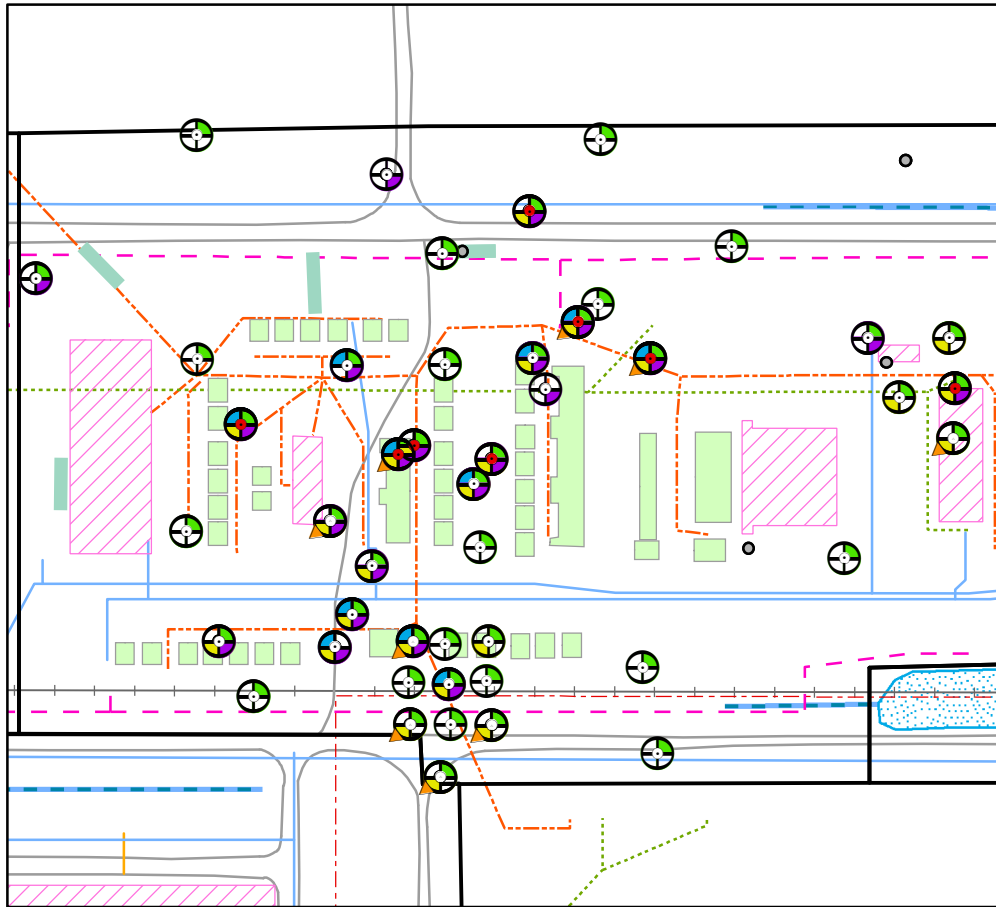


Subsurface Soil > 10'

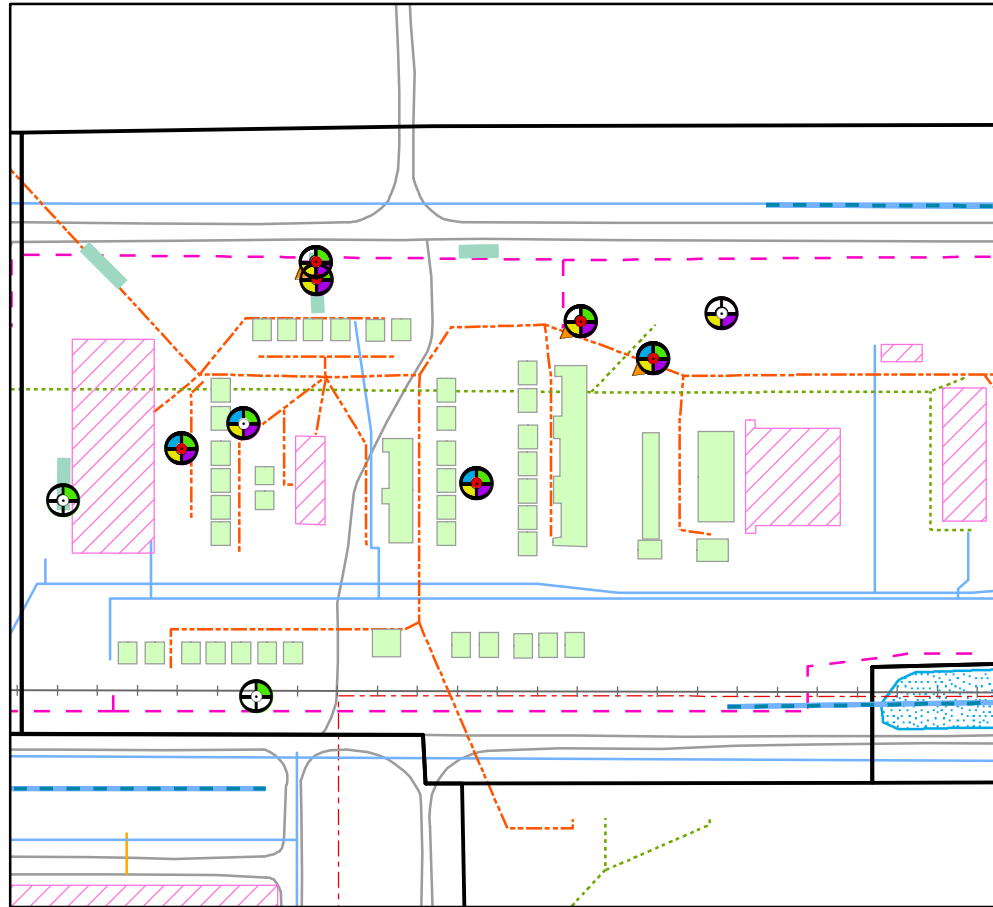




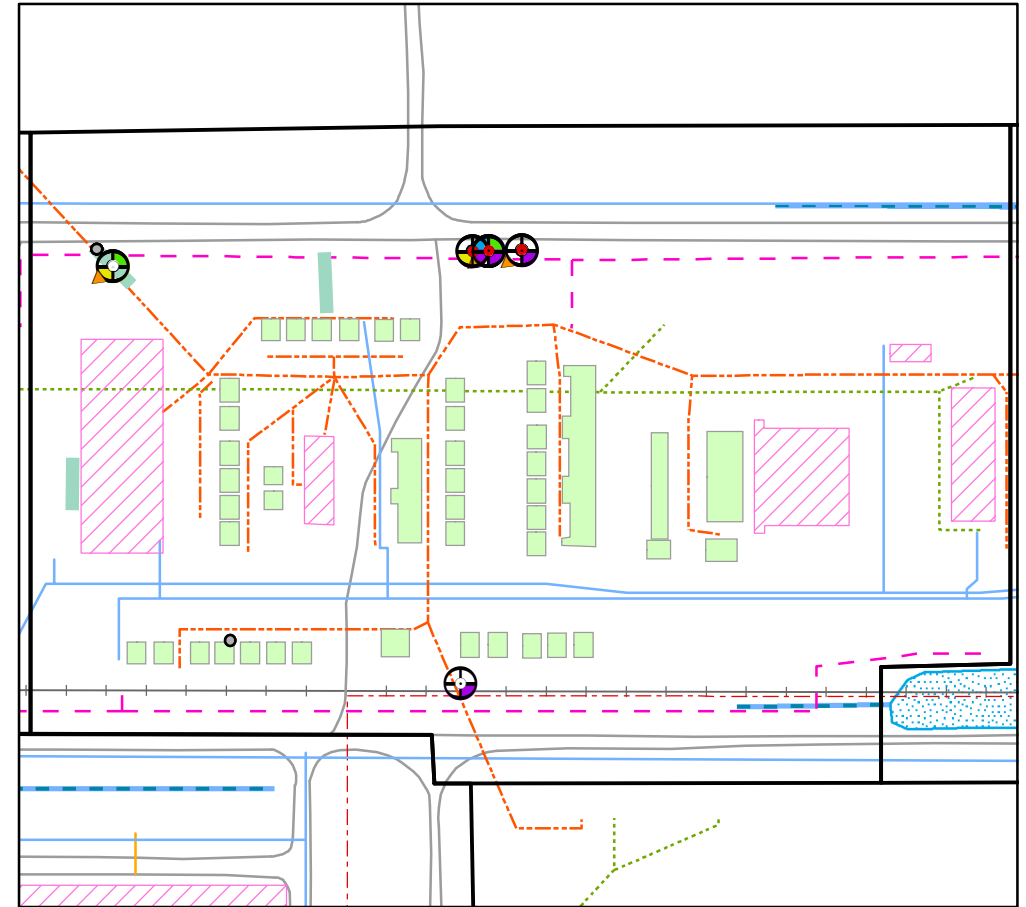
Surface Soil 0-0.5'



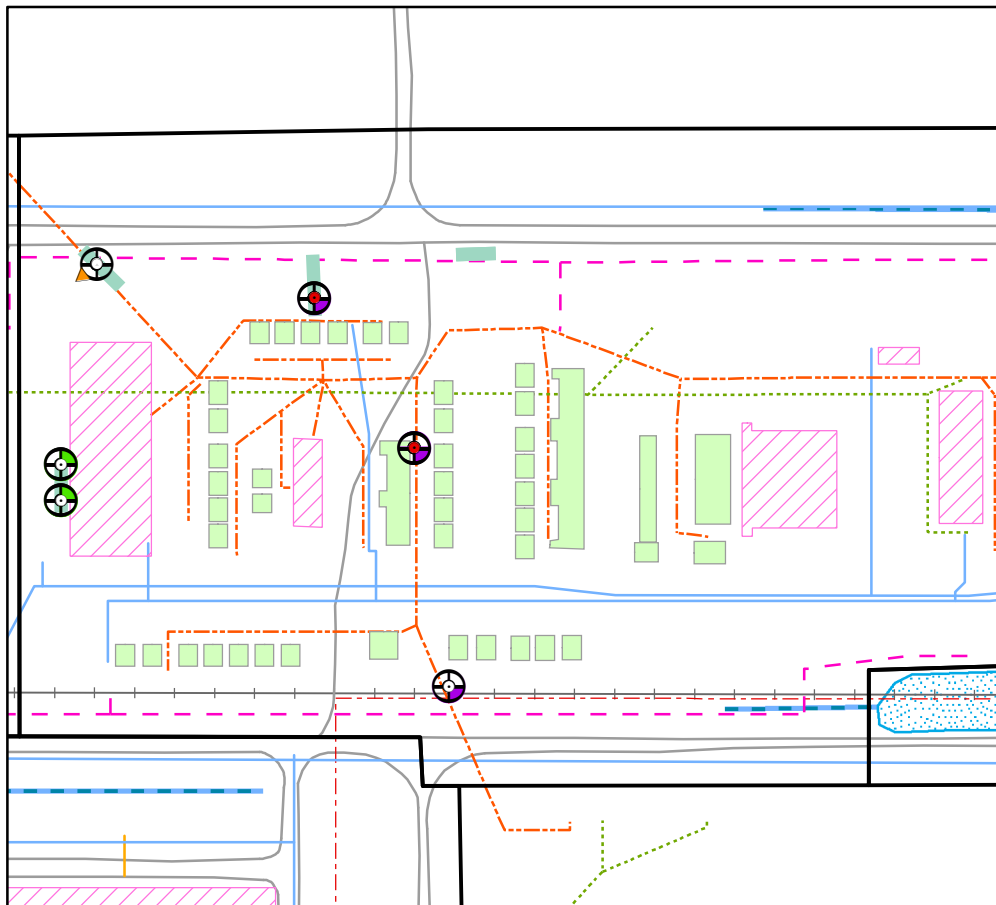
Subsurface Soil 0.5-2'



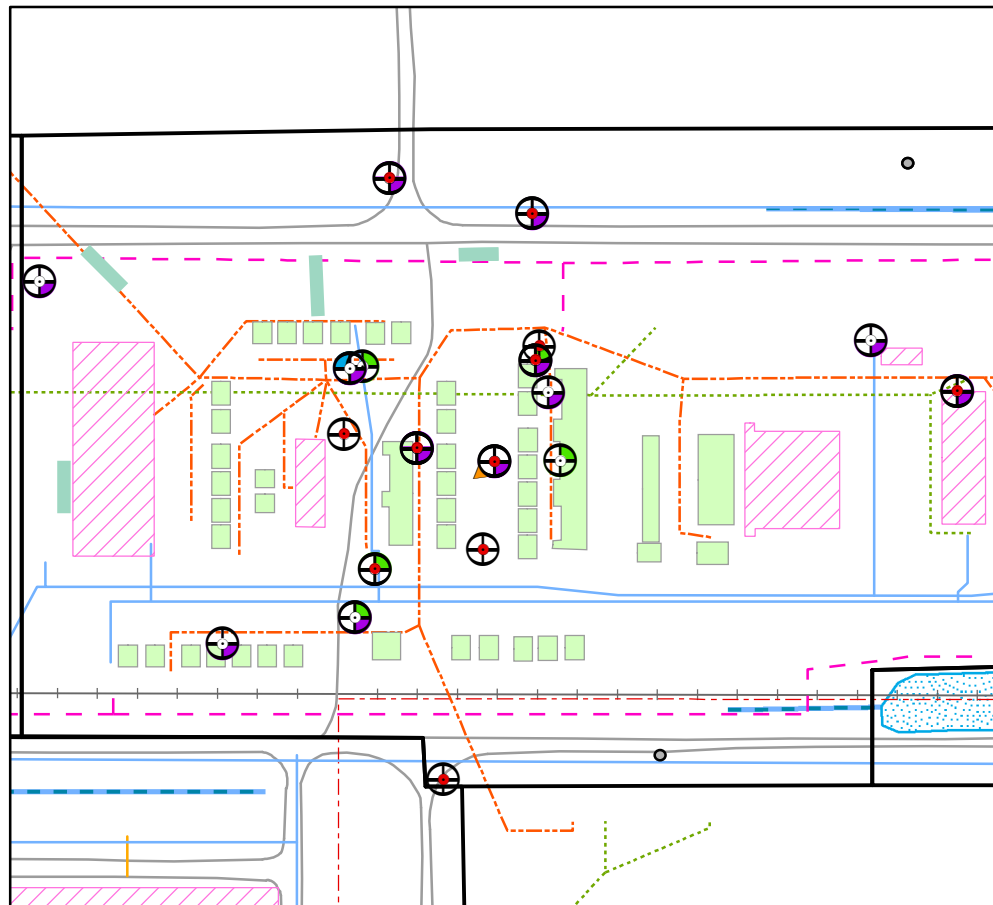
Subsurface Soil 2-5'



Subsurface Soil 5-10'

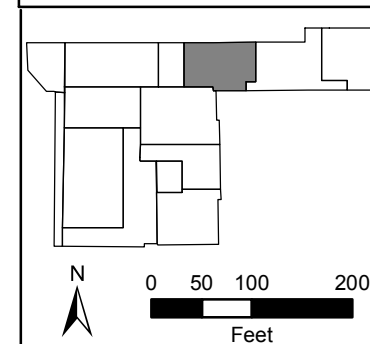


Subsurface Soil > 10'



Sitewide Legend

- | | |
|---------------------------------|---------------------------------------|
| Metal | Former K-65 transfer pipeline |
| PCB | Acid sewer |
| Pesticide | Water lines |
| Radionuclide | Culverts |
| SVOC | Fuel line |
| VOC | Sanitary sewer |
| No Exceedance | Storm sewer |
| Structure abandoned above grade | Former remedial structures |
| Active structure | Former railroad |
| Former structure | Roads |
| IWCS cutoff wall | Surface water (inundated 50% of year) |
| Test trenches | Ephemeral ditches |
| | EU boundary |



US Army Corps of Engineers
Buffalo District



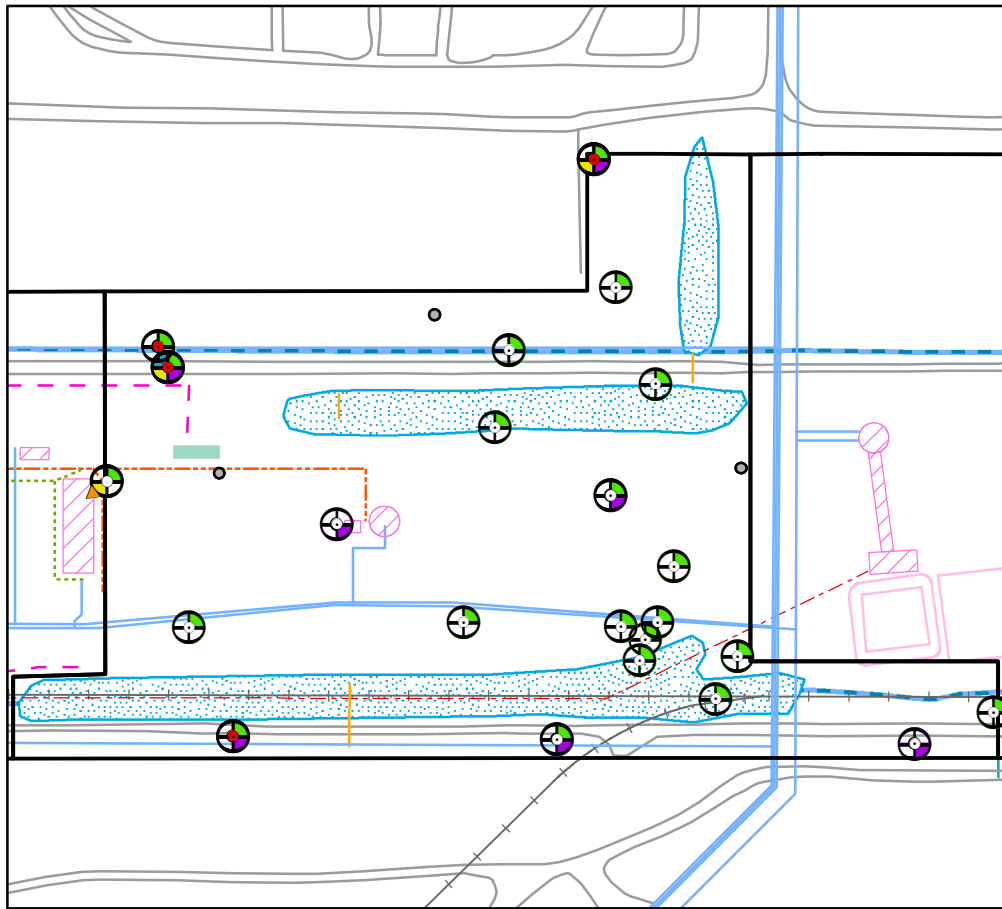
SRCs - Exceeding the UTL

EU 4

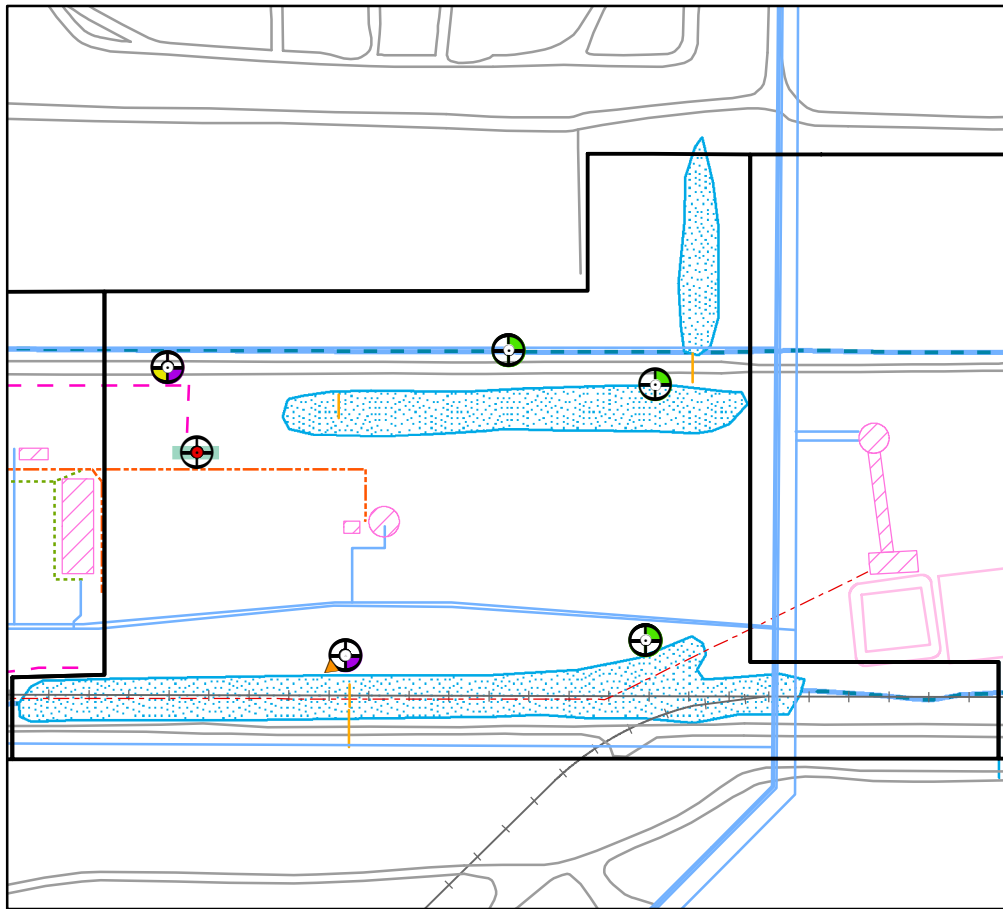
SAIC Science Applications International Corporation Columbus, Ohio

Figure 4-5a

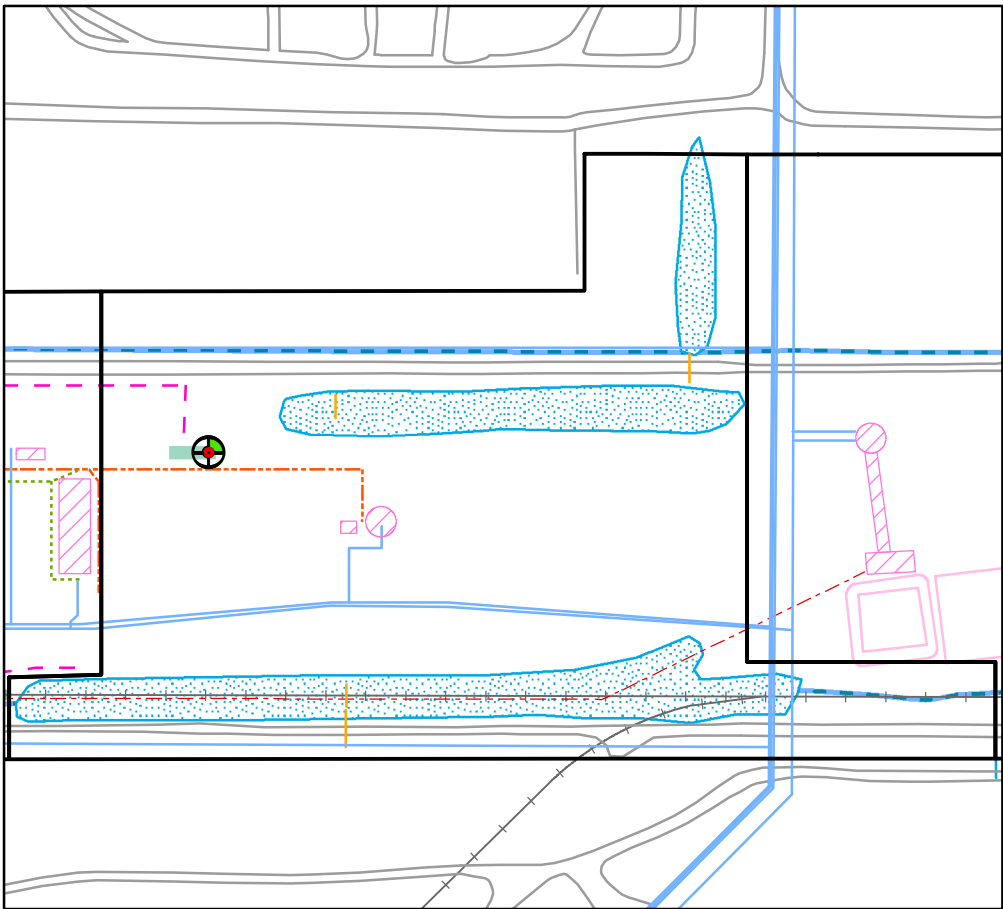
Surface Soil 0-0.5'



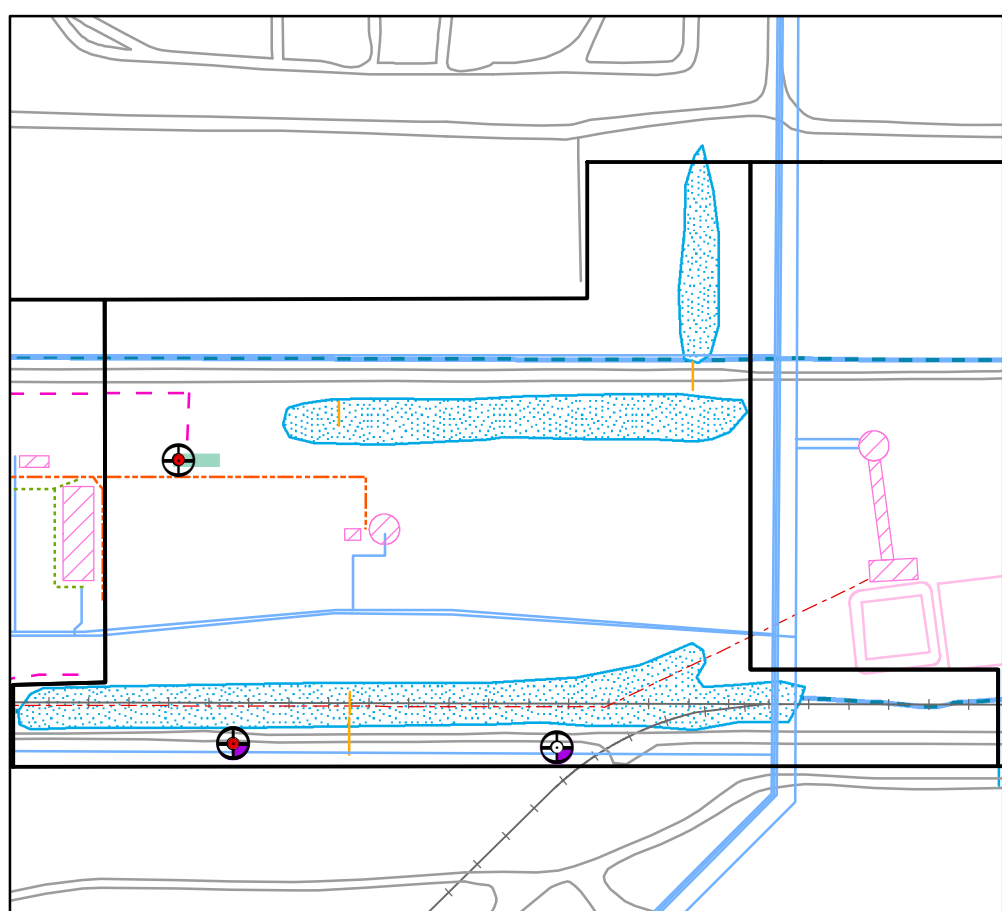
Subsurface Soil 0.5-2'



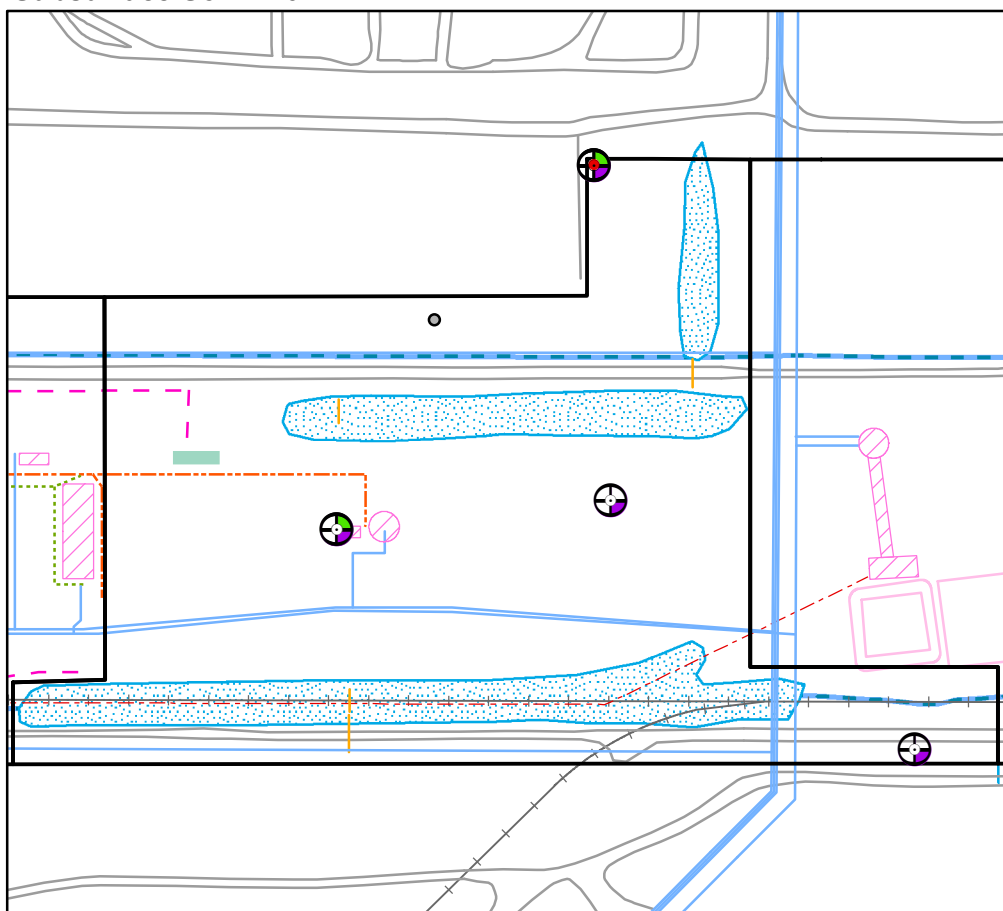
Subsurface Soil 2-5'



Subsurface Soil 5-10'

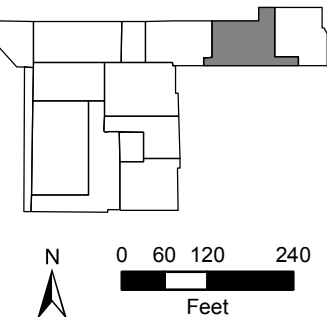


Subsurface Soil > 10'



Sitewide Legend

- Metal
- PCB
- Pesticide
- Radionuclide
- SVOC
- VOC
- No Exceedance
- Structure abandoned above grade
- Active structure
- Former structure
- IWCS cutoff wall
- Test trenches
- Former K-65 transfer pipeline
- Acid sewer
- Water lines
- Culverts
- Fuel line
- Sanitary sewer
- Storm sewer
- Former remedial structures
- Former railroad
- Roads
- Surface water (inundated 50% of year)
- Ephemeral ditches
- EU boundary



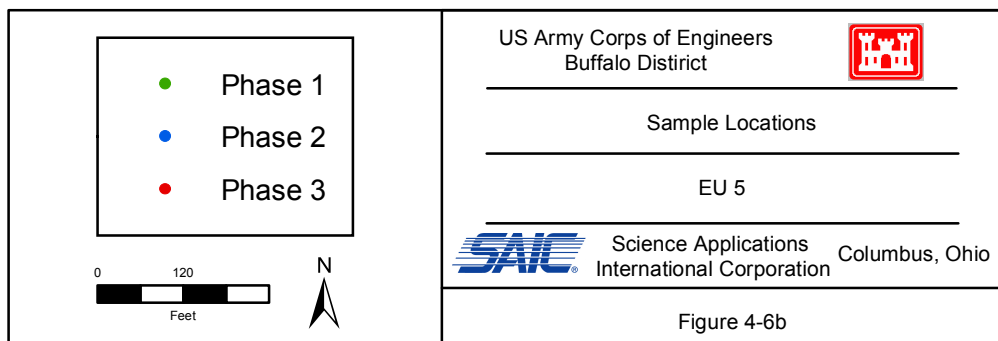
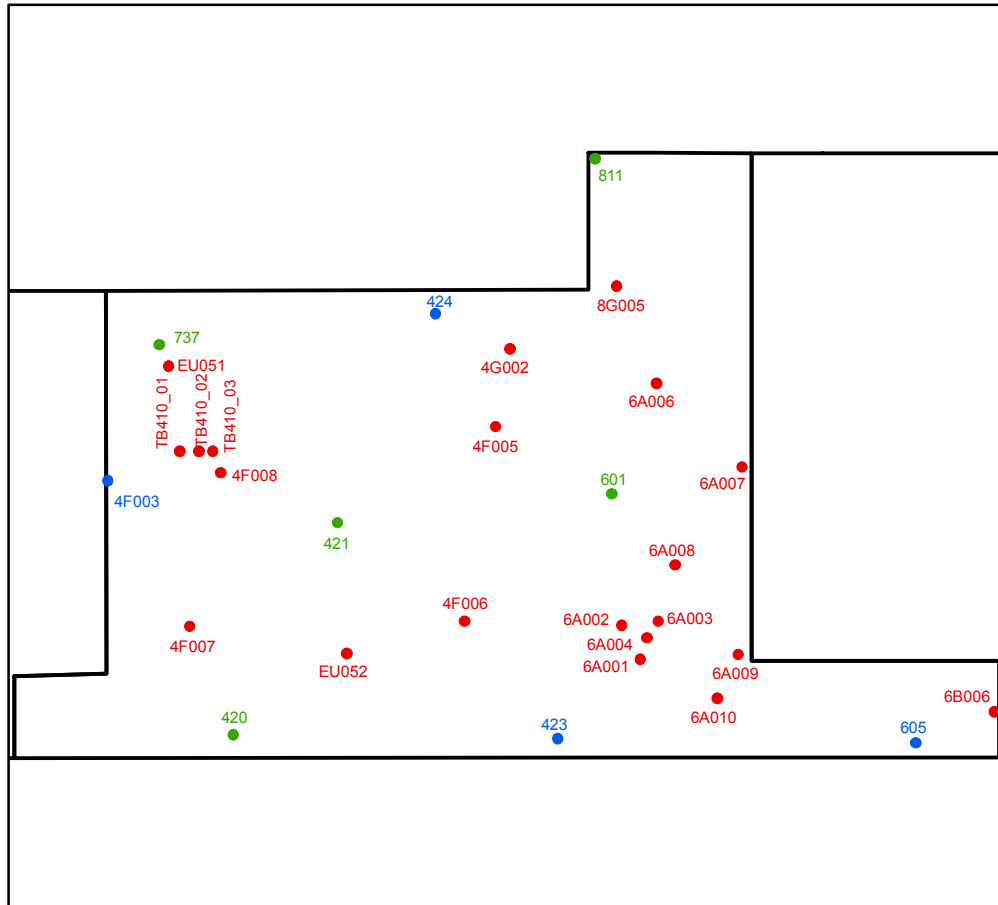
US Army Corps of Engineers
Buffalo District

SRCs - Exceeding the UTL

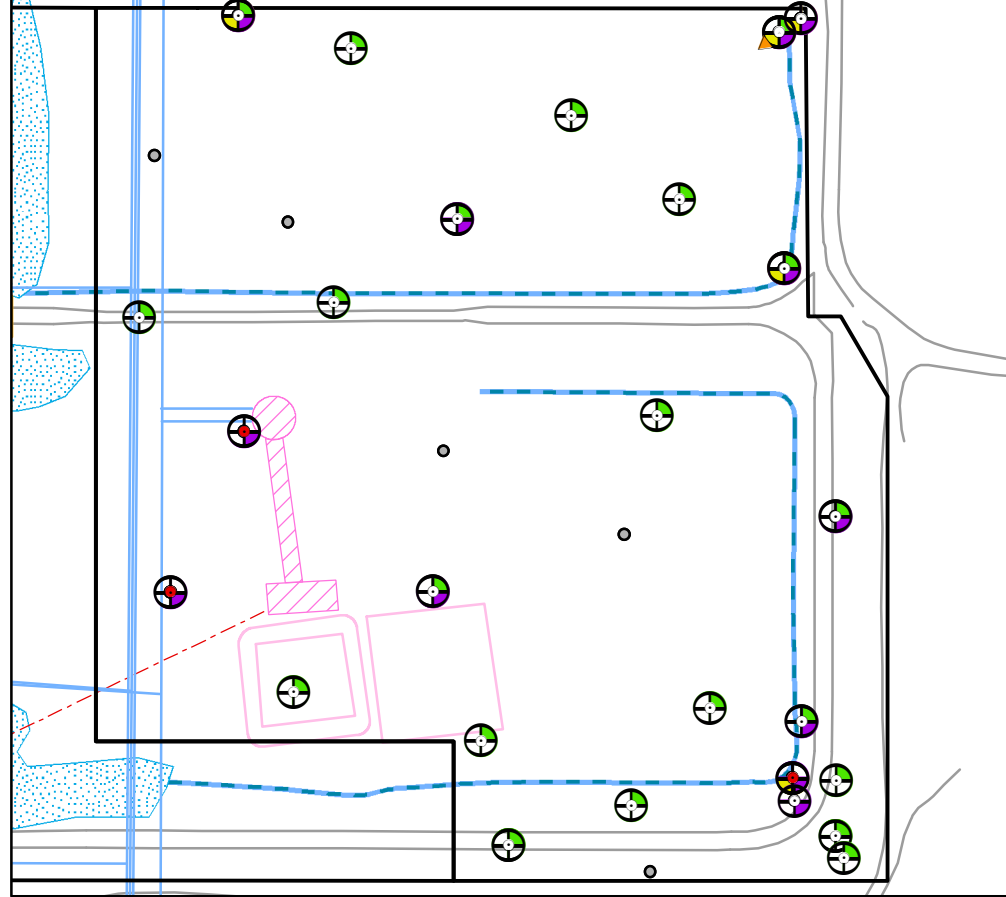
EU 5

SAIC Science Applications International Corporation Columbus, Ohio

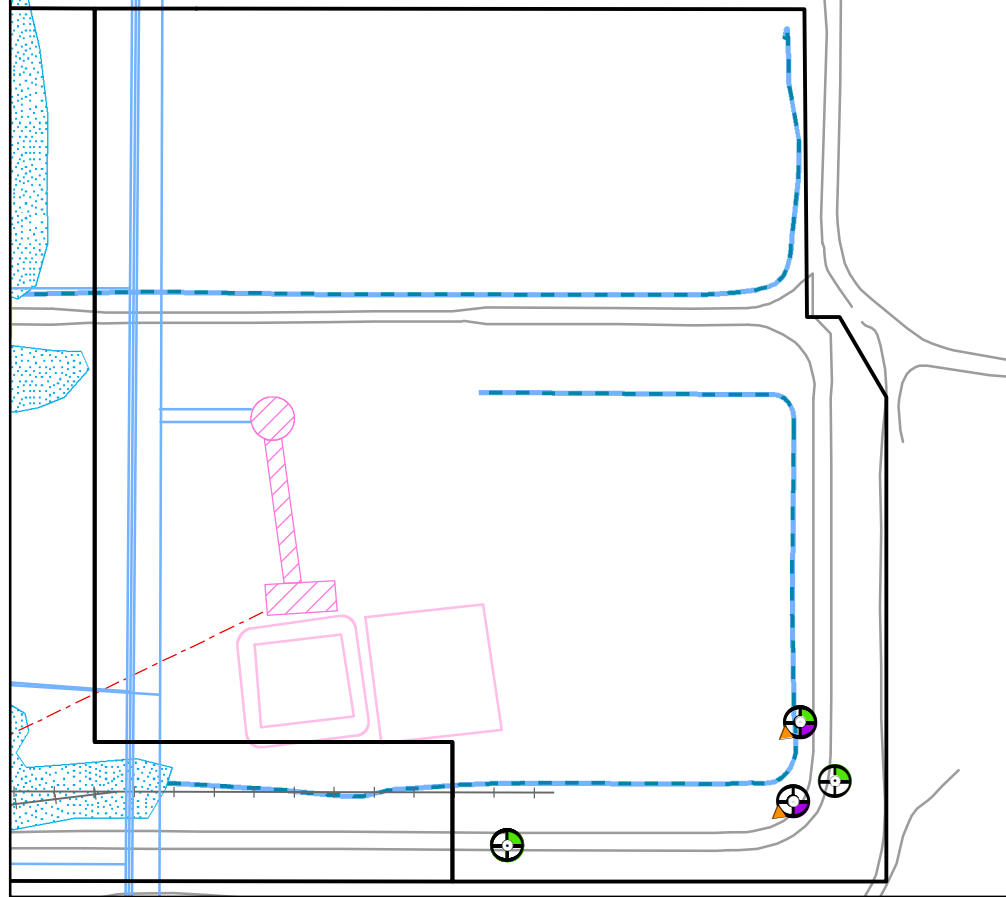
Figure 4-6a



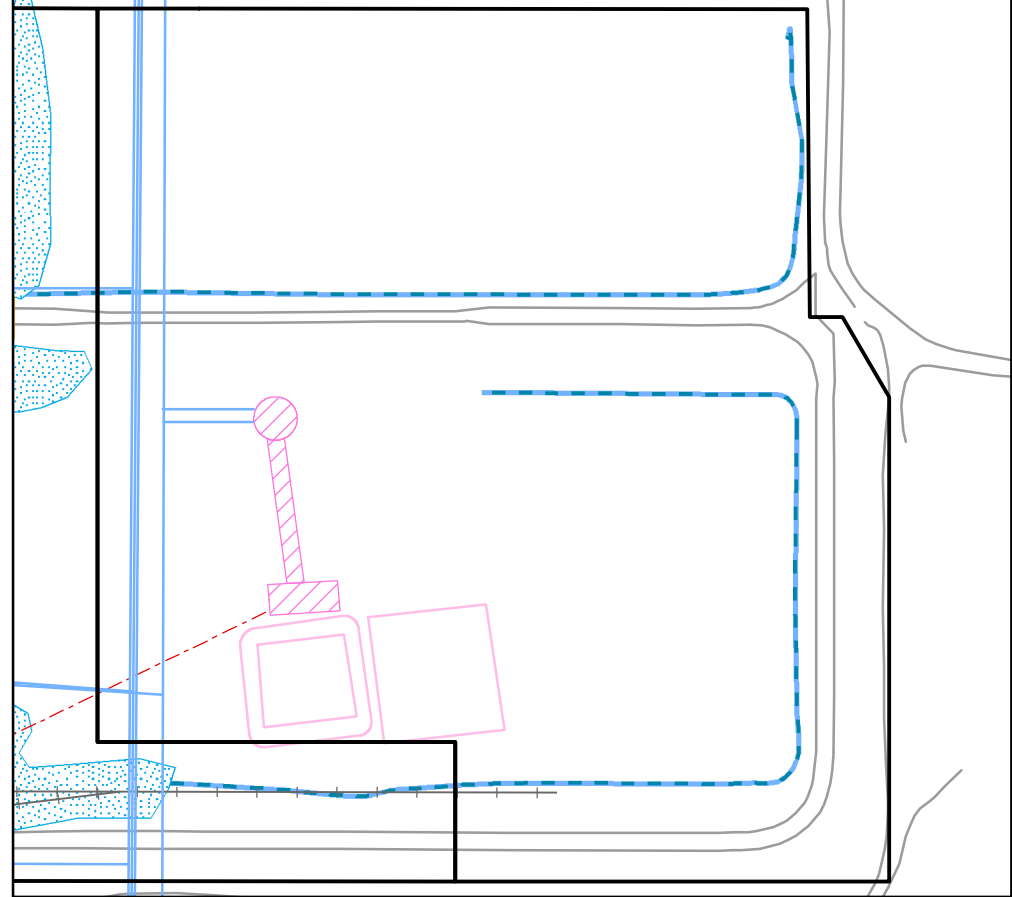
Surface Soil 0-0.5'



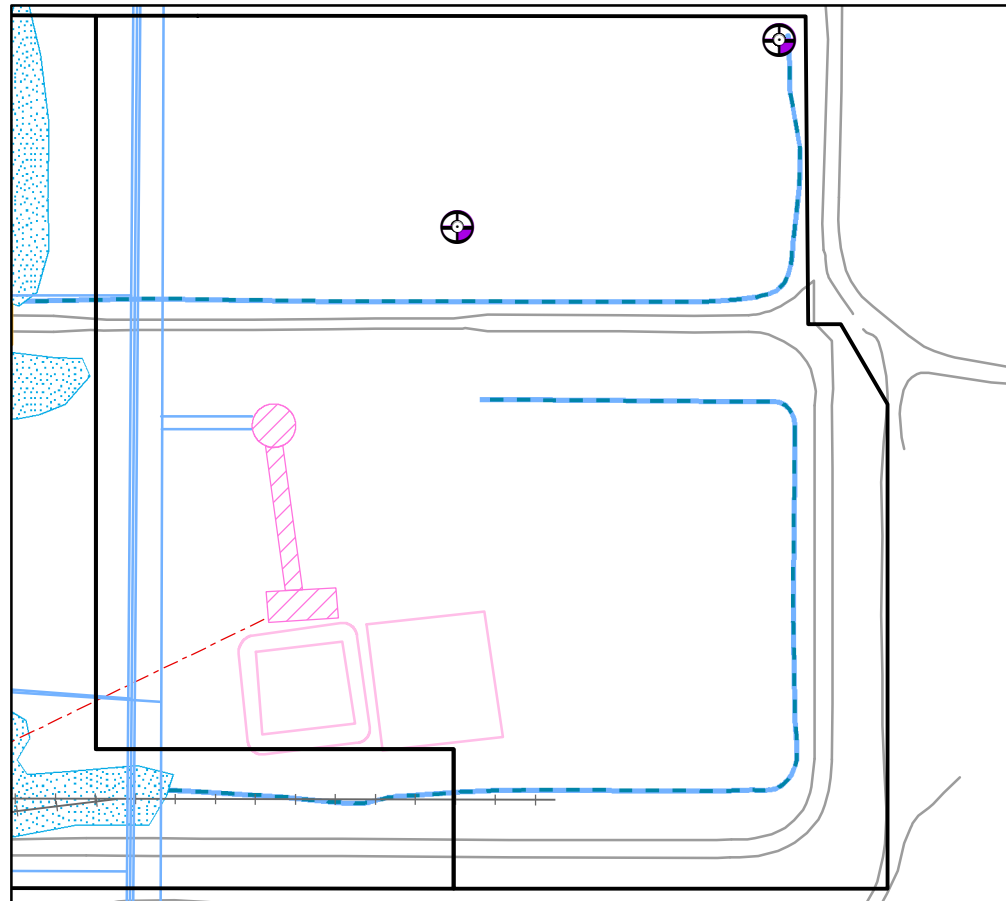
Subsurface Soil 0.5-2'



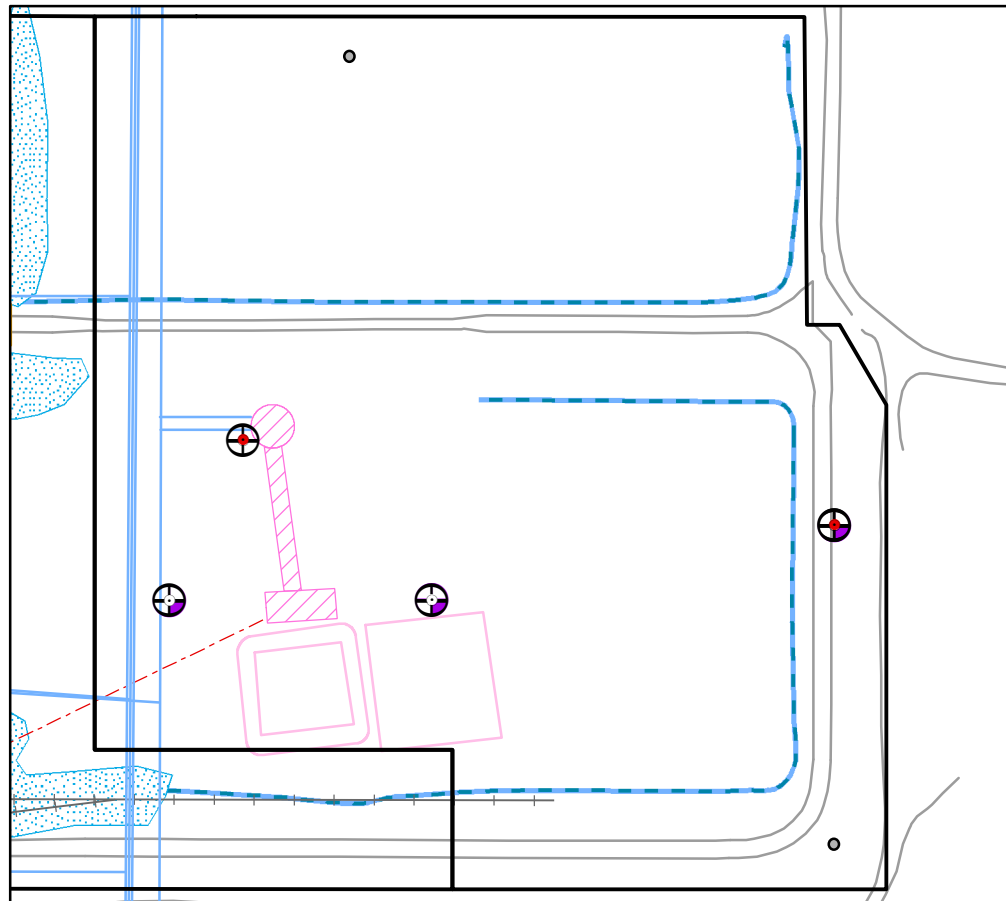
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'

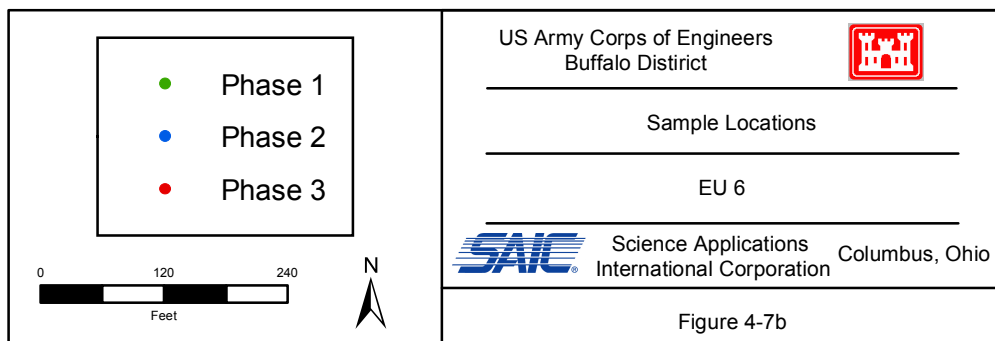
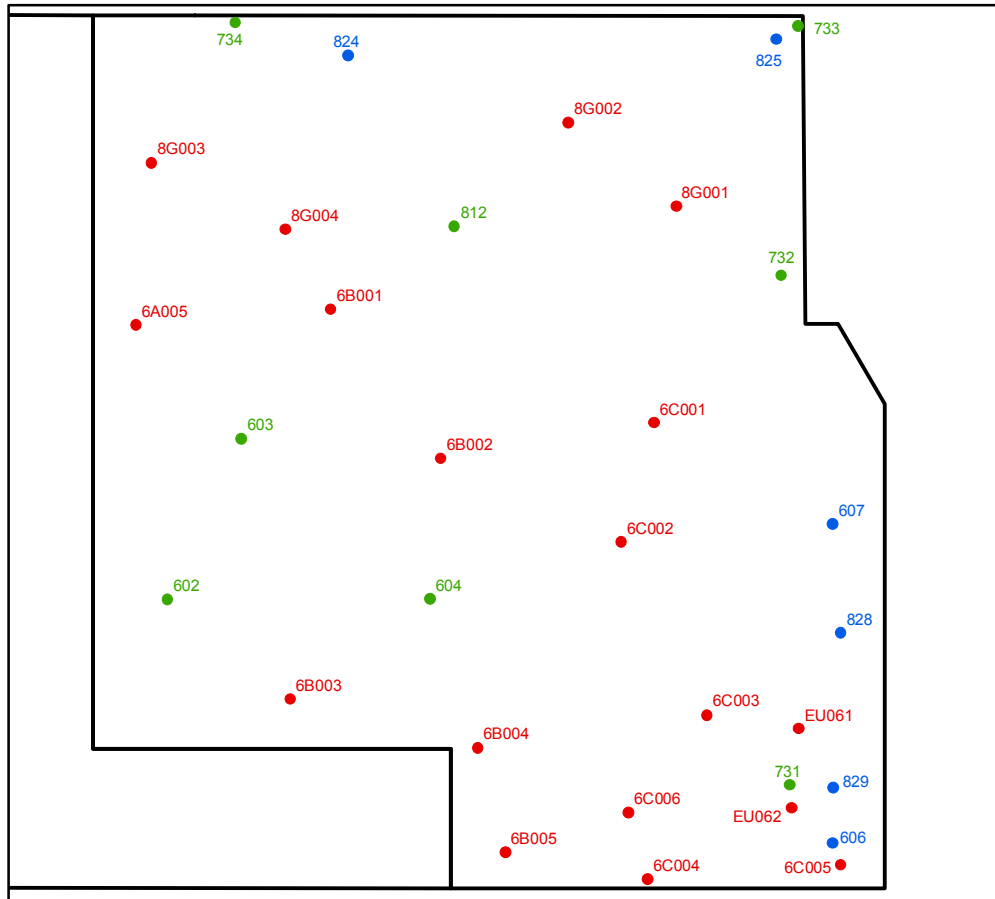


Sitewide Legend

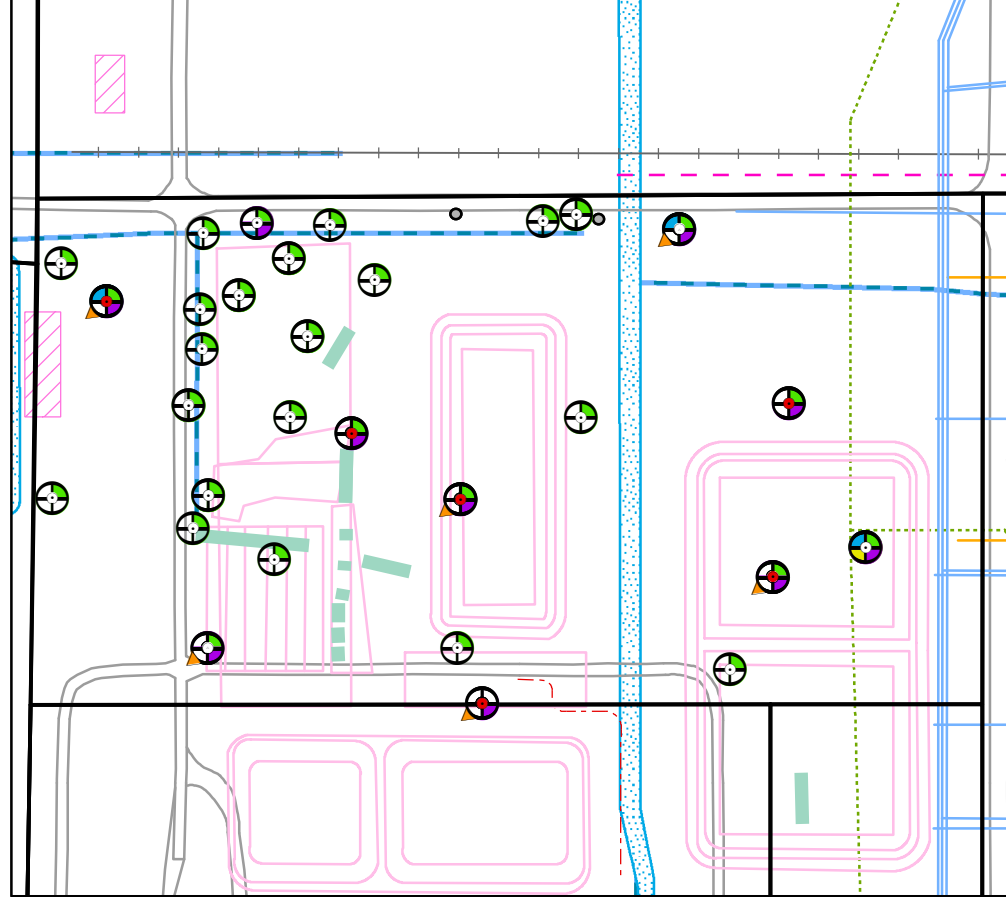
Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

	US Army Corps of Engineers Buffalo District	
	SRCs - Exceeding the UTL	
	EU 6	
	Science Applications International Corporation	Columbus, Ohio

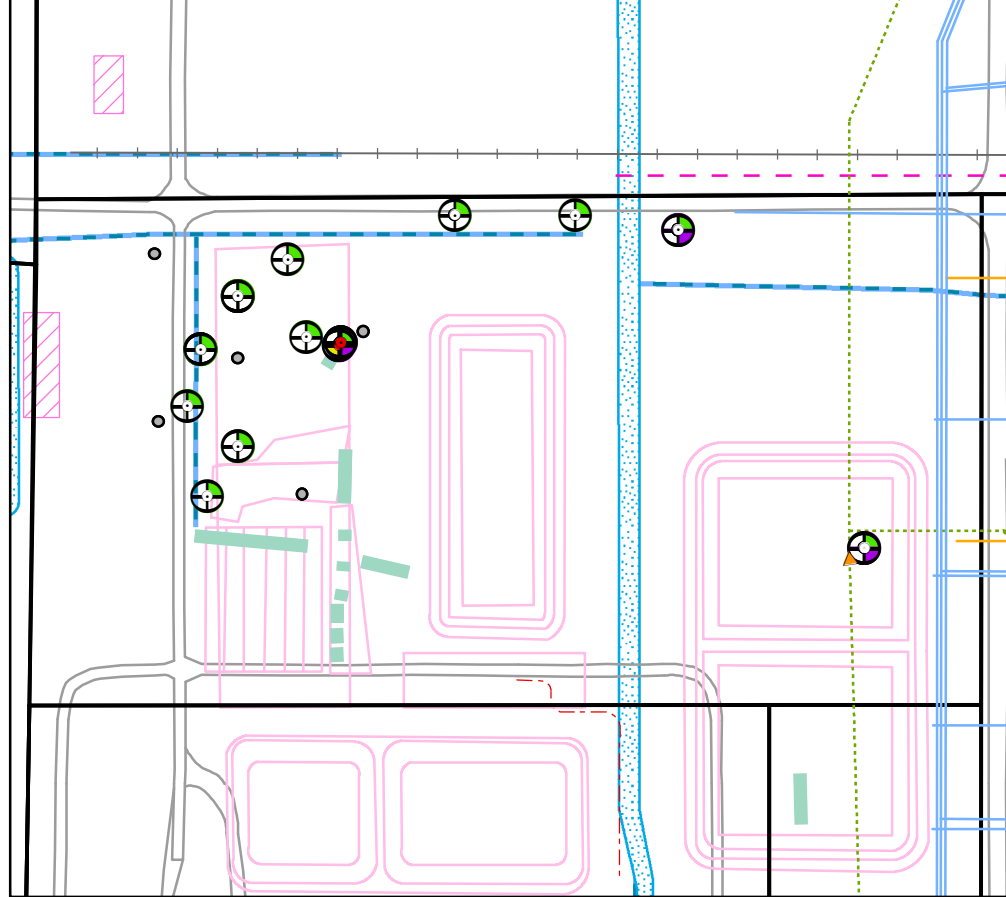
Figure 4-7a



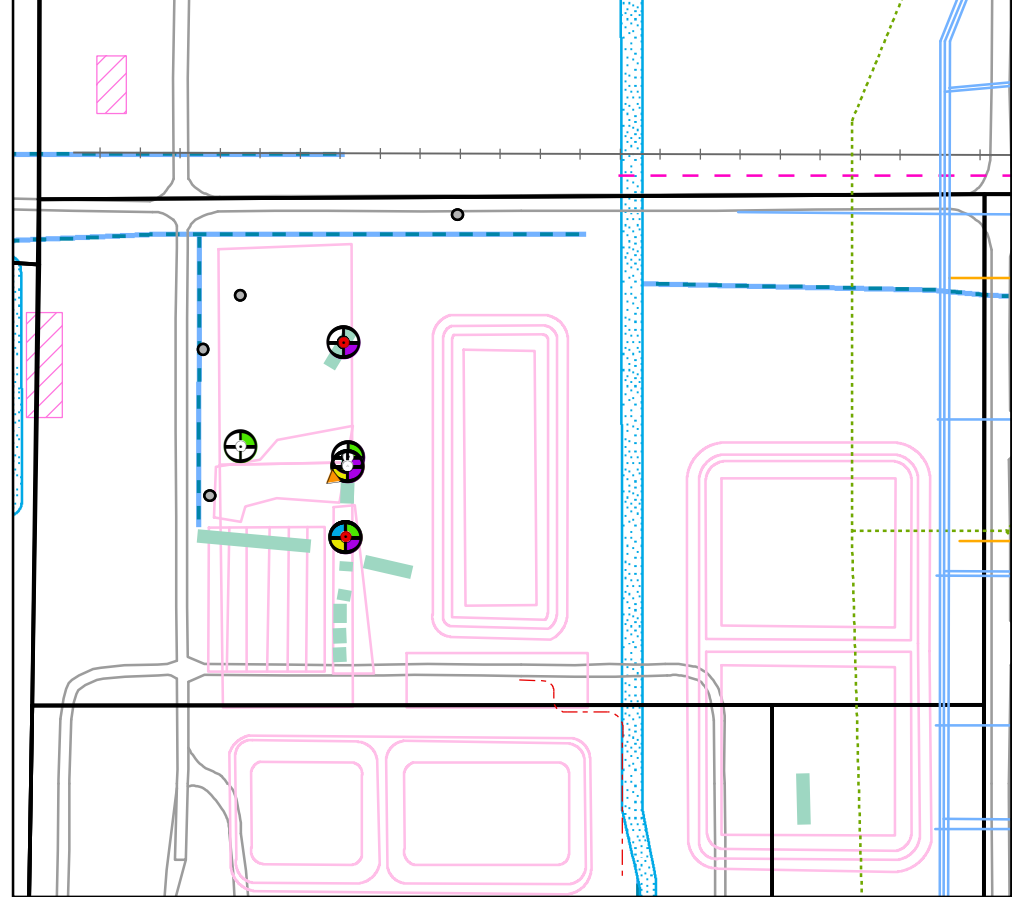
Surface Soil 0-0.5'



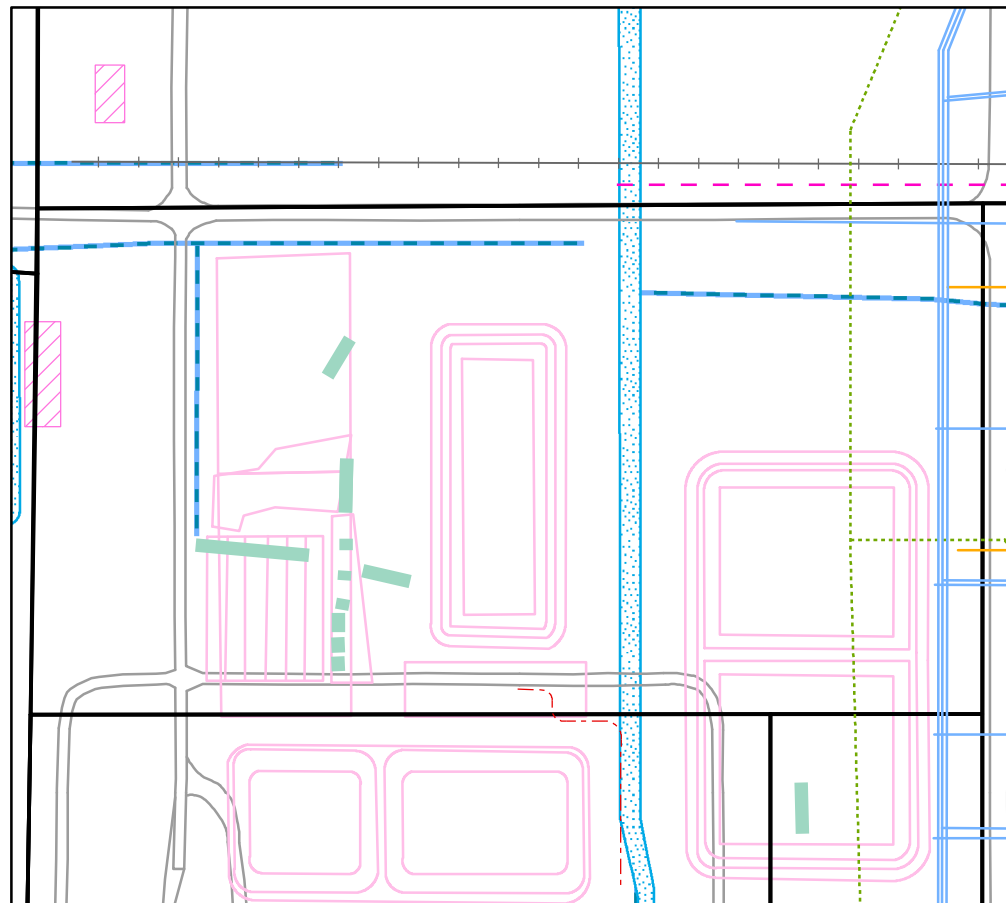
Subsurface Soil 0.5-2'



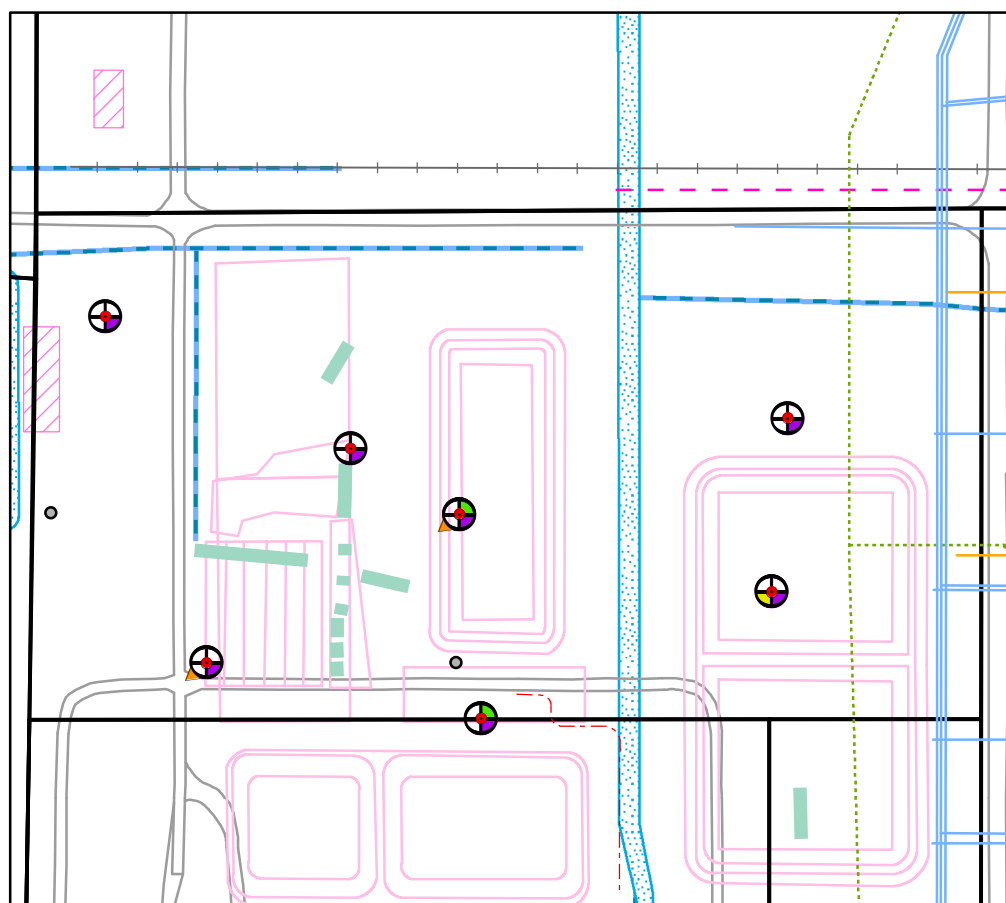
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

N
0 60 120 240
Feet

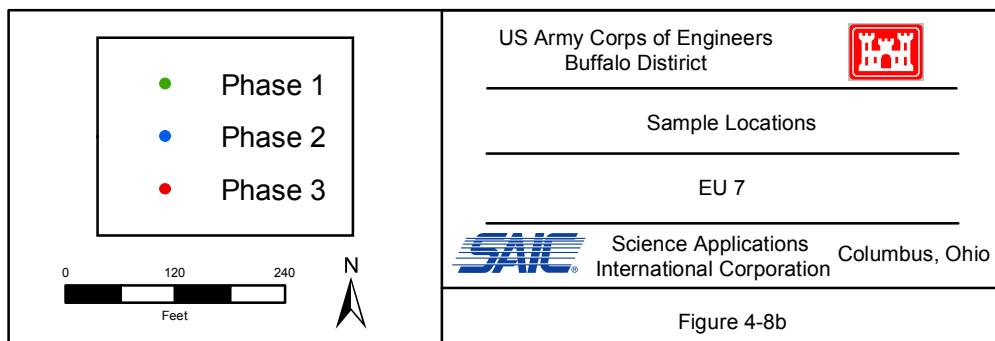
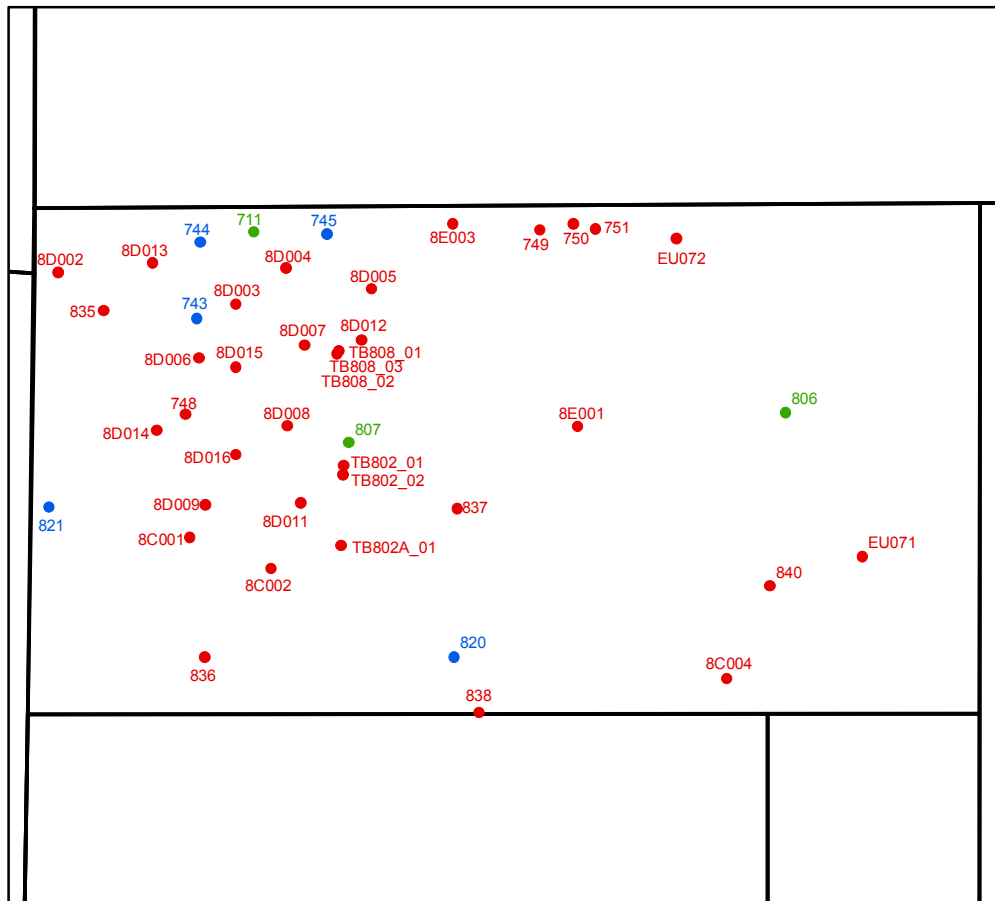
US Army Corps of Engineers
Buffalo District

SRCs - Exceeding the UTL

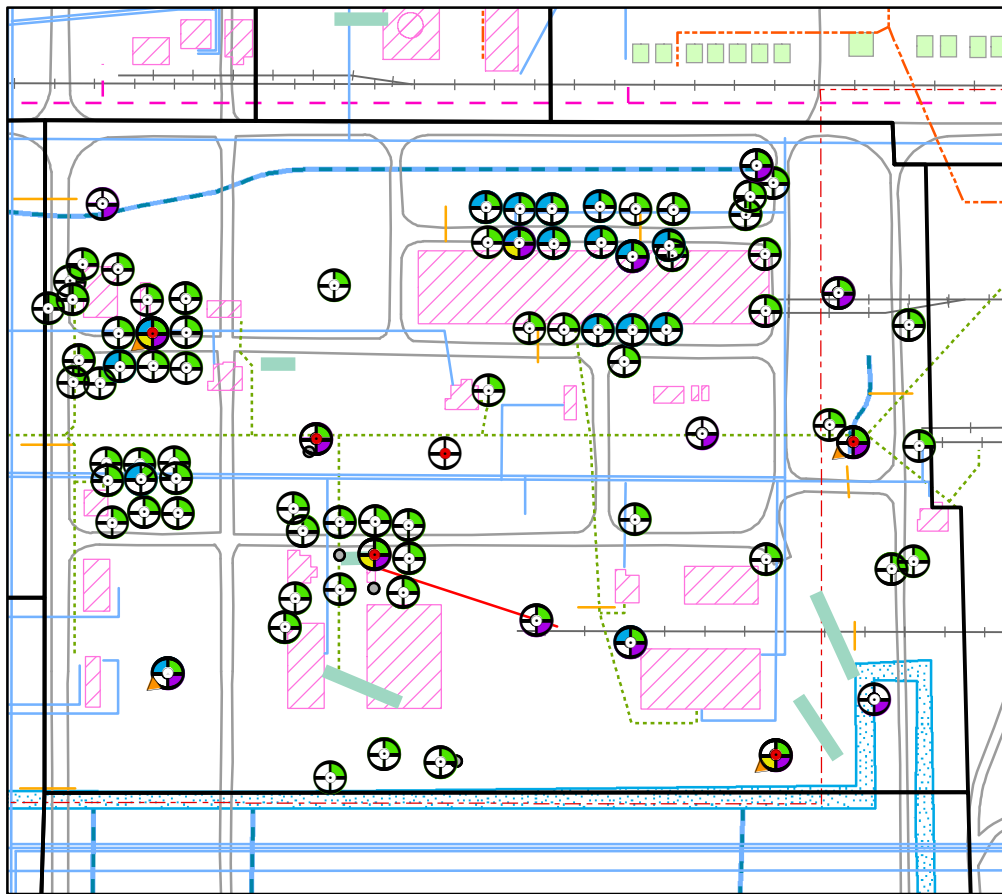
EU 7

SAIC Science Applications International Corporation Columbus, Ohio

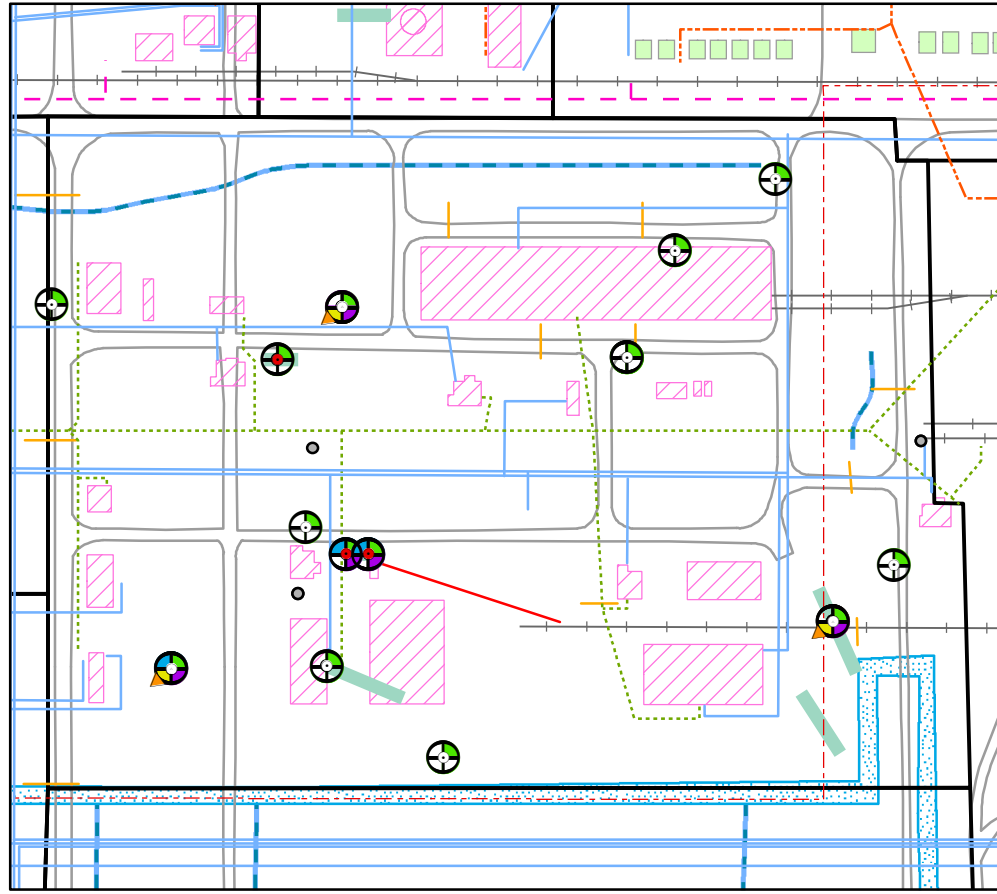
Figure 4-8a



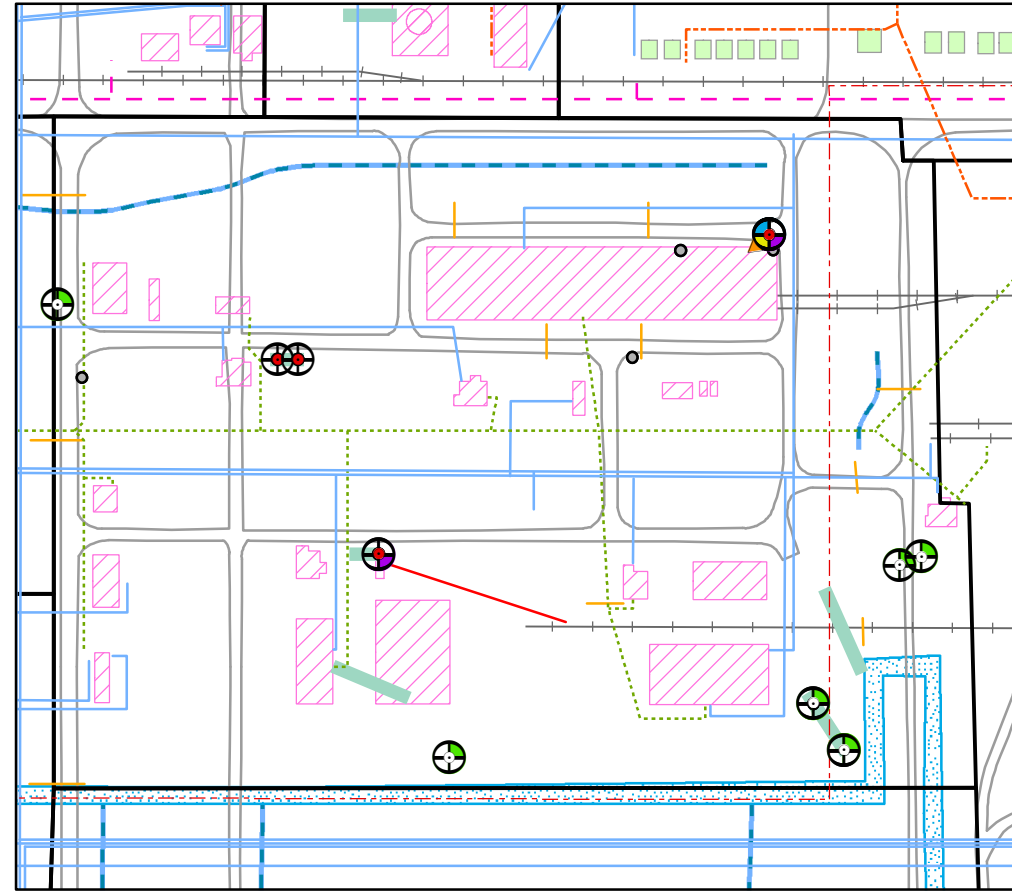
Surface Soil 0-0.5'



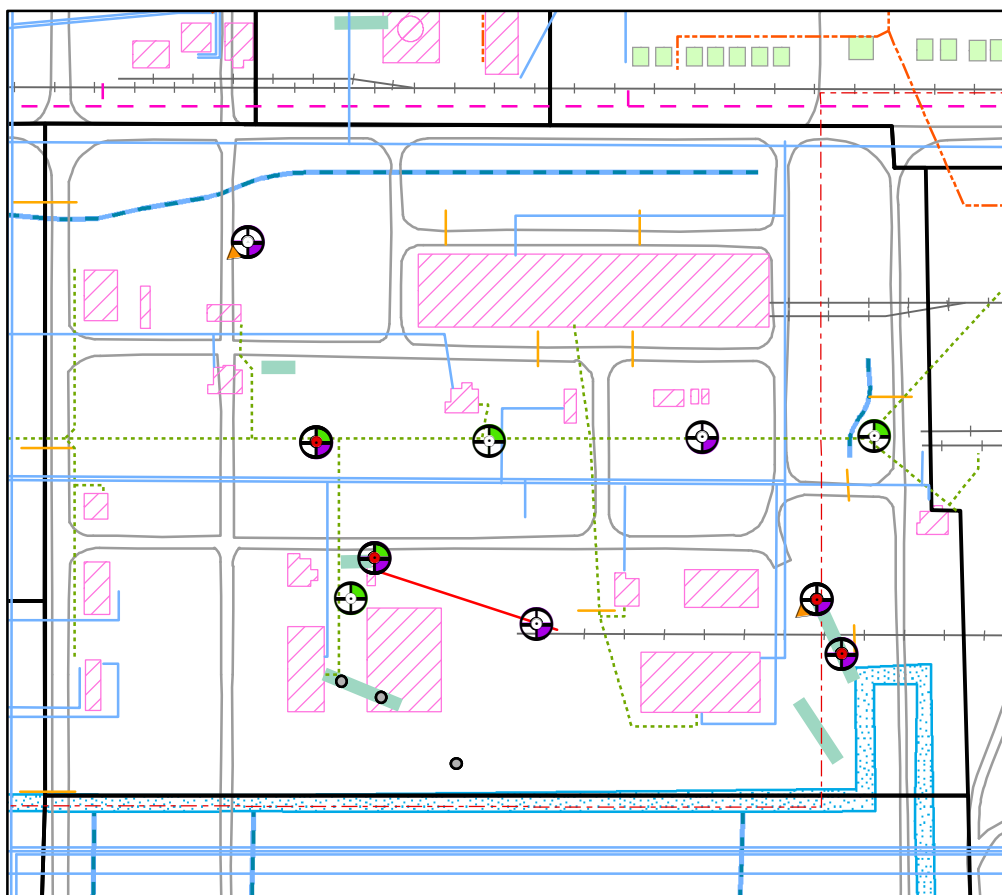
Subsurface Soil 0.5-2'



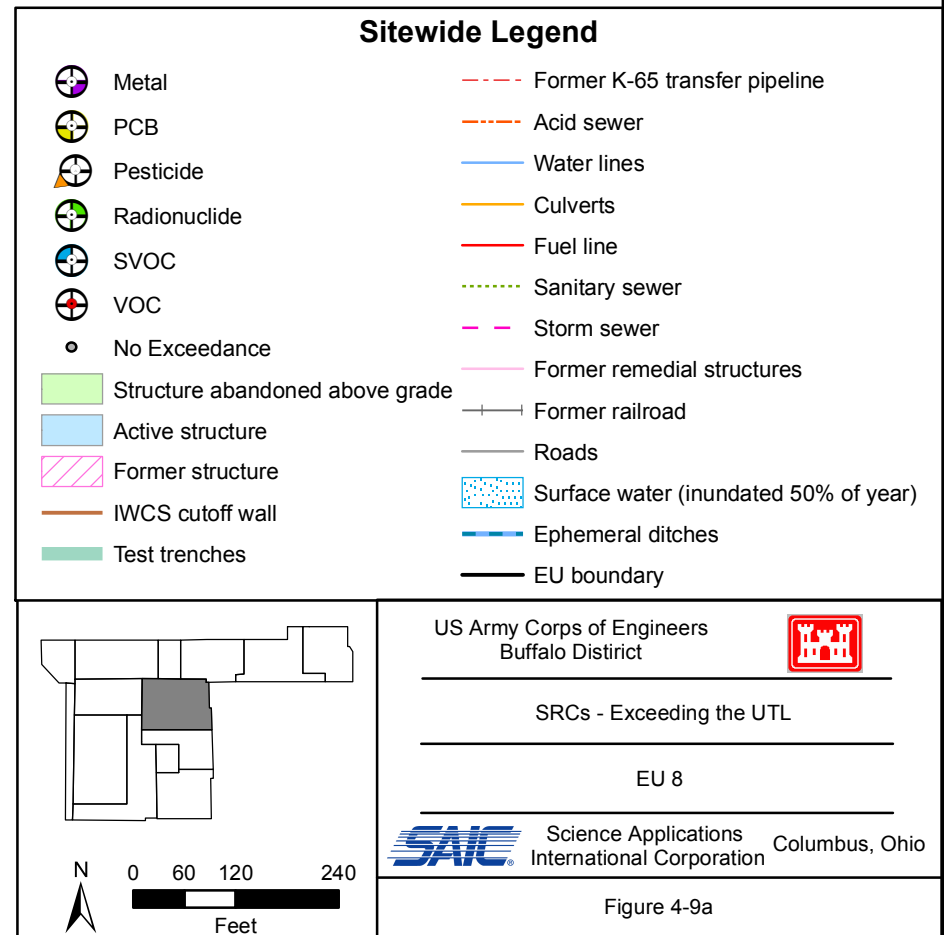
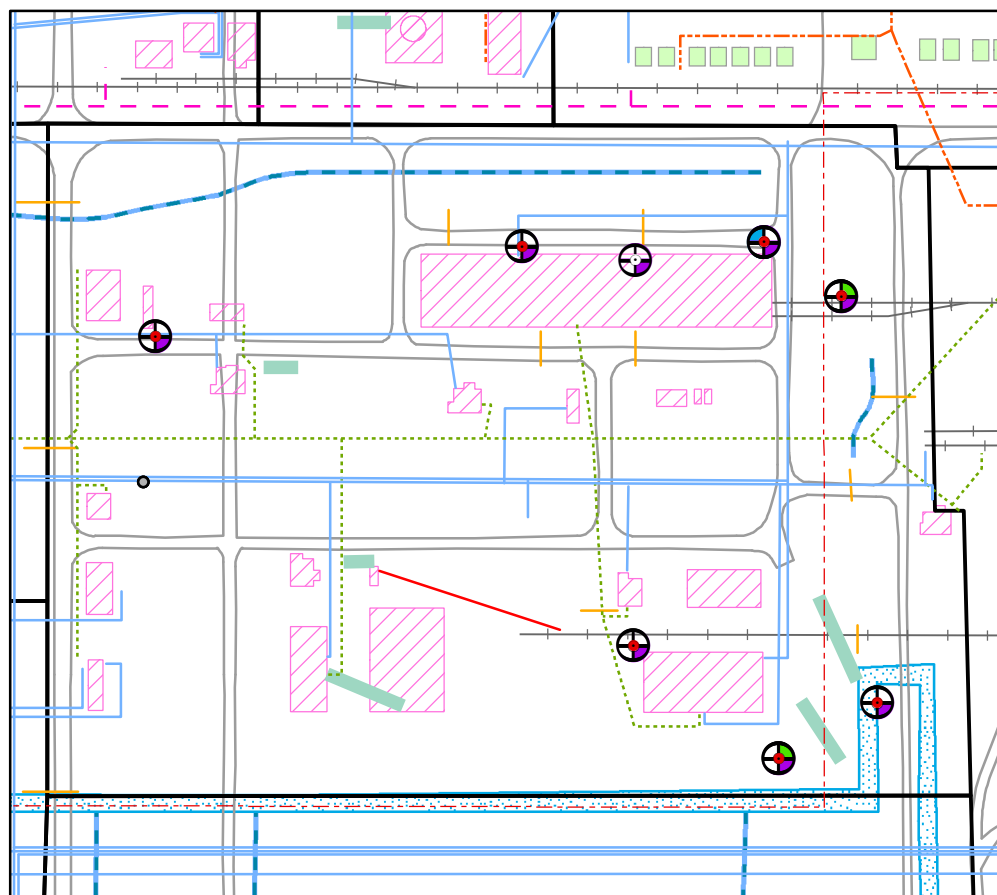
Subsurface Soil 2-5'



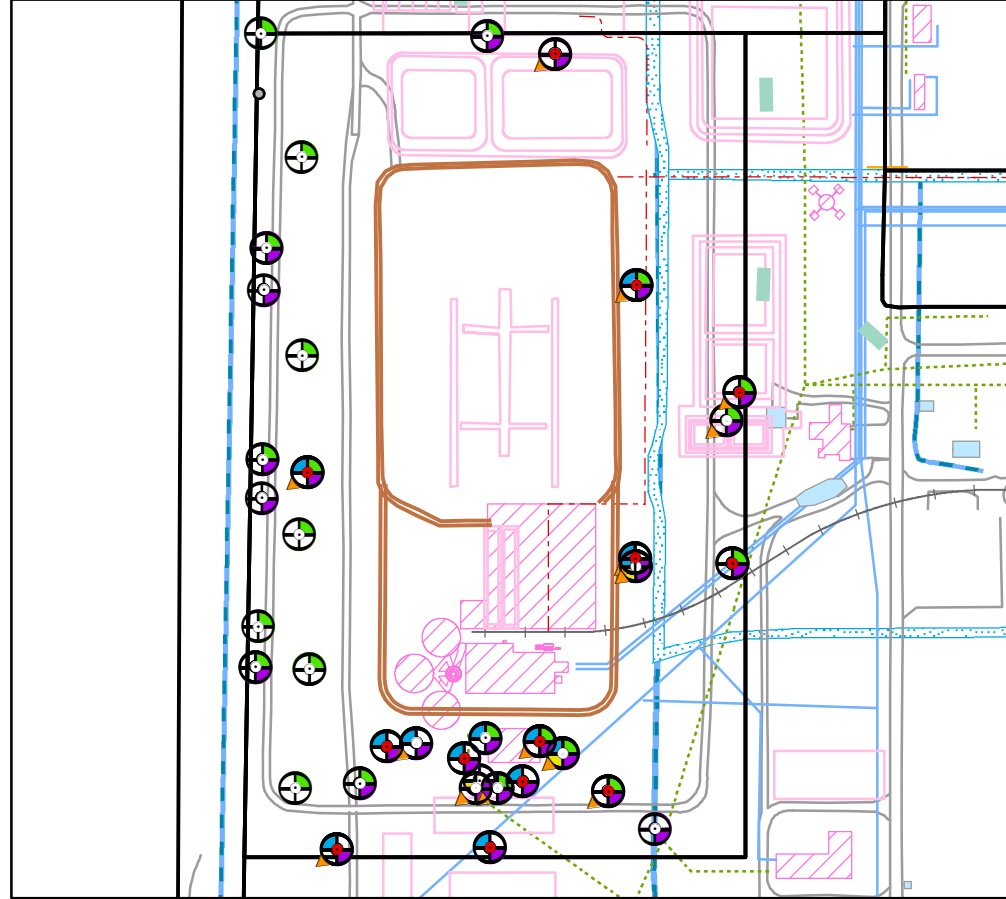
Subsurface Soil 5-10'



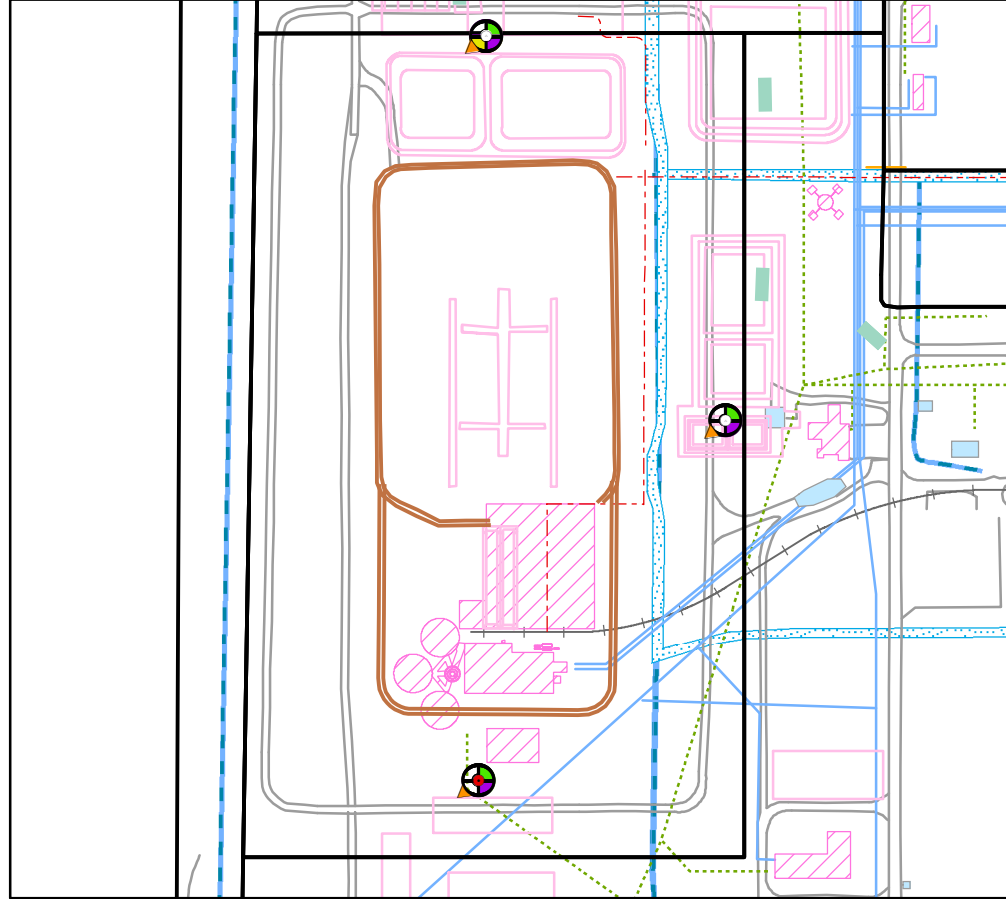
Subsurface Soil > 10'



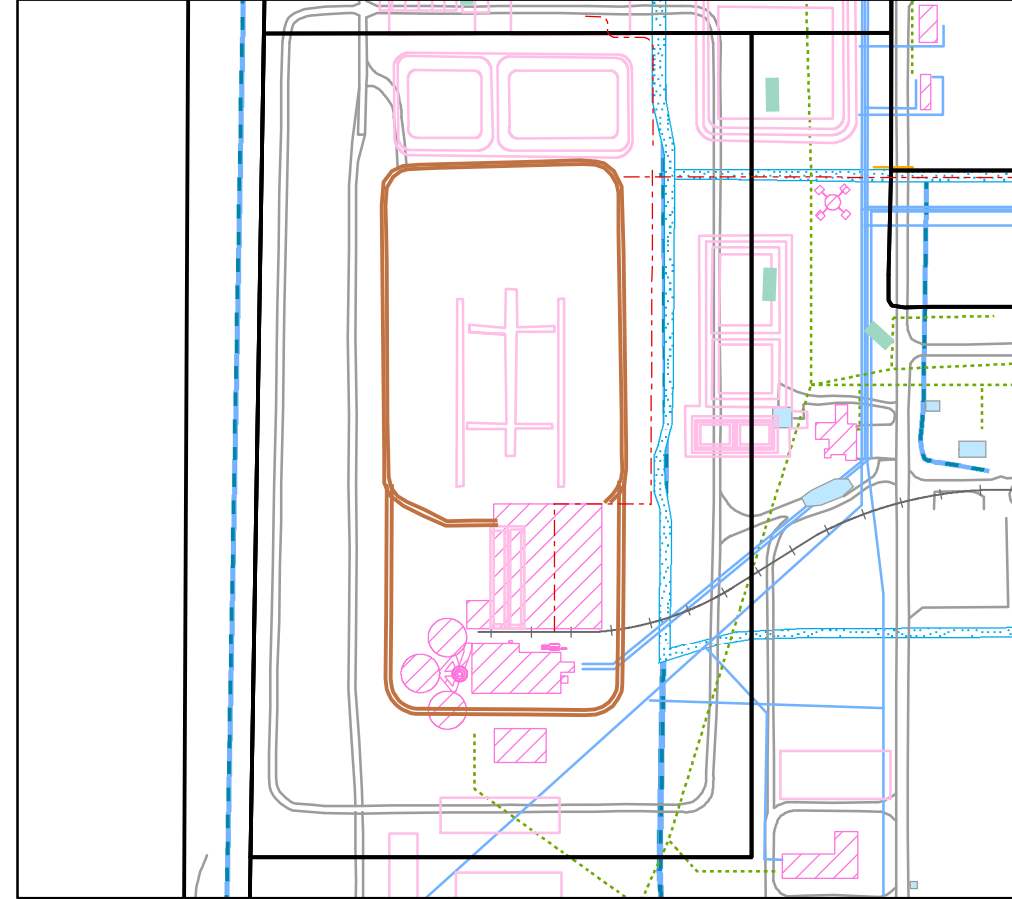
Surface Soil 0-0.5'



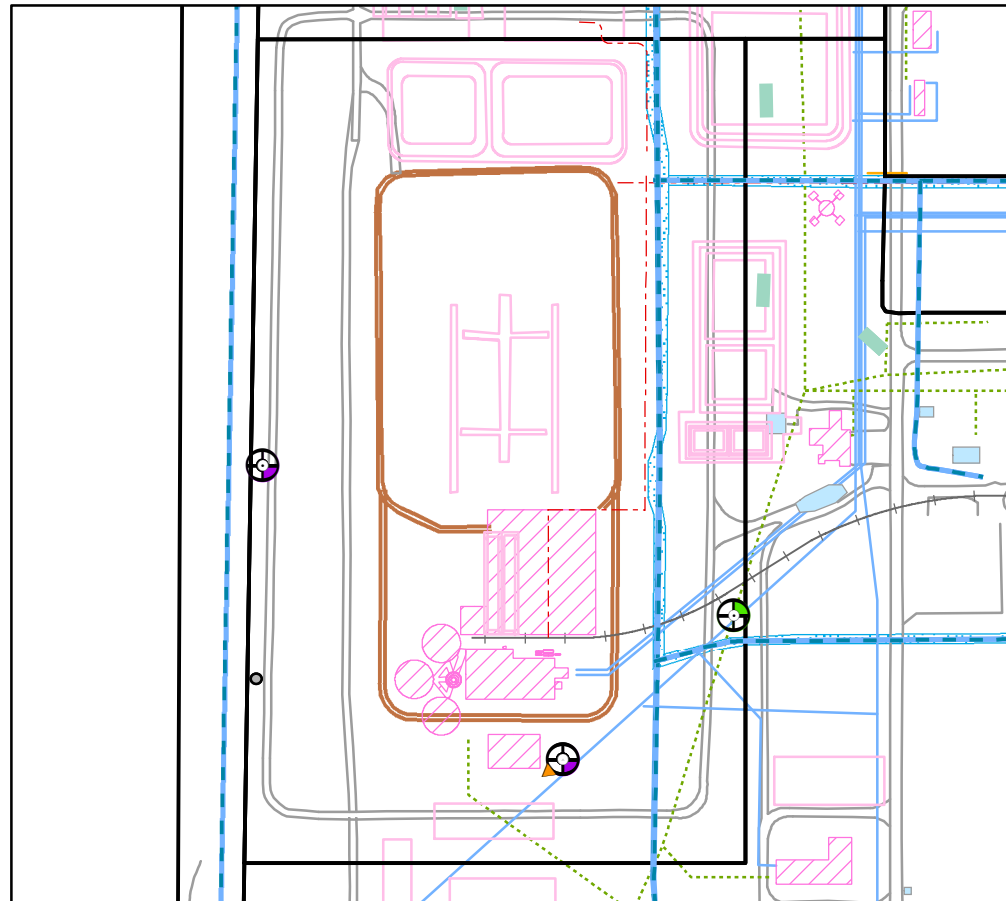
Subsurface Soil 0.5-2'



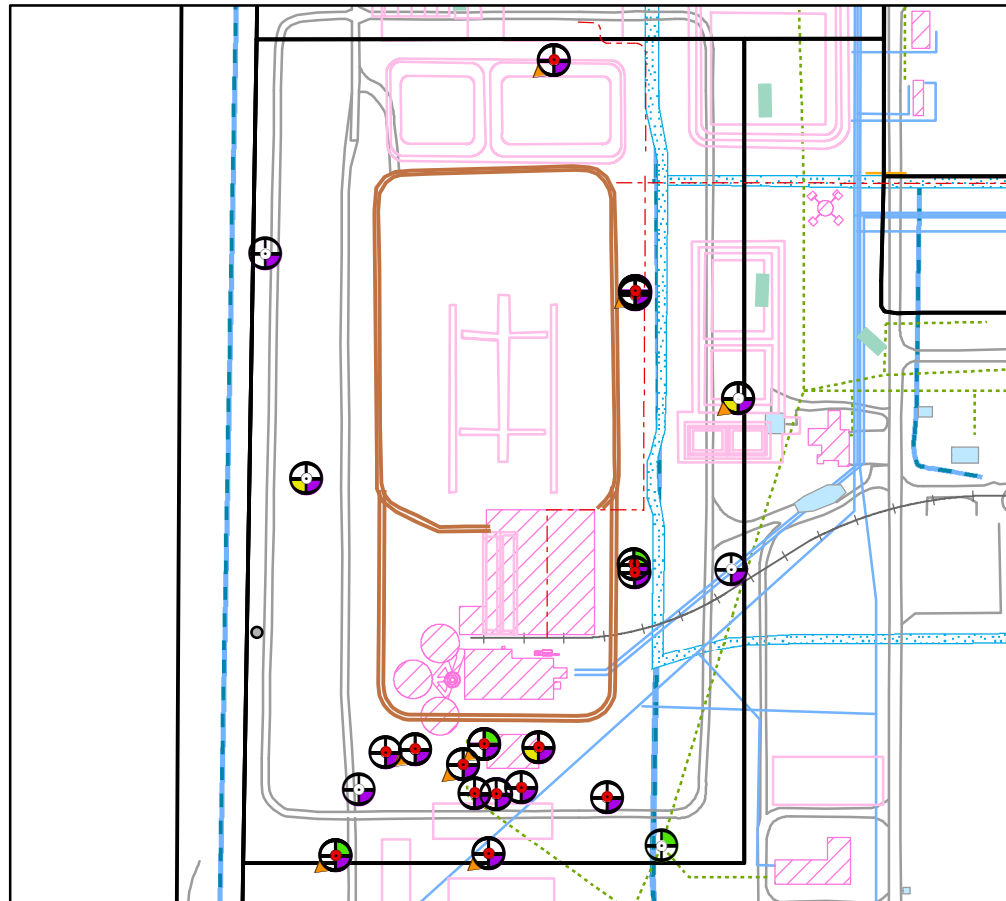
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

N 0 90 180 360
Feet

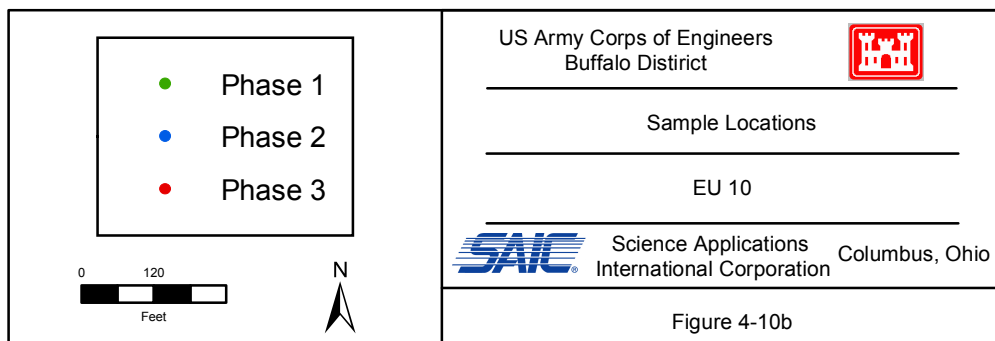
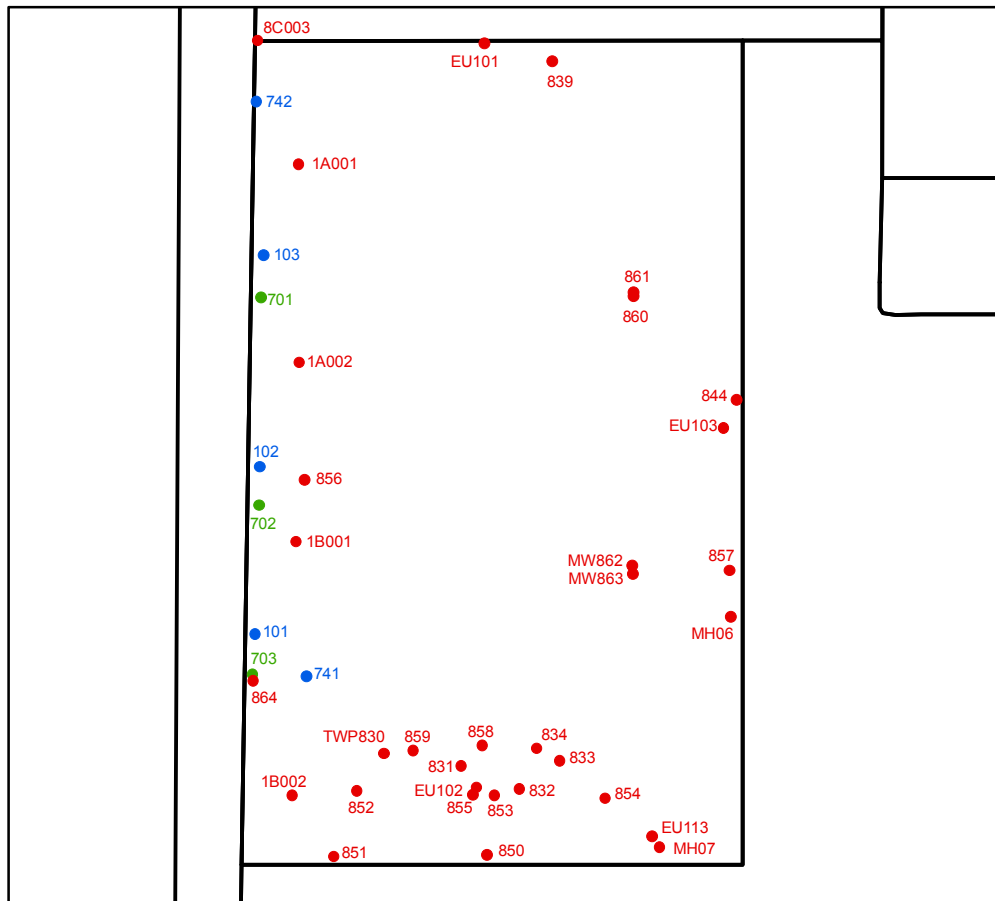
US Army Corps of Engineers
Buffalo District

SRCs - Exceeding the UTL

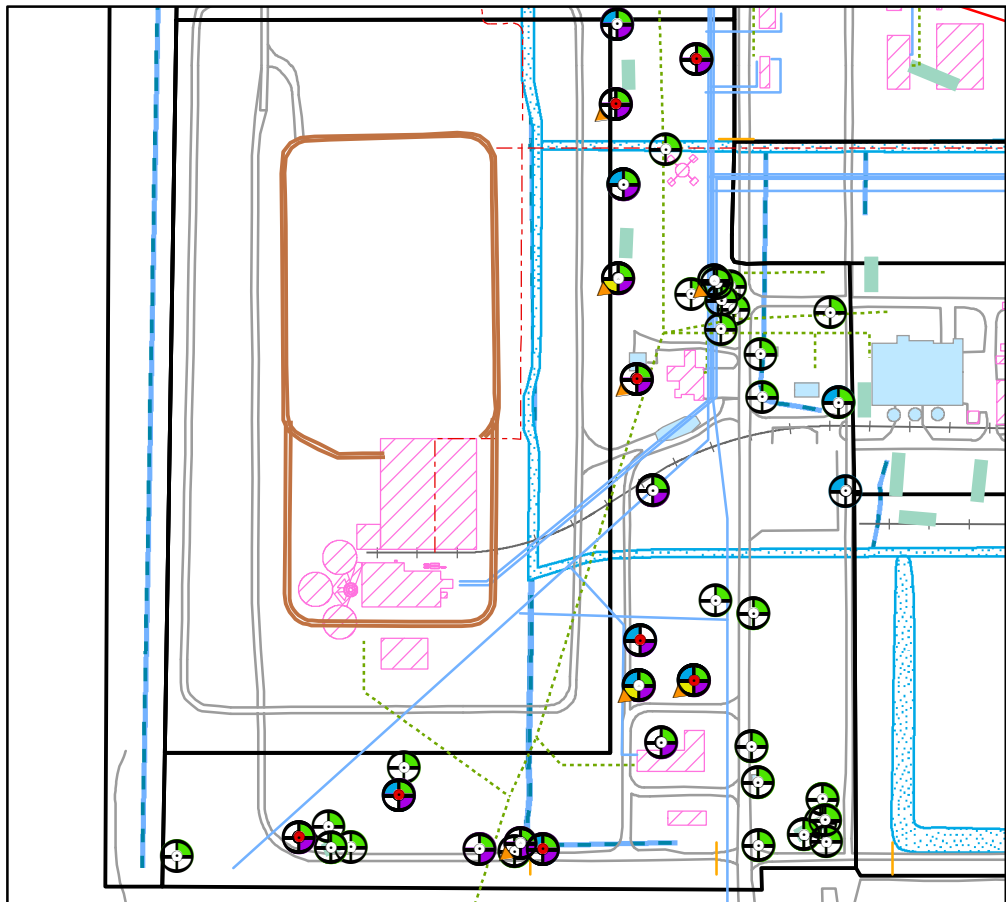
EU 10

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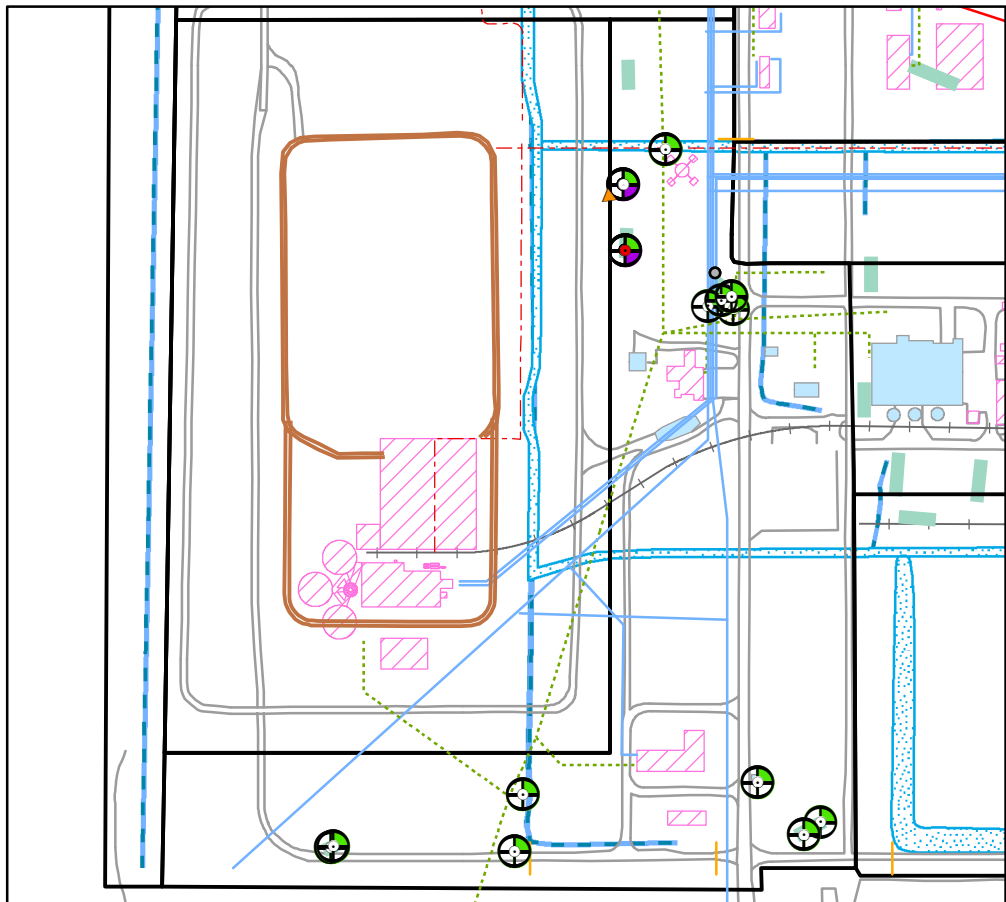
Figure 4-10a



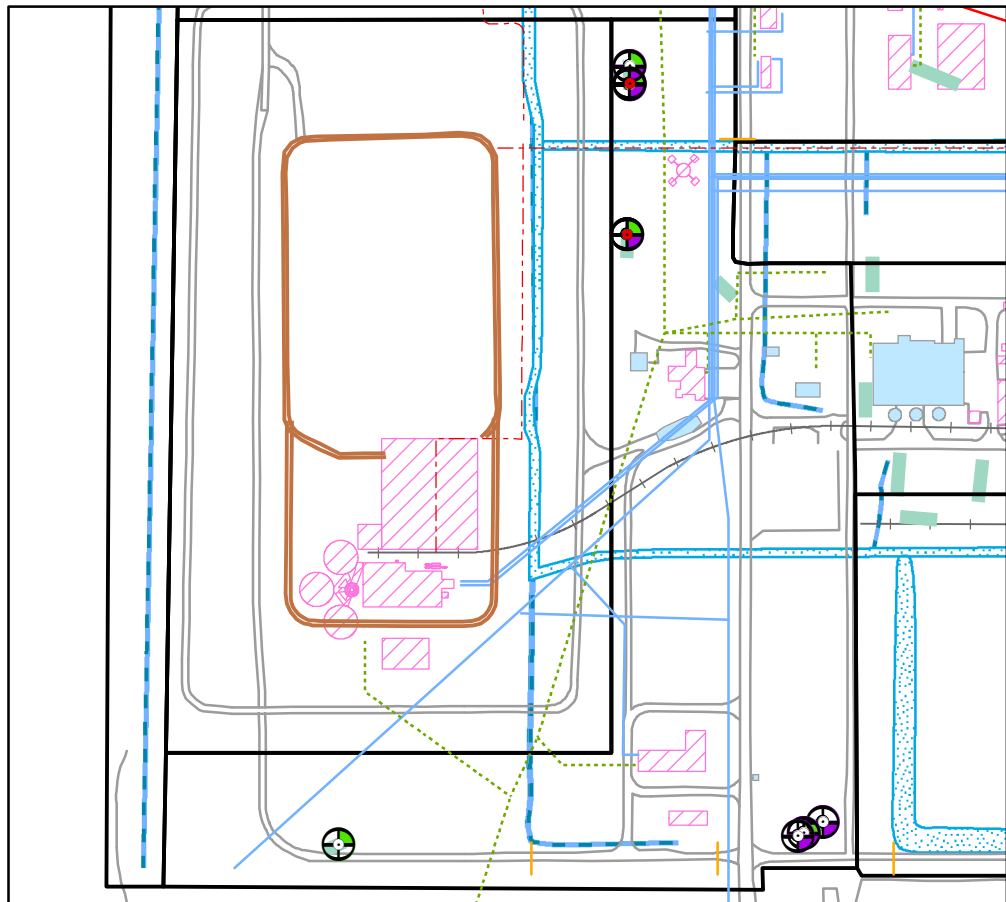
Surface Soil 0-0.5'



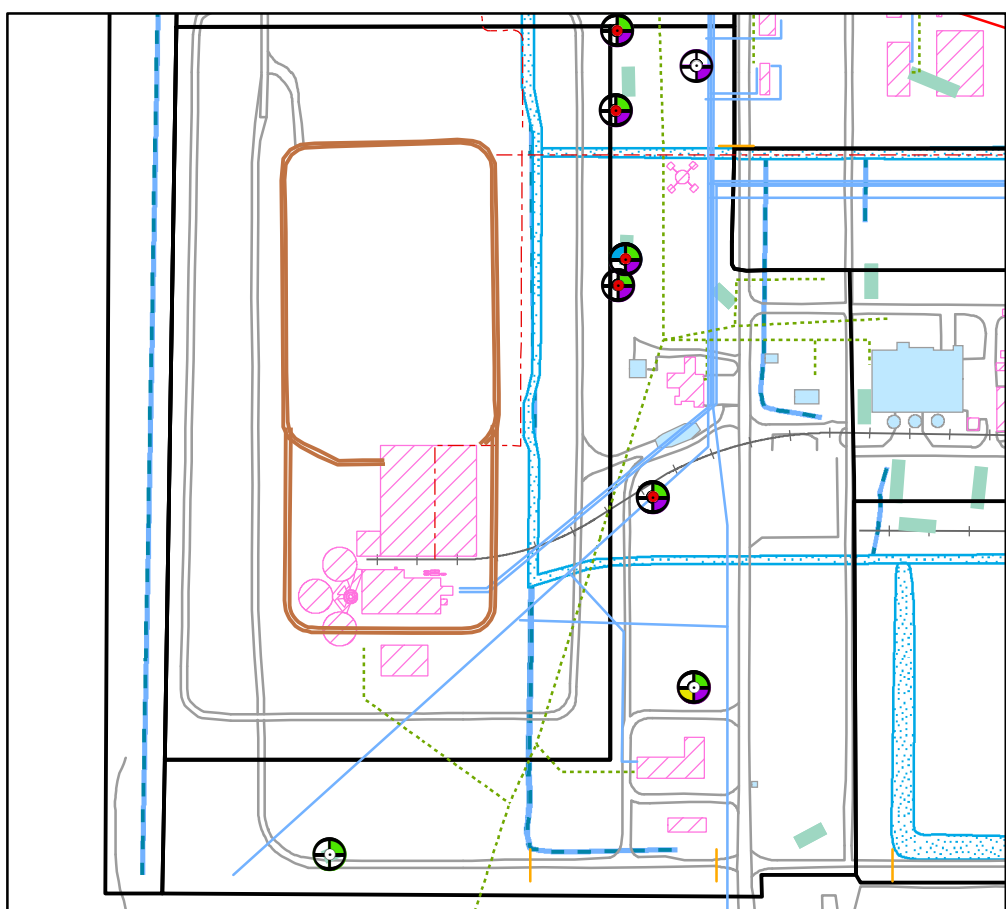
Subsurface Soil 0.5-2'



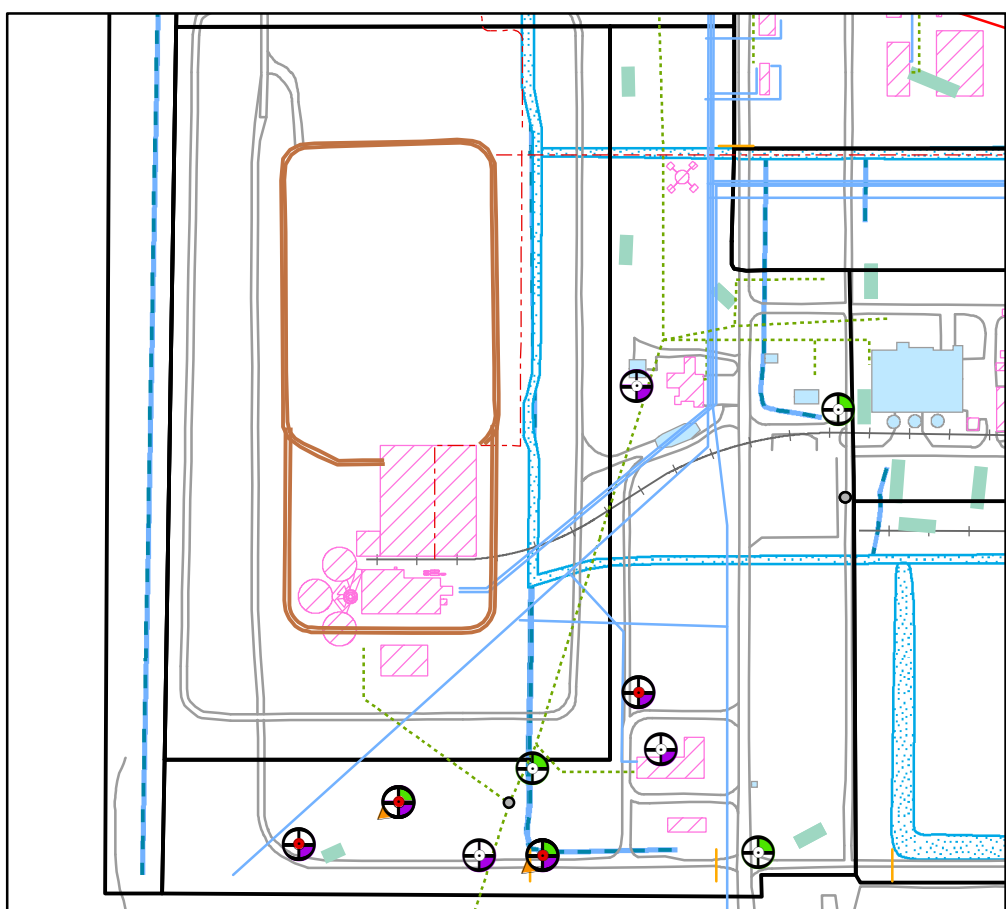
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

0 100 200 400
Feet

N

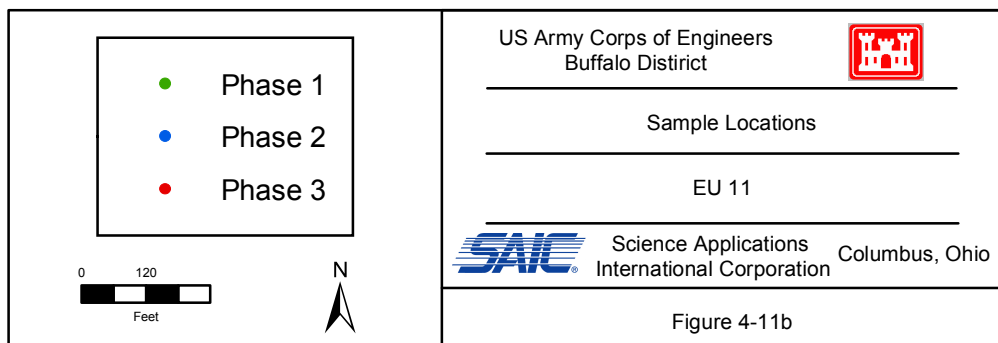
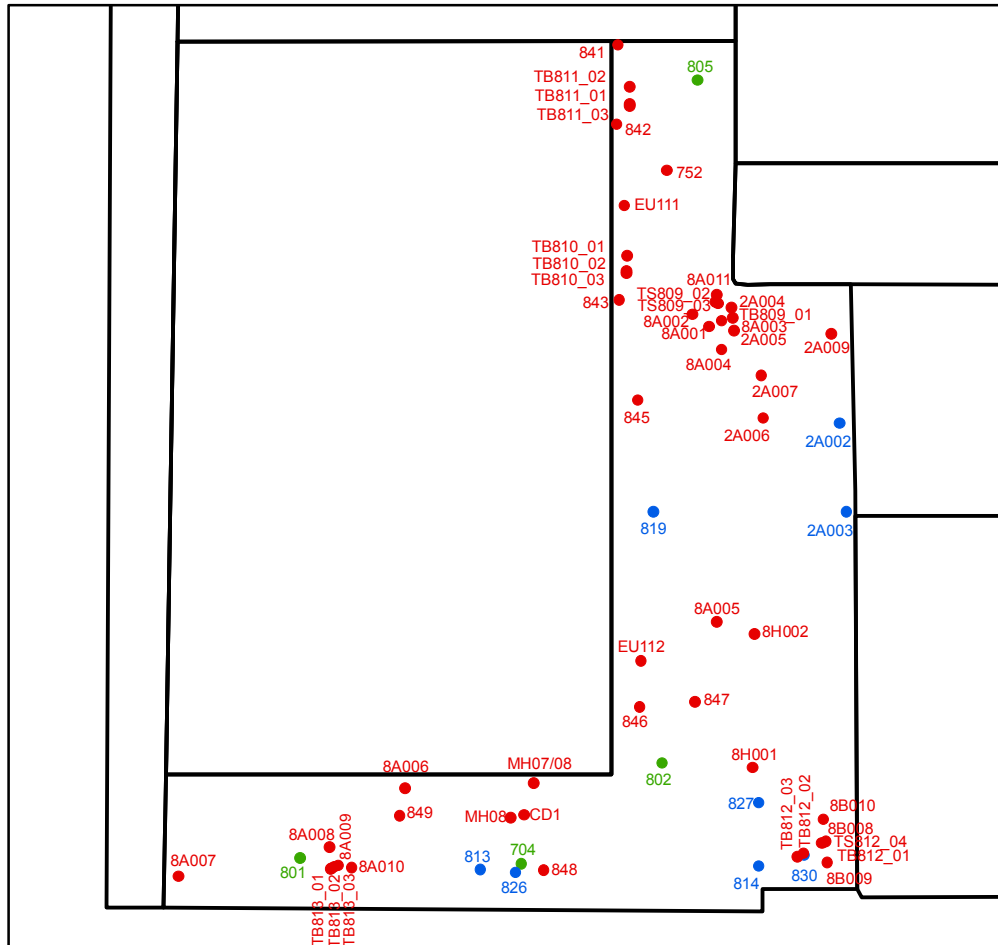
US Army Corps of Engineers
Buffalo District

SRCs - Exceeding the UTL

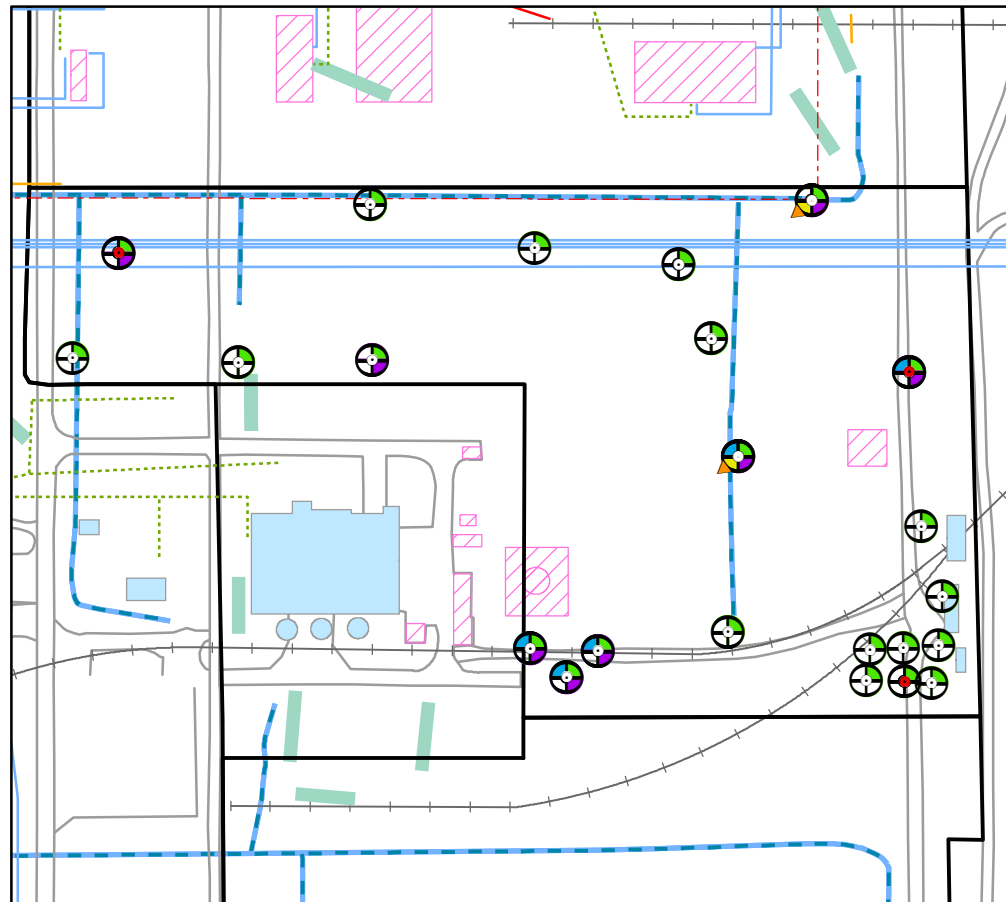
EU 11

SAIC Science Applications International Corporation Columbus, Ohio

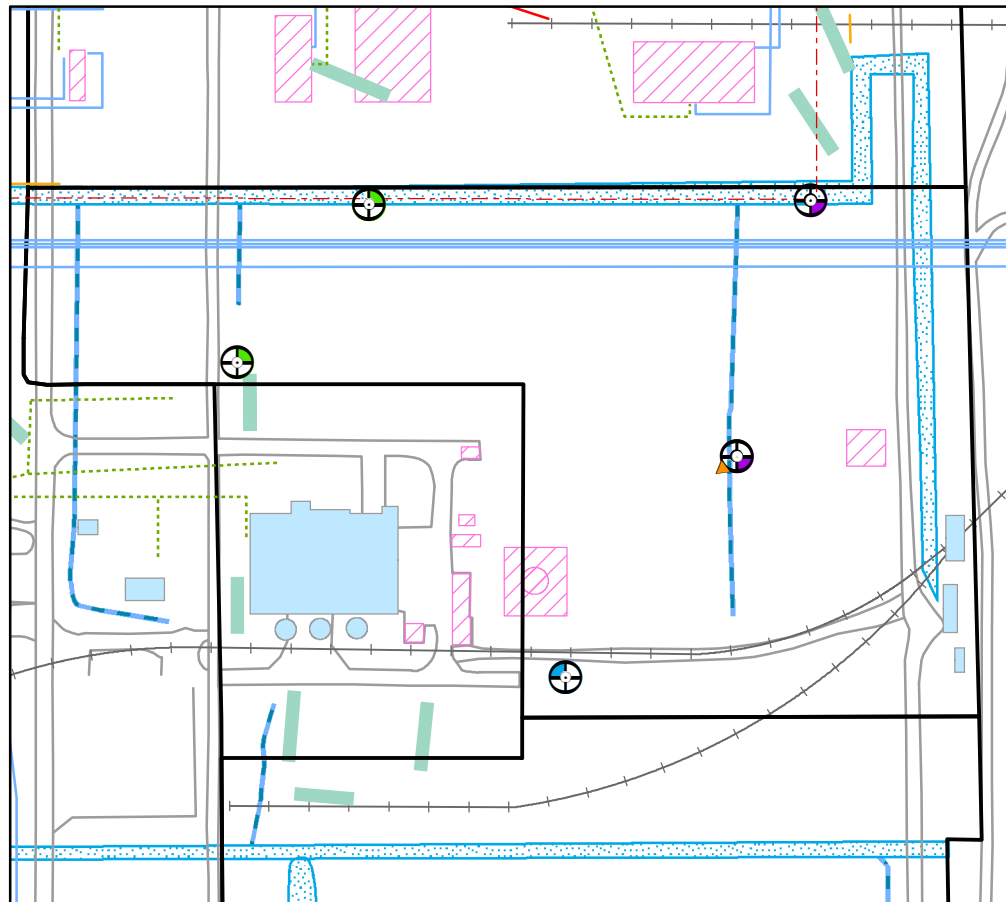
Figure 4-11a



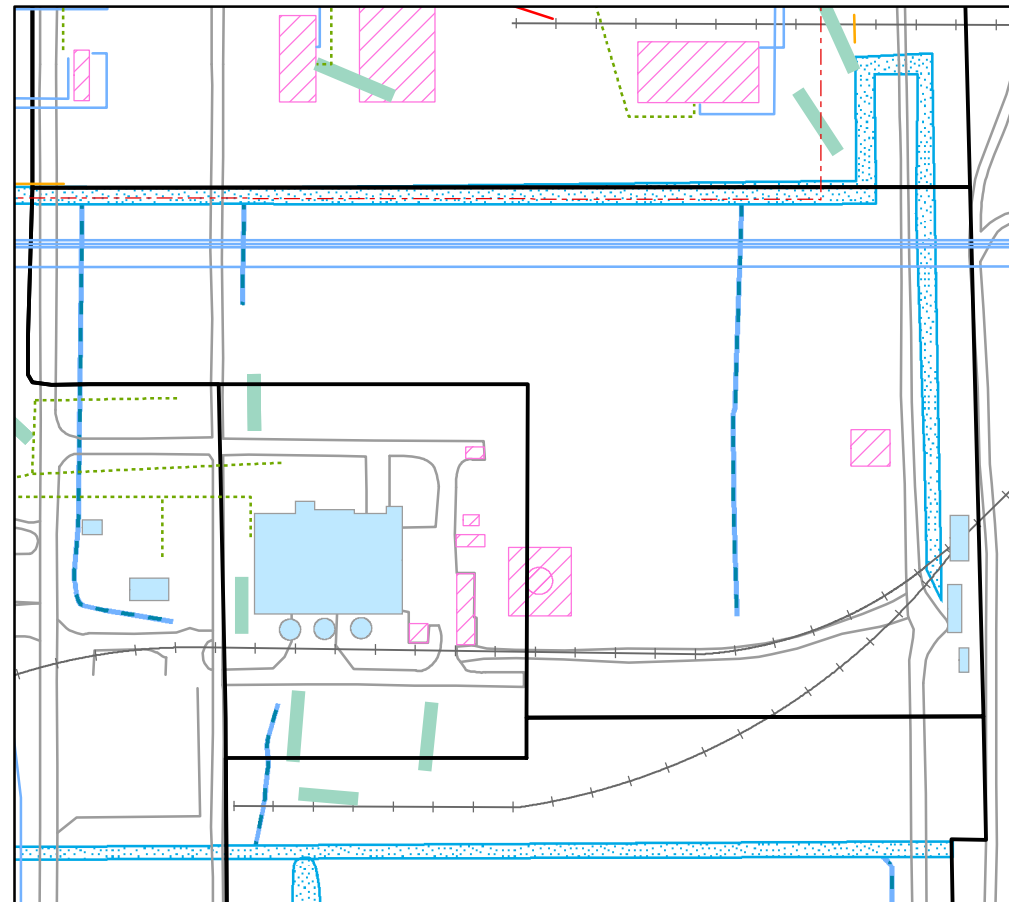
Surface Soil 0-0.5'



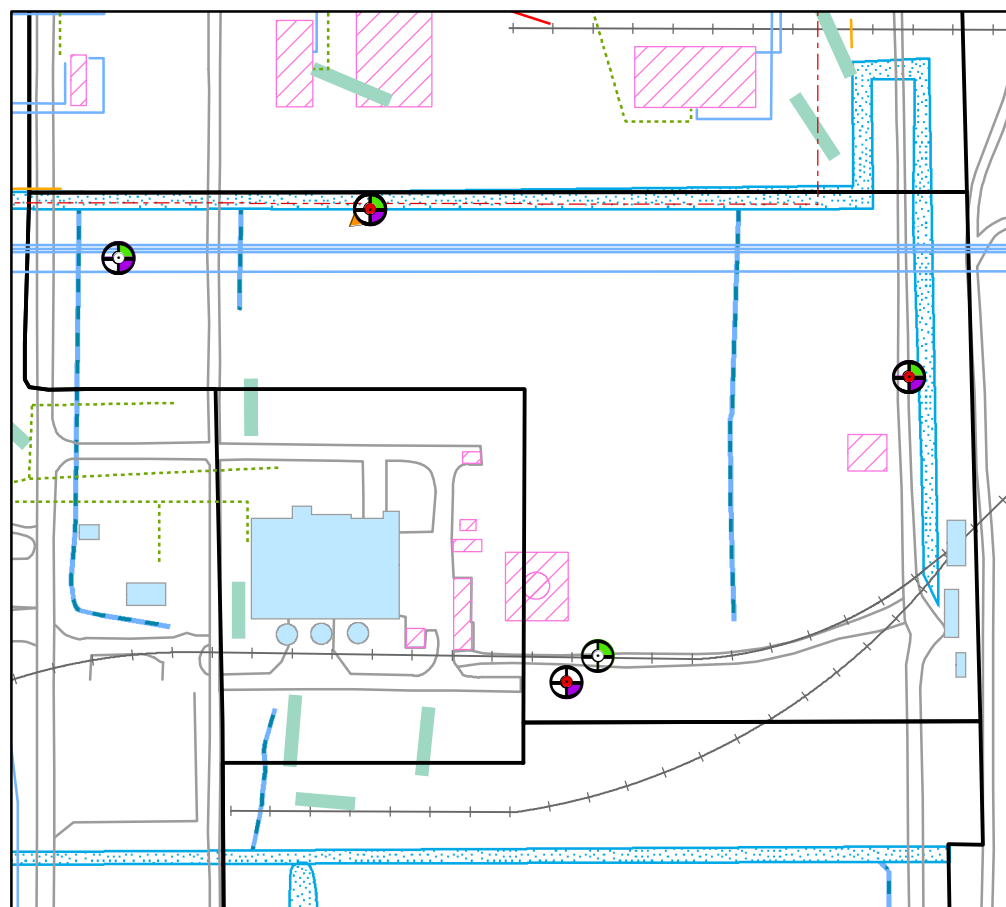
Subsurface Soil 0.5-2'



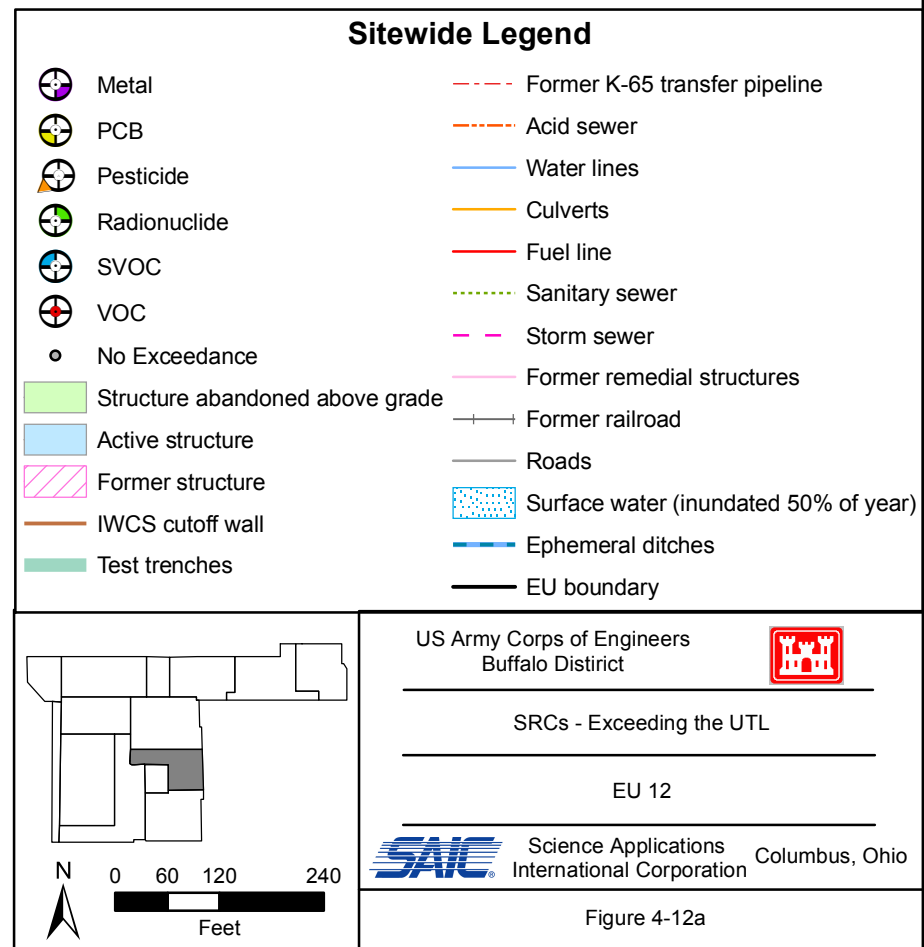
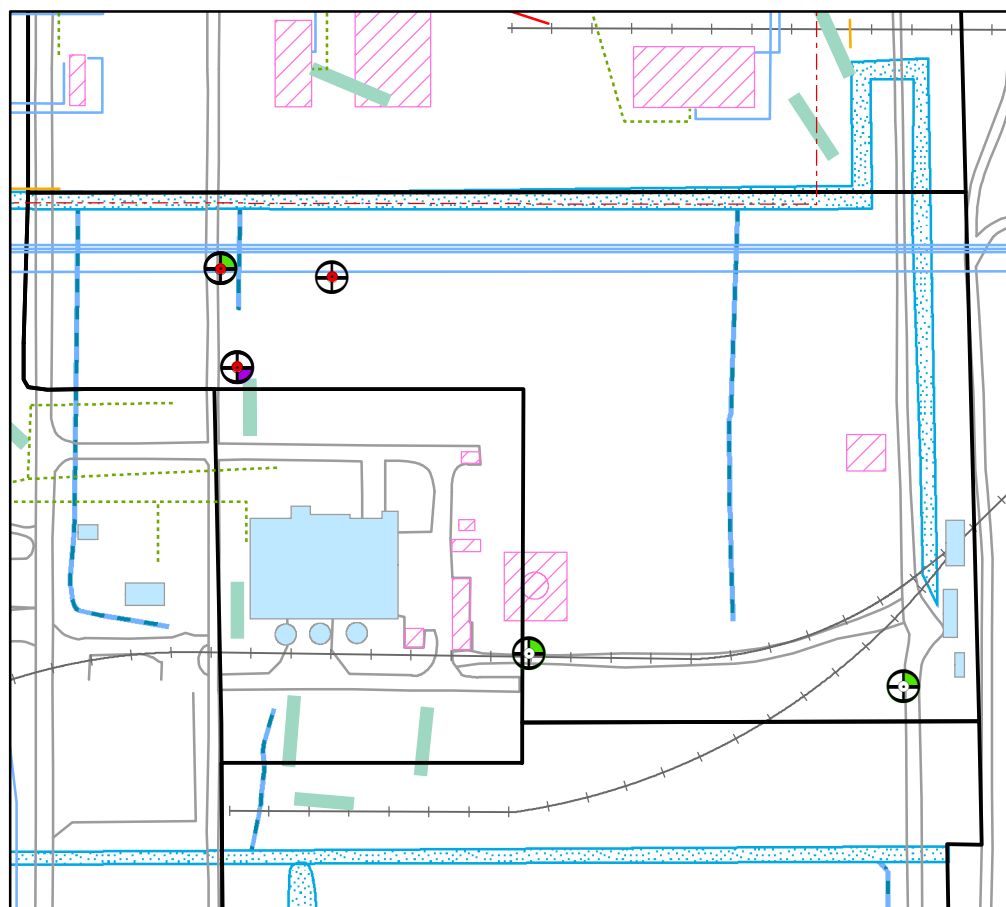
Subsurface Soil 2-5'

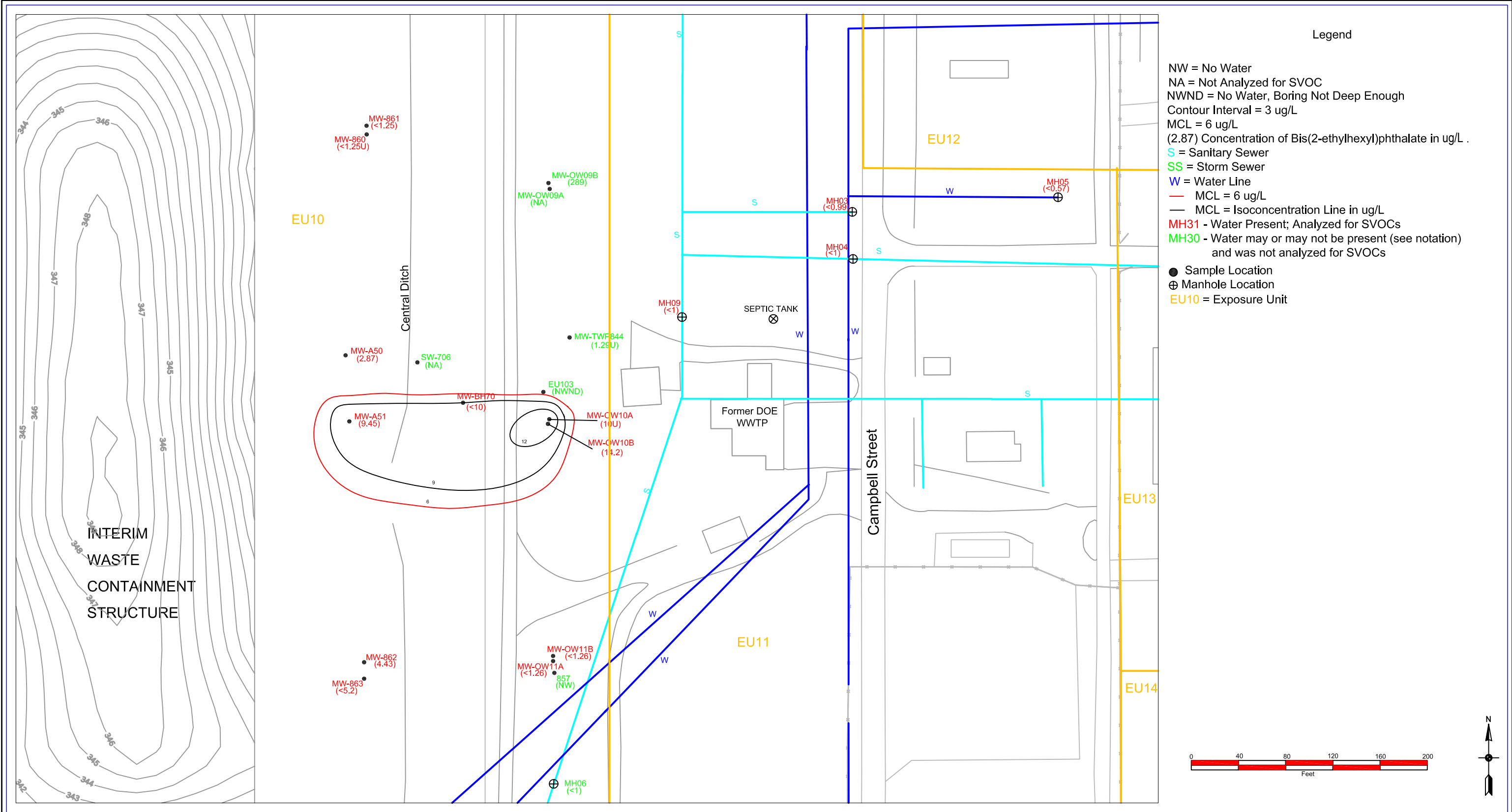


Subsurface Soil 5-10'



Subsurface Soil > 10'



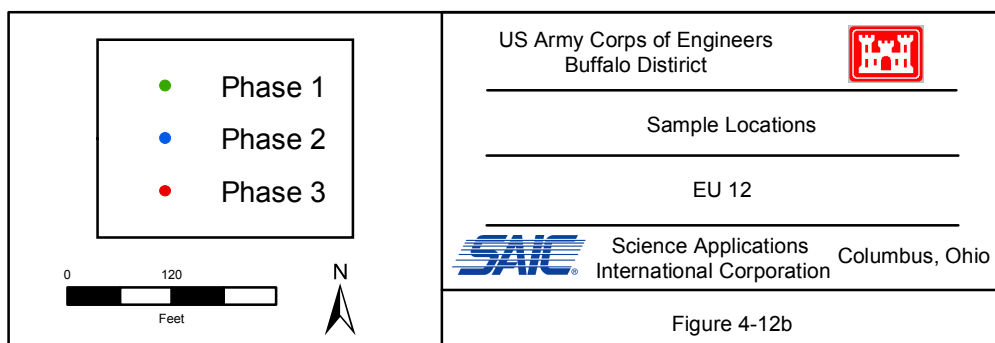
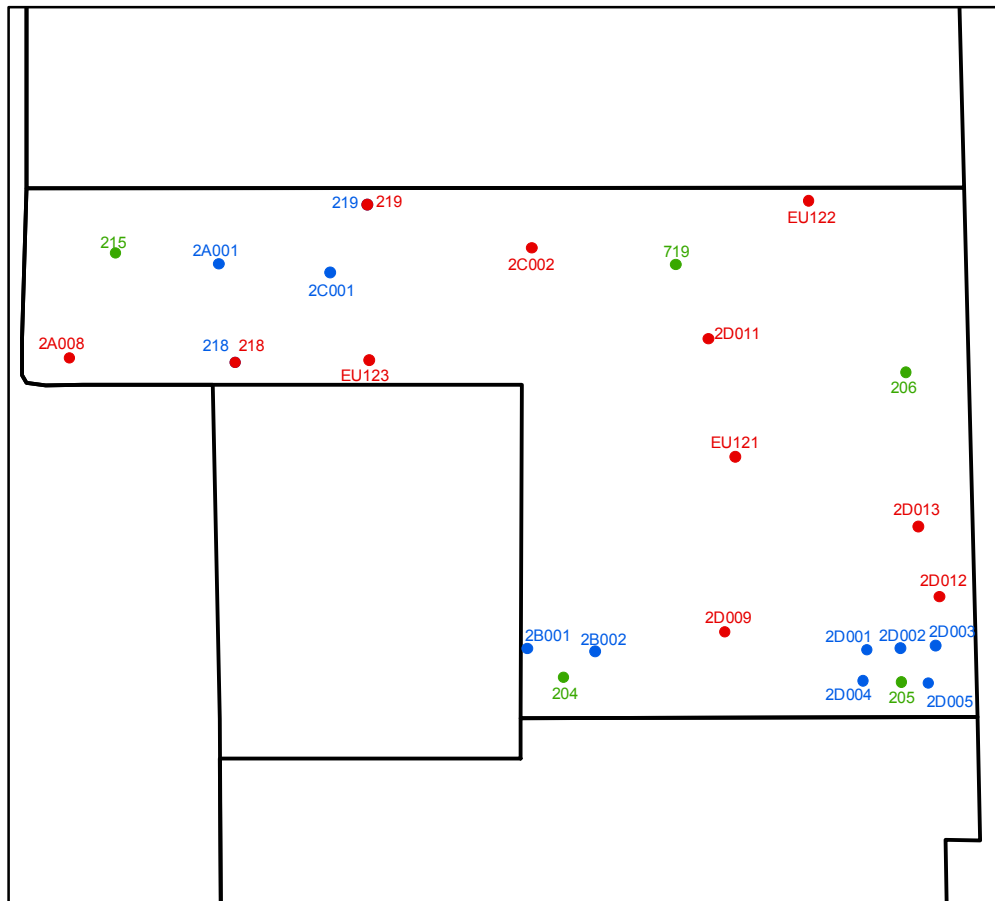


Distribution of Bis(2-ethylhexyl)phthalate in EU10

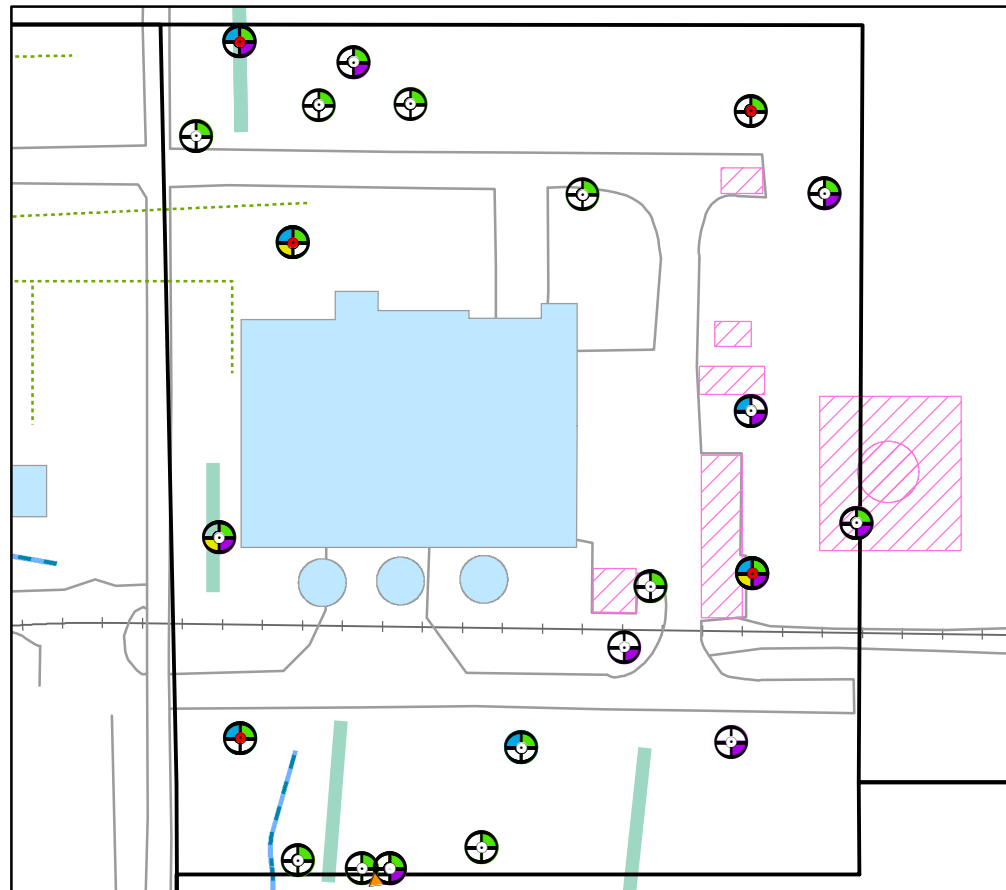


TETRA TECH, INC.

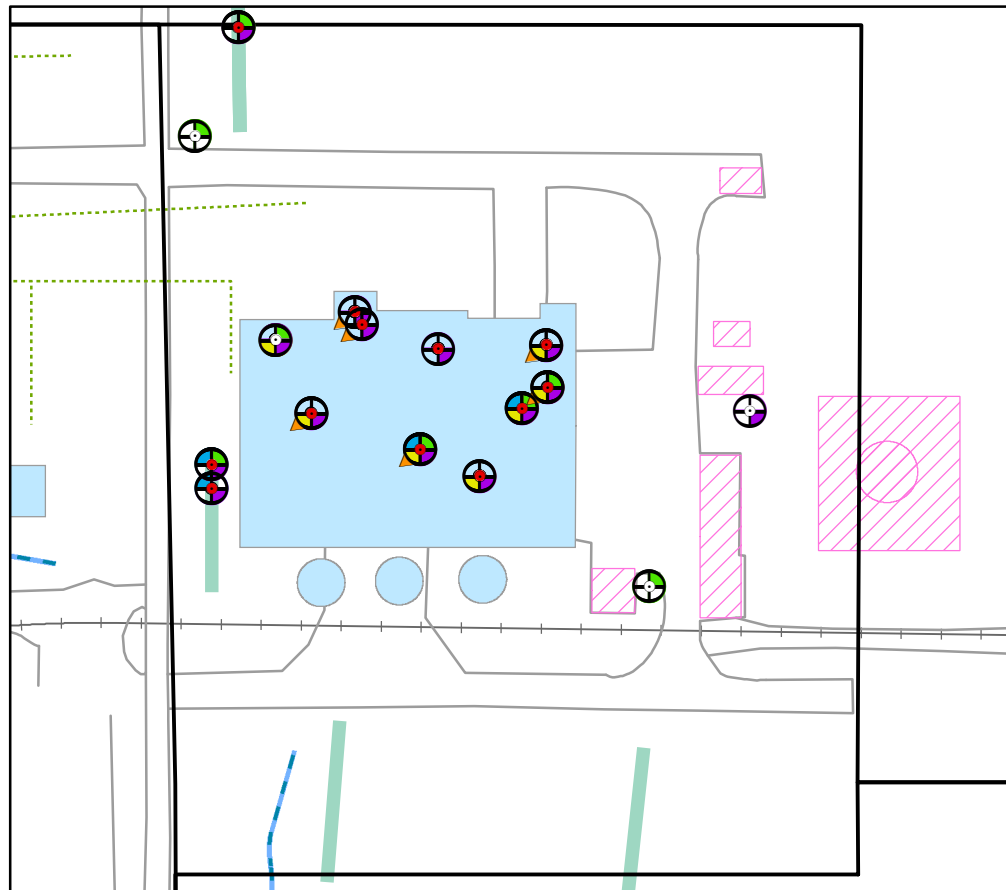
PROJECT NO.	5450057	FIGURE NO.	5-13
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD



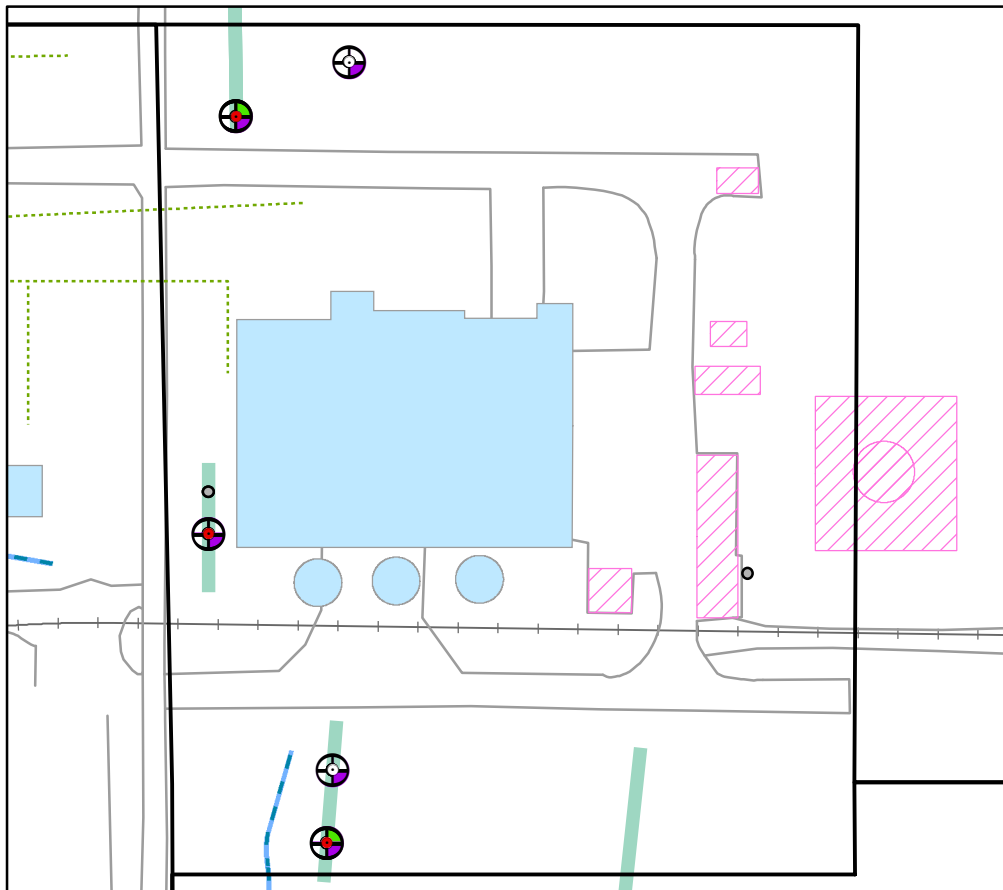
Surface Soil 0-0.5'



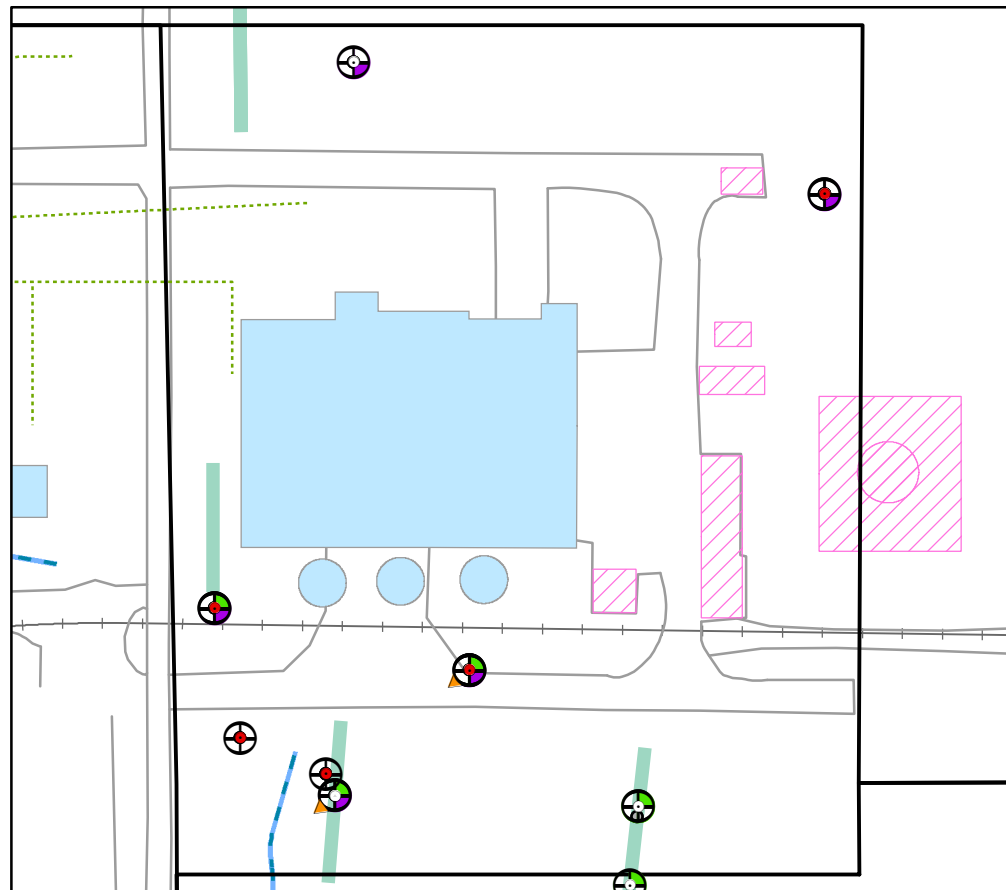
Subsurface Soil 0.5-2'



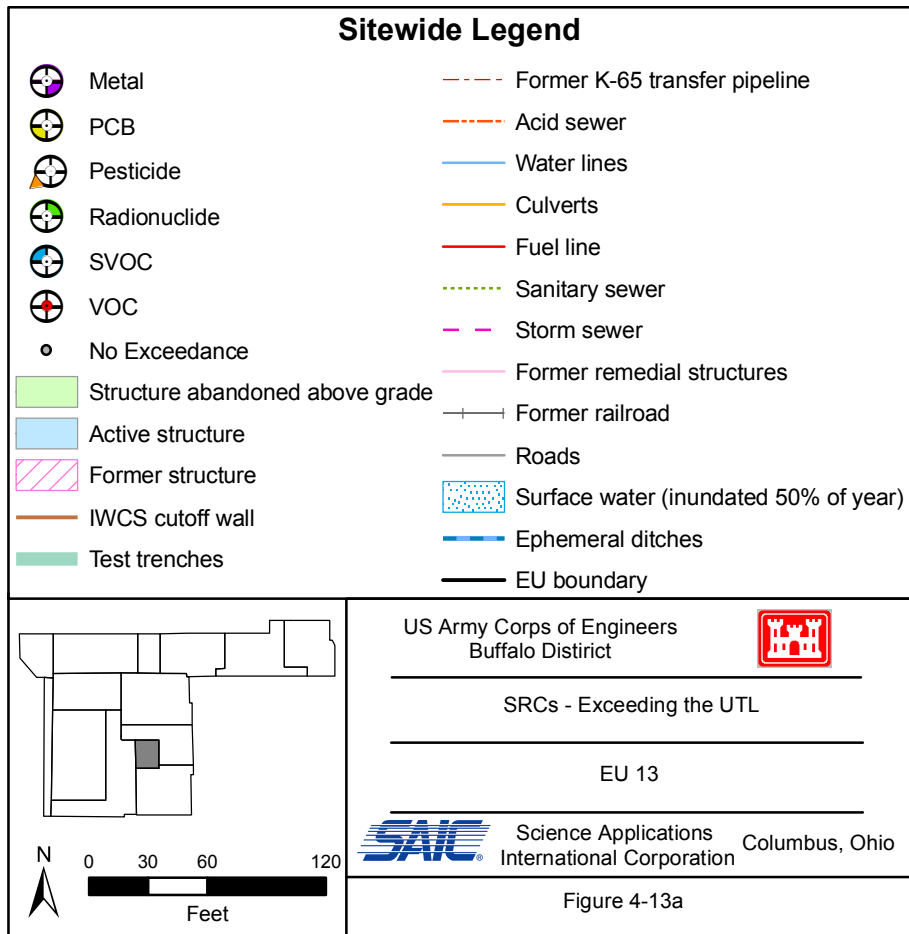
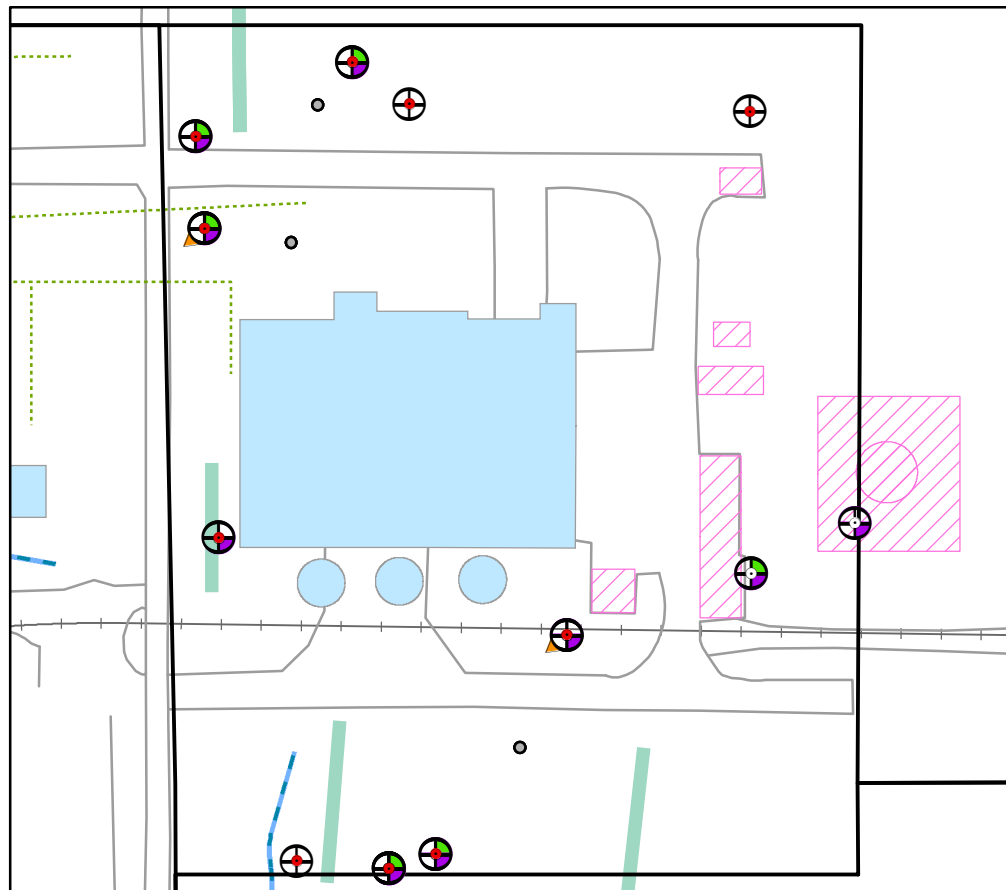
Subsurface Soil 2-5'

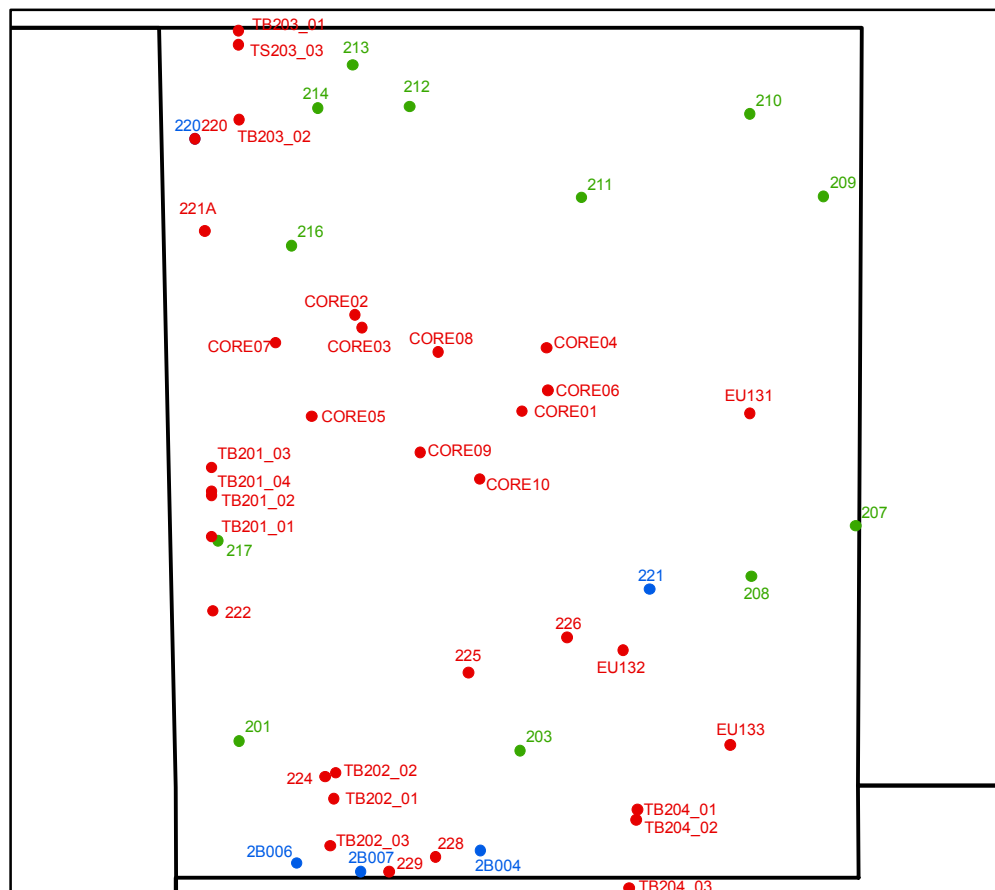


Subsurface Soil 5-10'



Subsurface Soil > 10'



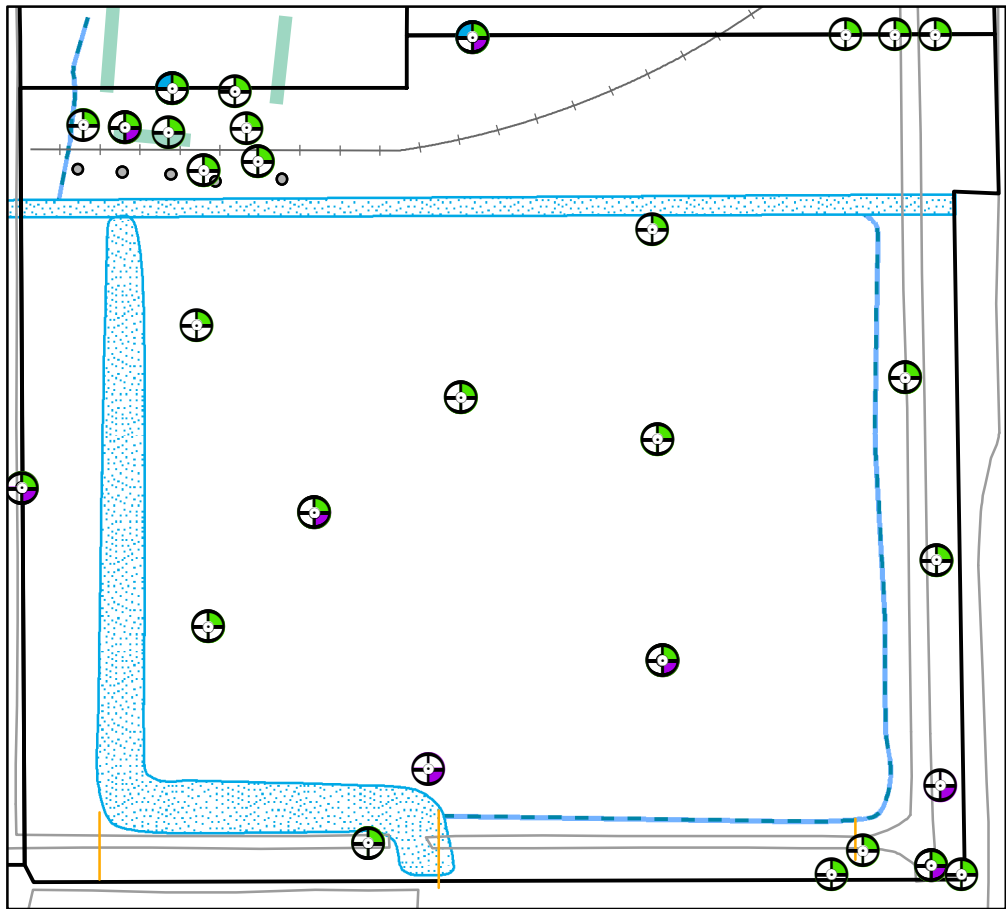


<ul style="list-style-type: none"> ● Phase 1 ● Phase 2 ● Phase 3 	<p>US Army Corps of Engineers Buffalo District</p> <hr/> <p>Sample Locations</p> <hr/> <p>EU 13</p> <hr/> <p>SAIC Science Applications International Corporation Columbus, Ohio</p> <hr/> <p>Figure 4-13b</p>
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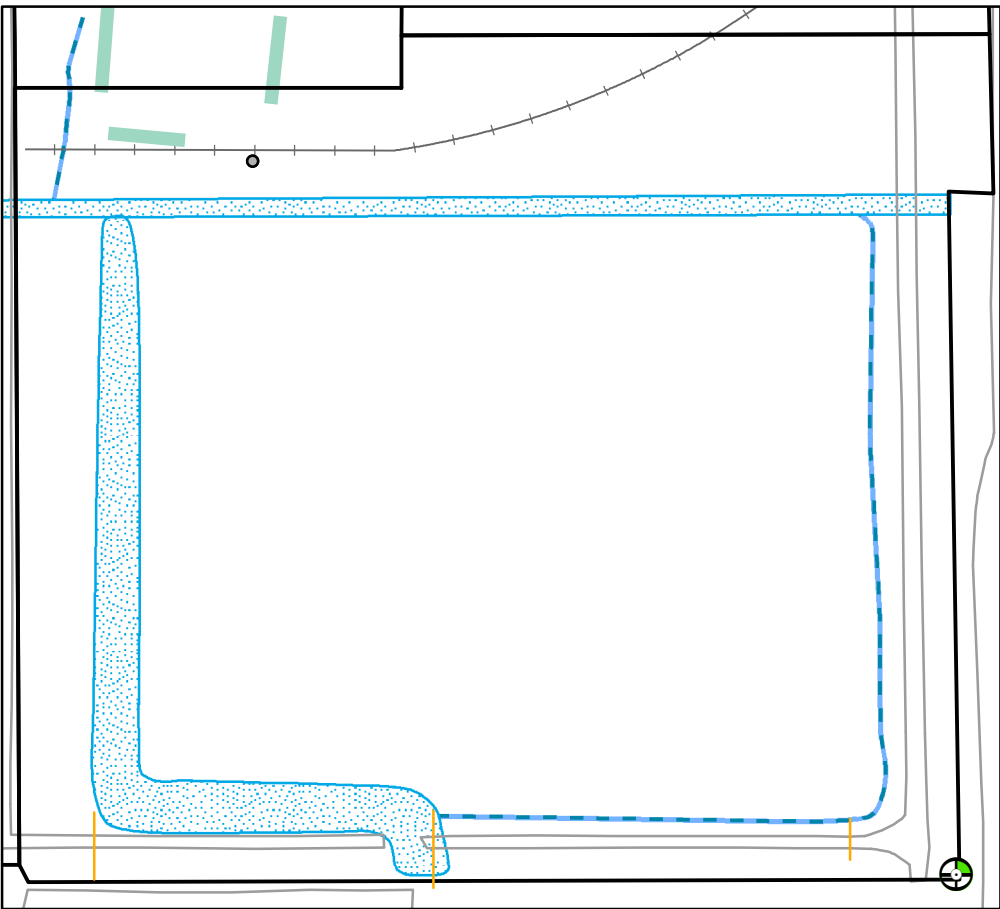
0 60 Feet

N

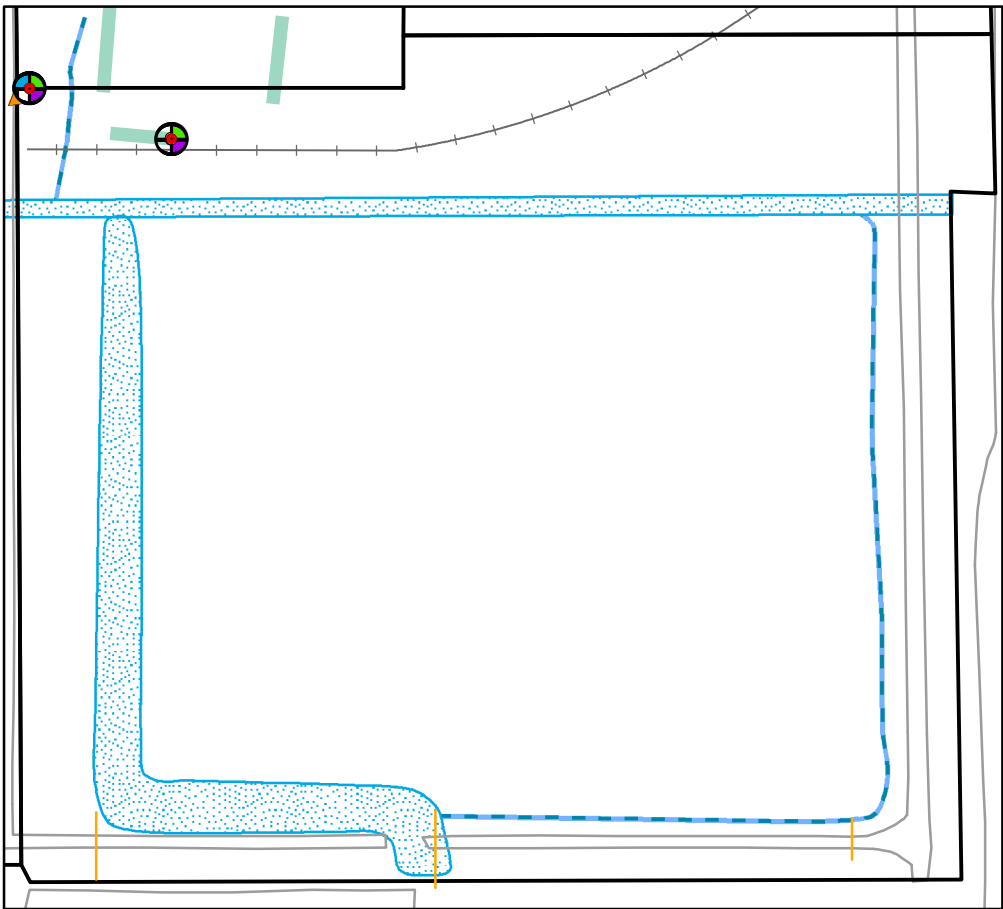
Surface Soil 0-0.5'



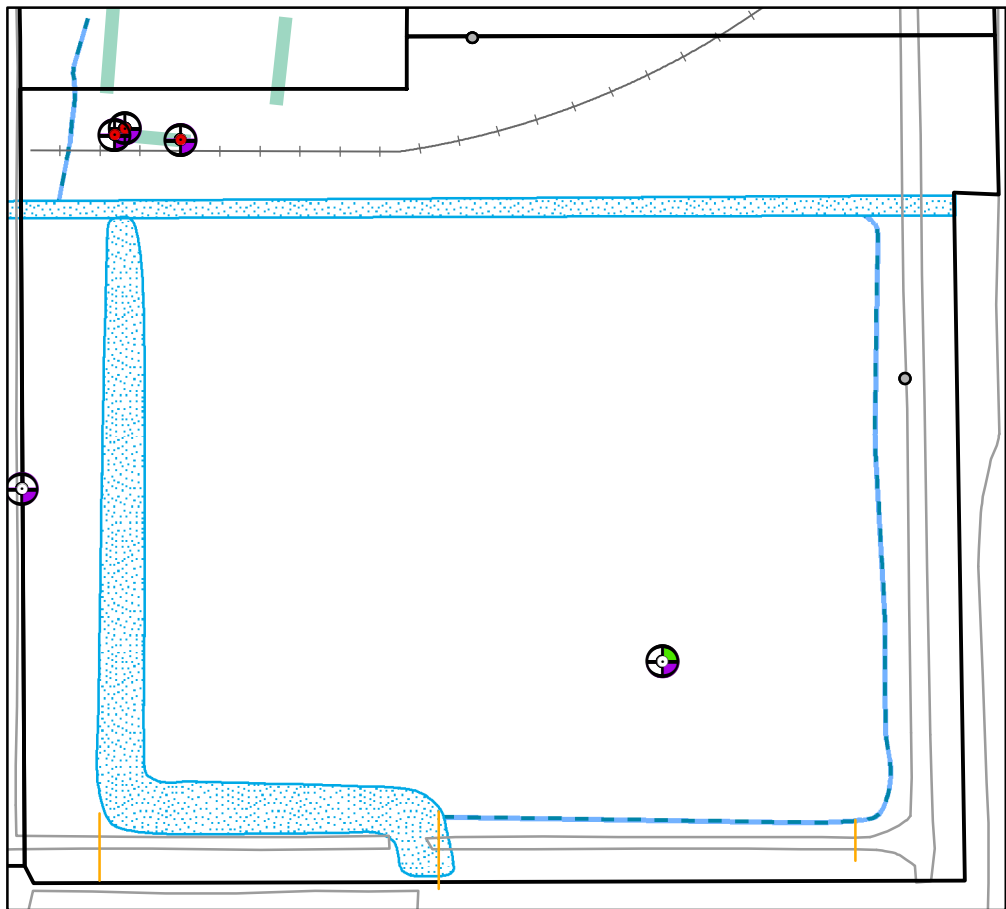
Subsurface Soil 0.5-2'



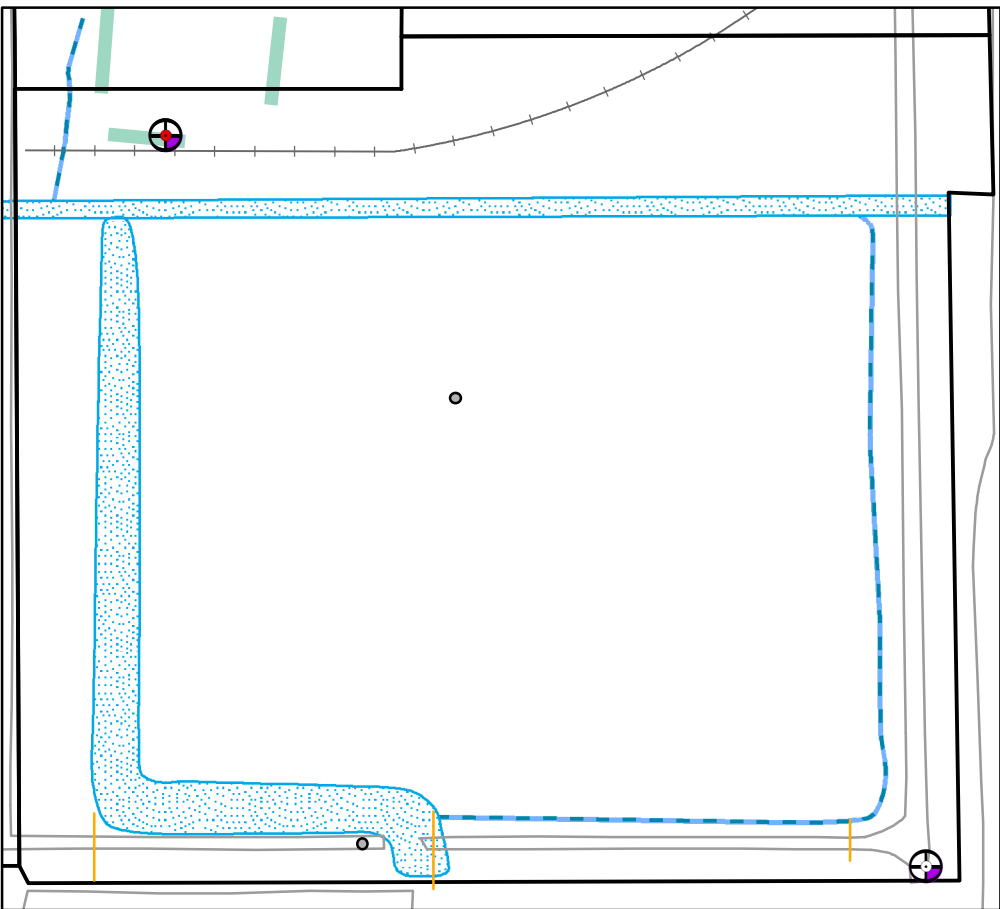
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

- | | |
|---------------------------------|---------------------------------------|
| Metal | Former K-65 transfer pipeline |
| PCB | Acid sewer |
| Pesticide | Water lines |
| Radionuclide | Culverts |
| SVOC | Fuel line |
| VOC | Sanitary sewer |
| No Exceedance | Storm sewer |
| Structure abandoned above grade | Former remedial structures |
| Active structure | Former railroad |
| Former structure | Roads |
| IWCS cutoff wall | Surface water (inundated 50% of year) |
| Test trenches | Ephemeral ditches |
| | EU boundary |



US Army Corps of Engineers
Buffalo District

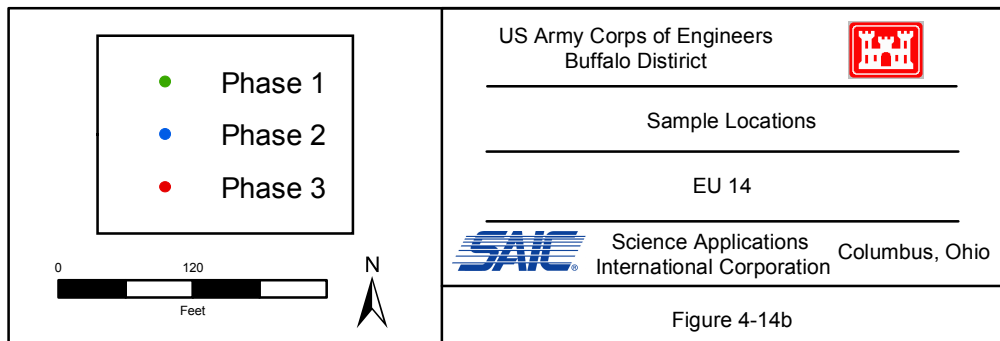
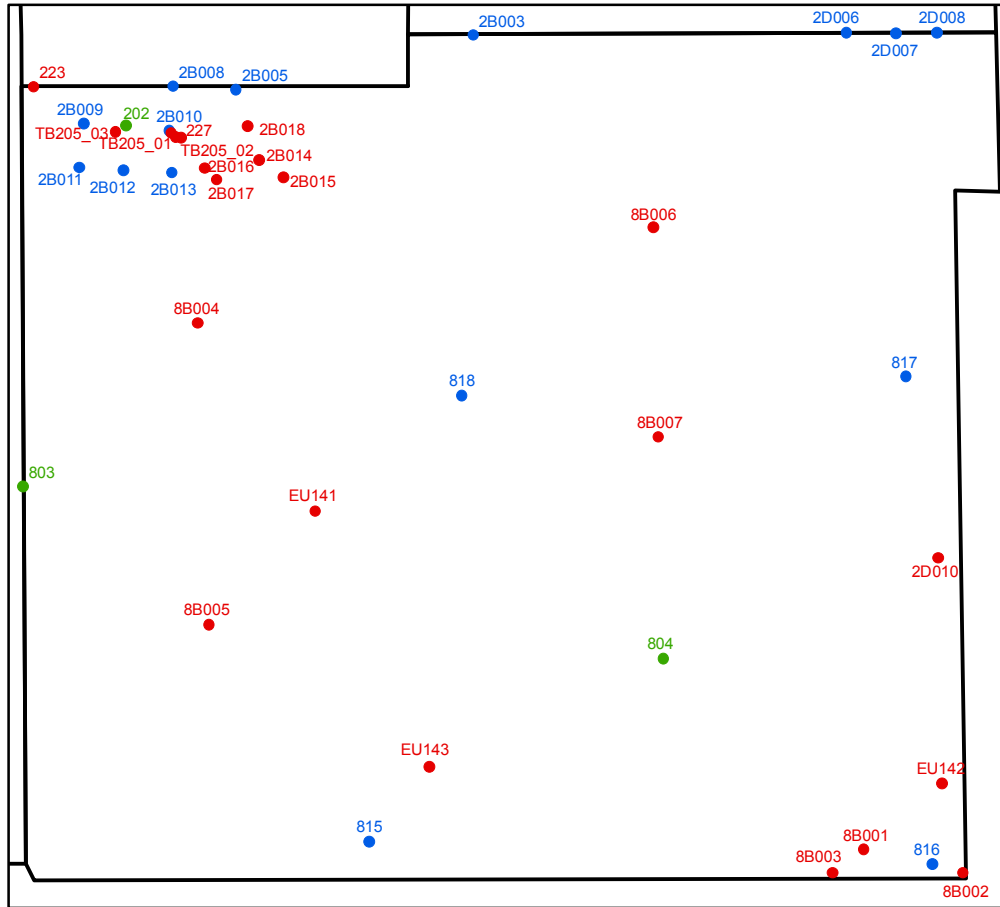


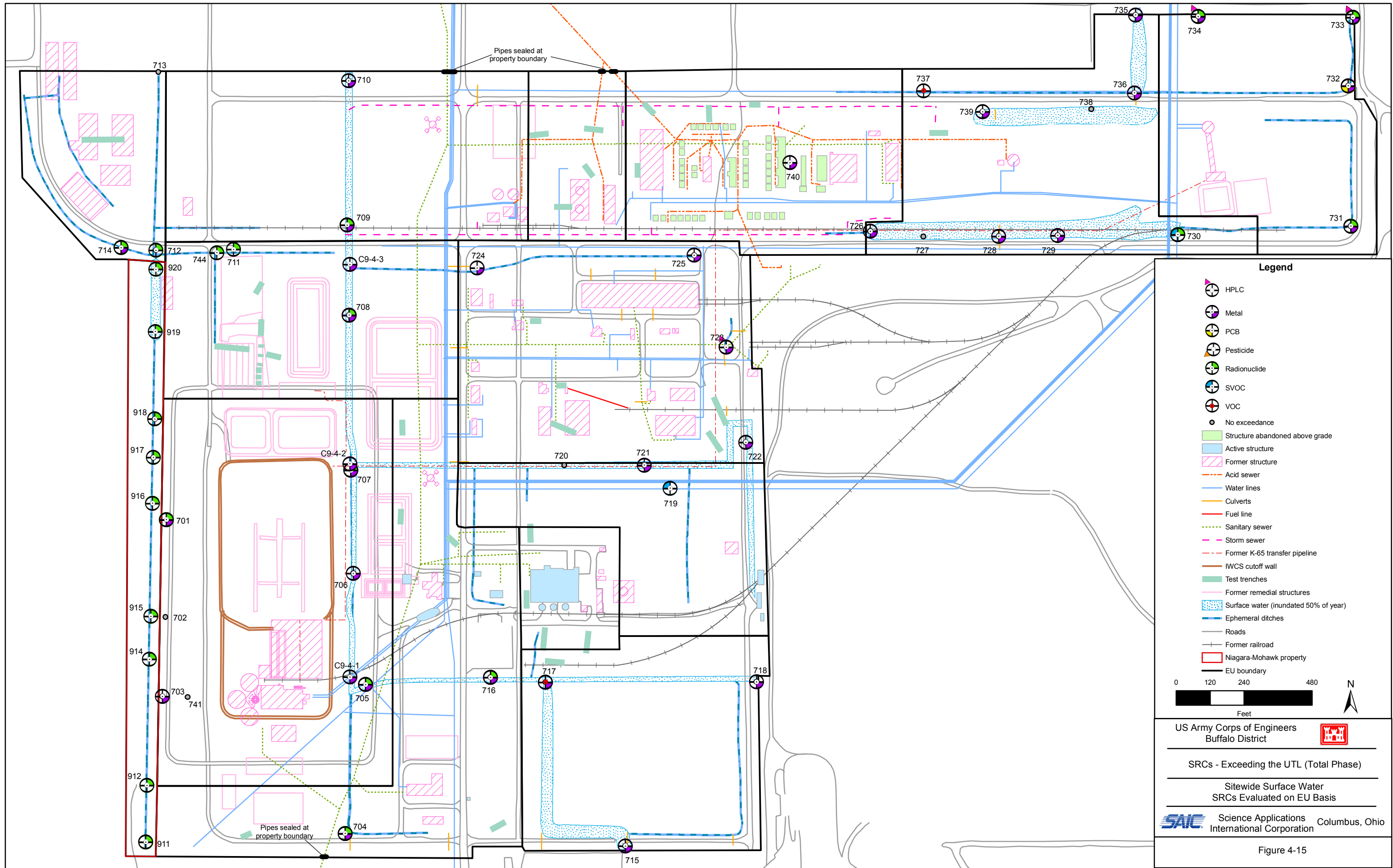
SRCs - Exceeding the UTL

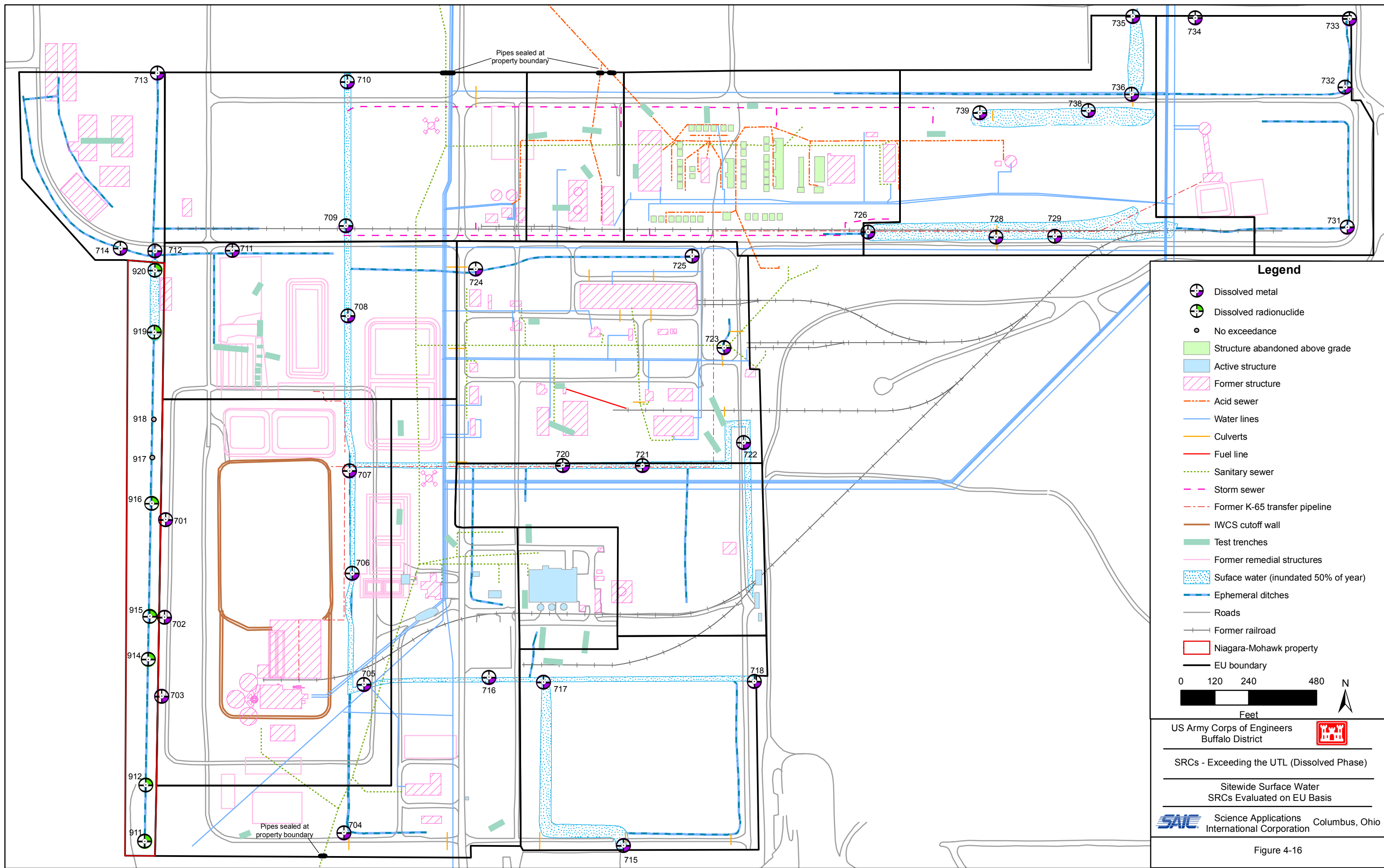
EU 14

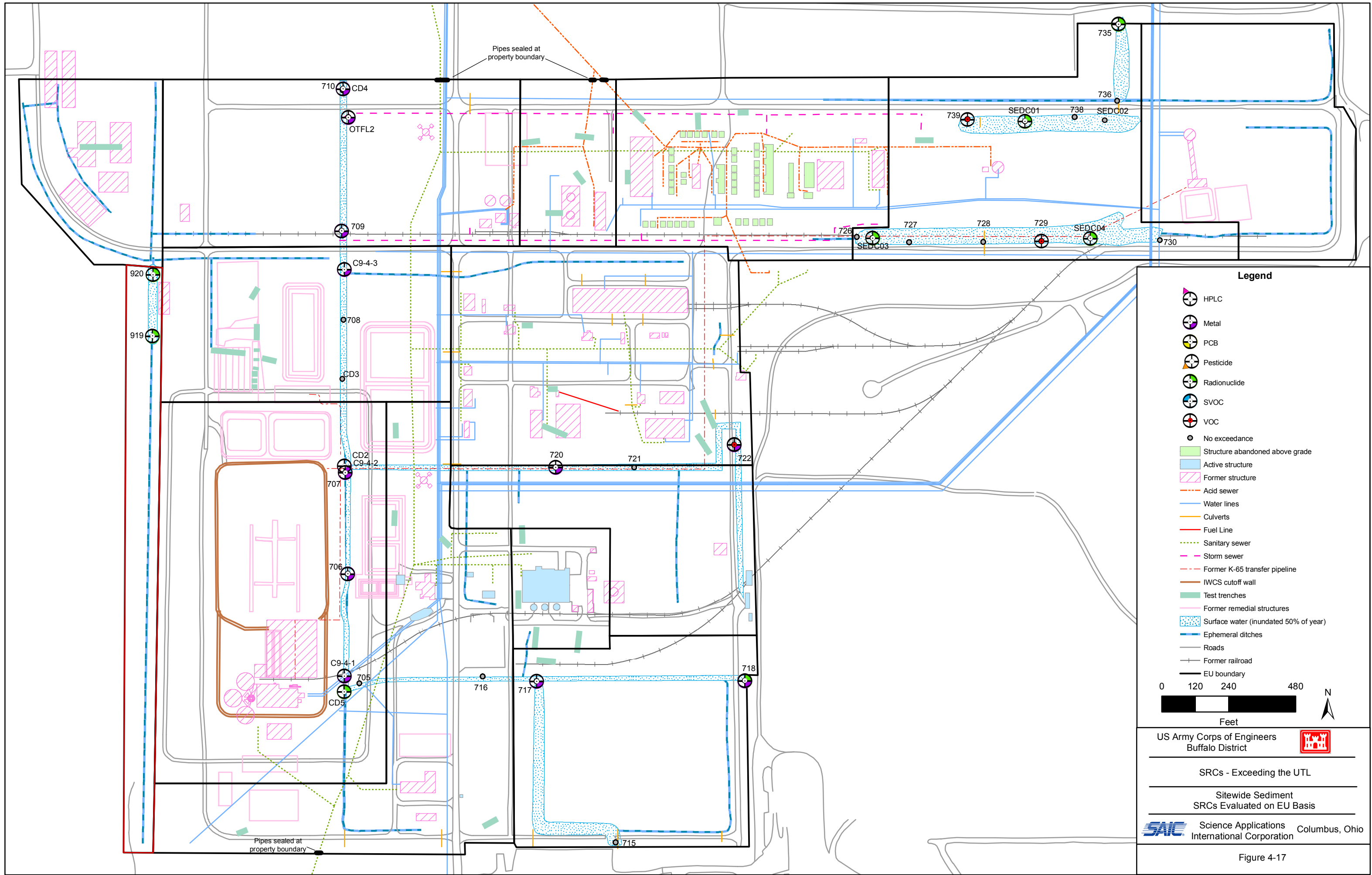
SAIC Science Applications
International Corporation Columbus, Ohio

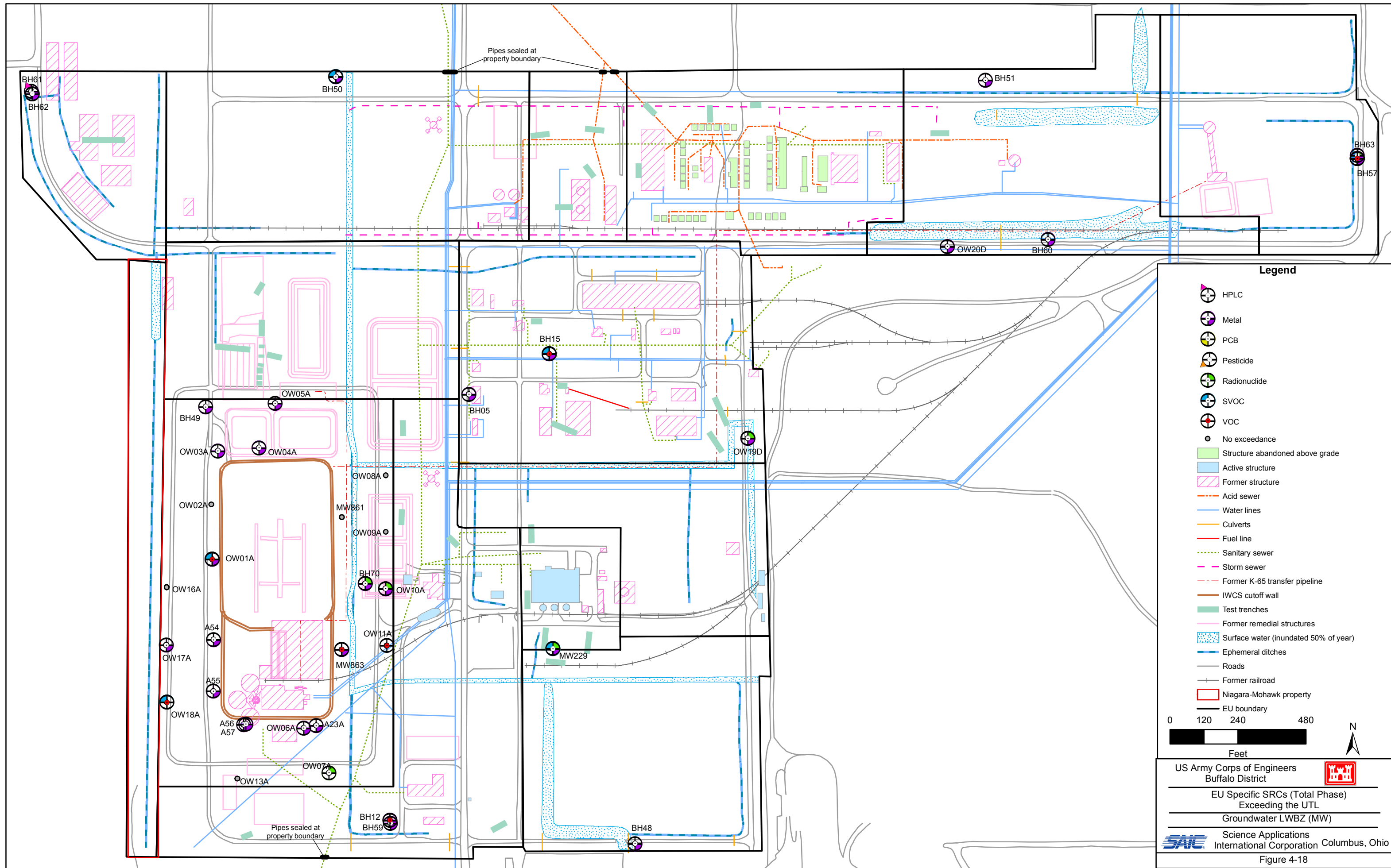
Figure 4-14a

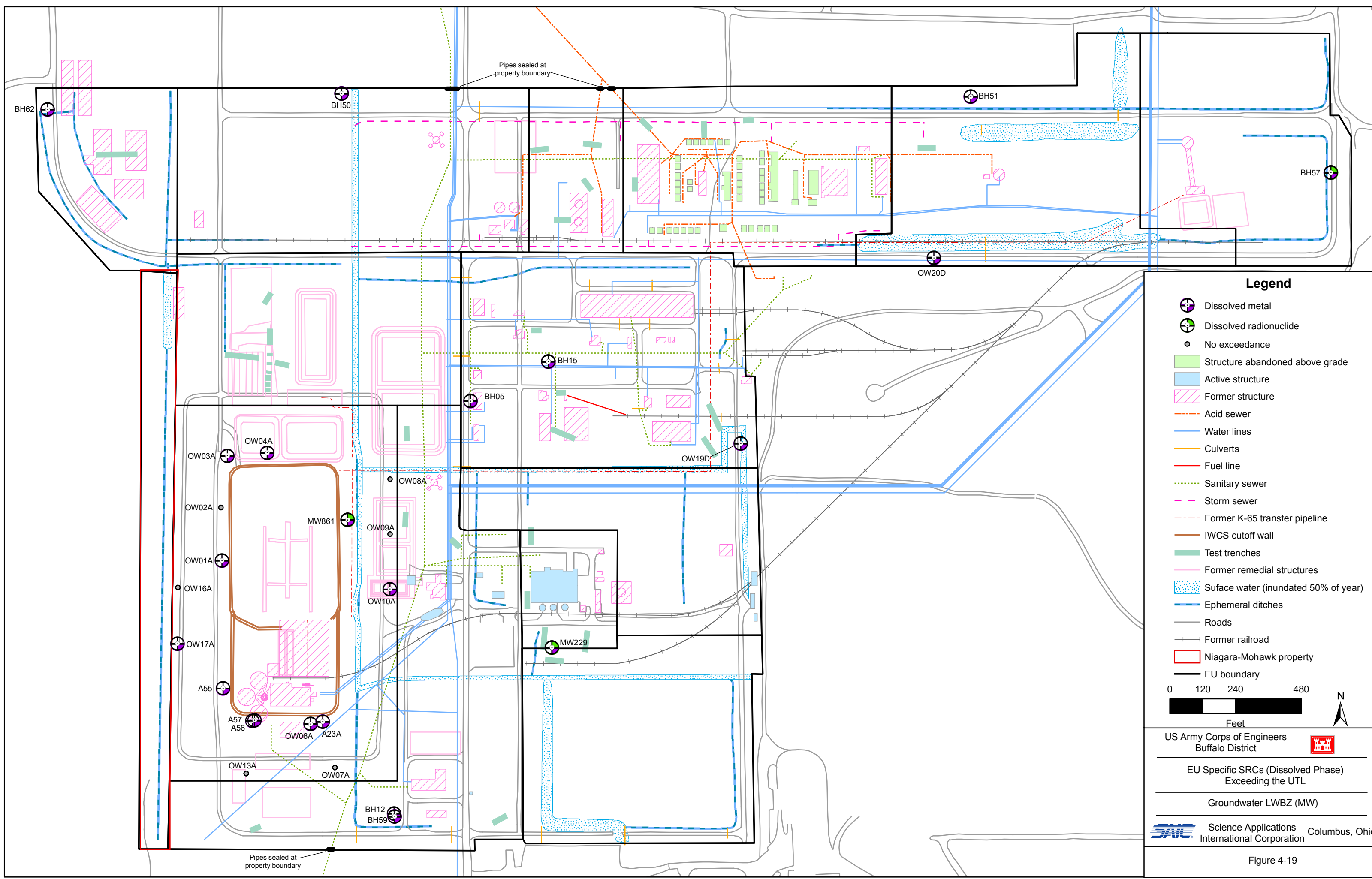






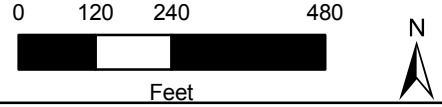






Legend

- Dissolved metal
- Dissolved radionuclide
- No exceedance
- Structure abandoned above grade
- Active structure
- Former structure
- Acid sewer
- Water lines
- Culverts
- Fuel line
- Sanitary sewer
- Storm sewer
- Former K-65 transfer pipeline
- IWCS cutoff wall
- Test trenches
- Former remedial structures
- Surface water (inundated 50% of year)
- Ephemeral ditches
- Roads
- Former railroad
- Niagara-Mohawk property
- EU boundary



US Army Corps of Engineers
Buffalo District

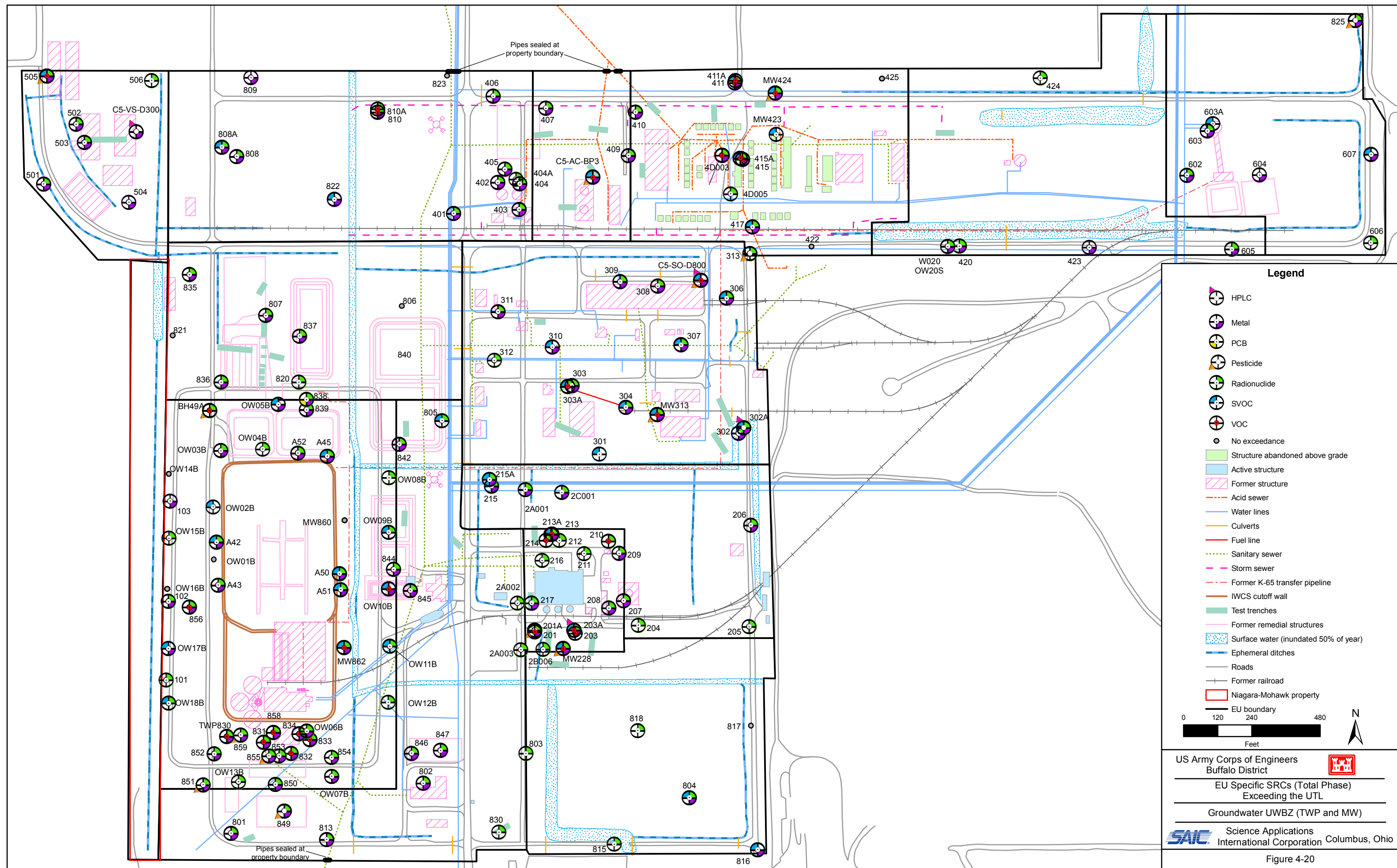


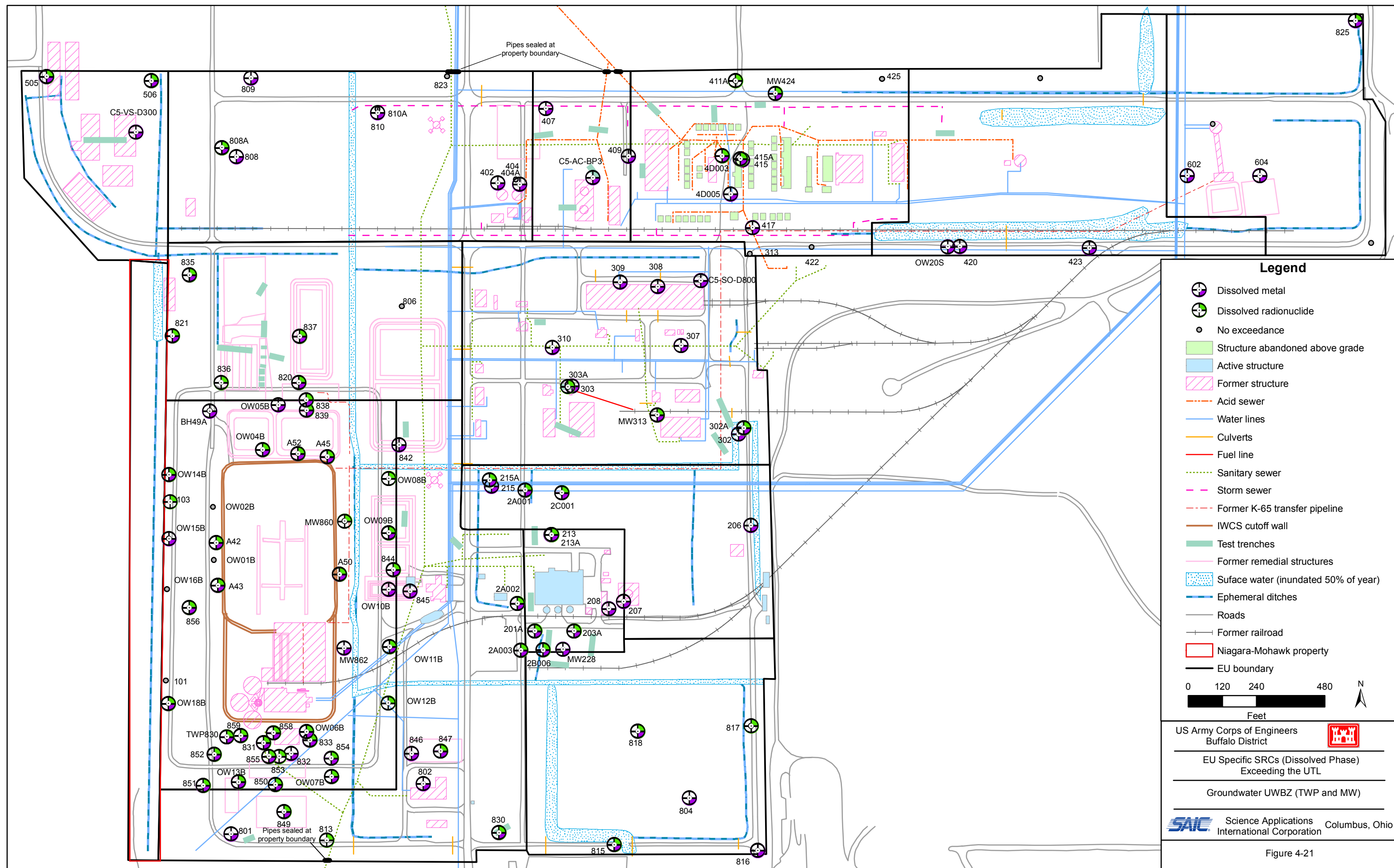
EU Specific SRCs (Dissolved Phase)
Exceeding the UTL

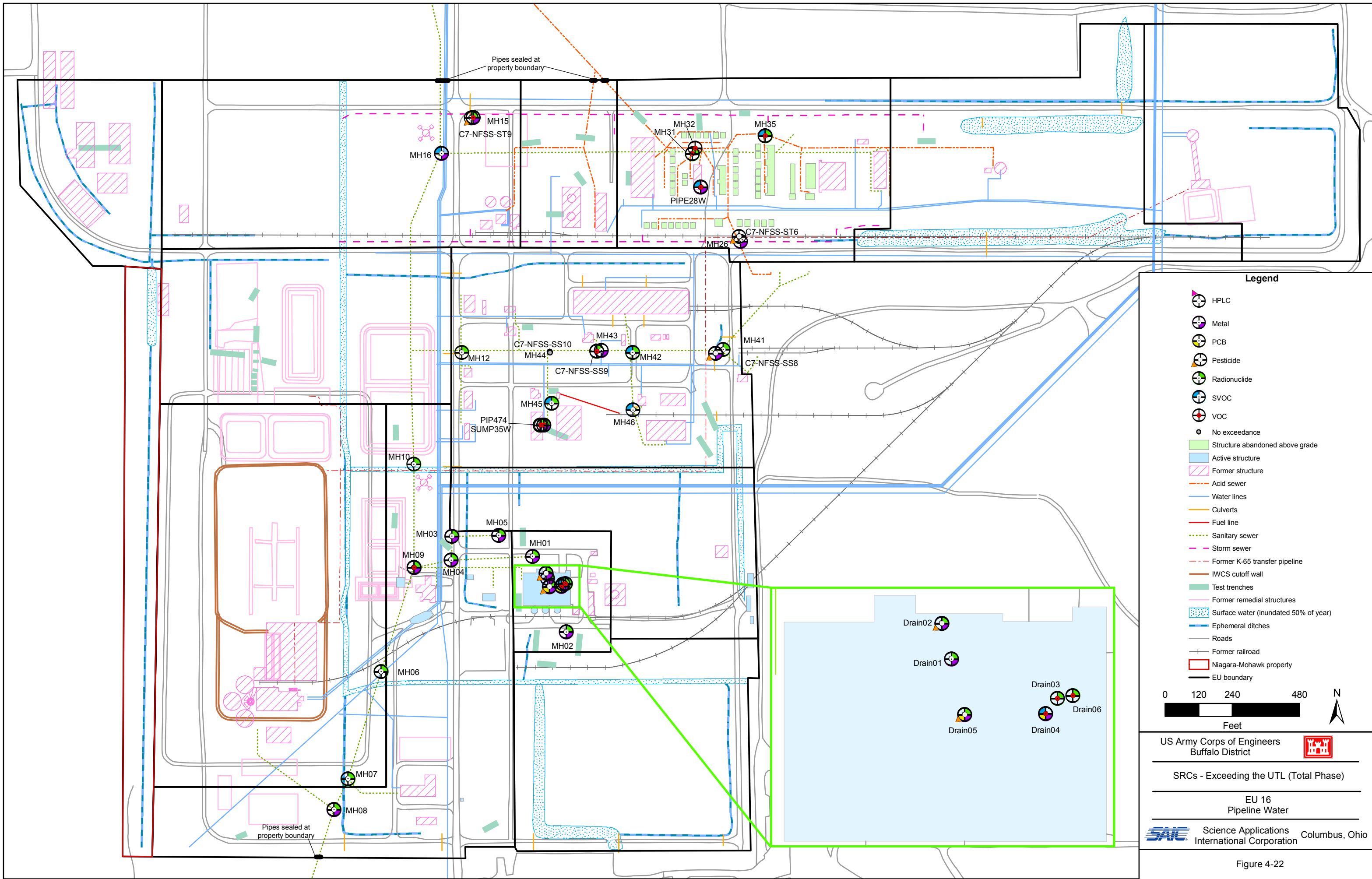
Groundwater LWBZ (MW)

Science Applications
International Corporation Columbus, Ohio

Figure 4-19







Legend

HPLC

Metal

PCB

Pesticide

Radionuclide

SVOC

VOC

No exceedance

Structure abandoned above grade

Active structure

Former structure

Acid sewer

Water lines

Culverts

Fuel line

Sanitary sewer

Storm sewer

Former K-65 transfer pipeline

IWCS cutoff wall

Test trenches

Former remedial structures

Surface water (inundated 50% of year)

Ephemeral ditches

Roads

Former railroad

Niagara-Mohawk property

EU boundary

0120240480

Feet

N

US Army Corps of Engineers
Buffalo District

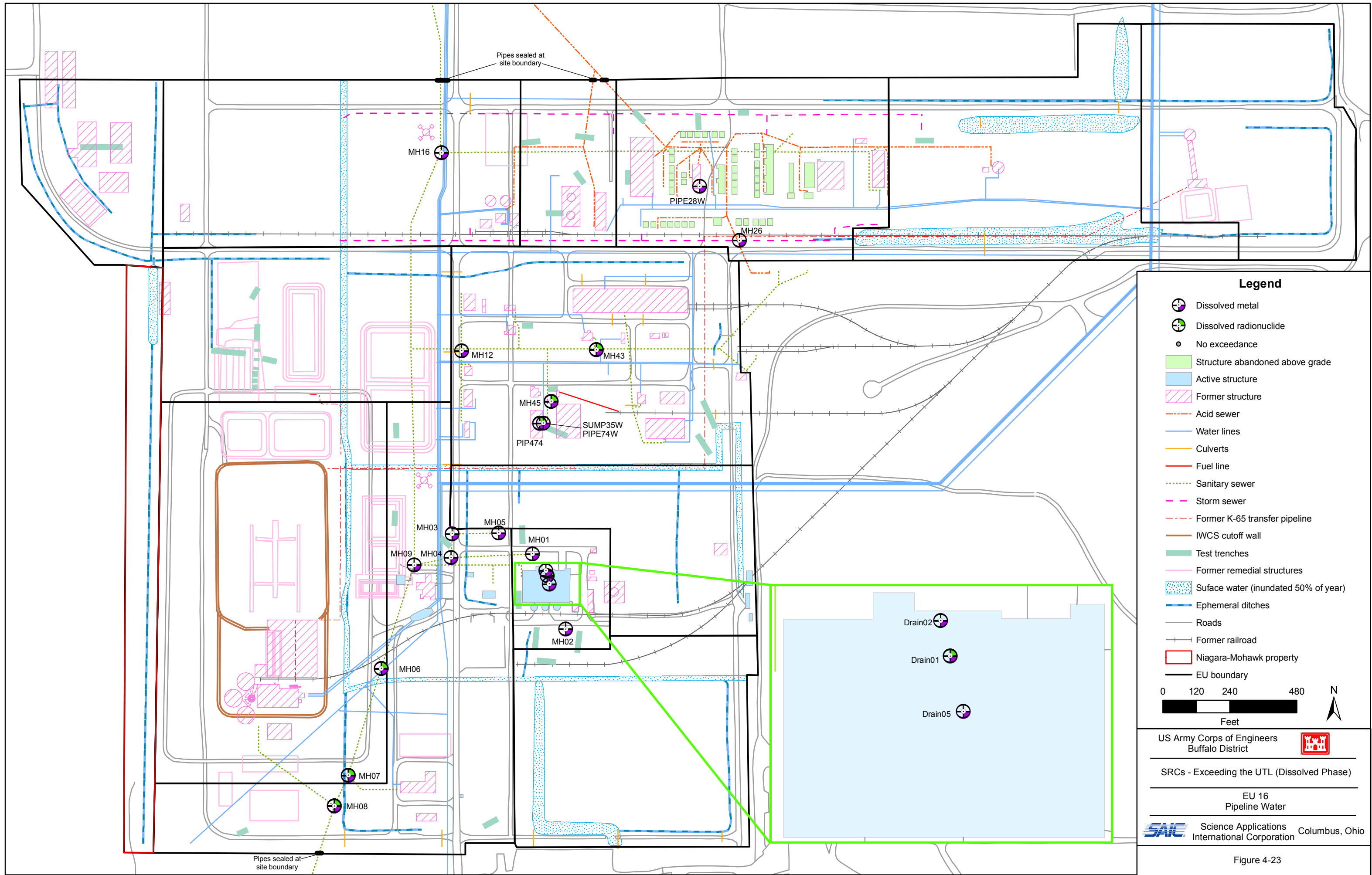
SRCs - Exceeding the UTL (Total Phase)

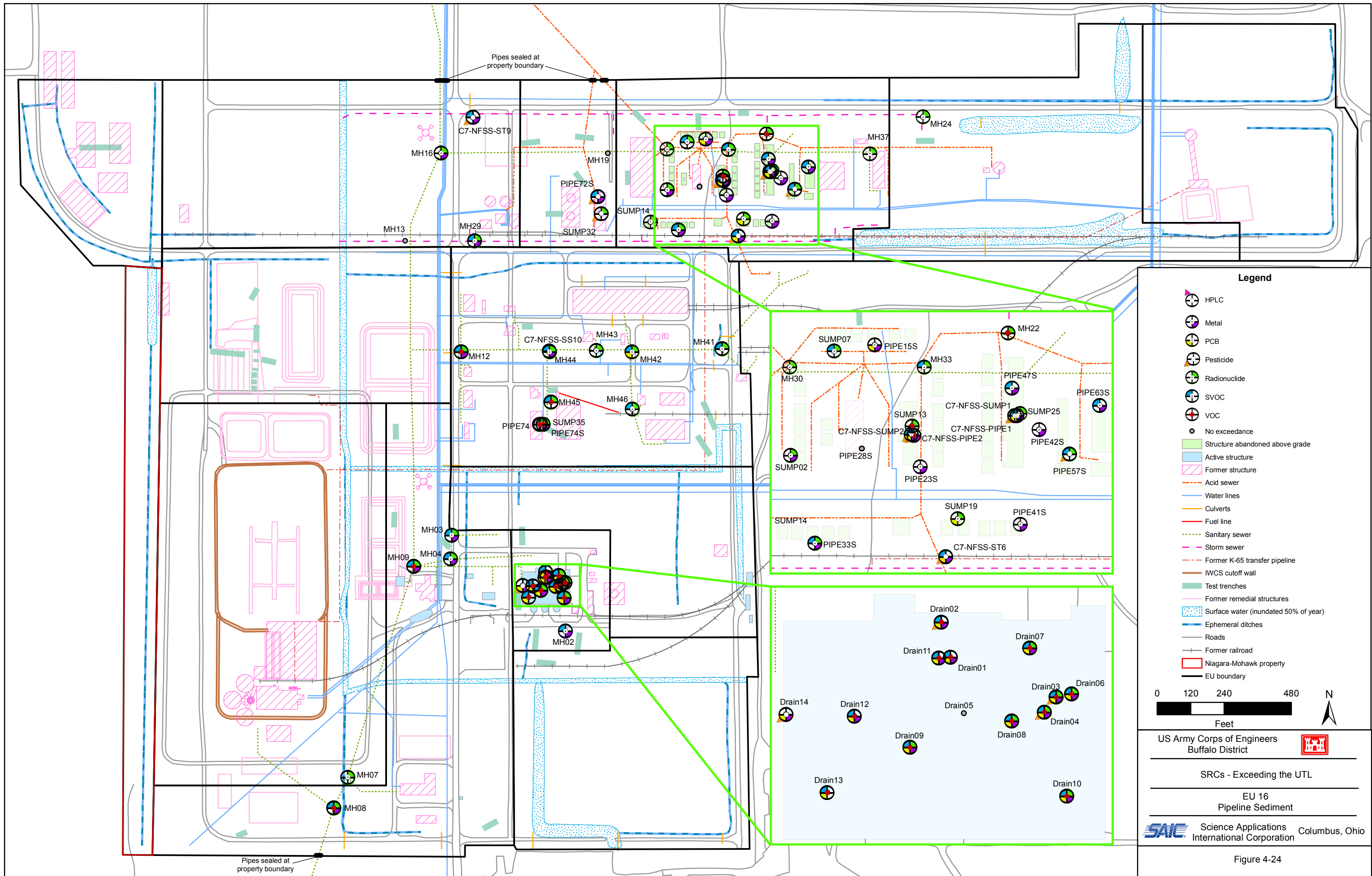
EU 16
Pipeline Water

Science Applications
International Corporation

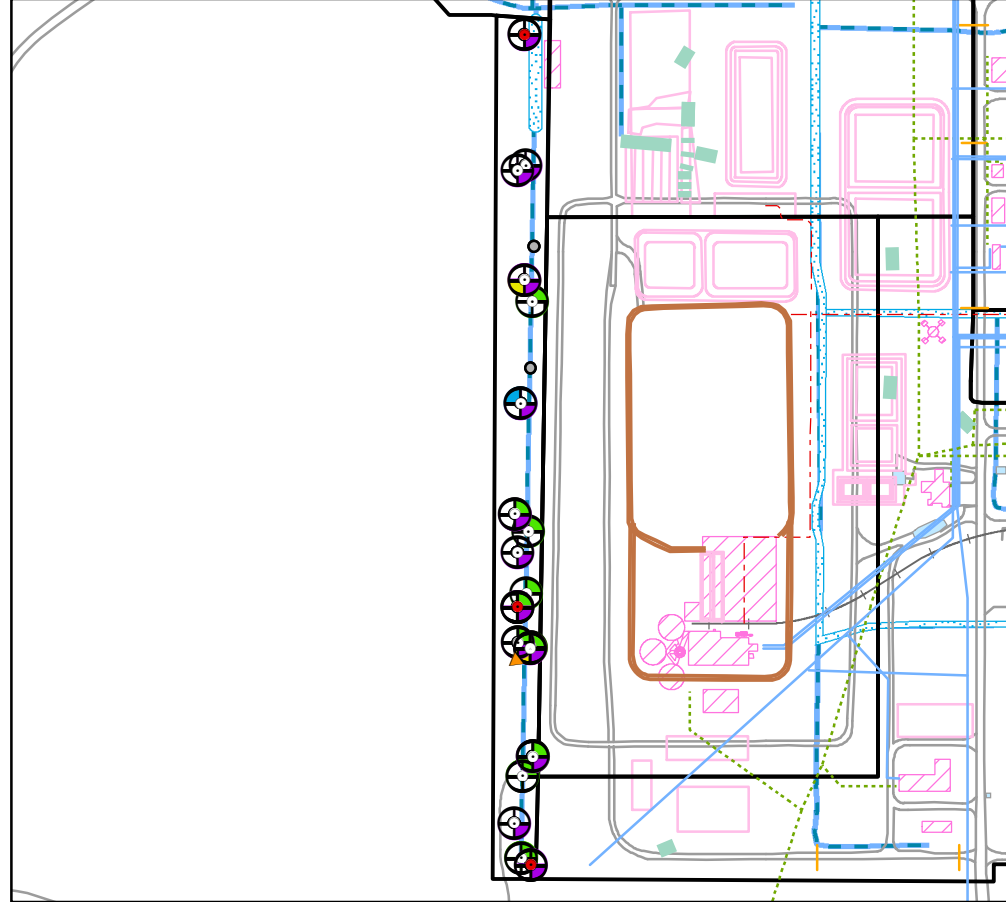
Columbus, Ohio

Figure 4-22

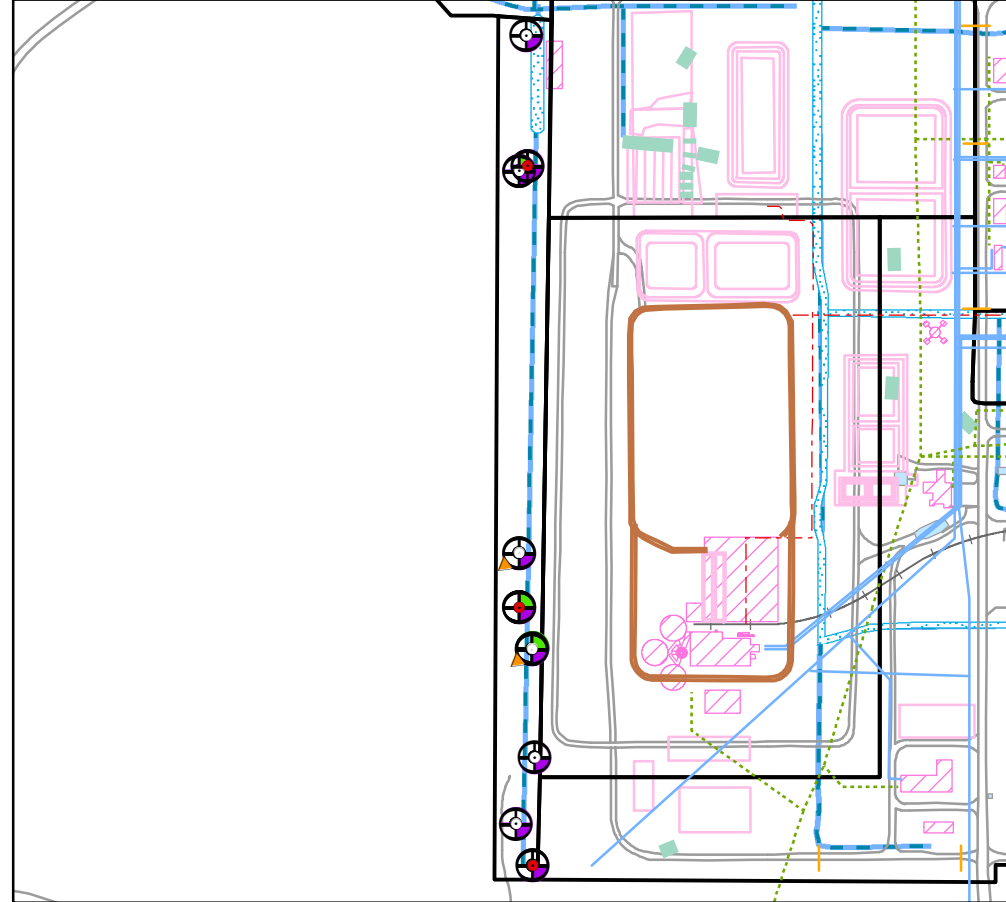




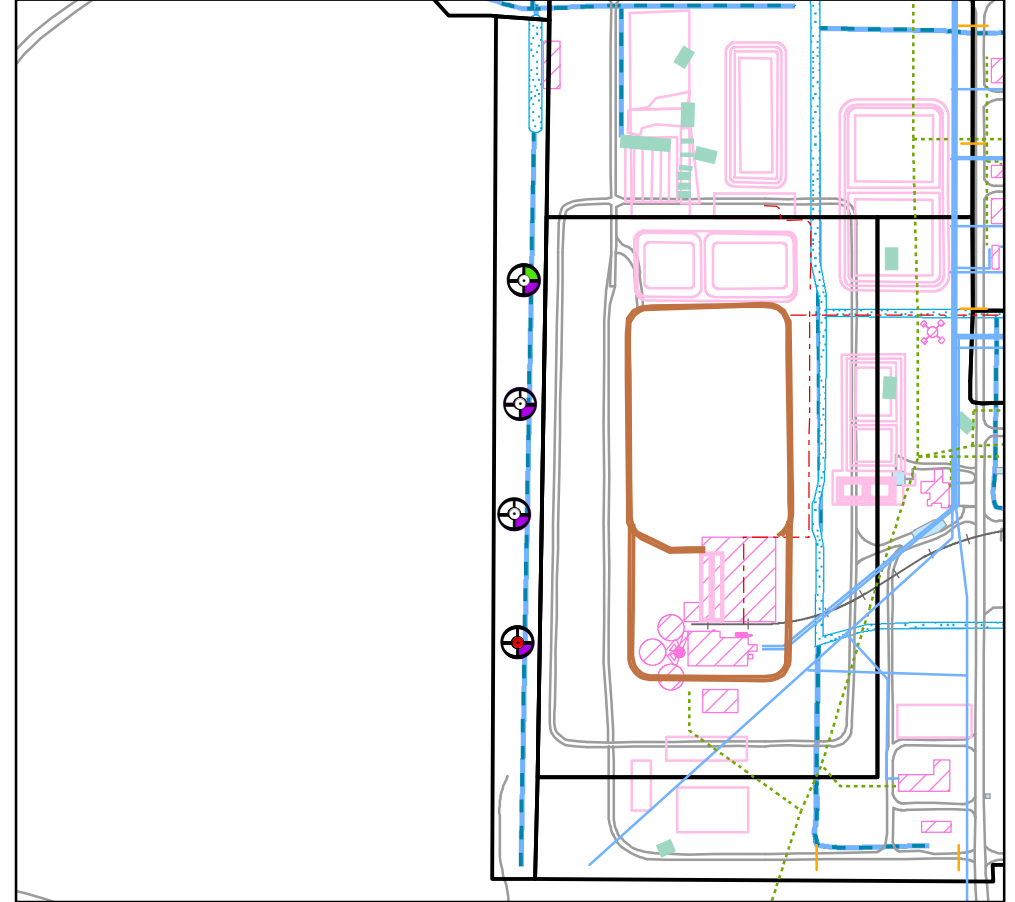
Surface Soil 0-0.5'



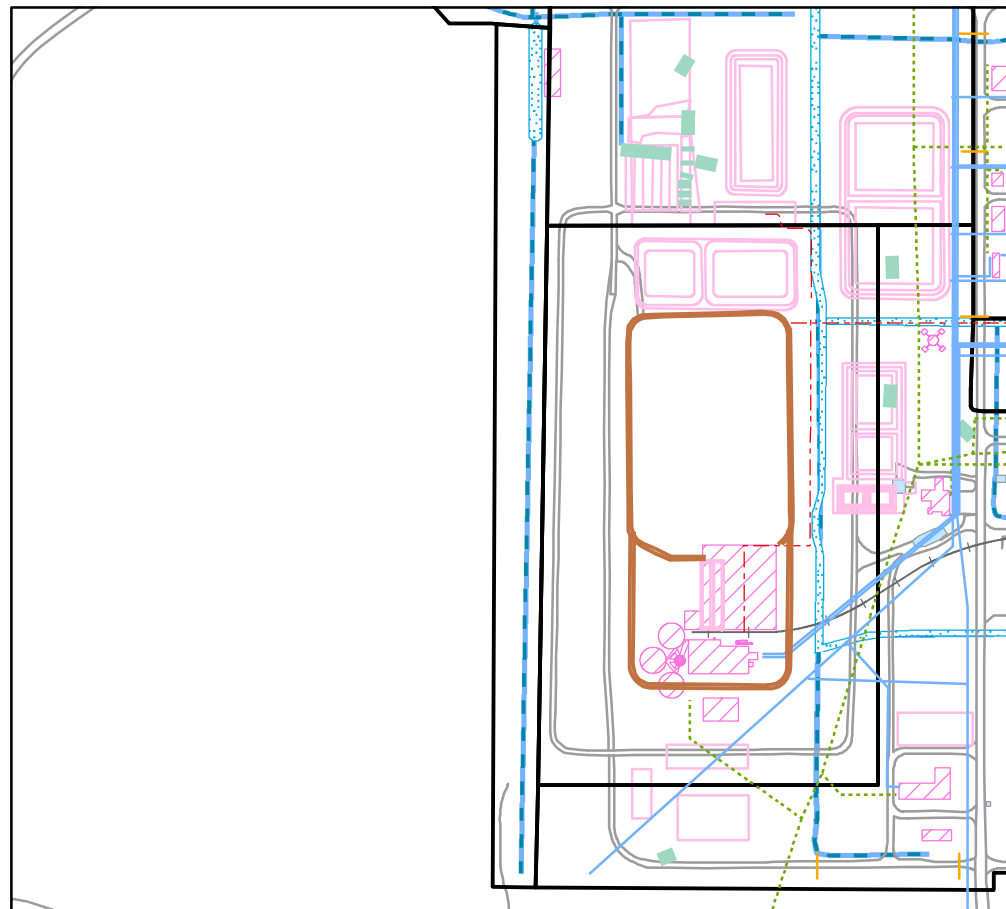
Subsurface Soil 0.5-2'



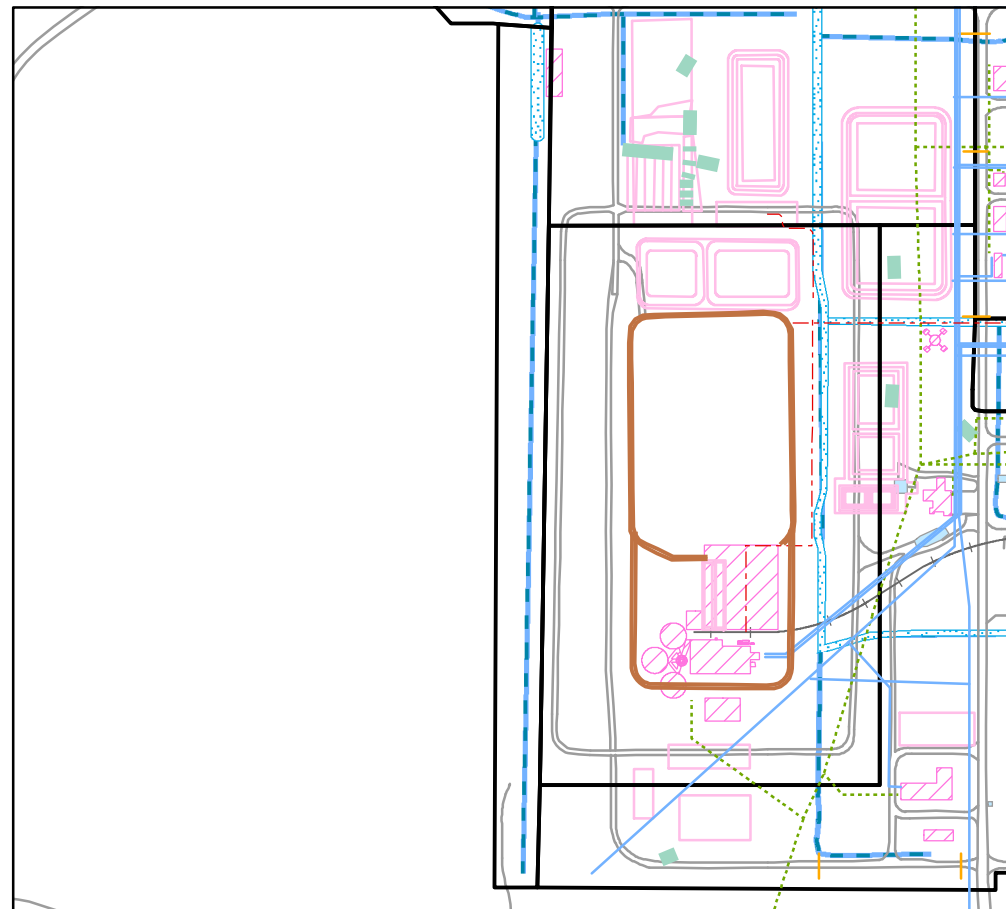
Subsurface Soil 2-5'



Subsurface Soil 5-10'



Subsurface Soil > 10'



Sitewide Legend

Metal	Former K-65 transfer pipeline
PCB	Acid sewer
Pesticide	Water lines
Radionuclide	Culverts
SVOC	Fuel line
VOC	Sanitary sewer
No Exceedance	Storm sewer
Structure abandoned above grade	Former remedial structures
Active structure	Former railroad
Former structure	Roads
IWCS cutoff wall	Surface water (inundated 50% of year)
Test trenches	Ephemeral ditches
	EU boundary

N
0 120 240 480
Feet

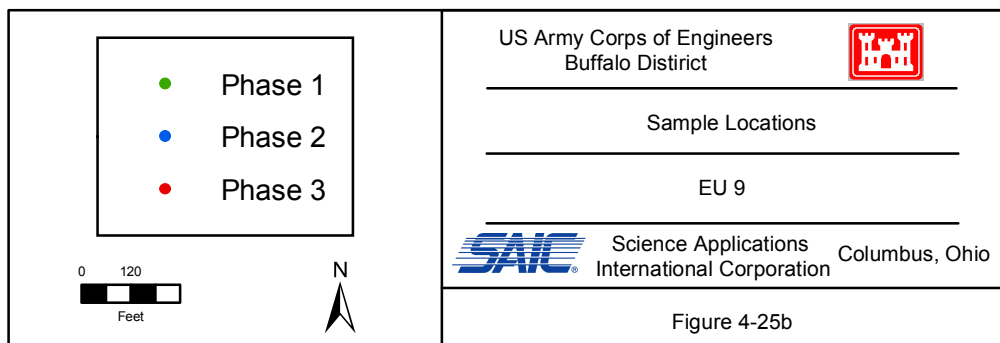
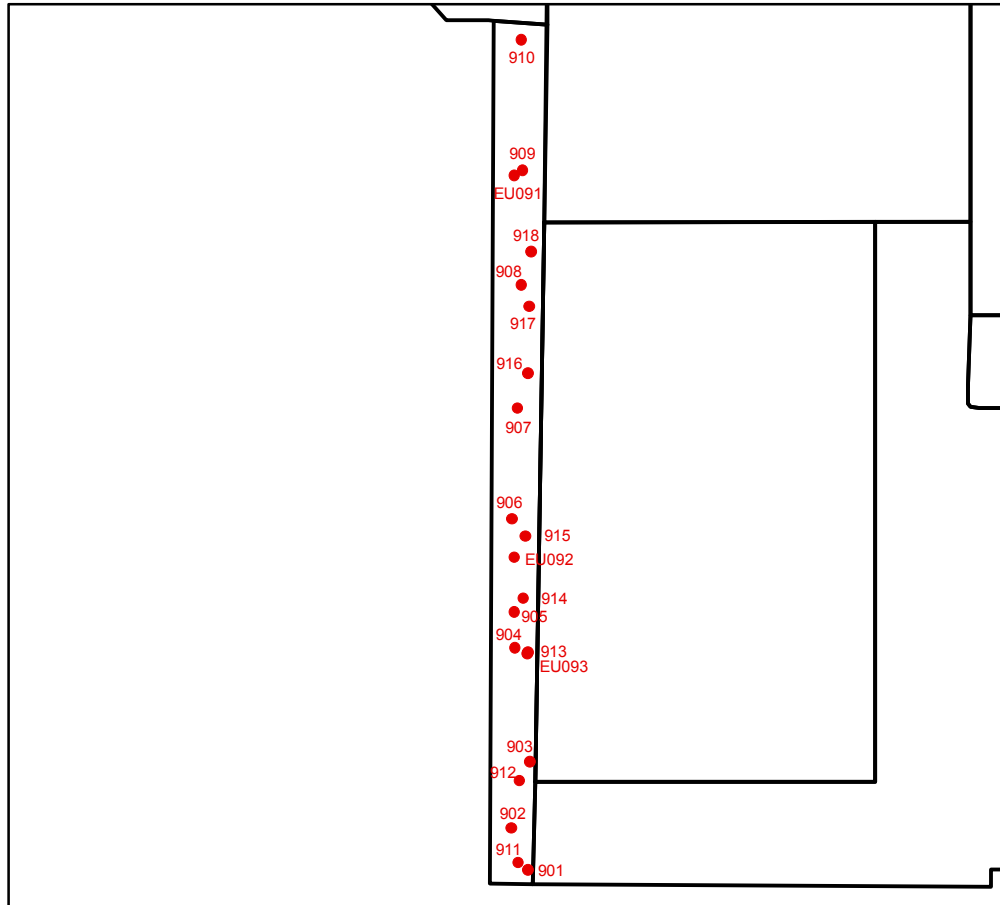
US Army Corps of Engineers
Buffalo District

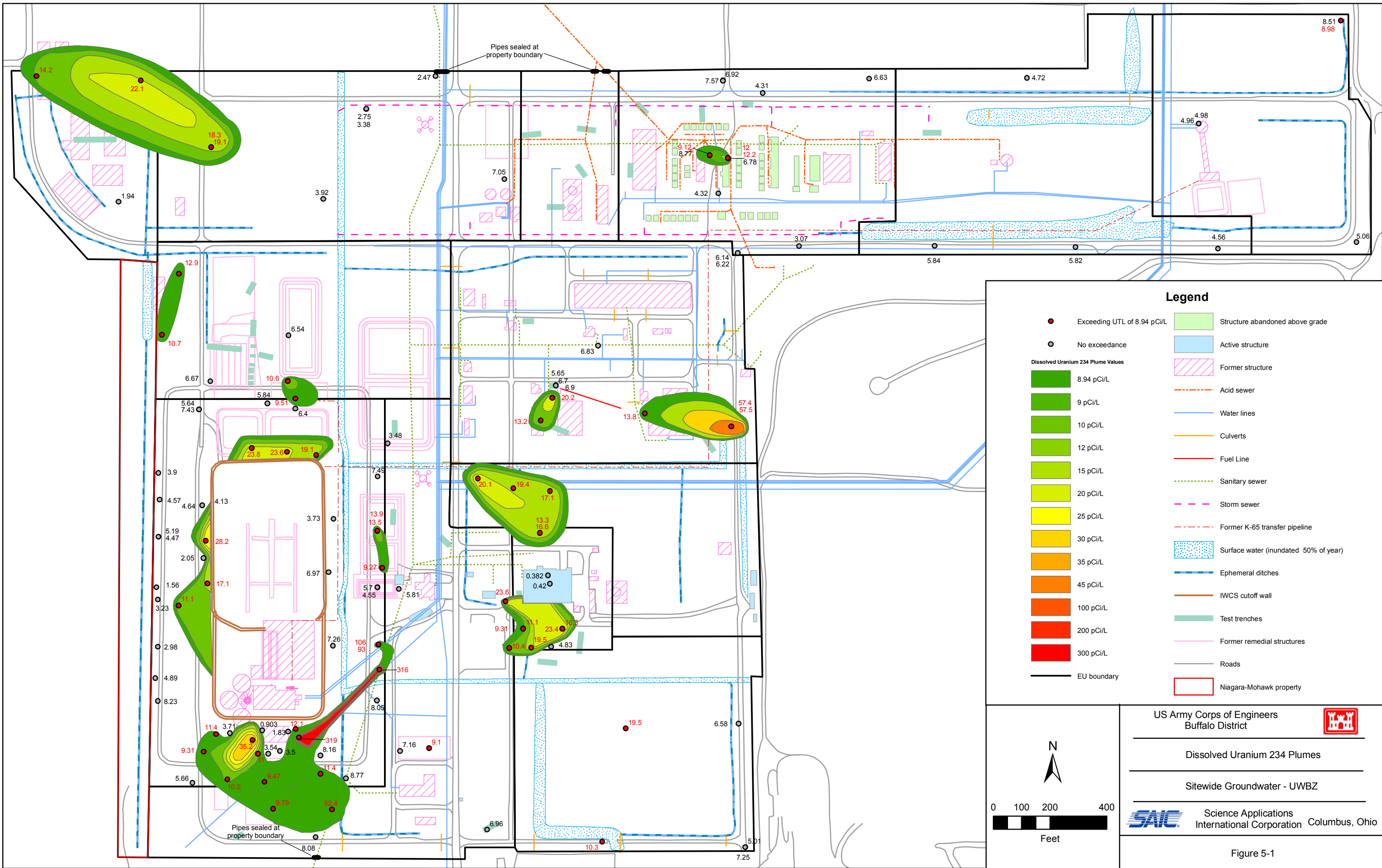
SRCs - Exceeding the UTL

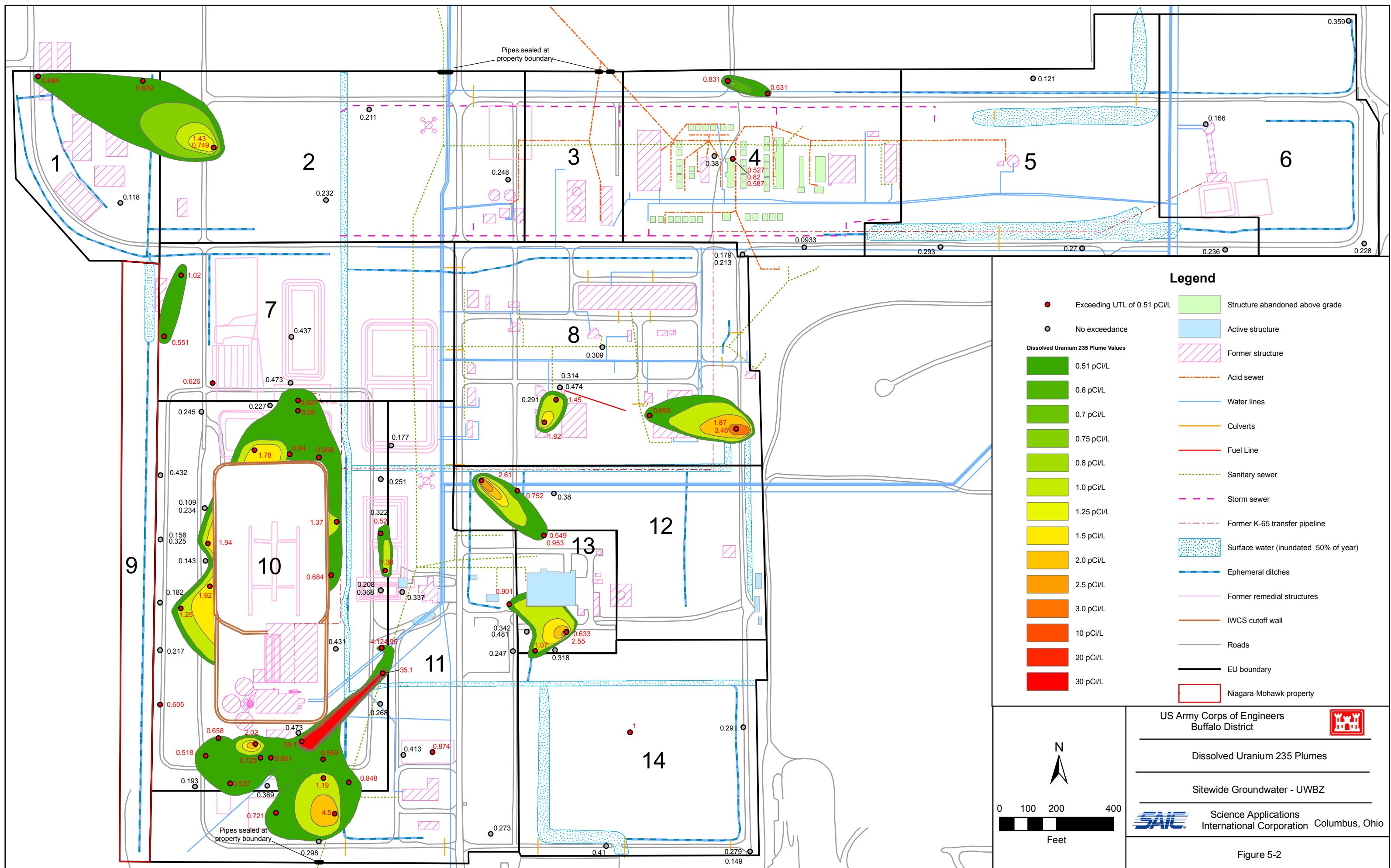
EU 9

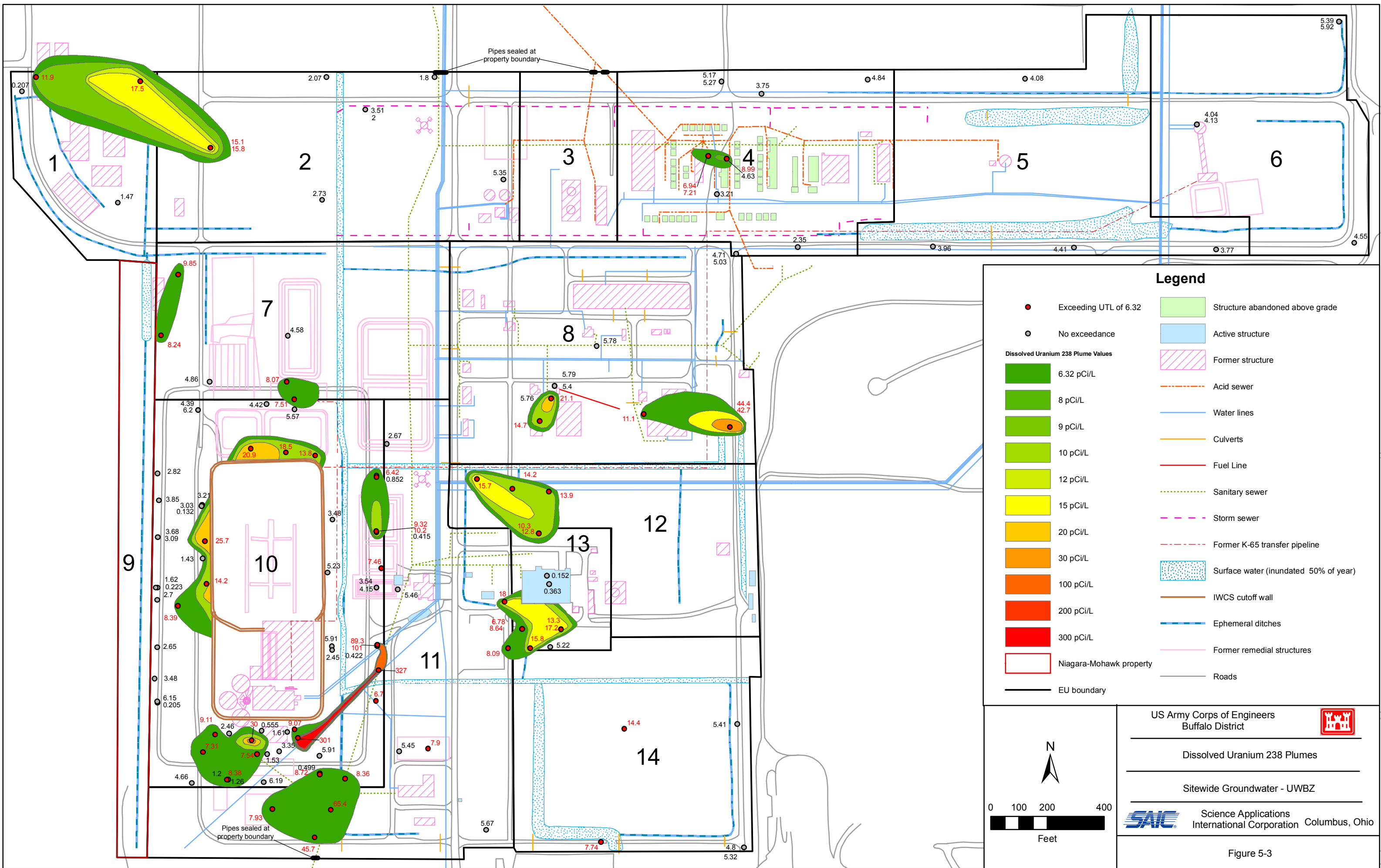
Science Applications International Corporation Columbus, Ohio

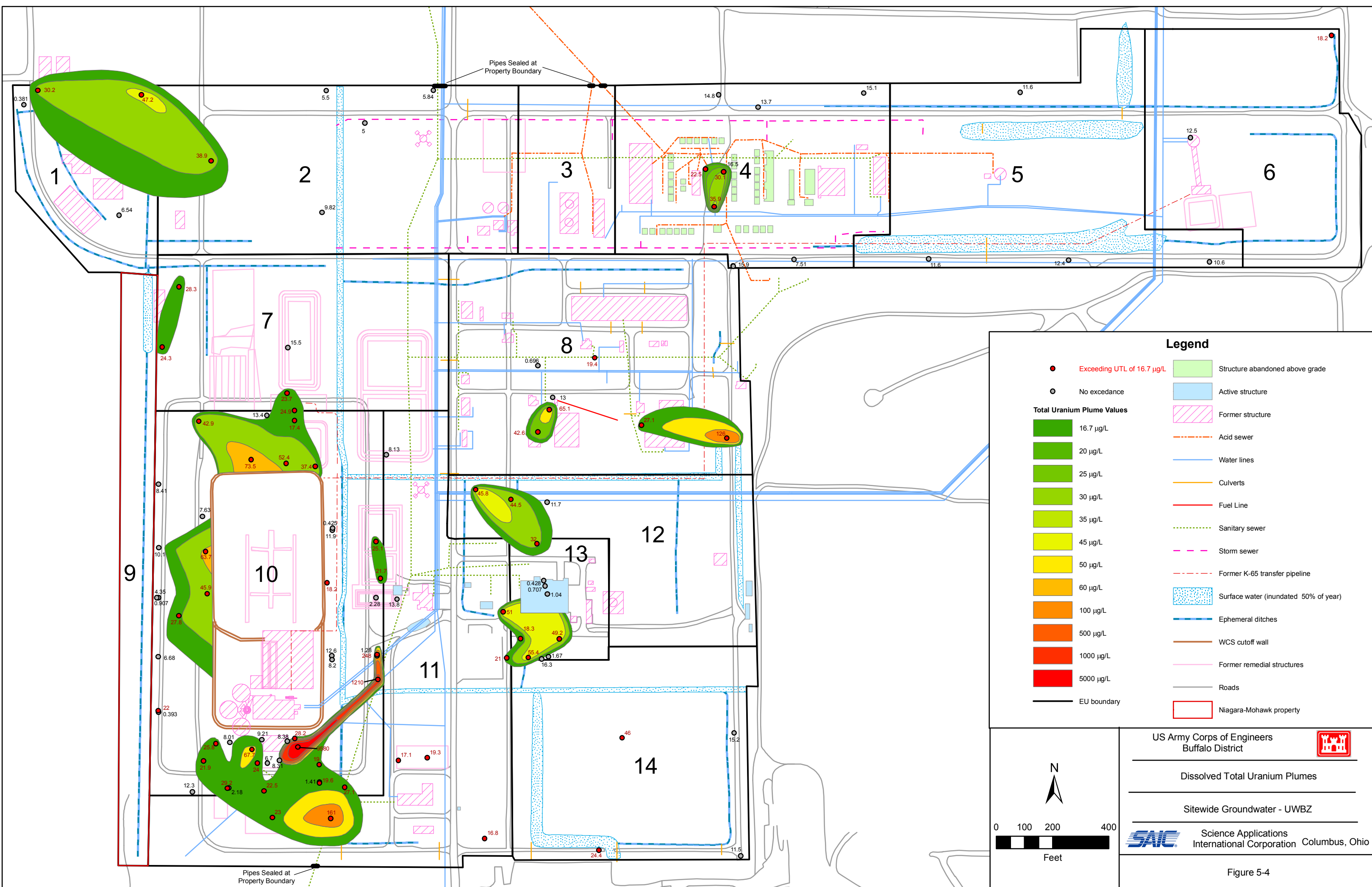
Figure 4-25a

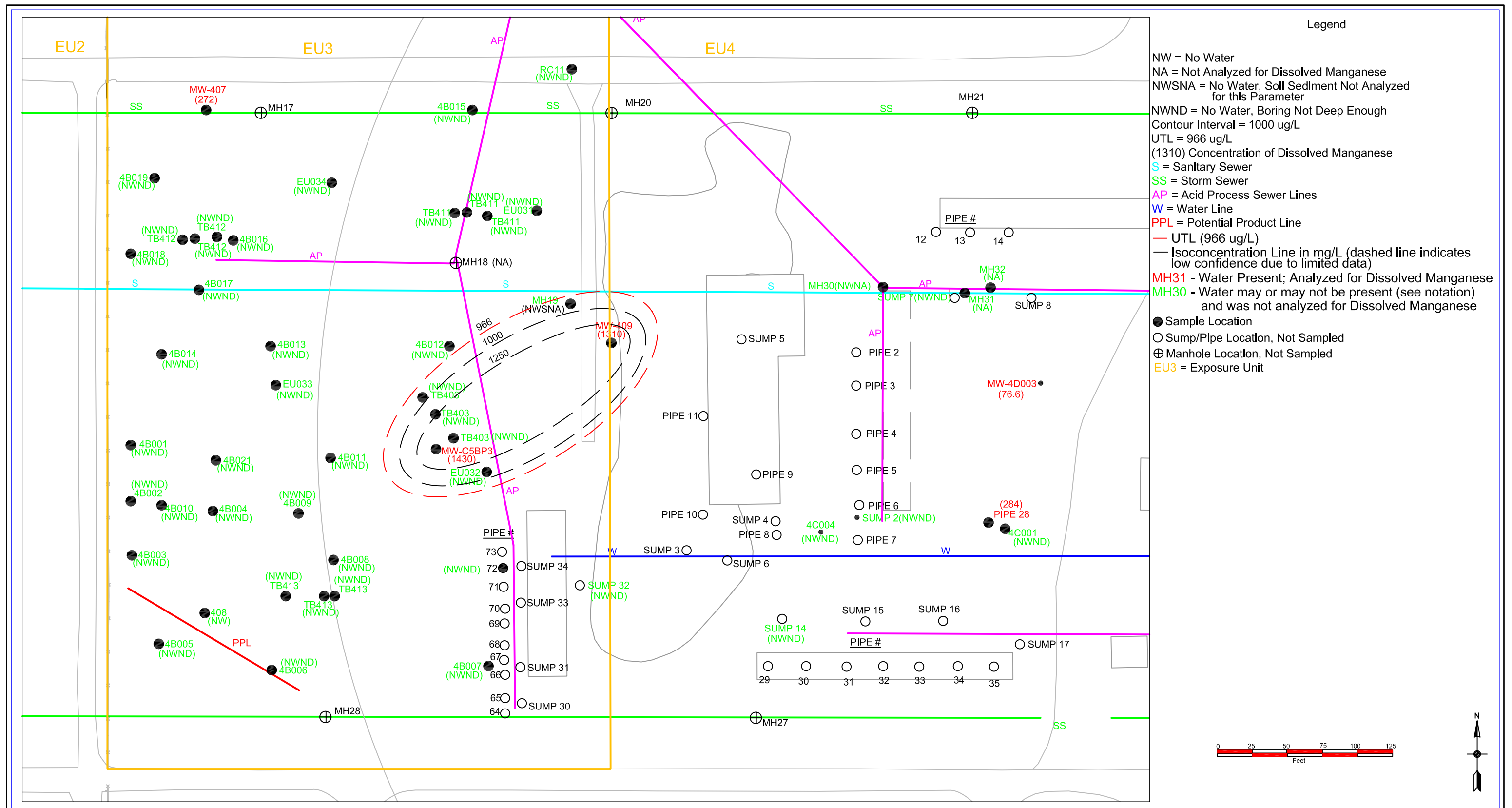








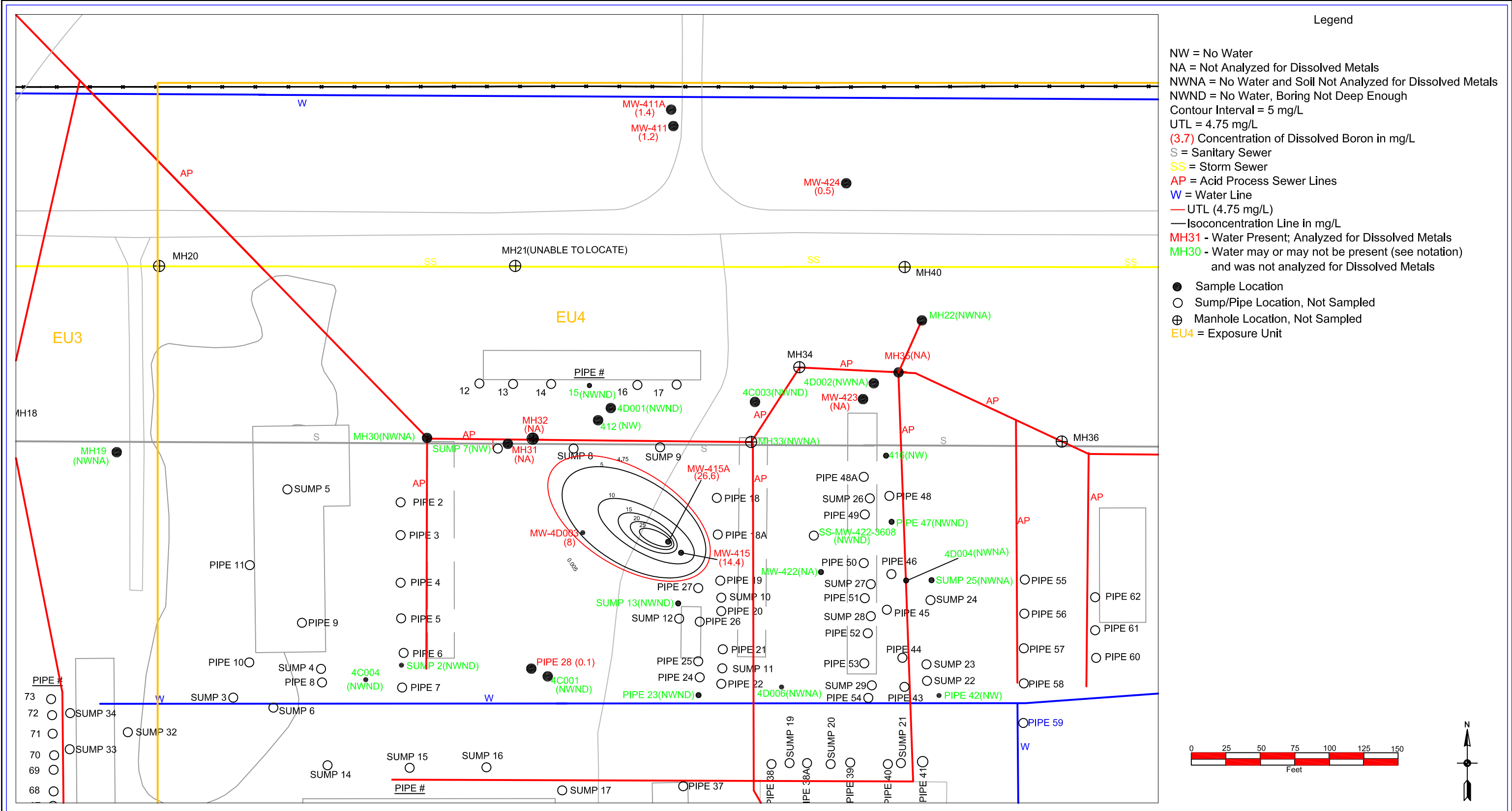





Distribution of Dissolved Manganese in the Groundwater in EU3

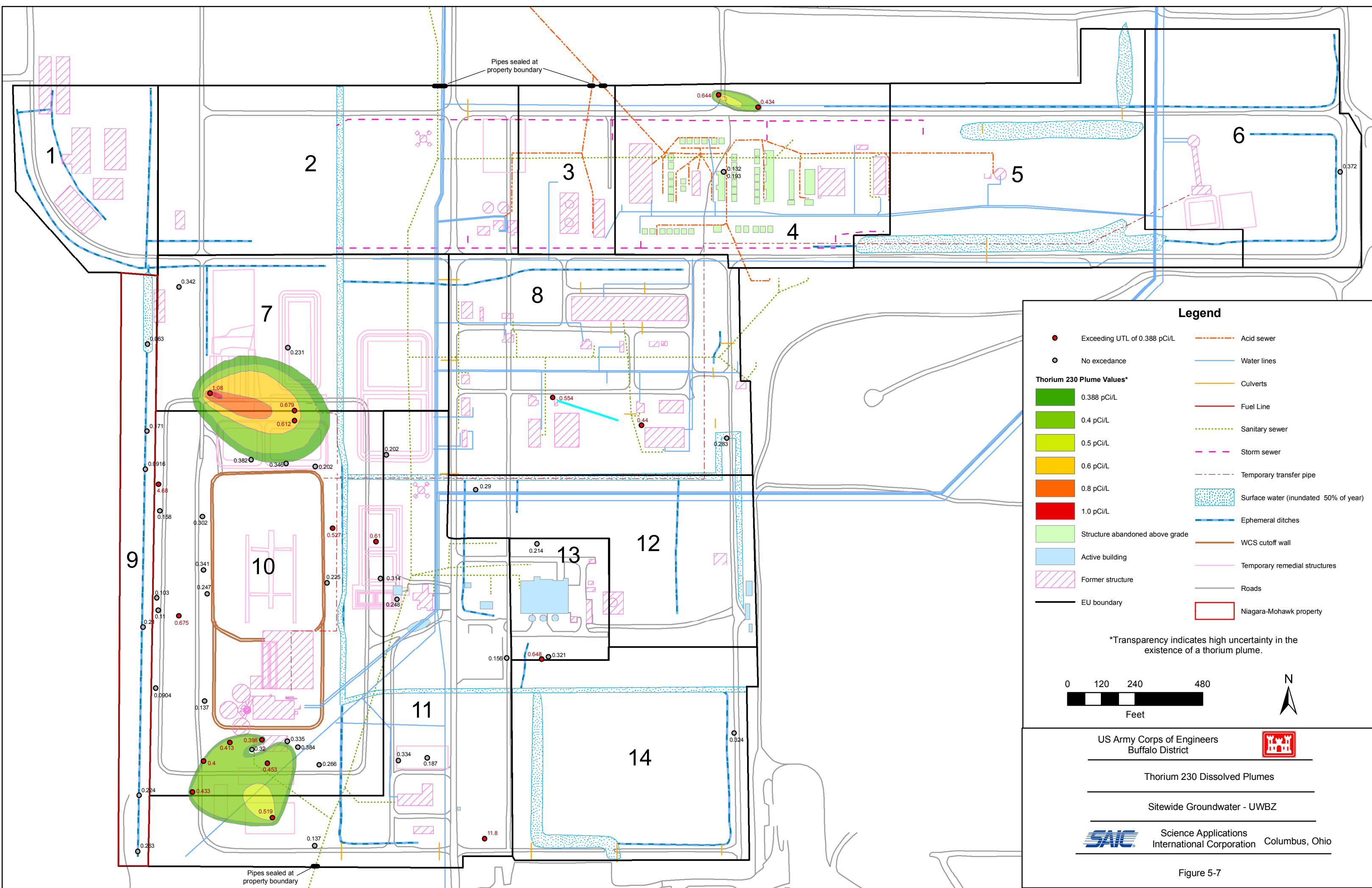


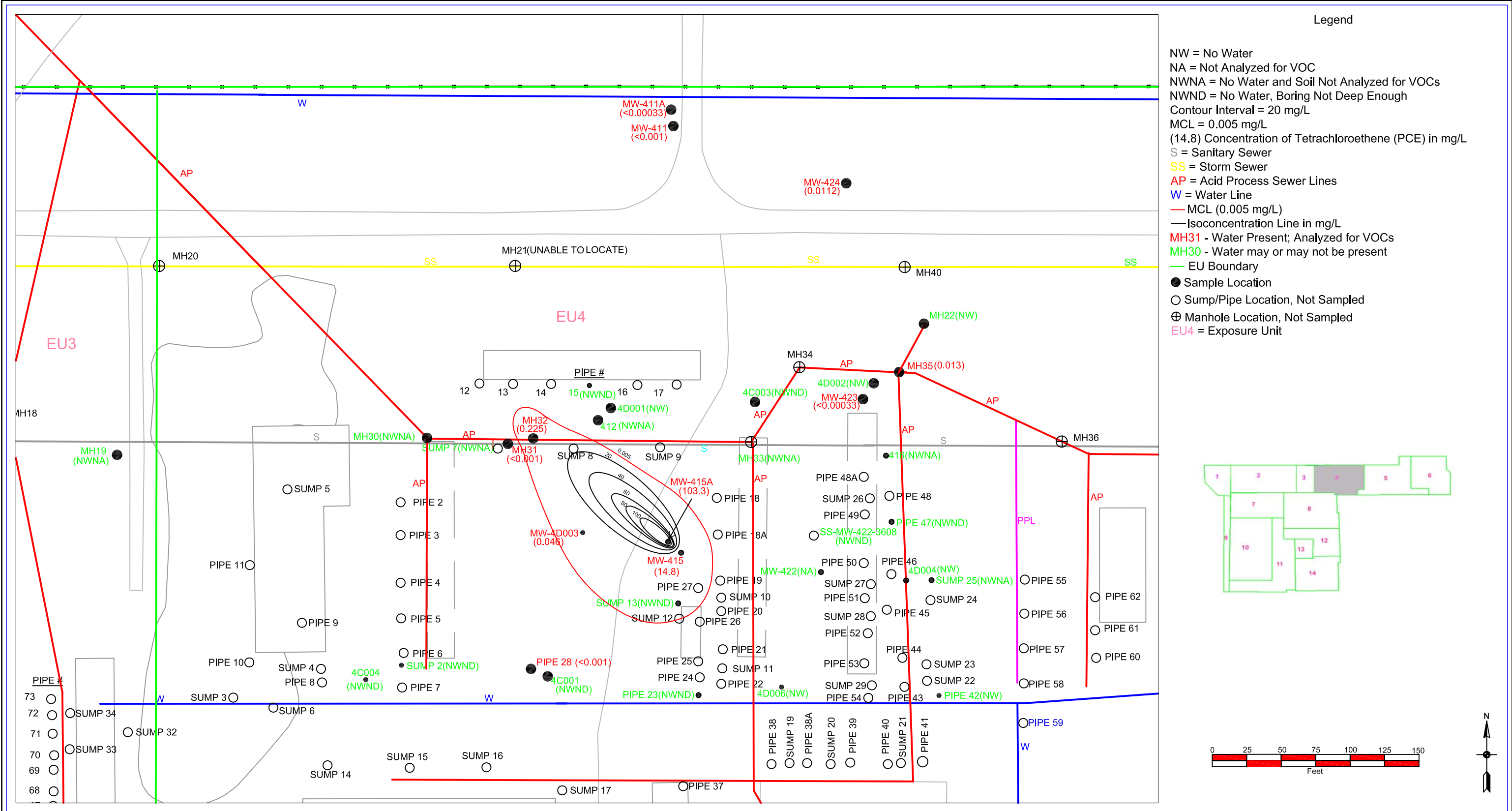
PROJECT NO.	15892	FIGURE NO.	5-5
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD



Distribution of Dissolved Boron in the Groundwater in EU4

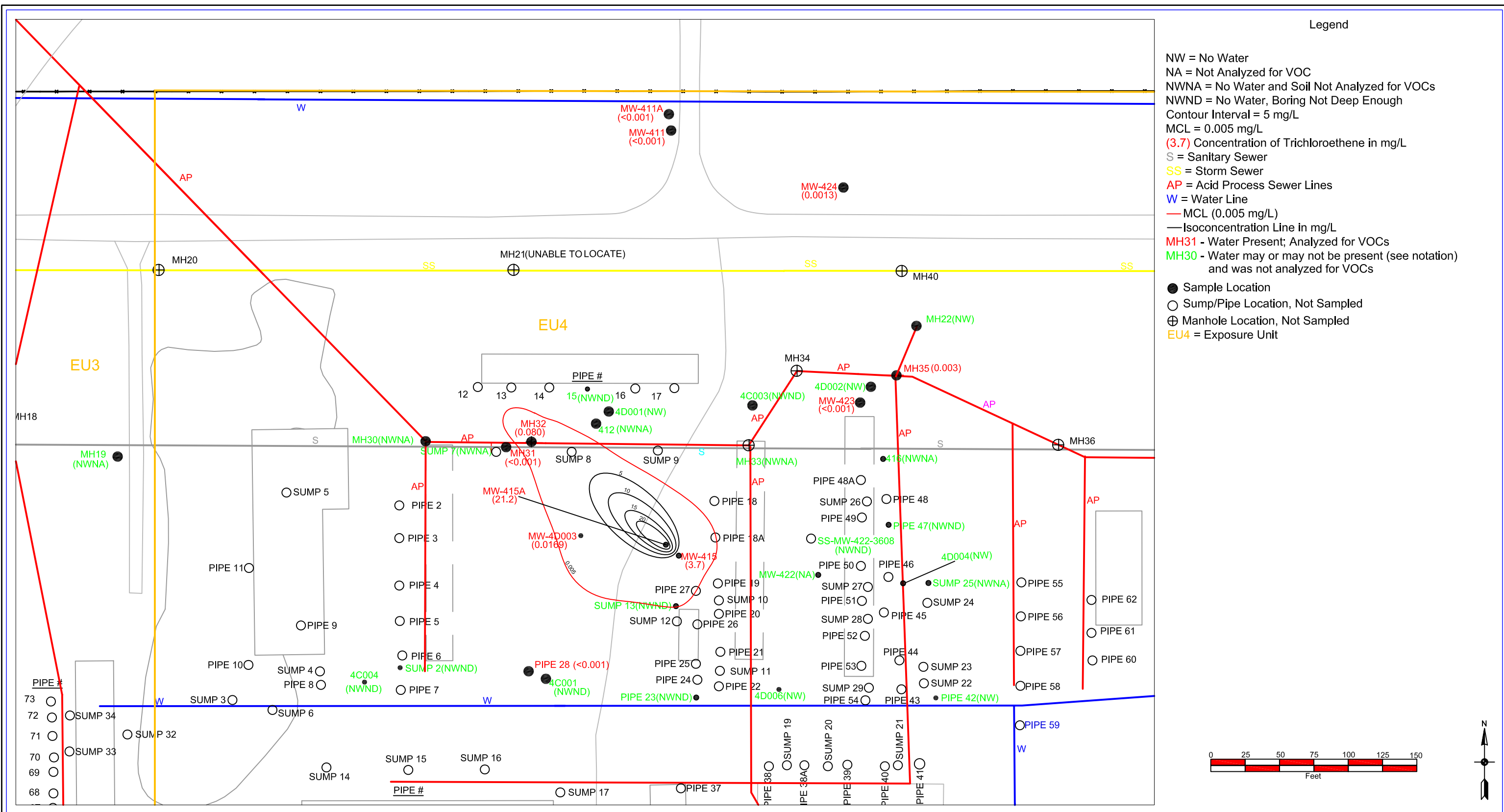
 TETRA TECH, INC.			
PROJECT NO.	15892	FIGURE NO.	5-6
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DRAWN BY:	DWC	CHECKED BY:	NMD





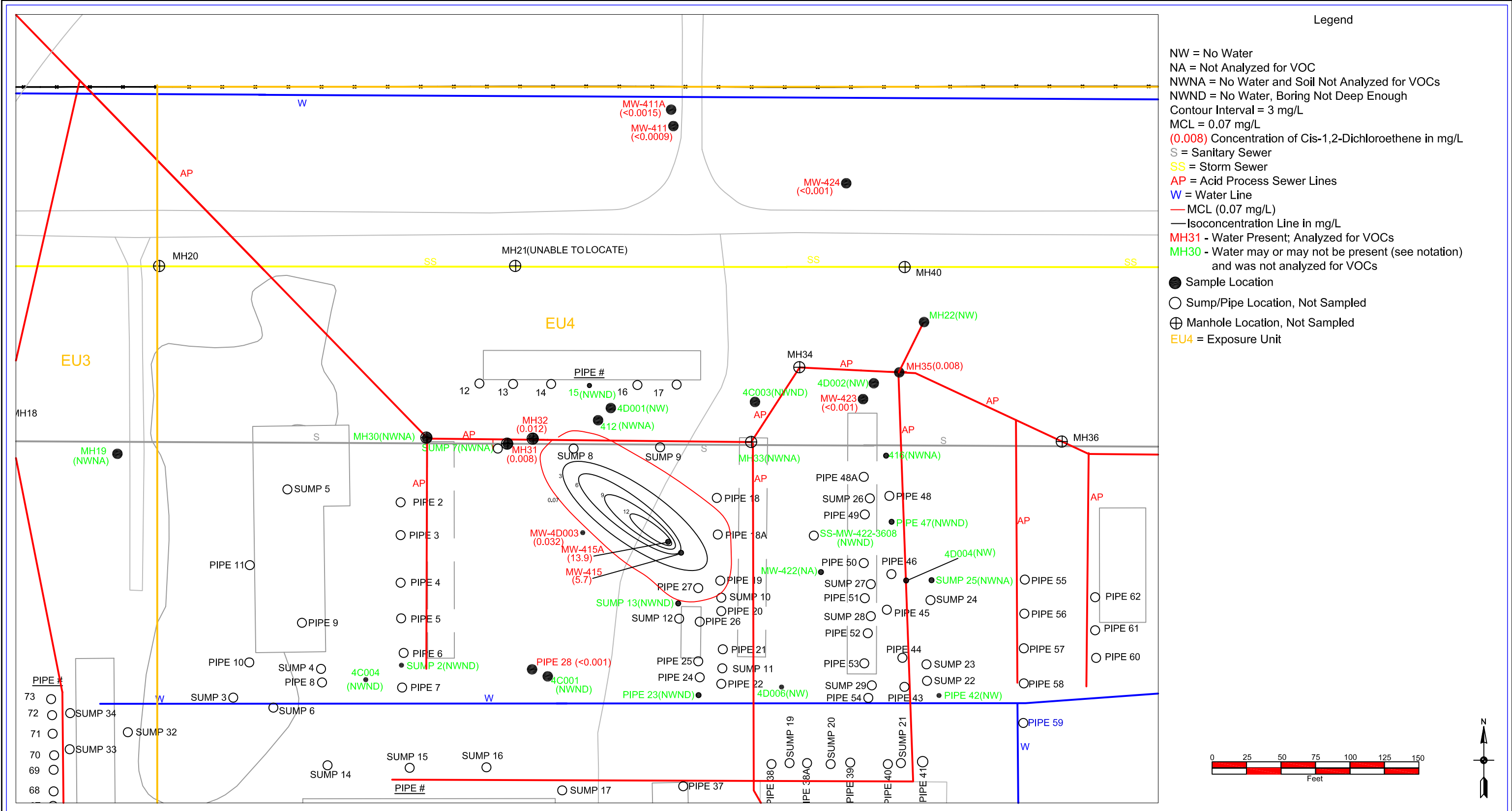
Distribution of Tetrachloroethene (PCE) in the Groundwater in EU4

 TETRA TECH, INC.			
PROJECT NO.	15892	FIGURE NO.	5-8
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DRAWN BY:	DWC	CHECKED BY:	NMD




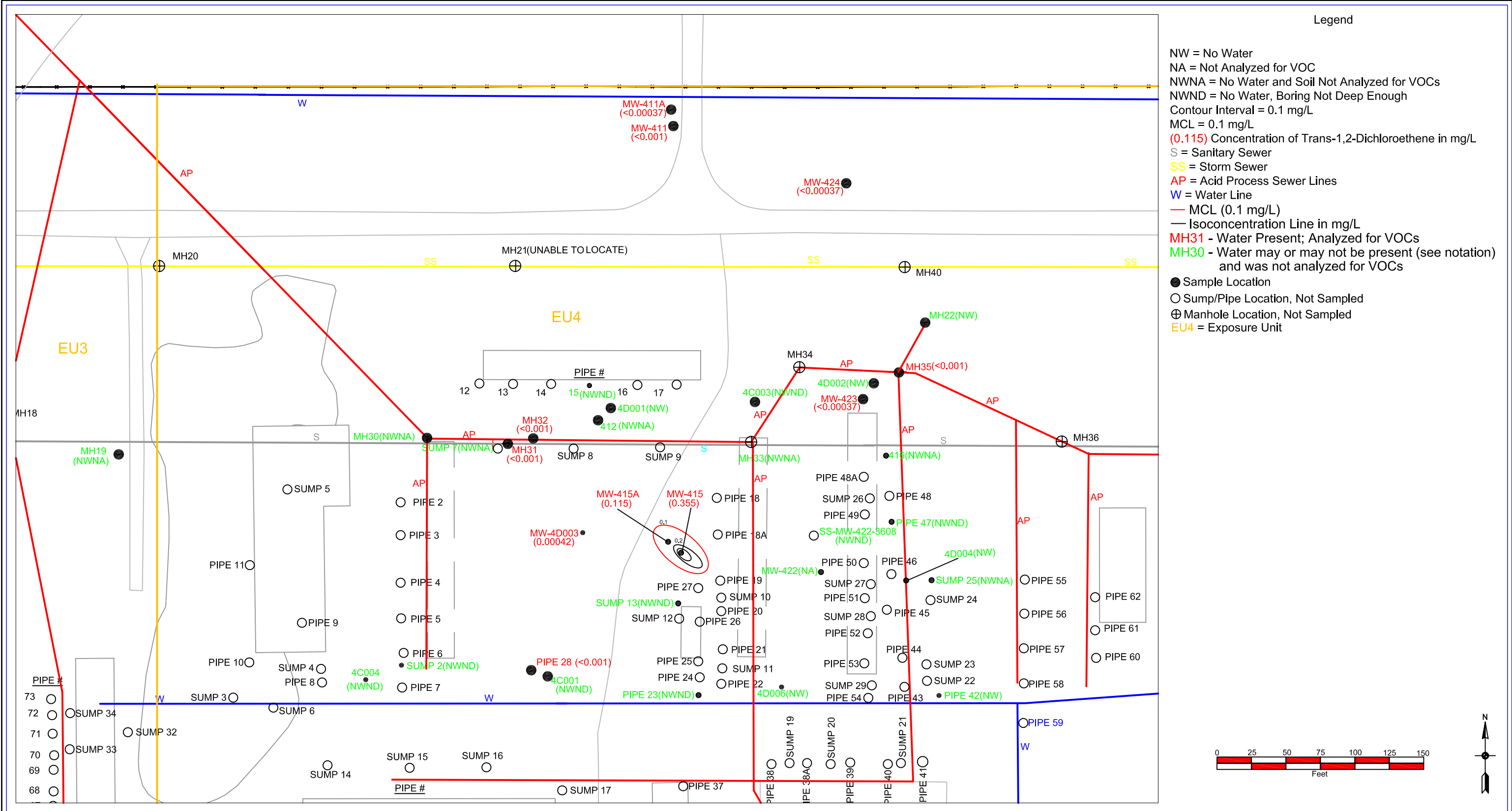
Distribution of Trichloroethene in the Groundwater in EU4

 TETRA TECH, INC.			
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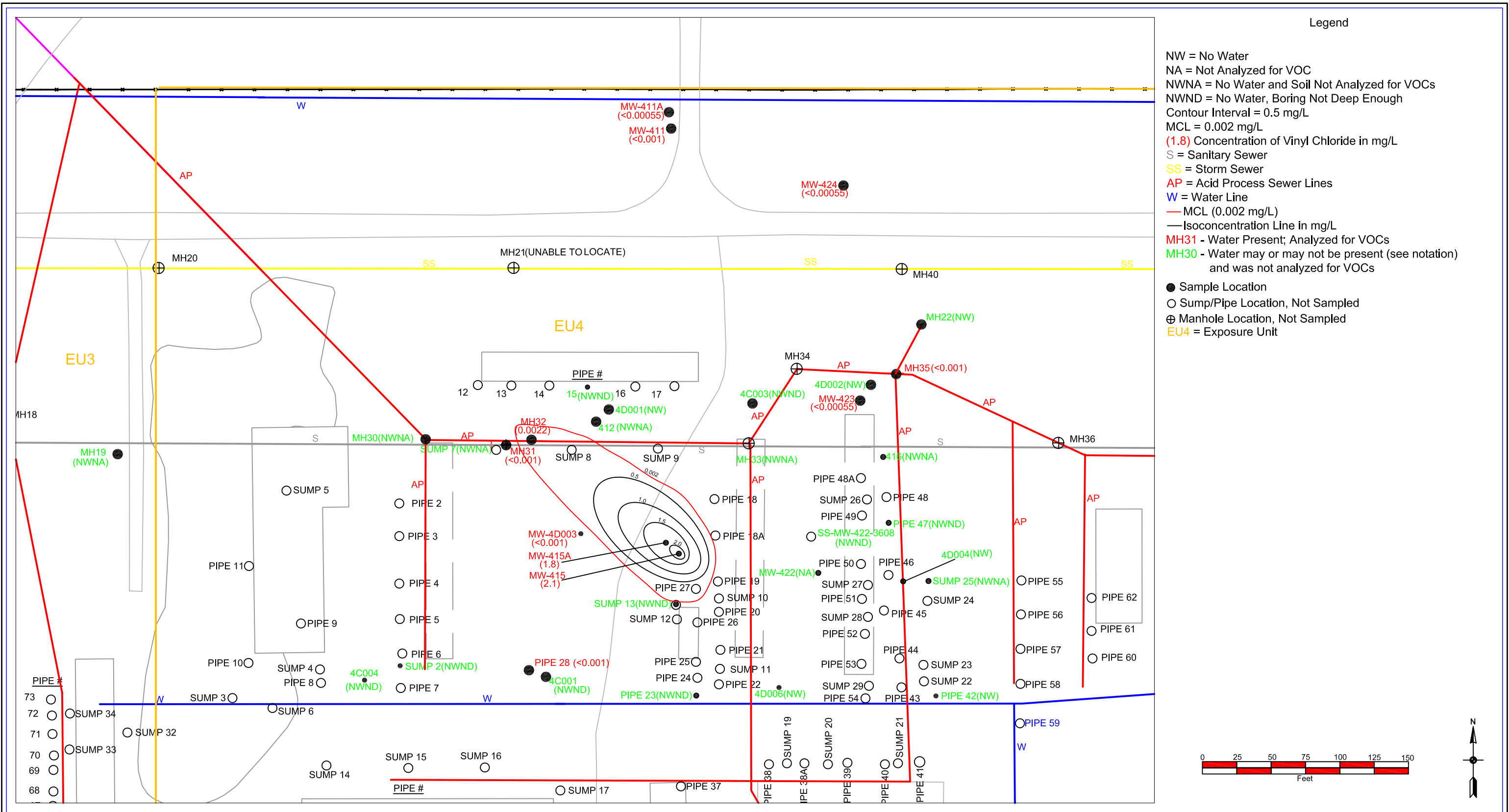
Distribution of Cis-1,2-Dichloroethene in the Groundwater in EU4

 TETRA TECH, INC.			
PROJECT NO.	15892	FIGURE NO.	5-10
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD



Distribution of Trans-1,2-Dichloroethene in the Groundwater in EU4

 TETRA TECH, INC.			
PROJECT NO.	15892	FIGURE NO.	5-11
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD

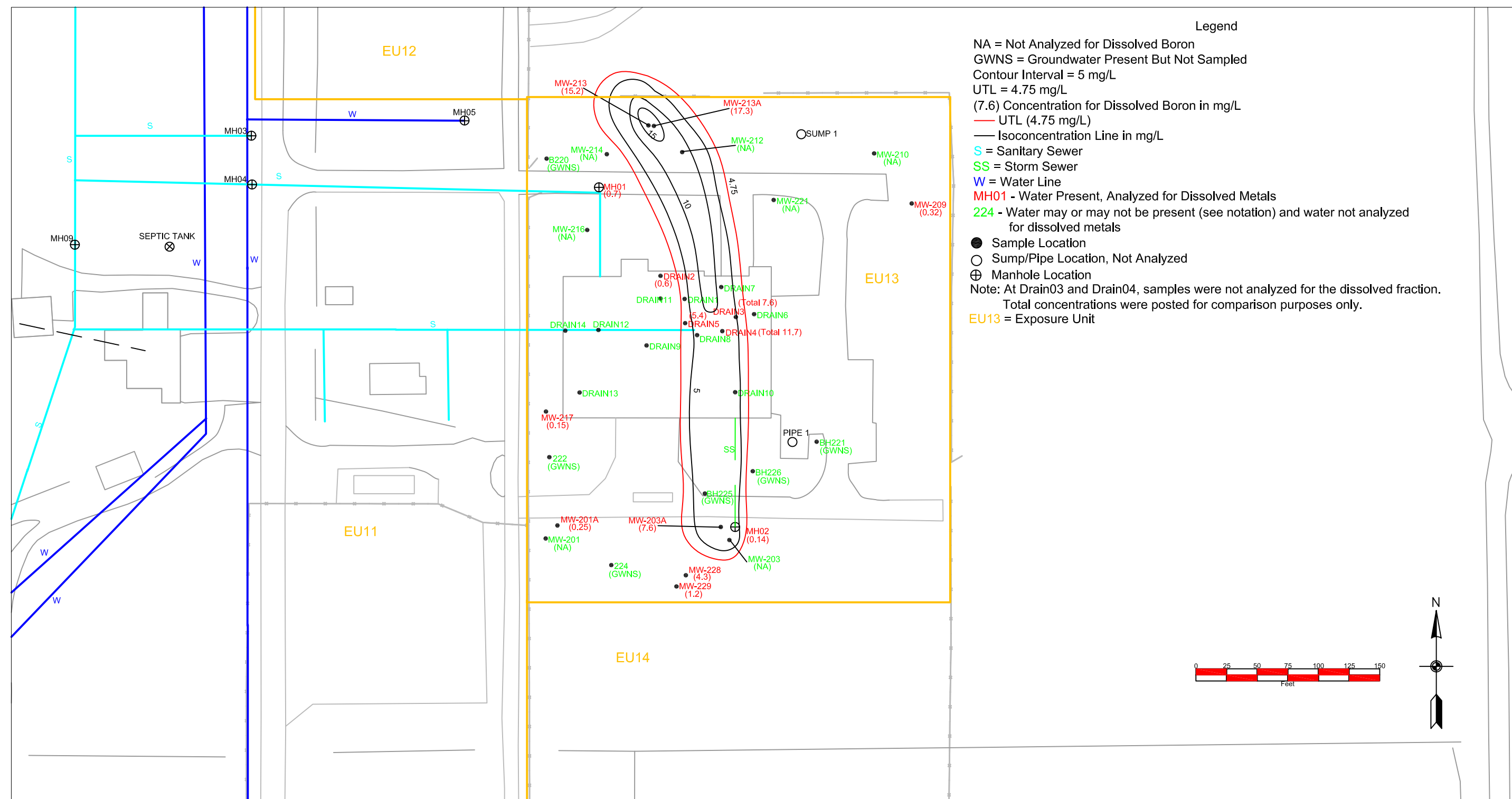


Distribution of Vinyl Chloride in the Groundwater in EU4



TETRA TECH, INC.

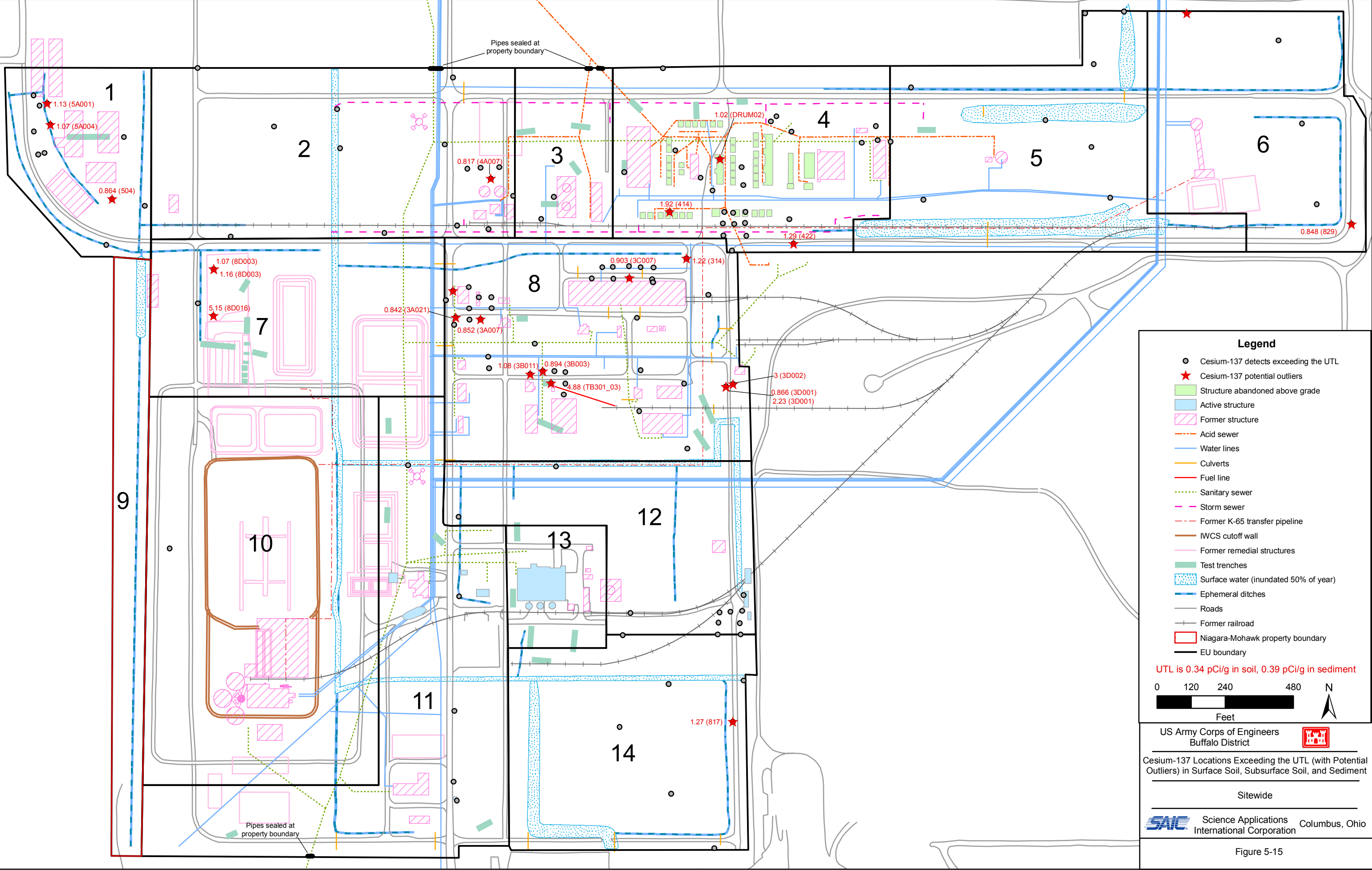
PROJECT NO.	15892	FIGURE NO.	5-12
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD



Distribution of Dissolved Boron in EU13

MAXIM Technologies
A DIVISION OF TETRA TECH, INC.

PROJECT NO.	15892	FIGURE NO.	5-14
SCALE:	AS SHOWN	DATE:	11-14-2006
DRAWN BY:	DWC	CHECKED BY:	NMD



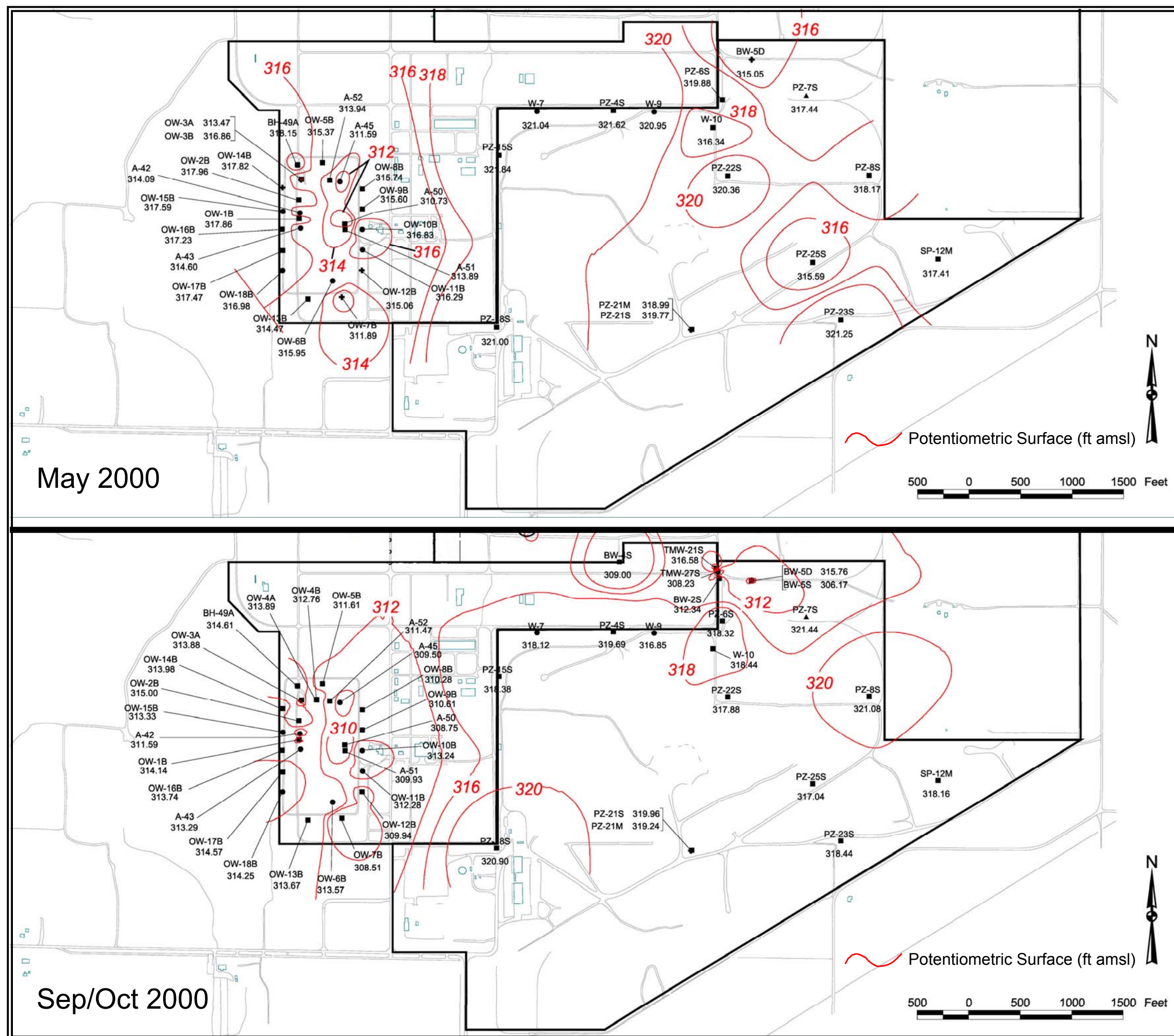


Figure 5-16 Generalized Potentiometric Surface of the Upper Water Bearing Zone

Table 1-1
Wastes and Residues
Niagara Falls Storage Site

Classification	Volume (yd ³)	Total Uranium (ppm)	Concentration of U ₃ O ₈ in Ore	Ra-226 Inventory (Ci)	Th-230 Inventory (Ci)
K-65	3,200 ^a	Estimates range from 500 to 30,000	35-60%	1,881	195
L-30	7,960 ^b	Estimates range from 830 to 1,950	~10%	87	87
F-32	440 ^c	Estimates range from 4,000 to 6,500	unknown	0.2	0.2
L-50	2,150 ^d	Estimates range from 1,000 to 1,300	~7%	6	6
R-10 residues and soil	59,500 ^e	Residues: 2,300	~ 3.5%	5	5
Middlesex Sands	230	<100	-	< 0.01 µg/Kg	Not reported
Remaining Contaminated Soils	116,900 ^f	Unknown	-	3	3

a. Different volumes are presented by different documents: Battelle lists 4,074 yd³ in the May 1981 (Battelle 1981b) document and 4,030 yd³ in the June 1981 (Battelle 1981a) document. The DOE 1986 lists 4,000 yd³. Internal documentaion (presented in Appendix A) by Bechtel personnel (BNI 1986a) indicate that the volume was 3,200 yd³ based on visual observation inside Building 434 during the slurring process. This amount is supported by calculations of residue volumes using the dimensions of Building 411.

b. Different volumes are presented by different documents: Battelle lists 7,960 yd³ in the May 1981 (Battelle 1981b) document and 7,873 yd³ in the June 1981 (Battelle 1981a) document. DOE 1986 lists 7,848 yd³.

c. Different volumes are presented by different documents: Battelle lists 440 yd³ in the May 1981 (Battelle 1981b) document and 439 yd³ in the June 1981 (Battelle 1981a) document. DOE 1986 lists 654 yd³.

d. Different volumes are presented by different documents: Battelle lists 2,148 yd³ in the May 1981 (Battelle 1981b) document and 2,124 yd³ in the June 1981 (Battelle 1981a) document. DOE 1986 lists 1,962 yd³.

e. The EIS indicates that the R-10 spoils pile consists of 9,500 yd³ residues and 15,000 yd³ contaminated soils from 1972 remedial actions placed on top of the R-10 pile. The resulting R-10 spoil pile subsequently leached into the underlying soil, contaminating an additional 35,000 yd³ of below grade soils for a total of 59,500 yd³ (DOE 1986).

f. DOE 1996.

Table 1-2
Operational Timeline
Niagara Falls Storage Site

Date	Activities
1/8/1942	Construction at the LOOW started
10/1/1942	Initial operation of the LOOW
ca. 1/1/43	LOOW starts full scale production of TNT
3/28/1943	Construction at the LOOW completed
8/1/1943	Manufacture of TNT ceases
1944	L-30 Residues stored in Building 411. L-50 Residues stored in Buildings 413 and 414
1944-49	R-10 Residues stored in an open pile north of Building 411
1949	K-65 wastes shipped to NFSS. Waste shipped in drums and the drums were initially stored along roads and rail lines and in Building 410. The Middlesex Sands were shipped to the NFSS and stored in Building 410.
1950-52	K-65 wastes transferred to Building 434, a water tower located in the northeast portion of the site.
1953-59	Boron-10 produced in Building 401
1955-58	Approximately 1297 acres of offsite surplus properties remediated. Wastes transferred to the R-10 pile.
1964-65	R-10 pile covered with soil and seeded in grass.
1965-71	Boron-10 produced in Building 401
1972	Additional offsite properties are remediated. Approximately 15,000 cubic yards of contaminated soil are transferred to the R-10 pile.
1979	Buildings 413 and 414 sealed to reduce radon emanation.
1980	Vent on Building 434 capped to reduce radon emission. Pipes penetrating walls of residue storage buildings sealed or resealed.
1981	Site fence relocated approximately 500 feet to the west. 450 cubic yards of contaminated soils excavated from property adjacent to the site and placed on the R-10 pile.
1982	Buildings 413 and 414 upgraded and sealed. 16,000 cubic yards of soil near the R-10 pile moved onto the pile and a dike and cutoff wall constructed. R-10 pile covered with an EPDM liner.
1983-84	54,000 cubic yards of contaminated soil excavated from onsite and offsite ditches and placed on the R-10 pile. These materials were stored north of Building 411 and later interred in the IWCS. Cutoff dike extended around building 411 and roof and exterior wall removed. EPDM liner removed from R-10 pile 75% of the K-65 residues transferred through a 4-inch pipeline from Building 434 to the eastern half of Building 411, where the slurried residues were dewatered. Buildings 410, 412, and 415 demolished. 27,900 cubic yards of contaminated soil excavated from vicinity properties, some onsite areas and a portion of the central ditch excavated and stored north of Building 411.
1985	Transfer of K-65 residues to Building 411 completed; demarcation layer installed to identify the location of the K-65 residues. Buildings 423 and 424 demolished 9300 cubic yards of contaminated materials excavated from onsite and offsite areas are transferred to the IWCS. 1450 cubic yards of building rubble transferred to IWCS
1986	Cap over the residues in the IWCS closed. Buildings 409 and 430 demolished. Buildings 431 and 432 decontaminated and demolished.
1987	Buried drums from vicinity property excavated and placed in temporary storage
1988	Several isolated offsite areas of residual radioactivity excavated and placed in temporary storage
1990	Limited chemical characterization study performed on NFSS
1991-1992	On localized onsite area was remediated; this material, the material generated in 1989 and the 60 drums of radioactively contaminated materials were consolidated into the IWCS.
1997	Congress transfers control of FUSRAP to the USACE.
1999	Phase 1 of the NFSS remedial investigation performed.
2000	Phase 2 of the NFSS remedial investigation performed.
2000	Gamma walkover survey of the NFSS performed.
2001 - 2003	Phase 3 of the NFSS remedial investigation performed.
2001	Geophysical survey of the NFSS performed.
2006	NFSS remedial investigation report completed.

Sources:
Reconstruction Finance Corporation circa 1945
BNI 1994a
BNI 1986c

Table 2-1
Project Phases and Sample Collection*

Project Task	Sample Collection Dates	Media Type								
		Groundwater	Subsurface Soil	Sediment	Surface Soil	Surface Water	Railroad Ballast	Roadway/ Buiding Slab Pavement Core	Abandoned Drum Contents	Oil Samples from Building 401 Floor Drains
Phase 1										
Groundwater, Surface Water, Sediment and Soil	11/99 - 1/00	91	78	39	67	40				
Phase 2										
Soil, Groundwater, Sediment, Railroad Ballast, Road and Building Slab Cores	8/00 - 10/00	63	51	5	141		5	14		
Phase 3										
Pipeline Investigation	5/01 - 6/01			42		28				
Sediment, Surface Soil, Soil, Pavement Cores, Radiological Survey, Drums Followup on Gamma Walkover	8/01 - 11/01		77	33	176			5	2	
Niagara Mohawk: Radiological Sampling of Soil, Sediment, and Surface Water	11/01		11	9	6	11				
NFSS Trenching, Trench Sampling	5/02 - 6/02		79		5					
Background Groundwater	5/03 - 6/03	26								
BRA Soil Sampling, Background Surface Water and Sediment, Abandoned Drum Sampling and Disposal	3/03 - 7/03		42	21	43	9			6	
Confirmatory Groundwater and Adjacent Property Well Sampling	5/03 - 6/03	46								
Soil and Groundwater Delineation Sampling, Building 411: Drains, Floor and Subfloor Sampling.	9/03 - 10/03	35	85	15	39	6		10		2
Total Samples		261	423	164	477	94	5	29	8	2

* Sample counts represent samples collected during this RI. However, not all samples were used and some samples were reclassified during evaluation. Samples taken during the LOOW RI are not included in this table but were used during the RI evaluation.

Table 2-2
Analytical Methods for Soil Samples
Niagara Falls Storage Site Remedial Investigation

Soil Sample Parameters	Method
General Chemistry	
Nitroaromatics	SW846 – 8330
Total Organic Carbon	SW846 – 9060
Mercury	SW846 – 7471A
Arsenic, Lead, Lithium, Selenium, Silver, Thallium	SW846 – 3050B/6020
Target Analyte List (TAL) Metals	SW846 – 3050B/6010B
Volatile Organic Compounds (VOCs)	SW846 – 5035/8260B
Semi-Volatile Organic Compounds (SVOCs)	SW846 – 3550B/8270C
Polynuclear Aromatic Hydrocarbons (PAHs)	SW846 - 8310
Pesticides/PCBs	SW846 – 3550B/8081A/8082
Cation Exchange Capacity	SW846 – 9081
Radiological	
Gross alpha/beta	EPA 900, Gas Flow, Modified
Isotopic Thorium (Th-228, Th-230, Th-232)	HASL 300, Alpha Spec
Additional Radionuclides (Gamma Spec)*	HASL 300, Gamma Spec
Isotopic Uranium (U-234, U-235, U-238)	HASL 300, Alpha Spec
Total Uranium	ASTM D5174, KPA
Total Activity	EPA 906 Liquid Scintillation
Isotopic Plutonium (Pu-238, Pu-239/240)	HASL 300, Alpha Spec
Strontium-90 (Sr-90)	EPA 905.0, Modified

*Includes U-238, Ra-226, Ra-228, Th-228, U-235, Pa-231, Ac-227, Co-60, Cs-137, Am-241

Table 2-3
Analytical Methods for Water Samples
Niagara Falls Storage Site Remedial Investigation

Water Sample Parameters	Method
General Chemistry	
Dissolved/Total Arsenic, Lead, Lithium, Silver, Thallium	SW846 – 3010A/3020A/6020
Dissolved/Total Mercury	SW846 – 7470A
Other Dissolved Total/ Target Analyte List (TAL) Metals	SW846 – 3010A/3020A/6010B
Volatile Organic Compounds (VOCs)	SW846 – 5030B/8260B
Pesticides/PCBs	SW846 – 3510C/8081A/8082
Semi-Volatile Organic Compounds (SVOCs)	SW846 – 3510C/8270C
Polynuclear Aromatic Hydrocarbons (PAHs)	SW846 - 8310
Nitroaromatics	SW846 – 8330
Radiological	
Diss/Tot. Gross alpha/beta	EPA 900, Gas Flow
Diss/Tot. Radium-226	EPA 903.1 Modified, Radon Emanation
Diss/Tot. Isotopic Thorium (Th-228, Th-230, Th-232)	HASL 300, Alpha Spec
Diss/Tot. Isotopic Uranium (U-234, U-235, U-238)	HASL 300, Alpha Spec
Diss/Tot. Additional Radionuclides (Gamma-Spec)*	HASL 300, Gamma Spec
Diss/Tot. Total Uranium	ASTM D5174, KPA
Diss/Tot. Total Activity	EPA 906 Liquid Scintillation
Diss/Tot. Radium-228	EPA 904.1 Gas-Flow Prep. Counter
Diss/Tot. Isotopic Plutonium (Pu-238, Pu-239/240)	HASL 300, Alpha Spec
Diss/Tot. Strontium-90 (Sr-90)	EPA 905.0, Modified

*includes U-238, Ra-226, Ra-228, Th-228, U-235, Pa-231, Ac-227, Co-60, Cs-137, Am-241

Table 2-4
Analytical Methods for Asbestos and Geotechnical Method Parameters
Niagara Falls Storage Site Remedial Investigation

Asbestos Testing	Method
Asbestos by PLM (Polarized Light Microscopy)	EPA/600/R-93/116
Geotechnical Method Parameters	Method
Particle Size Analysis of Soil	ASTM D422
Liquid Limit, Plastic Limit and Plasticity Index of Soil	ASTM D4318
Moisture Content	ASTM D2216
Soil Density In-Place	ASTM D2937

ASTM American Society for Testing and Materials

Table 2-5
Analytical Methods for Water Quality
Niagara Falls Storage Site Remedial Investigation

Water Quality – Laboratory	Method
Total Suspended Solids (TSS)	EPA 160.2
Total Dissolved Solids (TDS)	EPA 160.1
Alkalinity (Carbonate and Bicarbonate)	EPA 310.1
Total Organic Carbon	SW846-9060
Methane, Ethane, Ethene	SW846/8015 A/B
Anions (Cl, F, SO ₄ , NO ₃ , NO ₂ , o-PO ₄)	EPA 300.0

Table 3-1
Exposure Unit Descriptions
Niagara Falls Storage Site Remedial Investigation

Exposure Unit	Description
1	EU 1 contains soil in the northwest corner of NFSS, referred to as the Baker-Smith Area. The Baker-Smith Area consisted of a storehouse, pipe shop, welding shop, and machine shop where potentially hazardous materials may have been used. Prior to their demolition, these buildings were used for storage of radioactive residues. This included storage of Knolls Atomic Power Laboratory (KAPL) Waste (NFSS-192). The EU is currently overgrown with shrubs and trees with some open areas around the former building areas. EU 1 is approximately 6.9 acres.
2	EU 2 contains soil in the area immediately east of EU 1. This area is not known to have contained buildings or process equipment during the time period when operations were ongoing at the site. The EU is bordered to the west by the Baker-Smith Area, to the north by the NFSS property boundary, to the east by the New Naval Waste Area (EU 3), and to the south by "O" Street. The historical activities in the eastern portion of EU 2 are associated with the New Naval Waste Area (EU 3) and former Acidification Area (EU 4), but EU 2 is now separated from these areas by a fence. The Central Ditch flows north through the center of EU 2. Young upland forest covers most of the area. Maintained turfgrass is present in some areas. EU 2 is approximately 8.7 acres.
3	EU 3 contains soil in the western portion of the former Acidification Area, EU 4. This area differs from the rest of Acidification Area in that it is also known as the New Naval Waste Area. Records indicate that waste from the Navy Mathieson area was placed here. Currently, young shrubs and trees cover the area. EU 3 is approximately 4.7 acres.
4	EU 4 contains soil in the former Acidification Area. This area was used as the acidification and acid storage location for the TNT production plant. Several aboveground tanks storing various acids (nitric and sulfuric) and other potentially hazardous materials were present in this EU during the operation of the LOOW. Tank cradles and concrete slabs are still present. The tank cradles are not known to have been used. Possible fuel oil storage and TNT mix storage may have occurred in this area during the operation of the LOOW. Temporary storage locations and constructed vaults for storage of pure uranium, thorium, and radium billets, ingots, bars, and rods reportedly existed in the former acidification area. The area is presently overgrown with young upland forest shrubs and trees. EU 4 is approximately 13.9 acres.
5	EU 5 contains soil, surface water, and sediment in the area east of the former Acidification Area. CWM Chemical Services, Inc. Landfill is located to the north and Modern Landfill is located to the south. EU 6 is located to the east. There were no buildings present in EU 5 during site operations; however, a pipeline used by the DOE to transfer radioactive residues from the former Building 434 in the EU 6 area to the IWCS in 1983 through 1985 ran through EU 5. Currently EU 5 consists of mostly young upland forest. CWM East Ditch Outfall, "N" Street South Pond, and "O" Street North Pond are semi-permanently flooded wetland areas. Sediment and surface water in these wetlands are included in EU 5. EU 5 is approximately 16.1 acres.

Table 3-1
Exposure Unit Descriptions
Niagara Falls Storage Site Remedial Investigation

Exposure Unit	Description
6	EU 6 includes surface and subsurface soil in the far northeastern corner of NFSS. CWM Chemical Services, Inc. Landfill is located to the north and Modern Landfill is located to the south. Building 434 and the K-65 silo (the former Cooling Water Storage Tower) were formerly present in EU 6. The central portion of EU 6, where Building 434 previously was located, is covered by maintained turfgrass. Young shrubs and trees are present around the perimeter. EU 6 is approximately 13.3 acres.
7	EU 7 consists of soil in the area north of the IWCS and south of "O" Street, including the Organic Burial Area where cut vegetation was previously disposed. Currently, EU 7 is covered by maintained turfgrass. EU 7 is approximately 13.2 acres.
8	EU 8 contains soil in the former shops area. This area once contained a parking garage, an equipment maintenance garage and repair shop, material shed, general storehouse, combined shops, millwright shop, and riggers shop. None of these buildings remain although some concrete building foundations are still present. Radioactive residues were stored in several of the former buildings in this EU. Corroded uranium billets were cut into smaller sections in the riggers shop. Vegetation in EU 8 is predominantly young, scrubby wet forest (ash, elm, and maple) with some reeds and cattails in ditch areas. EU 8 is approximately 18.9 acres.
9	EU 9 includes soil in the off-site Niagara Mohawk property adjacent to the western border of NFSS. Chemical or radiological compounds may have been released to this area during past site operations and construction of the IWCS. The West Ditch flows south to north through the entire length of EU 9. Old-field vegetation is present underneath the power line. Reeds fill most of the West Ditch. The northernmost reach of the West Ditch within EU 9 contains sediment that is submerged more than 50 percent of the year. EU 9 is approximately 5.7 acres.
10	EU 10 contains the IWCS and adjacent soil, surface water, and sediment. The IWCS contains the radioactive residues, radioactive wastes from prior decontamination efforts at both NFSS and vicinity properties, building rubble, drummed radioactive waste, foundations from buildings 409, 411, 413, and 414, and other demolition debris. The cap covering the IWCS was initially completed in 1986. Additional material was placed on top of the existing IWCS cap in 1991 and an additional cap layer was placed to entomb the material. A network of groundwater monitoring wells surrounds the IWCS. Except for vegetation in the ditches, all of EU 10 including the IWCS is covered by maintained turfgrass. EU 10 is approximately 25.7 acres.
11	EU 11 is located between the IWCS and Building 401. The two other remaining buildings, Building 429 and the Hittman Building, are located in EU 11. Campbell Street, the main site access road, runs north to south through EU 11. The site water treatment system previously was located in this area. Maintained turfgrass now covers the area. EU 11 is approximately 19.2 acres.
12	EU 12 includes soil in the area north and east of Building 401. Modern Landfill borders the EU to the east. No buildings were previously located in this area. Young, wet forest now covers most of the area. EU 12 is approximately 10.2 acres.

Table 3-1
Exposure Unit Descriptions
Niagara Falls Storage Site Remedial Investigation

Exposure Unit	Description
13	EU 13 contains soil in the Building 401 area. Building 401 was initially a coal-fired boiler house used to supply steam to the TNT production facility located to the north of NFSS. KAPL wastes were stored in the building in the late 1940's. These wastes were removed during subsequent renovations of the building in 1953 which converted the building into a Boron-10 isotope separation plant. Building 401 is now a dilapidated structure and is scheduled to be decontaminated and demolished. Vegetation in EU 13 is primarily maintained turfgrass. EU 13 is approximately 3.5 acres.
14	EU 14 contains soil in the area south and southeast of Building 401. This area is not known to have contained buildings or process equipment during the time period when operations were ongoing at the site. The EU is bordered to the east by Modern Landfill and to the south by the NFSS property boundary. Modern Ditch and the South 31 Ditch flow through this EU. Young wet forest covers most of the area. The western portion contains maintained turfgrass. The ditches are filled with reeds. EU 14 is approximately 14.3 acres.
15	EU 15 contains surface water and sediment in the main ditch system including Central Ditch, South 16 Ditch, South 31 Ditch, and Modern Ditch (see Figure 2.5). This ditch system drains most of the central portion of NFSS and receives runoff from Modern Landfill. The Central Ditch exits the site to the north in EU 2. Surface water is present in these ditches more than 50 percent of the year. The Central Ditch contains flowing water year-round. Reeds and cattails are frequently present in all these ditches.
16	EU 16 contains on-site pipelines used in former site operations. These pipelines include acid lines, water lines, sanitary sewers, and storm sewers. The locations of pipelines are shown of Figure 2.6.
17	EU 17 is a site-wide EU and includes all areas and media within the property boundary of NFSS. This includes all soil, sediment, surface water, and pipeline material in EUs 1 through 16. In addition it contains site-wide groundwater, including both the upper and lower water bearing zones. EU 17 is approximately 191 acres.
18	EU 18 contains off-site areas where background samples were collected.

Table 3-2
Explanation of Sample Naming Conventions

Example Sample ID	Explanation of Sample ID			
DRAIN01-S-3701	Drain01: Location	S: Sediment	3701: Unique extension number	
DRAIN01-W-3700	Drain01: Location	W: Water	3700: Unique extension number	
GWOW01B-793	GW: Groundwater	OW01B: Well number	793: Unique extension number	
MH08S-3684	MH08: Manhole Location	S: Sediment	3684: Unique extension number	
MH08W-3685	MH08: Manhole Location	W: Water	3685: Unique extension number	
PIPE28S-2058	Pipe28: Location	S: Sediment	2058: Unique extension number	
PIPE28W-2056	Pipe28: Location	W: Water	2056: Unique extension number	
RB01	RB: Railroad Ballast	01: Ballast sample #1		
RC02-965	RC: Concrete/pavement core	02: Core sample #2	965: Unique extension number	
RS-DRUM01-3368	RS: Residual material	DRUM01: Location	3368: Unique extension number	
SB4A014-2272-1.0	SB: Subsurface Soil	4A014: Location	2272: Unique extension number	1.0: Sample depth in feet
SD918-2117	SD: Sediment Sample	918: Location	2117: Unique extension number	
SEDC01-04-2123	SEDC01: Sediment Core Sample	04: Depth in inches	2123: Unique extension number	
SS1A001-2157	SS: Surface Soil	1A001: Location	2157: Unique extension number	
SUMP35S-2078	SUMP35: Location	S: Sediment	2078: Unique extension number	
SUMP35W-2077	SUMP35: Location	W: Water	2077: Unique extension number	
SW702-294	SW: Surface Water	702: Location	294: Unique extension number	
TB201-2800-05.0-036	TB201: Subsurface Soil sample collected from trench 201	2800: Unique extension	05.0: Sample depth in feet	036: distance (ft) of sample from the 'A' end of the trench (the northern or western most end)
TS203-2808-020	TS203: Surface soil sample collected from trench 203	2808: Unique extension	020: distance (ft) of sample from the 'A' end of the trench (the northern or western most end)	
UNKNOWN1-2451	UNKNOWN1: Sample collected from abandoned drum #1	2451: Unique extension		

Table 3-3
Elevations from 1996 and 1999 Grid Survey of the IWCS
Niagara Falls Storage Site

Point Number	DOE Local Grid Coordinates		NAD 83 Coordinates		4/10/1996 Elevation (amsl)	12/21/1999 Elevation (amsl)	Difference in Elevation
	South	East	Easting	Northing			
1028	975	300	1040927.00	1171658.33	343.07	343.03	-0.04
1029	1025	300	1040927.00	1171608.33	343.84	343.70	-0.14
1030	1075	300	1040927.00	1171558.33	344.65	344.55	-0.10
1031	1125	300	1040927.00	1171508.33	345.00	344.84	-0.16
1032	1175	300	1040927.00	1171458.33	345.24	345.09	-0.15
1033	1225	300	1040927.00	1171408.33	345.47	345.40	-0.07
1034	1300	300	1040927.00	1171333.33	345.98	345.89	-0.09
1035	975	300	1040927.00	1171658.33	338.34	338.34	0.00
1036	1025	300	1040927.00	1171608.33	338.31	338.29	-0.02
1037	1075	300	1040927.00	1171558.33	338.43	338.38	-0.05
1038	1125	300	1040927.00	1171408.33	338.63	338.53	-0.10
1039	1175	300	1040927.00	1171458.33	338.46	338.41	-0.05
1040	1225	300	1040927.00	1171408.33	338.55	338.53	-0.02
1041	1300	300	1040927.00	1171333.33	340.70	340.68	-0.02
1043	800	75	1040702.00	1171833.33	333.37	333.38	0.01
1044	900	75	1040702.00	1171733.33	333.85	333.93	0.08
1045	1000	75	1040702.00	1171633.33	333.61	333.66	0.05
1046	1100	75	1040702.00	1171533.33	333.08	333.03	-0.05
1047	1200	75	1040702.00	1171433.33	333.00	332.93	-0.07
1048	1300	75	1040702.00	1171333.33	333.58	333.59	0.01
1049	1400	75	1040702.00	1171233.33	333.72	333.70	-0.02
1050	1500	75	1040702.00	1171133.33	334.39	334.42	0.03
1051	1600	75	1040702.00	1171033.33	338.69	338.74	0.05
1055	800	175	1040802.00	1171833.33	334.63	334.66	0.03
1056	900	175	1040802.00	1171733.33	341.15	341.15	0.00
1057	1000	175	1040802.00	1171633.33	345.01	345.05	0.04
1058	1100	175	1040802.00	1171533.33	344.90	344.78	-0.12
1059	1200	175	1040802.00	1171433.33	345.08	345.03	-0.05
1060	1300	175	1040802.00	1171333.33	345.28	345.31	0.03
1061	1400	175	1040802.00	1171233.33	342.89	342.99	0.10
1062	1500	175	1040802.00	1171133.33	343.05	343.05	0.00
1063	1600	175	1040802.00	1171033.33	339.64	339.62	-0.02
1067	800	275	1040902.00	1171833.33	334.37	334.46	0.09
1068	900	275	1040902.00	1171733.33	341.57	341.59	0.02
1069	1000	275	1040902.00	1171633.33	345.95	345.95	0.00
1070	1100	275	1040902.00	1171533.33	347.01	346.89	-0.12
1071	1200	275	1040902.00	1171433.33	347.21	347.12	-0.09
1072	1300	275	1040902.00	1171333.33	347.78	347.76	-0.02
1073	1400	275	1040902.00	1171233.33	346.90	346.89	-0.01
1074	1500	275	1040902.00	1171133.33	346.59	346.50	-0.09
1075	1600	275	1040902.00	1171033.33	337.37	337.34	-0.03
1079	800	375	1041002.00	1171833.33	333.53	333.49	-0.04
1080	900	375	1041002.00	1171733.33	334.59	334.56	-0.03
1081	1000	375	1041002.00	1171633.33	334.24	334.37	0.13
1082	1100	375	1041002.00	1171533.33	334.70	334.69	-0.01

Table 3-3
Elevations from 1996 and 1999 Grid Survey of the IWCS
Niagara Falls Storage Site

Point Number	DOE Local Grid Coordinates		NAD 83 Coordinates		4/10/1996 Elevation (amsl)	12/21/1999 Elevation (amsl)	Difference in Elevation
	South	East	Easting	Northing			
1083	1200	375	1041002.00	1171433.33	334.92	334.99	0.07
1084	1300	375	1041002.00	1171333.33	337.42	337.45	0.03
1085	1400	375	1041002.00	1171233.33	339.37	339.36	-0.01
1086	1500	375	1041002.00	1171133.33	343.06	343.12	0.06
1087	1600	375	1041002.00	1171033.33	337.65	337.63	-0.02
1090	975	250	1040877.00	1171658.33	347.04	346.99	-0.05
1091	1025	250	1040877.00	1171608.33	348.11	348.07	-0.04
1092	1075	250	1040877.00	1171558.33	348.60	348.48	-0.12
1093	1125	250	1040877.00	1171508.33	348.77	348.61	-0.16
1094	1175	250	1040877.00	1171458.33	348.88	348.77	-0.11
1095	1225	250	1040877.00	1171408.33	349.34	349.25	-0.09
1096	1300	250	1040877.00	1171333.33	349.71	349.64	-0.07
1097	975	200	1040827.00	1171658.33	346.18	346.12	-0.06
1098	1005	200	1040827.00	1171628.33	346.76	346.70	-0.06
1099	1075	200	1040827.00	1171558.33	347.14	347.01	-0.13
1100	1125	200	1040827.00	1171508.33	347.13	346.99	-0.14
1101	1175	200	1040827.00	1171458.33	347.55	347.46	-0.09
1102	1225	200	1040827.00	1171408.33	347.61	347.50	-0.11
1103	1300	200	1040827.00	1171333.33	347.56	347.48	-0.08
1104	975	150	1040777.00	1171658.33	342.32	342.34	0.02
1105	1025	150	1040777.00	1171608.33	342.41	342.39	-0.02
1106	1075	150	1040777.00	1171558.33	341.96	341.84	-0.12
1107	1125	150	1040777.00	1171508.33	342.35	342.28	-0.07
1108	1175	150	1040777.00	1171458.33	342.11	342.01	-0.10
1109	1225	150	1040777.00	1171408.33	342.29	342.25	-0.04
1110	1300	150	1040777.00	1171333.33	342.70	342.65	-0.05

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
501 – Southwest corner of EU 1 and Baker Smith Area	SS501-059	11/07/1999 Phase 1	Cation Exchange Capacity (CEC) Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former welding shop and storehouse where radioactive residue was stored and to investigate the presence and extent of previously identified organic and/or inorganic compounds (LOOW RI) in the soil near this area.
502 – Central portion of EU 1 and Baker Smith Area.	SS502-060	11/16/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former pipe shop and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
503 - Central portion of EU 1 and Baker Smith Area.	SS503-064	11/07/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former pipe shop and to investigate the presence and extent of previously identified organic and/or inorganic compounds (LOOW RI) in the soil near this area.
504 - Southeast Corner of Baker Smith Area, southeast of Building 444. EU 1	SS504-692	09/09/2000 Phase 2	Metals Radiological Semivolatiles	To further delineate the extent of chemical and radiological parameters found in TWP503 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
505 - Baker-Smith Area, EU1.	SS505-694	08/26/2000 Phase 2	Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds in the northwestern corner of the Baker Smith area, immediately south of the property line of the Town of Lewiston wastewater treatment plant (WWTP).
506 - Northeast Corner of Baker Smith Area, EU 1.	SS506-696	09/09/2000 Phase 2	Radiological	To further delineate the extent of the radiological parameters found in TWP503 and at the NFSS boundary.
5A001 - Baker-Smith Area, EU 1.	SS5A001-637	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A002 - Baker-Smith Area, EU 1.	SS5A002-638	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A003 - Baker-Smith Area, EU 1.	SS5A003-639	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
5A004 - Baker-Smith Area, EU 1.	SS5A004-640	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A005 - Baker-Smith Area, EU 1.	SS5A005-641	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A006 - Baker-Smith Area, EU 1.	SS5A006-642	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A007 - Baker-Smith Area, EU 1.	SS5A007-643	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A008 - Baker-Smith Area, EU 1.	SS5A008-644	08/29/2000 Phase 2	Radiological	To bound the findings from Phase I of the investigation.
5A009 - Baker-Smith Area, EU 1.	SS5A009-2163	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A010 - Baker-Smith Area, EU 1.	SS5A010-2164	09/10/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A011 - Baker-Smith Area, EU 1.	SS5A011-2165	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A012 - Baker-Smith Area, EU 1.	SS5A012-2166	09/10/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A013 - Baker-Smith Area, EU 1.	SS5A013-2167	09/10/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A014 - Baker-Smith Area, EU 1.	SS5A014-2168	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A015 - Baker-Smith Area, EU 1.	SS5A015-2169	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A016 - Baker-Smith Area	SS5A016-2170	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A017 - Baker-Smith Area, EU 1.	SS5A017-2171	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
5A021 - Baker-Smith Area, EU 1.	SS5A021-2214	09/09/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
EU011 - The NW corner of the NFSS, Baker-Smith area, EU 1.	SSEU011-3327	07/08/2003 Phase 3	PAH Metals PCBs Pesticides Radiological Semivolatiles Volatiles	Collected near sample SD-746 to evaluate the presence and extent of organic, inorganic and/or radiological compounds previously identified in the LOOW RI in the soil near this area.
401 – West of Campbell Street between N and O St., EU 2.	SS401-037	11/16/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with two pipes found in the ground during the gamma walkover survey and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area east of this location.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
402 - East of Campbell Street between N and O St., near the eastern perimeter of EU 2.	SS402-039	11/08/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with two nearby concrete slabs and the former radium vault (located to the north) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area near this location.
403 - East of Campbell Street between N and O St., near the southeast perimeter of EU 2.	SS403-040	11/07/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a former fuel oil storage area and radium vault (Building 433) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area near this location.
404 - East of Campbell Street, between N and O St., along the eastern perimeter of EU 2.	SS404-041	11/07/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a former fuel oil storage area and radium vault (Building 433) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area near this location.
405 - East of Campbell Street between N and O St, near former Building 433, EU 2.	SS405-042	11/08/1999 Phase 1	CEC Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a former fuel oil storage area and radium vault (Building 433) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area near this location.
406 – Northeast corner of EU 2, north of former Building 433.	SS406-043	11/16/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with former railroad lines and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area southeast of this location.
4A001 - Acid Area, EU 2.	SS4A001-598	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4A002 - Acid Area, EU 2.	SS4A002-600	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4A003 - Acid Area, EU 2.	SS4A003-601	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
4A004 - Acid Area, EU 2.	SS4A004-602	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4A005 - Acid Area, EU 2.	SS4A005-603	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4A006 - Acid Area, EU 2.	SS4A006-604	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4A007 - Acid Area, EU 2.	SS4A007-605	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4A008 - Acid Area, EU 2.	SS4A008-606	08/28/2000 Phase 2	Metals Radiological	To bound the Phase I findings in the Acid Area.
4A009 - Acid Area, EU 2.	SS4A009-607	08/28/2000 Phase 2	Radiological	To investigate the presence or absence of radioactive compounds near the former radium vault in the Acid Area.
4A010 - Acid Area, EU 2.	SS4A010-608	08/28/2000 Phase 2	Metals Radiological	To bound the Phase I findings in the Acid Area.
4A011 - Acid Area, EU 2.	SS4A011-610	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4A012 - Acid Area, EU 2.	SS4A012-611	08/28/2000 Phase 2	Metals Radiological	To bound the Phase I findings in the Acid Area.
4A013 - Acid Area, EU 2.	SS4A013-2270	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A014 - Acid Area, EU 2.	SS4A014-2271	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A015 - Acid Area, EU 2.	SS4A015-2274	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A016 - Acid Area, EU 2.	SS4A016-2275	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A017 - Acid Area, EU 2.	SS4A017-2276	10/06/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A018 - Acid Area, EU 2.	SS4A018-2277	10/06/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A019 - Acid Area, EU 2	SS4A019-2425	11/17/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4A020 - Acid Area, EU 2.	SS4A020-2426	11/13/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
808 – East of the Baker Smith Area in a wooded area, EU 2.	SS808-077	11/08/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds in an area that had not previously been investigated. No former LOOW, AEC or DOE operations were known to have occurred in this area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
809 – East of the Baker Smith Area, along the northern perimeter of EU 2 and the NFSS.	SS809-078	11/16/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds at the property boundary in an area that had not previously been investigated. No former LOOW, AEC or DOE operations were known to have occurred in this area.
810 – Along the south side of N St., 400 feet west of the intersection of N and Campbell Streets, EU 2.	SS810-079	11/30/1999 Phase 1	Nitroaromatics Radiological Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds in an area that had not previously been investigated. No former LOOW, AEC or DOE operations were known to have occurred in this area.
822 – North of O St. between TWP401 and TWP808, EU 2.	SS822-710	09/08/2000 Phase 2	Metals Radiological Semivolatiles	To further delineate the extent of uranium isotopes found in TWP808 and TWP401 and to investigate the presence or absence of organic and/or inorganic compounds in an area that had not previously been investigated. No former LOOW, AEC or DOE operations were known to have occurred in this area.
823 – Northern perimeter of EU 2 and NFSS, near the intersection of N and Campbell Streets.	SS823-711	09/11/2000 Phase 2	Radiological	To further delineate the radium-226 found in TWP406 and TWP810 and to investigate the presence or absence of radioactive compounds at the NFSS boundary in an area that had not previously been investigated. No former LOOW, AEC or DOE operations were known to have occurred in this area.
8E002 - Uninvestigated Area, EU 2.	SS8E002-2199	09/08/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F001 - Uninvestigated Area, EU 2.	SS8F001-2201	09/09/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F002 - Uninvestigated Area, EU 2.	SS8F002-2202	09/09/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F003 - Uninvestigated Area, EU 2.	SS8F003-2203	09/05/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F004 - Uninvestigated Area, EU 2.	SS8F004-2205	09/08/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F005 - Uninvestigated Area, EU 2.	SS8F005-2206	09/08/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F006 - Uninvestigated Area, EU 2.	SS8F006-2207	09/08/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.
8F007 - Uninvestigated Area, EU 2.	SS8F007-2208	09/08/2001 Phase 3	Radiological	This sample was located in an area of gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
DRUM01 - Southeast corner of EU 2, in the Acid Area.	SS-DRUM01-3369	07/08/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.
EU021 - NW quadrant of EU 2, south of N Street.	SS-EU021-3328	07/09/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Further investigate the extent of organic, inorganic and radiological compounds found in sample 8F001.
EU022 - Central portion of EU 2.	SS-EU022-3329	07/09/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Further investigate the extent of organic, inorganic and radiological compounds found in sample 8F005.
407 – Northeast of former Building 433, EU 3.	SS407-044	11/08/1999 Phase 1	Metals Nitroaromatics Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of organic and/or inorganic compounds associated with a hummocky area near former railroad lines and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area southeast of this location.
408 - Southwest perimeter of EU 3, near former Building 433.	SS408-045	11/17/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel storage area and former Building 433.
4B001- Acid Area, EU 3.	SS4B001-612	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4B002- Acid Area, EU 3.	SS4B002-613	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4B003- Acid Area, EU 3.	SS4B003-614	08/28/2000 Phase 2	Metals Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4B004- Acid Area, EU 3.	SS4B004-615	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4B005- Acid Area, EU 3.	SS4B005-616	08/28/2000 Phase 2	Metals Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.
4B006- Acid Area, EU 3.	SS4B006-617	08/28/2000 Phase 2	Radiological Semivolatiles	To bound the Phase I findings in the Acid Area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
4B007- Acid Area, EU 3.	SS4B007-2278	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B008- Acid Area, EU 3.	SS4B008-2279	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B009- Acid Area, EU 3.	SS4B009-2280	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B010- Acid Area, EU 3.	SS4B010-2282	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B012- Acid Area, EU 3.	SS4B012-2284	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B013- Acid Area, EU 3.	SS4B013-2285	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B014- Acid Area, EU 3.	SS4B014-2288	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B015- Acid Area, EU 3.	SS4B015-2289	10/07/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B016- Acid Area, EU 3.	SS4B016-2290	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B017- Acid Area, EU 3.	SS4B017-2291	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B019- Acid Area, EU 3.	SS4B019-2293	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B020- Acid Area, EU 3.	SS4B020-2294	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4B021- Acid Area, EU 3.	SS4B021-2295	10/04/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
EU031 - Northeast quadrant of EU 3, near MH 19.	SS-EU031-3330	07/09/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Further investigate the extent of organic, inorganic and radiological compounds found in sample 4B009.
EU032 - Southeast quadrant of EU 3, near PIPE 72.	SS-EU032-3331	07/09/2003 Phase 3	PAH Semivolatiles Metals Radiological	Further investigate the extent of organic, inorganic and radiological compounds found in sample 4B009.
EU033 - West central portion of EU 3.	SS-EU033-3332	07/09/2003 Phase 3	PAH Semivolatiles Metals	To investigate the areal distribution of chemical compounds in the Acid Area.
EU034 - North central portion of EU 3, south of N Street.	SS-EU034-3333	07/09/2003 Phase 3	PAH Semivolatiles Metals	To investigate the areal distribution of chemical compounds in the Acid Area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
313 – Near intersection of O St. and Castle Garden Rd., EU 4.	SS313-687	09/15/2000 Phase 2	PCBs Pesticides Radiological Semivolatiles Volatiles	To investigate the potential presence or absence of organic and/or inorganic compounds at the property boundary near the location of a 1953 explosion and fire east of the NFSS. This location is also south of the sampling location where PCB compounds identified in the soil at TWP's 4D010, 417 and 413.
408 - Trench, located south of N Street, just E of the Castle Garden and N Street intersection, EU 4	TS408-2860-007	05/16/2002 Phase 3	Radiological	This trench investigated the debris pile south of "N" Street and east of the Castle Garden Road cut-through in the former Acid area. The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
409 – Western perimeter of EU 4, south in the central Acid Area and west of former Buildings 431 and 432.	SS409-046	11/30/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with sulfuric acid storage and Building 432 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil in the Acid Area near this location.
410 - Northwest corner of EU 4, north –central Acid Area, northwest of former Buildings 431 and 432	SS410-047	11/30/1999 Phase 1	Nitroaromatics Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds in a hummocky area near former rail lines, tank cradles and Buildings 431 and 432 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the Acid Area near this location.
411 – Northwest of the intersection of N St. and Castle Garden Rd., north-central perimeter of EU 4.	SS411-048	11/16/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary. This location received run-off from the CWM property and was north of the Acid Area where previously identified compounds were located (LOOW RI).
412 - Acid Area, EU 4.	SS412-049	11/22/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of chemical and radiological compounds in the soil near former Buildings 431 and 432.
413 - Acid Area, EU 4.	SS413-050	11/22/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of chemical and radiological compounds in the soil near former Buildings 431 and 432.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
414 - Acid Area, EU 4.	SS414-051	12/02/1999 Phase 1	Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of chemical and radiological compounds in the soil near former Building 432 and sulfuric acid storage area.
415 - Central Acid Area, north of O Street and east of former Building 431, EU 4.	SS415-052	11/30/1999 Phase 1	CEC Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this location.
416 - Acid Area, EU 4.	SS416-053	12/03/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this location.
417 – South-central Acid Area, north of the intersection of O St. and Castle Garden Rd., EU 4.	SS417-054	11/30/1999 Phase 1	CEC Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near a concrete slab and potential UST and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this location.
419 - Acid Area, EU 4.	SS419-056	12/01/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this location.
422 – Southern perimeter of EU 4, along O St., 400 feet east of its intersection with Castle Garden Rd.	SS422-688	09/09/2000 Phase 2	Radiological	To investigate the potential presence or absence of radioactive compounds along the southern boundary of the NFSS along the former haul road and rail line for the K-65 waste.
425 – Northwest corner of EU 4 along the northern NFSS boundary.	SS425-691	09/11/2000 Phase 2	Nitroaromatics Radiological Volatiles	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4C001 - Acid Area, EU 4.	SS4C001-618	08/29/2000 Phase 2	Metals PCBs Pesticides Radiological Semivolatiles	To investigate the presence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary.
4C002 - Acid Area, EU 4.	SS4C002-2298	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
4C003 - Acid Area, EU 4.	SS4C003-2299	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4C004 - Acid Area, EU 4.	SS4C004-2300	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4C005 - Acid Area, EU 4.	SS4C005-2302	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4C006 - Acid Area, EU 4.	SS4C006-2303	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4D005 - Central Acid Area, south of TWP415 concentrator, east of the uranium vaults, EU 4.	SS4D005-619	09/13/2000 Phase 2	Metals PCBs Pesticides Radiological Semivolatiles	To investigate the extent of the chemical and radiological compounds found in the groundwater at TWP415.
4D006 - Acid Area, EU 4.	SS4D006-620	09/14/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4D007 - Acid Area, EU 4.	SS4D007-621	08/28/2000 Phase 2	Metals PCBs Pesticides Radiological Semivolatiles	To investigate the presence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary.
4D008 - Acid Area, EU 4.	SS4D008-623	08/28/2000 Phase 2	Metals PCBs Pesticides Radiological Semivolatiles	To investigate the presence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary.
4D009 - Acid Area, EU 4.	SS4D009-625	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4D010 - Acid Area, EU 4.	SS4D010-626	08/28/2000 Phase 2	PCBs Pesticides Radiological Semivolatiles	To investigate the presence of radioactive and/or organic compounds along the northern NFSS boundary.
4D011 - Acid Area, EU 4.	SS4D011-627	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4D012 - Acid Area, EU 4.	SS4D012-628	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4D013 - Acid Area, EU 4.	SS4D013-629	08/28/2000 Phase 2	PCBs Pesticides Radiological Semivolatiles	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4D014 - Acid Area, EU 4.	SS4D014-630	08/28/2000 Phase 2	Radiological	To bound the Phase I findings in the Acid Area.
4D015 - Acid Area, EU 4.	SS4D015-631	08/28/2000 Phase 2	PCBs Pesticides Radiological Semivolatiles	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4D017 - Acid Area, EU 4.	SS4D017-2306	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4D018 - Acid Area, EU 4.	SS4D018-2307	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
4D019 - Acid Area, EU 4.	SS4D019-2308	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4D020 - Acid Area, EU 4.	SS4D020-2309	10/05/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4F001 - Acid Area, EU 4.	SS4F001-633	08/27/2000 Phase 2	PCBs Pesticides Radiological	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4F002 - Acid Area, EU 4.	SS4F002-634	08/27/2000 Phase 2	PCBs Pesticides Radiological	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4F004 - Acid Area, EU 4.	SS4F004-636	08/27/2000 Phase 2	PCBs Pesticides Radiological	To investigate the presence of organic and/or radioactive compounds along the northern NFSS boundary.
4F009 - Acid Area, EU 4.	SS4F009-2315	10/06/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4F010 - Acid Area, EU 4.	SS4F010-2428	11/14/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4F011 - Acid Area, EU 4.	SS4F011-2429	11/14/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
4G001 - Acid Area, EU 4.	SS4G001-2316	10/06/2001 Phase 3	Radiological	Investigate the horizontal extent of radiological activity above background found during the gamma walkover.
DRUM02 - Central portion of EU 4, near Well 415A, in the Acid Area.	SS-DRUM02-3372	07/08/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.
DRUM04 - Central portion of EU 4, in the Acid Area.	SS-DRUM04-3378	07/09/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
DRUM05 - Northeast quadrant of EU 4, in the Acid Area, south of N Street, and Southeast of Trench 408.	SS-DRUM05-3381	07/09/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.
DRUM06 - Northeast quadrant of EU 4, in the Acid Area, east of MW423.	SS-DRUM06-3395	07/12/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.
DRUM07 - West central portion of EU 4, in the Acid Area.	SS-DRUM07-3398	07/12/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To further investigate the contents of the drum.
MW422 - Central portion of EU 4, in the Acid Area.	SS-MW422-3608	09/17/2003 Phase 3	PAH Nitroaromatics Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Other samples from the area contained chlorinated solvents. The purpose of this sample was to delineate the horizontal extent of other chemical and radiological compounds.
MW423 - Northeast central portion of EU 4, in the Acid Area, southeast of Trench 408.	SS-MW423-3611	09/16/2003 Phase 3	PAH Nitroaromatics Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Other samples from the area contained chlorinated solvents. The purpose of this sample was to delineate the horizontal extent of other chemical and radiological compounds.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
MW424 - North central portion of EU 4, just north of N Street, and east of Castle Garden Road.	SS-MW424-3620	09/22/2003 Phase 3	PAH Nitroaromatics Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Other samples from the area contained chlorinated solvents. The purpose of this sample was to delineate the horizontal extent of other chemical and radiological compounds.
418 - Acid Area, EU 5.	SS418-055	12/01/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary.
420 – Southern perimeter of EU 5, along O St., 800 feet east of its intersection with Castle Garden Rd.	SS420-057	11/17/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with the ammonia manufacturing plant and a 1953 explosion and fire site and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil west of this location.
421 - Acid Area, EU 5.	SS421-058	12/01/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence of radioactive, organic and/or inorganic compounds along the northern NFSS boundary.
423 - Southern perimeter of EU 5, along O St., west of BH60	SS423-689	09/12/2000 Phase 2	Metals Radiological Semivolatiles	To investigate the potential presence or absence of radioactive, organic and/or inorganic compounds along the southern boundary of the NFSS along the former haul road, rail line for the K-65 waste and the location of a drum storage and handling area.
424 – Northern perimeter of EU 5 and NFSS, east of BH51	SS424-690	09/09/2000 Phase 2	Radiological	To investigate the potential presence or absence of radioactive compounds along the northern boundary of the NFSS near the former haul road for the K-65 waste.
4F003 - Eastern edge of Acid Area, EU 5.	SS4F003-635	08/27/2000 Phase 2	PCBs Pesticides Radiological	Investigate the presence or absence of chemical and/or radiological compounds near a tank cradle.
4F005 - North-Central Panhandle, EU 5.	SS4F005-2311	10/06/2001 Phase 3	Radiological	To investigate the presence or absence of radiological compounds near a depressed wetland area.
4F006 - South-Central Panhandle, EU 5.	SS4F006-2312	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
4F007 - South-Central Panhandle, EU 5.	SS4F007-2313	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
4F008 - Central Panhandle, EU 5.	SS4F008-2314	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.

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Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
4G002 - North-Central Panhandle, EU 5.	SS4G002-2365	10/07/2001 Phase 3	Radiological	To investigate the potential presence or absence of radioactive compounds near the northern boundary of the NFSS near the former haul road for the K-65 waste.
601 - Eastern portion of EU 5, near former Building 434 location, south of N Street.	SS601-065	12/02/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of chemical and radiological compounds east of the Acid Area and west of former Building 434 which stored radioactive residue.
605 – South and adjacent to O St. and south of 604. EU 5.	SS605-697	09/11/2000 Phase 2	Metals Radiological	To further delineate the extent of the gamma radiation, uranium isotopes and metals found at TWP603.
6A001 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A001-2317	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A002 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A002-2319	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A003 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A003-2320	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A004 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A004-2321	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A006 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A006-2325	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A007 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A006-2327	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A008 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A008-2328	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A009 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A009-2329	10/07/2001 Phase 3	Radiological	This sample location was randomly selected to provide sufficient and representative radiological data to characterize this EU.
6A010 - Formerly uninvestigated area, west of former Building 434, in SE corner of EU 5.	SS6A010-2364	10/07/2001 Phase 3	Radiological	This sample location was randomly selected to provide sufficient and representative radiological data to characterize this EU.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
811 - NE corner of EU 5, formerly uninvestigated area	SS811-080	12/02/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds at the NFSS boundary in an area that had not previously been investigated and to provide sufficient and representative data to characterize the EU.
8G005 - NE corner of EU 5, formerly uninvestigated area	SS8G005-2347	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
EU051 - Northwest quadrant of EU 5, along N Street.	SS-EU051-3334	07/10/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Delineate the horizontal extent of chemical and radiological compounds found in sample 6A001.
602 – Southwest corner of EU 6 , north of N St. and southwest of former Building 434.	SS602-066	11/16/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the potential presence or absence of radioactive, organic and/or inorganic compounds near the former water storage tower where K-65 wastes were stored and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil west of this area.
603 – Near the former location of Building 434, south of N St., EU 6.	SS603-068	11/16/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the potential presence or absence of radioactive, organic and/or inorganic compounds near the former water storage tower where K-65 wastes were stored and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil west of this area.
604 - Southeast of the former Building 434, EU 6.	SS604-069	11/07/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the potential presence or absence of radioactive, organic and/or inorganic compounds near the former water storage tower where K-65 wastes were stored and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil west of this area.
606 - SE corner of EU 6, SE of the O and McArthur Street corner.	SS606-698	08/25/2000 Phase 2	Radiological	This sample point is located near the Modern Landfill property line southeast of the former radiological residue storage tower location. This general area is also south of the former "thaw house."

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
607 – East of McArthur St. along the eastern NFSS perimeter, near BH63 and BH57, EU 6.	SS607-699	09/11/2000 Phase 2	Metals Radiological Semivolatiles Volatiles	To further delineate the extent of gamma radiation, metals and radiological parameters found in TWP503, to investigate the presence or absence of organic and/or inorganic compounds at the NFSS boundary and to provide sufficient and representative data for characterization of this EU. This sample point is located southwest of the extraction wells for the CWM property.
6A005 - Former Building. 434 area, EU 6.	SS6A005-2323	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6A007 - Former Building. 434 area, EU 6.	SS6A007-2327	10/07/2001 Phase 3	Radiological	This sample location was randomly selected to provide sufficient and representative radiological data to characterize this EU.
6B001 - Former Building. 434 area, EU 6.	SS6B001-2330	10/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6B002 - Former Building. 434 area, EU 6.	SS6B002-2331	10/07/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6B003 - Former Building. 434 area, EU 6.	SS6B003-2332	10/07/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6B004 - Former Building. 434 area, EU 6.	SS6B004-2333	10/07/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6B005 - Former Building. 434 area, EU 6.	SS6B005-2335	10/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6B006 - Former Building. 434 area, EU 6.	SS6B006-2336	10/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6C001 - Former Building. 434 area, EU 6.	SS6C001-2337	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6C002 - Former Building. 434 area, EU 6.	SS6C002-2338	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6C003 - Former Building. 434 area, EU 6.	SS6C003-2339	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6C004 - Former Building. 434 area, EU 6.	SS6C004-2340	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
6C005 - Former Building. 434 area, EU 6.	SS6C005-2341	10/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
6C006 - Former Building. 434 area, EU 6.	SS6C006-2342	10/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
812 - Formerly uninvestigated area, north of N Street, EU 6.	SS812-084	11/08/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds in an area that had not previously been investigated and to provide sufficient and representative data to characterize the EU.
824 - Formerly uninvestigated area, north of N Street, along Northern property line, EU 6.	SS824-712	09/11/2000 Phase 2	Radiological	To investigate the presence or absence of radioactive compounds at the NFSS boundary in an area that had not previously been investigated and to provide sufficient and representative data to characterize the EU.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
825 - Northeast corner of EU 6 and NFSS property line, northeast former Building 434.	SS825-713	09/11/2000 Phase 2	Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds at the NFSS boundary in an area that had not previously been investigated and to provide sufficient and representative data to characterize the EU.
828 - Former Building 434 area, along Eastern property line, EU 6.	SS828-407	08/31/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
829 - Former Building 434 area, along Eastern property line, EU 6.	SS829-409	09/15/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8G001 - Formerly uninvestigated area, north of N Street, EU 6	SS8G001-2343	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
8G002 - Formerly uninvestigated area, north of N Street, EU 6.	SS8G002-2344	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
8G003 - Formerly uninvestigated area, north of N Street, EU 6.	SS8G003-2345	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
8G004 - Formerly uninvestigated area, north of N Street, EU 6.	SS8G004-2346	10/06/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
EU061 - Southeast corner of EU 6, just west of MacArthur Street.	SS-EU061-3335	07/10/2003 Phase 3	Metals Radiological	Delineate the horizontal extent of chemical and radiological compounds found at sample location 829.
EU062 - Southeast corner of EU 6, just inside the corner of Mac Arthur Street.	SS-EU062-3336	07/10/2003 Phase 3	Metals Radiological	Delineate the horizontal extent of chemical and radiological compounds found at sample location 829.
806 – North of the IWCS and adjacent to the former dewatering Pond 4, EU 7.	SS806-075	11/06/1999 Phase 1	CEC Metals Radiological Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds and potential migration associated with the IWCS and the former DOE dewatering Pond 4 and to provide sufficient and representative data to characterize the EU. No previous data was obtained near this location.
807 – North of the IWCS and within the former DOE organic burial area, EU 7.	SS807-076	11/06/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds and any potential migration associated with the IWCS and the former DOE organic burial area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
820 - North of the IWCS in the DOE area designated as Disposal Area B, EU 7.	SS820-708	09/08/2000 Phase 2	Radiological	To further delineate the extent of radium-226 found in TWP806 and TWP807. Documentation of confirmation sampling was not found during the records search.
821 - North of the IWCS, on the western perimeter of EU 7 and NFSS boundary.	SS821-709	09/08/2000 Phase 2	Radiological	To investigate the potential extent and migration of radioactive compounds near the IWCS in an area previously remediated. Documentation of confirmation sampling was not found during the records search. This location is west of TWP807.
8C001 - Former DOE WTP area, EU 7.	SS8C001-2184	09/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8C002 - Former DOE WTP area, EU 7.	SS8C002-2185	09/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8C004 - Former DOE WTP area, EU 7.	SS8C004-2187	09/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D001 - Former DOE WTP area, EU 7.	SS8D001-2188	09/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D002 - Former DOE WTP area, EU 7.	SS8D002-2189	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D003 - Former DOE WTP area, EU 7.	SS8D003-2190	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D004 - Former DOE WTP area, EU 7.	SS8D004-2191	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D005 - Former DOE WTP area, EU 7.	SS8D005-2192	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D006 - Former DOE WTP area, EU 7.	SS8D006-2193	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D007 - Former DOE WTP area, EU 7.	SS8D007-2195	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D008 - Former DOE WTP area, EU 7.	SS8D008-2196	09/05/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8D009 - Former DOE WTP area, EU 7.	SS8D009-2197	09/10/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8E001 - Former DOE WTP area, EU 7.	SS8E001-2198	09/06/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8E003 - Former DOE WTP area, EU 7.	SS8E003-2200	09/09/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
EU071 - Southeast quadrant of EU 7, east of Campbell Street.	SS-EU071-3337	07/10/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Delineate the chemical and radiological compounds found at sample locations 8D006 and 8D009.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
EU072 - North central portion of EU 7, just south of O Street.	SS-EU072-3338	07/10/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	Delineate the chemical and radiological compounds found at sample locations 8D006 and 8D009.
TWP835 - Northwest quadrant of EU 7, southwest of the intersection of Lutts Road and West Patrol Road.	SS-TWP835-3515	09/20/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Disposal Area east of Lutz Road.
TWP836 - Southwest quadrant of EU 7, just northeast of the intersection of Lutts Road and the road that encircles the IWCS.	SS-TWP836-3518	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Organic Burial Area.
TWP837 - Central portion of EU 7, north of the IWCS.	SS-TWP837-3521	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Pond 3.
TWP838 - South central portion of EU 7, south of the road that encircles the IWCS.	SS-TWP838-3524	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Disposal Area north of the IWCS.
TWP840 - Southeast portion of EU 7, northeast of the corner of the road that encircles the IWCS.	SS-TWP840-3530	09/18/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Pond 4.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
301 - Southern Shop Area, southeast of Building 422, and north of the South 16 Ditch, EU 8.	SS301-025	12/01/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of organic and/or radioactive compounds associated with a trench of unknown origin present at this location and to provide sufficient and representative data to characterize this EU.
302 - Eastern perimeter of EU 8 and NFSS, near former K-65 drum storage area.	SS302-026	11/18/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a nearby concrete rubble pile and the former K-65 drum storage area, to investigate the extent of previously identified compounds (LOOW RI) in the soil near this area, and to investigate potential migration of these compounds near the property boundary.
303 - In the central Shop Area, along the south side of Z St., EU 8.	SS303-027	12/01/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a possible fuel oil pipeline, UST and former uranium rod storage area and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
304 - In the central Shop Area, east of the former change house and uranium rod storage area, EU 8.	SS304-028	12/01/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a possible fuel oil pipeline, railroad bed and former uranium rod storage area and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
305 - Eastern half of the former Shop Area, west of Castle Garden Road, EU 8.	SS305-029	12/02/1999 Phase 1	CEC Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a trench of unknown origin present at this location.
306 - Northeast corner of EU 8 and Shop Area, south of O St. and east of the former Building 430.	SS306-030	12/02/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with the combined shop and nearby locomotive shop, to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area and to investigate potential migration of compounds near the property boundary.
307 - Northeast quadrant of EU 8 and Shop Area, south of X St. and the former Building 430.	SS307-031	12/02/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a trench of unknown origin present at this location.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
308 - Northeast quadrant of EU 8 and Shop Area, north and adjacent to the former Building 430.	SS308-032	11/17/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with Building 430 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
309 - North-central quadrant of EU 8 and Shop Area, north and adjacent to the former Building 430.	SS309-033	11/17/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with Building 430 and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
310 – Central Shop Area, south of X St. and near former changes houses, EU 8.	SS310-034	12/02/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with the change houses (titanium alloys stored) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
311 – Northwest corner of EU 8 and Shop Area, north of X St.	SS311-035	11/18/1999 Phase 1	Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with the riggers shop (former uranium dust storage area) and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
312 – West side of EU 8 and Shop Area, north of Z St. and near the former LOOW service house.	SS312-036	11/18/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of organic and/or radioactive compounds associated with the service house and to investigate the presence and extent of previously identified compounds (LOOW RI) in the soil near this area.
314 - NE corner of the former Shops Area, EU 8.	SS314-404	09/14/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A001 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A001-555	08/25/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3A002 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A002-556	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3A003 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A003-557	08/25/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3A004 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A004-559	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A005 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A005-560	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A006 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A006-561	08/25/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3A007 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A007-562	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A008 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A008-563	08/25/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3A009 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A009-565	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A010 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A010-566	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A011 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A011-567	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A012 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A012-568	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3A013 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A013-569	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A014 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A014-570	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A015 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A015-571	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A016 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A016-572	08/25/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3A017 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A017-2162	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A020 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A020-2389	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A021 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A021-2392	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A022 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A022-2393	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A023 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A023-2394	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A024 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A024-2395	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3A025 - Western half of the former Shops Area, North of Z Street and East of Campbell Street, EU 8.	SS3A025-2397	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3B001 - Northern half of the former Shops Area, between O Street and 8th Street, EU 8.	SS3B001-573	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3B002 - Northern half of the former Shops Area, along 8th Street, EU 8.	SS3B002-575	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3B003 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B003-576	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B004 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B004-577	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B005 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B005-578	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B006 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B006-579	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B007 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B007-580	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B008 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B008-581	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B009 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B009-582	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B010 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B010-583	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
3B011 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B011-2398	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3B012 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B012-2401	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B013 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B013-2402	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B014 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B014-2404	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B016 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B016-2406	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B018 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B018-2409	11/15/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
3B019 - Central portion of EU 8, along Z Street, near the former gas station and former Building 422.	SS3B019-2410	11/15/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
3C001 - North central portion of EU 8, in the wooded area between O Street and the drum pad.	SS3C001-584	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C002 - North central portion of EU 8, in the wooded area between O Street and the drum pad.	SS3C002-585	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C003 - North central portion of EU 8, in the wooded area between O Street and the drum pad.	SS3C003-586	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C004 - North central portion of EU 8, in the wooded area between O Street and the drum pad.	SS3C004-587	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3C005 - North central portion of EU 8, in the wooded area between O Street and the drum pad.	SS3C005-588	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C006 - North central portion of EU 8, along the road located north of the drum pad.	SS3C006-589	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C007 - North central portion of EU 8, along the road located north of the drum pad.	SS3C007-590	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C008 - North central portion of EU 8, along the road located north of the drum pad.	SS3C008-591	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C009 - Central portion of EU 8 and former Shop Area, along the southern edge of the drum pad.	SS3C009-592	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C010 - In the central portion of EU 8, along the southern edge of the drum pad.	SS3C010-593	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C011 - Central portion of EU 8, along the southern edge of the drum pad.	SS3C011-594	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C012 - Central portion of EU 8, along the southern edge of the drum pad.	SS3C012-596	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C013 - Central portion of EU 8, along the southern edge of the drum pad.	SS3C013-597	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
3C014 - Central portion of EU 8, along X Street, just NE of 7th Street.	SS3C014-2411	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3C015 - North central portion of EU 8, along the road located north of the drum pad.	SS3C015-2412	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
3C016 - Central portion of EU 8, NE of the intersection of 7th Street and Z Street.	SS3C016-2413	11/17/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
3D001 - East-central portion of EU 8, along the property boundary line and Castle Garden Road.	SS3D001-2414	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D002 - East-central portion of EU 8, along the property boundary line and Castle Garden Road.	SS3D002-2415	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D003 - East-central portion of EU 8, along the property boundary line and Castle Garden Road.	SS3D003-2416	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D004 - East-central portion of EU 8, along the property boundary line and Castle Garden Road.	SS3D004-2418	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D005 - Northeast quadrant of EU 8, along the eastern edge of the drum pad.	SS3D005-2419	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D006 - Northeast quadrant of EU 8, on the NE corner of the drum pad.	SS3D006-2420	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D007 - Northeast portion of EU 8, in the wooded area between O Street and the drum pad, just west of 6th Street.	SS3D007-2421	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D008 - Northeast portion of EU 8, in the wooded area between O Street and the drum pad, just west of 6th Street.	SS3D008-2422	11/16/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3D009 - Southeast portion of EU 8, at the intersection of Z Street and O Street.	SS3D009-2423	11/16/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
EU081 - Southwest quadrant of EU 8, east of Campbell Street and south of Z Street.	SS-EU081-3339	07/11/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate a debris pile.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
MW313 - Southeast central portion of EU 8, on the west side of the debris pile.	SS-MW313-3590	09/17/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate chemical and radiological compounds associated with MW302A that were discovered in previous phases of this RI.
MW314 - South of debris pile, EU 8.	SS-MW314-3593	09/17/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate chemical and radiological compounds associated with MW302A that were discovered in previous phases of this RI.
101 - Western perimeter of NFSS and EU 10, west of the IWCS.	SS101-684	09/08/2000 Phase 2	Radiological	To investigate the potential extent and migration of radiological compounds in an area previously remediated. Documentation of confirmation sampling was not found during the records search. This location was located north of sediment sample SD703.
102 - Western perimeter of NFSS and EU 10, west of the IWCS.	SS102-685	09/08/2000 Phase 2	Metals Radiological Semivolatiles	To confirm previous remediation of the area and provide a representative number of sampling points in this EU. Documentation of confirmation sampling was not found during the records search.
103 - Western perimeter of NFSS and EU 10, west of the IWCS.	SS103-686	09/08/2000 Phase 2	Metals Radiological	To confirm previous remediation of the area and provide a representative number of sampling points in this EU. Documentation of confirmation sampling was not found during the records search.
1A001 - Northwest portion of EU 10 and the IWCS.	SS1A001-2157	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
1A002 - Western portion of EU 10 and the IWCS.	SS1A002-2158	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
1B001 - Western portion of EU 10 and the IWCS.	SS1B001-2159	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
1B002 - Southwest portion of EU 10 and the IWCS.	SS1B002-2160	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8C003 - Northwest portion of EU 10 and the IWCS.	SS8C003-2186	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
EU101 - North-central portion of EU 10, south of the road that encircles the IWCS.	SS-EU101-3343	07/11/2003 Phase 3	PAH Metals PCBs Pesticides Radiological Semivolatiles Volatiles	To investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI. This area was not part of any previous radiological investigation at the site.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
EU102 - South of the IWCS, inside the road that encircles it, and just north of TWP855, EU 10.	SS-EU102-3344	07/11/2003 Phase 3	PAH Metals PCBs Pesticides Radiological Semivolatiles Volatiles	To investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI. This area was not part of any previous radiological investigation at the site.
EU103 - East of the IWCS, outside of the road that encircles the IWCS and just south of TWP844, EU 10.	SS-EU103-3345	07/11/2003 Phase 3	PAH Metals PCBs Pesticides Radiological Semivolatiles Volatiles	This sample was located west of the Central Ditch, near OW11B, where elevated readings were discovered in previous phases of the RI.
MW861 - Well cluster MW860/861 located inside the fenced area of the IWCS on the east side, EU 10.	SS-MW861-3599	09/20/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
MW862 - Well cluster MW862/863 located inside the fenced area of the IWCS on the east side, EU 10.	SS-MW862-3602	09/20/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
MW863 - Well cluster MW862/863 located inside the fenced area of the IWCS on the east side, EU 10.	SS-MW863-3605	09/20/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
TWP830 - Southwest corner of the IWCS, EU 10.	SS-TWP830-3500	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
TWP831 - Within the fenced area of the IWCS, south of the IWCS, EU 10.	SS-TWP831-3503	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
TWP832 - Within the fenced area of the IWCS, south of the IWCS, EU 10.	SS-TWP832-3506	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
TWP833 - Within the fenced area of the IWCS, southeast of the IWCS, EU 10.	SS-TWP833-3509	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
TWP834 - Within the fenced area of the IWCS and adjacent to the southeast corner of the IWCS, EU 10.	SS-TWP834-3512	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS.
TWP839 - Within the fenced area of the IWCS, north/northeast of the IWCS, EU 10.	SS-TWP839-3527	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Disposal Area located north of the IWCS.
TWP844 - East of the IWCS, west of the Hittman Building, EU 10.	SS-TWP844-3542	09/19/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former South Pond.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
TWP850 - South of the IWCS, along the southern boundary of EU 10.	SS-TWP850-3560	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Stockpile Area.
TWP851 - South/southwest of the IWCS, southwest of the intersection of Lutts Road, EU 10.	SS-TWP851-3563	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Stockpile Area.
TWP852 - Within the fenced area of the IWCS and southwest of the IWCS, EU 10.	SS-TWP852-3566	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Building 409 Area.
TWP853 - Within the fenced area of the IWCS, south of the IWCS, EU 10.	SS-TWP853-3569	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Building 409 Area.
TWP854 - Within the fenced area of the IWCS, southeast of the IWCS, EU 10.	SS-TWP854-3572	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Building 409 Area.
TWP855 - Within the fenced area of the IWCS, south of the IWCS, EU 10.	SS-TWP855-3575	09/30/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Building 409 Area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
TWP856 - Within the fenced area of the IWCS, west of the IWCS, EU 10.	SS-TWP856-3578	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as geophysical areas of interest discovered in previous phases of this RI.
TWP857 - East of the IWCS, outside the fenced area, EU 10.	SS-TWP857-3581	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as geophysical areas of interest discovered in previous phases of this RI.
TWP858 - Within the fenced area of the IWCS, southern perimeter of the IWCS, EU 10.	SS-TWP858-3584	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as geophysical areas of interest discovered in previous phases of this RI.
TWP859 - Within the fenced area of the IWCS, southwestern perimeter of the IWCS, EU 10.	SS-TWP859-3587	10/02/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as geophysical areas of interest discovered in previous phases of this RI.
218 - Building 401 Area, EU 11.	SS218-400	09/10/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2A002 - West of Building 401, along the eastern perimeter of EU 11.	SS2A002-530	09/12/2000 Phase 2	Radiological Semivolatiles	To investigate the extent of chemical and radiological compounds found in the groundwater at TWP217.
2A003 - Southwest of Building 401, along the eastern perimeter of	SS2A003-531	09/12/2000 Phase 2	Radiological Semivolatiles	To investigate the extent of chemical and radiological compounds found in the groundwater at TWP201.
2A004 - In the ditch northeast of Hittman Building, EU 11.	SS2A004-2173	09/10/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2A005 - In the ditch northeast of Hittman Building, EU 11.	SS2A005-2240	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2A006 - In the ditch east of Campbell Street and west of the USACE Building, EU 11.	SS2A006-2369	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
2A007 - In the ditch east of Campbell Street, northwest of the USACE Building, EU 11.	SS2A007-2370	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2A009 - West of the gated entrance to the Building 401 area, EU 11.	SS2A009-2373	11/17/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
801 – Southwest corner of EU 11 and south of the IWCS, near the NFSS property boundary.	SS801-070	11/06/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds and potential migration south of the IWCS at the NFSS boundary.
802 – Southeast corner of the IWCS, near the former “lay down area”, EU 11.	SS802-071	11/06/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon	To investigate the presence or absence of organic and/or inorganic compounds and potential migration near the IWCS associated with the former “lay down area”.
803 - Along the southern portion of the Eastern boundary of EU 11.	SS803-072	11/17/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon	To investigate a previously uninvestigated area south of Building 401.
805 – Northeast of the IWCS, in the area of the former DOE dewatering Pond 5, EU 11.	SS805-074	11/07/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds and potential migration near the IWCS and the former DOE WWTP (dewatering Pond 5).
809 - Trench, located in the Former Water Storage Area, east of the IWCS, EU 11.	TS809-2904-001	05/30/2002 Phase 3	Pesticides Radiological	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
809 - Trench, located in the Former Water Storage Area, east of the IWCS, EU 11.	TS809-2905-007	05/30/2002 Phase 3	Radiological	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
812 - Trench northeast of the front gate, southeast corner of EU 11.	TS812-2928-062	06/01/2002 Phase 3	Radiological	The location of this trench was to investigate a known area of gamma radiation above background.
813 - Southern perimeter of EU 11 and NFSS, south of the IWCS.	SS813-700	09/09/2000 Phase 2	Metals Radiological	To further define the extent of radiological and metal parameters identified in TWP 802 and wells BH12 and OW7A and potential migration south of the IWCS at the NFSS boundary.
814 - Uninvestigated Area, EU 11.	SS814-701	08/30/2000 Phase 2	Radiological	This sample was located south of an area of gamma radiation above background, found during the walkover survey, at the main entrance to the NFSS site at the southern property line.
819 - Uninvestigated Area, EU 11.	SS819-706	09/11/2000 Phase 2	Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Volatiles	This sample point was located southeast and downgradient of the decontamination pad to investigate if chemical and/or radiological compounds could have been deposited from decontamination activities.
826 - Uninvestigated Area, EU 11.	SS826-405	09/14/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
827 - Uninvestigated Area, EU 11.	SS827-406	09/13/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
830 - Northeast corner of EU 11, near the south-central NFSS property line, east of Campbell St.	SS830-1036	09/10/2000 Phase 2	Radiological	To further investigate the gamma reading of 215,000 cpm found during the walkover survey.
8A002 - Northeast of Hittman Building, EU 11.	SS8A002-2174	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A003 - Northeast of Hittman Building, EU 11.	SS8A003-2175	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A004 - Northeast of Hittman Building, EU 11.	SS8A004-2176	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A005 - West of Campbell St., midway between Hittman Building and south gate, EU 11.	SS8A005-2177	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A006 - South of IWCS, EU 11.	SS8A006-2178	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A007 - Southwest corner of NFSS and EU 11.	SS8A007-2179	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A008 - South of IWCS, EU 11.	SS8A008-2180	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A009 - South of IWCS, EU 11.	SS8A009-2218	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A010 - South of IWCS, EU 11.	SS8A010-2182	09/08/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
8A011 - West of Campbell Street and MH03; east of the IWCS, EU 11.	SS8A011-2219	09/10/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8A014 - IWCS	SS8A014-2181	09/07/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B008 - Uninvestigated Area, near south gate, EU 11.	SS8B008-2438	11/18/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B009 - Uninvestigated Area, near south gate, EU 11.	SS8B009-2441	11/18/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B010 - Uninvestigated Area, near south gate, EU 11.	SS8B010-2442	11/18/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8H001 - Uninvestigated Area, near south gate, EU 11.	SS8H001-2443	11/18/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8H002 - Uninvestigated Area, near south gate, EU 11.	SS8H002-2444	11/18/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
EU111 - Northern section of EU 11, east of the IWCS, south of TWP842.	SS-EU111-3346	07/12/2003 Phase 3	PAH Semivolatiles Volatiles Metals Radiological	To investigate the location of the former clean water ponds.
EU112 - East of the southeast corner of the IWCS, EU 11.	SS-EU112-3347	07/12/2003 Phase 3	PAH Semivolatiles Volatiles Metals	To investigate the areal distribution of chemical compounds near the IWCS.
EU113 - South of the southeast corner of the road that encircles the IWCS, EU 11.	SS-EU113-3348	07/12/2003 Phase 3	Metals Radiological	This sample was located north of sample location 813, near MH07.
TWP841 - Northeast corner of EU 11, east of the northeast corner of the road that encircles the IWCS.	SS-TWP841-3533	09/18/2003 Phase 3	PAH Semivolatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as Former Pond 5.
TWP842 - Western perimeter of EU 11, north of the South 16 Ditch, west of Campbell Street	SS-TWP842-3536	09/19/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as Total U and Th-230 concentrations discovered in previous phases of this RI.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
TWP843 - Western boundary of EU 11, east of the IWCS, northwest of the Hittman Building.	SS-TWP843-3539	10/04/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former North Pond.
TWP845 - Western perimeter of EU 11, south of South 16 Ditch, west of Campbell Street.	SS-TWP845-3545	09/19/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former West Pond.
TWP846 - Adjacent to the southeast corner of the IWCS, EU 11.	SS-TWP846-3548	09/19/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Laydown Area.
TWP847 - Adjacent to the southeast corner of the IWCS, EU 11.	SS-TWP847-3551	09/19/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Laydown Area.
TWP848 - At the south end of the Central Ditch, north of R Street, EU 11.	SS-TWP848-3554	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as Total U, Th-230, and U-234 sampling readings discovered in previous phases of this RI.
TWP849 - Southwest portion of EU 11, outside the IWCS fenced area, south of the IWCS.	SS-TWP849-3557	09/21/2003 Phase 3	PAH Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the integrity of the clay dike of the IWCS as well as the Former Stockpile Area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
204 - Southwest corner of EU 12, east-southeast of Building 401, outside the fenced area and near Building B-2	SS204-004	11/19/1999 Phase 1	CEC Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with Building 401.
205 - Southeast corner of EU 12, along the eastern boundary of the NFSS, east-southeast of Building 401.	SS205-008	11/17/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of organic and/or radioactive compounds along the eastern NFSS boundary.
206 – East central perimeter of EU 12 and the NFSS, east of Building 401	SS206-009	11/17/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds along the eastern NFSS boundary.
215 - Northwest of Building 401 and 40 ft. east of Campbell St., EU 12	SS215-019	12/01/1999 Phase 1	CEC Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a concrete vault of unknown origin. This location is near Building 401.
219 - Building 401 Area, EU 12.	SS219-401	09/15/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2A008 - Building 401 Area, EU 12.	SS2A008-2371	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2B001 - Building 401 Area, EU 12.	SS2B001-532	08/26/2000 Phase 2	Metals Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
2B002 - Building 401 Area, EU 12.	SS2B002-534	08/26/2000 Phase 2	Metals Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
2C002 - Building 401 Area, EU 12.	SS2C002-2380	11/17/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
2D001 - Building 401 Area, EU 12.	SS2D001-547	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation. This sample was located in the SE corner of EU 12, along the Eastern boundary of the site.
2D002 - Building 401 Area, EU 12.	SS2D002-548	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation. This sample was located in the SE corner of EU 12, along the Eastern boundary of the site.
2D003 - Building 401 Area, EU 12.	SS2D003-549	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation. This sample was located in the SE corner of EU 12, along the Eastern boundary of the site.
2D004 - Building 401 Area, EU 12.	SS2D004-550	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation. This sample was located in the SE corner of EU 12, along the Eastern boundary of the site.
2D005 - Building 401 Area, EU 12.	SS2D005-551	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation. This sample was located in the SE corner of EU 12, along the Eastern boundary of the site.
2D009 - Building 401 Area, EU 12.	SS2D009-2381	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
2D011 - Building 401 Area, EU 12.	SS2D011-2383	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2D012 - Building 401 Area, EU 12.	SS2D012-2384	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2D013 - Building 401 Area, EU 12.	SS2D013-2385	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B015 - Former Shop Area, EU 12.	SS3B015-2405	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
3B017 - Former Shop Area, EU 12.	SS3B017-2407	11/15/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
EU121 - Central portion of EU 12, northeast of Building 401, and west of Castle Garden Road.	SS-EU121-3349	07/12/2003 Phase 3	PAH Semivolatiles Metals PCBs Pesticides Radiological	To investigate the presence or absence of chemical and radiological compounds in a previously uninvestigated area.
EU122 - Northeast corner of EU 12, south of T305, and west of Castle Garden Road.	SS-EU122-3350	07/12/2003 Phase 3	PAH Semivolatiles Metals PCBs Pesticides Radiological	To investigate the presence or absence of chemical and radiological compounds in a previously uninvestigated area.
EU123 - Northwest corner of EU 12, north of Building 401 and northeast of Trench 203.	SS-EU123-3351	07/12/2003 Phase 3	Metals Radiological	To investigate the presence or absence of chemical and radiological compounds in a previously uninvestigated area.
201 - Southwest corner of EU 13, south of Building 401 and north of a former sludge bed associated with Building 401.	SS201-001	11/18/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the extent of previously identified TCE concentrations in this area and to investigate the presence or absence of organic and/or radioactive compounds associated with the former sludge bed south of Building 401.
203 - Southern perimeter of EU 13, south of Building 401 and north of the former sludge bed.	SS203-003	11/19/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the extent of previously identified TCE concentrations in this area and to investigate the presence or absence of organic and/or radioactive compounds associated with the former sludge bed south of Building 401.
203 - Trench, located north of Building 401, EU 13.	TS203-2808-020	05/18/2002 Phase 3	Metals Radiological Semivolatiles Volatiles	To investigate a potential underground storage tank located north of Building 401. Concentrations of VOCs and metals were found in the groundwater samples from this area. The location of the trench examined a ferrous zone anomaly FZ541 that was reported in the geophysical investigation of the area.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
207 - East of Buildings 401 and 407, EU 13.	SS207-010	11/21/1999 Phase 1	Metals Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate an area where a fuel oil storage tank was potentially located.
208 - East of Buildings 401, 405, 406 and 407, EU 13.	SS208-011	11/21/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a former fuel oil UST, paint shop and emergency generator that were present near this location.
209 - Northeast of Building 401 and adjacent to Building 407, EU 13.	SS209-012	11/21/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with the building foundation for Building 407 (paint shop).
210 - Northeast of Building 401, north of Building 407 and east of building B-3, EU 13.	SS210-014	11/21/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of organic and/or radioactive compounds associated with the building foundation for Building 407 (paint shop).
211 – Adjacent to former power transformer station and north of Buildings 401 and 407, EU 13.	SS211-015	11/21/1999 Phase 1	CEC Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of chemical and/or radioactive compounds associated with two large USTs located west of the building foundation for Building 407 (paint shop).
212 - North of Building 401 and the former power transformer station, EU13.	SS212-016	11/18/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence and extent of previously identified TCE compounds and to investigate the presence or absence of organic and/or radioactive compounds associated with a small concrete pad with potential fill pipes near Building 401.
213 - North of Building 401 and the former power transformer station, EU 13.	SS213-017	11/18/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence and extent of previously identified TCE compounds and to investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with a small concrete pad with potential fill pipes near Building 401.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
214 - Southeast quadrant of EU 13, north of Building 401 and the former power transformer station.	SS214-018	11/18/1999 Phase 1	Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence and extent of previously identified TCE compounds and to investigate the presence or absence of organic and/or radioactive compounds associated with a small concrete pad with potential fill pipes near Building 401.
216 - Adjacent to the northwest corner of Building 401, EU 13.	SS216-020	11/18/1999 Phase 1	Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of organic and/or radioactive compounds in an area near Building 401 where a small UST (shown on facility drawings) was potentially located.
217 - Along the southwest corner of Building 401, EU 13.	SS217-021	11/19/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds associated with an area of stressed vegetation, where a vent for a potential UST would have been located, near Building 401.
220 - Building 401 Area, EU 13.	SS220-402	09/13/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
221 - Building 401 Area, EU 13.	SS221-403	09/10/2000 Phase 2	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
EU131 - East central portion of EU 13, east of Building 401, east of the paved area.	SS-EU131-3352	07/12/2003 Phase 3	PAH Semivolatiles Metals	To investigate the presence or absence of chemical and radiological compounds in a previously uninvestigated area.
EU132 - Southeast of Building 401, EU 13.	SS-EU132-3353	07/12/2003 Phase 3	Metals	To investigate the horizontal extent of inorganic compounds found at sample locations 203 and 202.
EU133 - Southeast of Building 401, EU 13.	SS-EU133-3354	07/12/2003 Phase 3	Metals	To investigate the presence or absence of chemical and radiological compounds in a previously uninvestigated area.
MW229 - South of Building 401, along the southern boundary of EU 13.	SS-MW229-3617	09/18/2003 Phase 3	PAH Nitroaromatics Semivolatiles Volatiles Metals PCBs Pesticides Radiological	To investigate the surface soil located south of Building 401.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
202 - South of Building 401 Area, EU 14.	SS202-002	11/22/1999 Phase 1	CEC Nitroaromatics Metals Pesticides, PCBs Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate if residual radioactive, organic and/or inorganic compounds were present at this location south of an area where TCE compounds were previously detected.
2B003 - South of Building 401 Area, EU 14.	SS2B003-535	08/26/2000 Phase 2	Metals Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
2B004 - South of Building 401 Area, EU 14.	SS2B004-536	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B005 - South of Building 401 Area, EU 14.	SS2B005-537	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
2B006 – North-west corner of EU 14, south of Building 401 and	SS2B006-539	08/26/2000 Phase 2	Radiological Semivolatiles	To investigate the extent of chemical and radiological compounds found in the groundwater at TWP201, near Building 401.
2B007 - South of Building 401 Area, EU 14.	SS2B007-540	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B008 - South of Building 401 Area, EU 14.	SS2B008-541	08/26/2000 Phase 2	Radiological Semivolatiles	To bound the extent of findings from the first phase of the site investigation.
2B009 - South of Building 401 Area, EU 14.	SS2B009-542	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B010 - South of Building 401 Area, EU 14.	SS2B010-543	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B011 - South of Building 401 Area, EU 14.	SS2B011-544	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B012 - South of Building 401 Area, EU 14.	SS2B012-545	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B013 - South of Building 401 Area, EU 14.	SS2B013-546	08/26/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2B014 - South of Building 401 Area, EU 14.	SS2B014-2374	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2B015 - South of Building 401 Area, EU 14.	SS2B015-2376	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2B016 - South of Building 401 Area, EU 14.	SS2B016-2377	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2B017 - South of Building 401 Area, EU 14.	SS2B017-2378	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
2B018 - South of Building 401 Area, EU 14.	SS2B018-2379	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
2D006 - South of Building 401 Area, EU 14.	SS2D006-552	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2D007 - South of Building 401 Area, EU 14.	SS2D007-553	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2D008 - South of Building 401 Area, EU 14.	SS2D008-554	08/27/2000 Phase 2	Radiological	To bound the extent of findings from the first phase of the site investigation.
2D010 - South of Building 401 Area, EU 14.	SS2D010-2382	11/19/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
804 - Southeast quadrant of EU 14, between Campbell St. and Castle Garden Rd.	SS804-073	12/02/1999 Phase 1	CEC Nitroaromatics Metals PCBs Pesticides Radiological Semivolatiles Total Organic Carbon Volatiles	To investigate the presence or absence of radioactive, organic and/or inorganic compounds and potential migration near the southeastern NFSS boundary in an area that had not previously been investigated.
815 - Southern perimeter of EU 14 and NFSS, west of BH48.	SS815-702	09/10/2000 Phase 2	Radiological	To further delineate the extent of the radiological parameters found in TWP201 and TWP203, to investigate the presence or absence of organic and/or inorganic compounds at the NFSS boundary.
816 - Uninvestigated Area, southeast corner of EU 14 and NFSS.	SS816-703	08/25/2000 Phase 2	Metals Radiological Semivolatiles	To investigate the presence or absence of organic and/or inorganic compounds at the southeastern property corner of the NFSS northeast of the Modern Landfill leachate collection system and storage tanks. No radiological data had been collected during this RI in this area.
817 - Eastern perimeter of EU 14 and NFSS, south of TWP205	SS817-704	09/09/2000 Phase 2	Radiological	To further delineate the extent of the radiological parameters found in TWP205, to investigate the presence or absence of organic and/or inorganic compounds at the NFSS boundary.
818 - Southeast of Building 401, EU 14.	SS818-705	09/12/2000 Phase 2	Radiological	To further delineate the extent of uranium isotopes found in TWP203 and to provide sufficient and representative data for characterization of this EU.
8B001 - Uninvestigated Area, southeast corner of EU 14 and NFSS.	SS8B001-2430	11/19/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B002 - Uninvestigated Area, southeast corner of EU 14 and NFSS.	SS8B002-2431	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B003 - Uninvestigated Area, southeast corner of EU 14 and NFSS.	SS8B003-2433	11/17/2001 Phase 3	Radiological	To further investigate the gamma radiation above background found during the walkover survey.
8B004 - Uninvestigated Area, south of Building 401, EU 14.	SS8B004-2434	11/18/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
8B005 - Uninvestigated Area, south of Building 401, EU 14.	SS8B005-2435	11/18/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
8B006 - Uninvestigated Area, southeast of Building 401, EU 14.	SS8B006-2436	11/18/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.

Table 3-4
Summary of Surface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site

Sample Location	Sample ID	Collection date	Parameter*	Rationale for Sample Location and Analysis
8B007 - Uninvestigated Area, southeast of Building 401, EU 14.	SS8B007-2437	11/18/2001 Phase 3	Radiological	Stratified random sampling location to verify the readings of the Gamma Walkover Survey.
EU141 - Southeast central portion of EU 14, just northeast of 8B005, EU 14.	SS-EU141-3355	07/12/2003 Phase 3	Metals Radiological	To investigate the areal extent of chemical and radiological compounds north of the former drum staging area
EU142 - Southeast corner of EU 14, just northeast of the intersection	SS-EU142-3356	07/12/2003 Phase 3	Metals	This sample was located north of sample location 816.
EU143 - South central portion of EU 14, just north of the break in R	SS-EU143-3357	07/12/2003 Phase 3	Metals	To investigate the areal extent of chemical compounds at the former drum staging area

Table 3-5
Summary of Background Surface Soil Samples and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Alias ID	Date Collected	Rationale for Sample Location and Analysis*
B001 - Located on private property north of Pletcher Rd at 435 Guard St, approximately 1,400 feet west of the NFSS.	SSB001-807	BKGD-SO-3-0.5	10/05/00	Prior to construction of the LOOW, this location was unoccupied forested land. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the land is not actively used and is private property.
B002- Located on a private roadway just north of Pletcher Road (435 Guard St), approximately 1,800 feet southwest of the southwest corner of the NFSS.	SSB002-808	BKGD-SO-4-0.5	10/05/00	Prior to construction of the LOOW, this sampling location was an orchard. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the land is not actively used and is private property.
B003 – Located in an open area adjacent to the Lewiston-Porter school complex at 4061 Creek Rd, approximately 5,500 feet west of the NFSS.	SSB003-810	BKGD-SO-5-0.5	10/05/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. This sampling location is now open land that belongs to the Lewiston-Porter School System. The school complex is located in a residential area.
B004 – Located on residential property at 4403 Creek Rd, approximately 8,700 feet southwest of the southwest corner of the NFSS.	SSB004-811	BKGD-SO-6-0.5	10/05/00	Prior to construction of the LOOW, this sampling location was open unused land or part of a highway. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently the property is part of a residential area.
B005 – Located in the north-central portion of the National Guard training area, 1551 Balmer Rd, approximately 7,400 feet northeast of the northeast corner of the NFSS.	SSB005-812	BKGD-SO-7-0.5	11/09/00	Prior to construction of the LOOW, this sampling location was farmland and orchard. During operation of the LOOW, this area was part of the LOOW TNT magazine storage area. The area is currently part of the National Guard training area.
B006 – Located in the east-central quadrant of the National Guard training area, 1551 Balmer Rd, approximately 6,000 feet northeast of the northeast corner of the NFSS.	SSB006-813	BKGD-SO-8-0.5	11/09/00	Prior to construction of the LOOW, this sampling location was farmland and orchard. During operation of the LOOW, this area was part of the LOOW TNT magazine storage area. The area is currently part of the National Guard training area.
B007 - Located on CWM property at 1550 Balmer Rd in the eastern portion of the facility near Porter Center Rd, approximately 4,100 feet east-northeast of the northeast corner of the NFSS.	SSB007-814	BKGD-SO-9-0.5	11/09/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. This location is currently a part of the CWM.
B008 – Located on the western end of a farm at 4452 Porter Center Rd, approximately 10,400 feet northeast of the northeast corner of the NFSS.	SSB008-816	BKGD-SO-10-0.5	11/09/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, the area was part of the LOOW buffer zone. Current land use is once again agricultural (farm).
B009 – On Modern property 47, near the intersection of the southeastern boundary of CWM and the northeastern boundary of Modern, approximately 5,800 feet east-southeast of the northeast corner of the NFSS.	SSB009-817	BKGD-SO-11-0.5	11/09/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. The property is currently a part of Modern landfill.

Table 3-5
Summary of Background Surface Soil Samples and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Alias ID	Date Collected	Rationale for Sample Location and Analysis*
B010 – Located on property belonging to the 3F Gun Club at 1166 Swann Rd, approximately 7,900 feet south-southwest of the NFSS.	SSB010-818	BKGD-SO-12-0.5	11/10/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. The property is now a gun club. The surrounding area is residential.
B011 – Located south of the 3F gun club in a grassy area near a pond, approximately 9,500 feet south-southwest of the NFSS.	SSB011-819	BKGD-SO-13-0.5	11/10/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, the area was part of the LOOW buffer zone. Current land use is once again agricultural (farm).
B012 – Located on forested property at 1074 Cain Rd., approximately 9,100 feet northwest of the northwest corner of the NFSS.	SSB012-820	BKGD-SO-14-0.5	11/10/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the property is a privately owned forested area.
B013 – Collected from the front lawn of a private residence located at 338 Howard Drive, approximately 16,000 feet west-northwest of the NFSS.	SSB013-821	BKGD-SO-15-0.5	11/10/00	This area has always been a residential area.
B014 – Collected behind the softball field of the Lewiston-Porter school complex located at 4061 Creek Rd, approximately 6,100 feet west of the NFSS.	SSB014-822	BKGD-SO-16-0.5	11/11/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was a part of the LOOW buffer zone. The land is now part of the Lewiston-Porter school complex and is surrounded by a residential area.
B015 – Located in the northern portion of the Lewiston-Porter school complex located at 4061 Creek Rd, approximately 7,000 feet west of the NFSS.	SSB015-823	BKGD-SO-17-0.5	11/11/00	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was a part of the LOOW buffer zone. The land is now part of the Lewiston-Porter school complex and is surrounded by a residential area.
SSBK1 – Located north of Pletcher Road and slightly east of SW18 Creek Road. About one mile west of NFSS.	SSBK1	BKGD-1-0-0.5	7/13/98	Collected during Phase I LOOW RI to obtain data representing the general area of the LOOW that was not impacted by site-specific operations.

Radiological Parameters included: gross alpha, gross beta, total uranium and the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, potassium-40, protactinium-231, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236 uranium-238, and total uranium.

* These samples were collected to characterize background conditions. Sample locations were selected because they are outside the zone of impacted soil associated with activities at the NFSS and LOOW. For each sample, analytical parameters included: radiological parameters, SVOCs, PAHs, metals and total organic carbon. Parameters were selected to detect a wide range of compounds.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB501 – Southwest corner of Baker Smith Area, northwest of Building 444. EU 1	SB501-144-12	11/07/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former welding shop (Building 443) and storehouse (Building 444) where radioactive residue was stored and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this area.
SB502 – Central portion of Baker Smith Area, near Building 445. EU 1	SB502-145-13	11/17/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former pipe shop (Building 445) where drums of L-30 and KAPL wastes were stored and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this area.
SB503 - Central portion of Baker Smith Area, adjacent to Building 445. EU 1	SB503-149-13	11/07/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former pipe shop (Building 445) where drums of L-30 and KAPL wastes were stored and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this area.
SB504 - Southeast Baker Smith Area, southeast of Building 443. EU 1	SB504-722-14.0	09/09/2000 Phase 2	SVOC, Metals, RAD	Further delineate the extent of the gamma measurements, chemical and radiological parameters found in SB503.
SB505 - Northwest corner of NFSS. EU 1	SB505-723-17.0	08/26/2000 Phase 2	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Further delineate the extent of chemical and radiological compounds found in SB502 and SB 503.
SB506 - Northeast Corner of Baker Smith Area. EU 1	SB506-725-13.0	09/09/2000 Phase 2	RAD	Further delineate the extent of the radiological parameters found in SB503, to investigate the presence of radiological parameters in the soil at the NFSS boundary .
SB5A010 - West central portion of EU1	SB5A010-2209 2.0	09/10/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A010 - West central portion of EU 1	SB5A010-2257 1.0	09/10/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A010 - West central portion of EU 1	SB5A010-5.0-3641	09/18/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A013 - South central portion of EU 1	SB5A013-2210 2.0	09/10/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A013 - South central portion of EU 1	SB5A013-5.0-3640	09/18/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A016 - East central portion of EU 1	SB5A016-2254 1.0	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB5A016 - East central portion of EU 1	SB5A016-2255-1.5	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A016 - East central portion of EU 1	SB5A016-2256-1.7	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A016 - East central portion of EU 1	SB5A016-5.0-3642	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A018 - West central portion of EU 1	SB5A018-2211-2.0	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A018 - West central portion of EU 1	SB5A018-5.0-3643	09/18/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A019 - North central portion of EU 1	SB5A019-2212-1.75	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A020 - West central portion of EU 1	SB5A020-2233-2.0	09/09/2001 Phase 2	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB5A020 - West central portion of EU 1	SB5A020-5.0-3644	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB-EU011 - Southeast portion of EU 1, adjacent to West Ditch	SB-EU011-3300-2.0	07/08/2003 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, PAH	This boring was located near sediment sample SD-749 to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB-EU012 - Central portion of EU 1	SB-EU012-3301-1.0	07/08/2003 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, PAH	This boring was located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB-EU013 - Northeast portion of the EU 1	SB-EU013-3302-1.0	07/08/2003 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, PAH	This boring was located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB-EU014 - North central portion of EU 1	SB-EU014-3303-1.0	07/08/2003 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, PAH	This boring was located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB-EU015 - North central portion of EU1	SB-EU015-3304-1.0	07/08/2003 Phase 3	VOC	Investigate organic concentrations found during the LOOW RI.
TB501 - Central portion of EU 1, in the vicinity of building foundations	TB501-2847-01.5-130	05/21/2002 Phase 3	SVOC, Metals, RAD	Gamma measurements above background in the surface and subsurface samples were noted during the soil sample collection after the gamma walkover. The location of the trench examined conductive zone anomalies CZ208 and CZ217, magnetic anomaly MZ207, and ferrous zone anomaly FZ220 that were reported in the geophysical investigation of the area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB501 - Central portion of EU 1, in the vicinity of building foundations	TB501-2848-03.0-095	05/22/2002 Phase 3	SVOC, Metals, RAD	Gamma measurements above background in the surface and subsurface samples were noted during the soil sample collection after the gamma walkover. The location of the trench examined conductive zone anomalies CZ208 and CZ217, magnetic anomaly MZ207, and ferrous zone anomaly FZ220 that were reported in the geophysical investigation of the area.
TB501 - Central portion of EU 1, in the vicinity of building foundations	TB501-2849-02.7-068	05/22/2002 Phase 3	SVOC, Metals, RAD	Gamma measurements above background in the surface and subsurface samples were noted during the soil sample collection after the gamma walkover. The location of the trench examined conductive zone anomalies CZ208 and CZ217, magnetic anomaly MZ207, and ferrous zone anomaly FZ220 that were reported in the geophysical investigation of the area.
SB401 – West of former Building 433 and the Acid Area. EU 2	SB401-118-20	11/16/1999 Phase 1	VOC, SVOC, Metals, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the two pipes found in the ground during the gamma walkover survey, to provide sufficient and representative data to characterize this EU and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil east of this location.
SB402 - East edge of EU 2, south of former Building 433	SB402-119-23	11/08/1999 Phase 1	VOC SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with two nearby concrete slabs and Building 433 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB403 - East edge of EU 2, near former Building 433	SB403-120-18	11/08/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel oil storage area and Building 433 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB404 - Eastern perimeter of EU 2, near former Building 433	SB404-121-1.4	11/07/1999 Phase 1	RAD	Investigate the presence or absence of radioactive compounds in the soil associated with a former fuel oil storage area and radium vault.
SB404 - Eastern perimeter of EU 2, near former Building 433	SB404-121-25	11/07/1999 Phase 1	VOC SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel oil storage area and radium vault and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB404 - Eastern perimeter of EU 2, near former Building 433	SB404-121-4	11/07/1999 Phase 1	VOC, SVOC, Metals, PEST, PCB, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel oil storage area and radium vault and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB405 - East of Campbell Street, near former Building 433. EU 2	SB405-122-25	11/08/1999 Phase 1	VOC, SVOC, Metals, RAD, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel oil storage area and radium vault and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB406 – Northeast corner of EU 2, north of former Building 433.	SB406-123-18	11/16/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with former railroad lines, to provide a representative number of sampling points in this EU and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil southeast of this location.
SB4A013 – Southwest of former Building 433 and the Acid Area. EU 2	SB4A013-2356	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4A013 – Southwest of former Building 433 and Acid Area. EU 2	SB4A013-2357	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4A013 – Southwest of former Building 433 and Acid Area. EU 2	SB4A013-2358	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4A014 - Eastern perimeter of EU 2, south of former Building 433.	SB4A014-2272 1.0	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4A015 - Eastern edge of EU 2, south of former Building 433	SB4A015-2355	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB808 – East of the Baker Smith Area. EU 2	SB808-161-15	11/08/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil in an area that has not previously been investigated and to provide sufficient and representative data to characterize the EU.
SB809 – East of Baker Smith Area, northern perimeter of NFSS. EU 2	SB809-162-18	11/16/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC+D95	Investigate the presence or absence of chemical and radiological compounds in the soil at the property boundary in an area that has not previously been investigated.
SB810 – South side of N St., near Campbell Street. EU 2	SB810-163-12	11/30/1999 Phase 1	VOC, Metals, RAD, Explosives, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil in an area that has not previously been investigated.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB822 – North of O St. between SB401 and SB808. EU 2	SB822-739-11.0	09/08/2000 Phase 2	SVOC Metals RAD	Further delineate the extent of chemical and radiological compounds found in SB808 and SB401.
SB823 – Northern perimeter of EU 2 and NFSS	SB823-740-13.0	09/11/2000 Phase 2	RAD	Further delineate the radium-226 found in SB406 and SB810.
SB8F001 – East of Baker Smith Area, northern perimeter of EU 2	SB8F001-2242-1.0	09/09/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8F001 – East of the Baker Smith Area, northern perimeter of EU 2 and the NFSS.	SB8F001-2243-1.5	09/09/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8F005 - Northern perimeter of the NFSS, adjacent to Central Ditch. EU 2	SB8F005-2245-1.0	09/08/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8F005 - Northern perimeter of the NFSS, adjacent to Central Ditch. EU 2	SB8F005-2246-1.5	09/08/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8F006 - Northern perimeter of the NFSS. EU 2	SB8F006-2247-1.5	09/08/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8F006 - Northern perimeter of the NFSS. EU 2	SB8F006-2251-1.0	09/08/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB-DRUM01 - Southeast corner of EU 2.	SB-DRUM01-3370-1.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Chemically and radiologically characterize the soil beneath abandoned drum.
SB-EU021 - Adjacent to boring 8F001. EU 2	SB-EU021-3305-1.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further delineate the extent of organic, inorganic and radiological compounds found in boring 8F001.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-EU022 - Adjacent to boring 8F005. EU 2	SB-EU022-3306-2.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further delineate the extent of organic, inorganic and radiological compounds found in boring 8F005.
SB-EU023 - Central portion of EU 2	SB-EU023-3307-2.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence and extent of chemical compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-OTFL11 - Central ditch. EU 2	SB-OTFL11-13.0-3658	10/01/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Investigate the presence and extent of chemical compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-OTFL12 - Central Ditch. EU 2	SB-OTFL12-13.5-3659	10/01/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Investigate the presence and extent of chemical compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB407 – Northeast of former Building 433. EU 3	SB407-124-20	11/08/1999 Phase 1	SVOC, Metals, RAD, Explosives, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a hummocky area near former railroad lines, to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil southeast of this location.
SB408 - Southeast perimeter of EU 3, near former Building 433	SB408-125-20	11/17/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a former fuel oil storage area and Building 433 and to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this location.
SB4B009 - South of former Building 433. EU 3	SB4B009-2281 2.0	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4B0011 - South of former Building 433. EU 3	SB4B011-2283 2.0	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4B0013 - South of former Building 433. EU 3	SB4B013-2287 2.0	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4B0014 - South of former Building 433. EU 3	SB4B014-2353	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.

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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB4B0014 - South of former Building 433. EU 3	SB4B014-2354	10/04/2001 Phase 3	RAD	Investigate the presence and extent of chemical compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB4B0017 - South of former Building 433. EU 3	SB4B017-2350	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4B0018 - South of former Building 433. EU 3	SB4B018-2292 2.0	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4B0021 - South of former Building 433. EU 3	SB4B021-2296 2.0	10/04/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB-EU031 - Central portion of EU 3, northeast of SB4B009	SB-EU031-3308-2.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further delineate the extent of organic and/or inorganic and radiological compounds found in boring SB4B009.
SB-EU032 - South central portion of EU 3, southeast of SB4B009	SB-EU032-3309-1.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further delineate the extent of chemical and radiological compounds found in boring SB4B009.
TB403 - Former Acid Area between "O" Street and "N" Street. EU 3	TB403-2821-04.0-008	05/30/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Due to the uneven terrain, no gamma walkover survey was completed in this area. The location of the trench examined a ferrous zone anomaly FZ310 and metallic zone anomaly MZ 317 that were reported in the geophysical investigation of the area.
TB403 - Former Acid Area between "O" Street and "N" Street. EU 3	TB403-2822-07.0-024	05/30/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Due to the uneven terrain, no gamma walkover survey was completed in this area. The location of the trench examined a ferrous zone anomaly FZ310 and metallic zone anomaly MZ 317 that were reported in the geophysical investigation of the area.
TB403 - Former Acid Area between "O" Street and "N" Street. EU 3	TB403-2823-08.0-045	05/30/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Due to the uneven terrain, no gamma walkover survey was completed in this area. The location of the trench examined a ferrous zone anomaly FZ310 and metallic zone anomaly MZ 317 that were reported in the geophysical investigation of the area.
TB411 - Western end of the Acid Area. EU 3	TB411-2835-05.0-028	05/19/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and conductive zone anomaly CZ316 that were reported in the geophysical investigation of the area.
TB411 - Western end of the Acid Area. EU 3	TB411-2836-01.5-034	05/19/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and conductive zone anomaly CZ316 that were reported in the geophysical investigation of the area.

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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB411 - Western end of the Acid Area. EU 3	TB411-2837-01.5-052	05/19/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and conductive zone anomaly CZ316 that were reported in the geophysical investigation of the area.
TB412 - Western end of the Acid Area. EU 3	TB412-2838-05.0-050	05/18/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and metallic anomaly MZ317 that were reported in the geophysical investigation of the area.
TB412 - Western end of the Acid Area. EU 3	TB412-2839-05.0-034	05/18/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and metallic anomaly MZ317 that were reported in the geophysical investigation of the area.
TB412 - Western end of the Acid Area. EU 3	TB412-2840-04.0-025	05/18/2002 Phase 3	RAD	The location of the trench examined ferrous zone anomaly FZ310 and metallic anomaly MZ317 that were reported in the geophysical investigation of the area.
TB413 - Western end of the Acid Area. EU 3	TB413-2841-09.0-050	05/17/2002 Phase 3	RAD	The location of the trench examined a metallic zone anomaly MZ317 that was reported in the geophysical investigation of the area.
TB413 - Western end of the Acid Area. EU 3	TB413-2842-03.0-019	05/18/2002 Phase 3	RAD	The location of the trench examined a metallic zone anomaly MZ317 that was reported in the geophysical investigation of the area.
TB413 - Western end of the Acid Area. EU 3	TB413-2843-03.0-015	05/18/2002 Phase 3	RAD	The location of the trench examined a metallic zone anomaly MZ317 that was reported in the geophysical investigation of the area.
SB313 – Near intersection of O St. and Castle Garden Rd. EU 4	SB313-717-13.5	09/15/2000 Phase 2	VOC, SVOC, RAD, PEST, PCB	South of borings 4D010, 417 and 413 where organic chemicals were identified in the soil. This location is near the transfer route for the K-65 wastes.
SB409 – West of former Buildings 431 and 432. EU 4	SB409-126-7.5	11/30/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with sulfuric acid storage and Building 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB410 – Northwest of former Buildings 431 and 432. EU 4	SB410-128-11	11/30/1999 Phase 1	SVOC, Metals, RAD, Explosives, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil in a hummocky area near former rail lines, tank cradles and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the Acid Area near this location.
SB411 – Northwest of N St. and Castle Garden Rd., EU 4	SB411-129-20	11/16/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil along the northern NFSS boundary. This location receives run-off from the CWM property and is north of the Acid Area where organic and/or inorganic compounds were previously identified (LOOW RI).

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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB412 - Central Acid Area, west of former Building 431. EU 4	SB412-130-15	11/22/1999 Phase 1	SVOC, Metals, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB413 - Central Acid Area, west of former Building 431. EU 4	SB413-131-19	11/22/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB414 – Southern perimeter of EU 4, south of former Buildings 431 and 432. EU 4	SB414-133-21	12/02/1999 Phase 1	SVOC, Metals, RAD, PEST, PCB, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with sulfuric acid storage and Building 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB414 – Southern perimeter of EU 4, south of former Buildings 431 and 432. EU 4	SB414-5.0-3631	10/01/2003 Phase 3	RAD	Delineate the vertical extent of Cs-137 found near the surface in the original SB414.
SB415 - Central Acid Area, east of former Building 431. EU 4	SB415-136-12.5	11/30/1999 Phase 1	VOC SVOC Metals PEST PCB	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB415 - Central Acid Area, west of former Building 431. EU 4	SB415-136-14	11/30/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB415 - Central Acid Area, west of former Building 431. EU 4	SB415-136-9.2	11/30/1999 Phase 1	VOC SVOC Metals PEST PCB	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB416 - Central Acid Area, west of Former Building 431. EU 4	SB416-137-21	12/03/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil near the former nitric acid concentrator and Buildings 431 and 432 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB417 – South-central Acid Area, EU 4	SB417-138-3	11/30/1999 Phase 1	Metals, Explosives	Investigate the presence or absence of chemical compounds in the soil near a concrete slab and potential UST and to investigate the presence and extent of compounds previously identified in the LOOW RI in the soil near this location.
SB417 – South-central Acid Area, EU 4	SB417-138-8.9	11/30/1999 Phase 1	Metals, RAD, PEST, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near a concrete slab and potential UST and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB418 - East of central Acid Area, EU 4	SB418-140-19	12/01/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil near a concrete tank cradle and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB419 - East of central Acid Area, EU 4	SB419-141-17	12/01/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil northeast of a concrete tank cradle and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this location.
SB422 – Southern perimeter of EU along O St., EU 4	SB422-718-10.5	09/10/2000 Phase 2	RAD	Investigate the potential presence or absence of radiological compounds in the soil along the southern boundary of the NFSS along the former haul road and rail line for the K-65 waste.
SB425 – Northeast corner of EU 4, northern NFSS boundary	SB425-721-10.5	09/11/2000 Phase 2	VOC, RAD, Explosives	Provide sufficient and representative data to characterize this EU and to investigate the presence of chemical and radiological compounds in the soil along the northern NFSS boundary.
SB4C002 – Southern perimeter of EU 4, south of Buildings 431 and 432	SB4C002-2351	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4C002 – Southern perimeter of EU 4, south of former Buildings 431 and 432	SB4C002-2352	10/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB4D001 - Central Acid Area, west of former Building 431. EU 4	SB4D001-653-14.5	09/12/2000 Phase 2	VOC, SVOC, RAD, Explosives	Investigate the extent of chemical and radiological compounds found at SB415 and investigate the presence or absence of nitroaromatic compounds at this location.
SB4D002 - Central Acid Area, adjacent to MH22 and MH35. EU 4	SB4D002-655-12.0	09/14/2000 Phase 2	VOC, SVOC, RAD, Explosives	Delineate the extent of chemical and radiological compounds found in manholes MH22 and MH35.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB4D003 – Central Acid Area, west of TWP415. EU 4	SB4D003-656-14.5	09/13/2000 Phase 2	VOC, SVOC, RAD, Explosives	Investigate the extent of chemical and radiological compounds found in the groundwater at TWP415 and PCBs found in the soil at SB417 and investigate the presence or absence of nitroaromatic compounds at this location.
SB4D004 - Central Acid Area, next to Sump 25. EU 4	SB4D004-657-14.5	09/14/2000 Phase 2	VOC, RAD	Delineate the extent of compounds found in Sump 25.
SB4D005 - Central Acid Area, south of SB415 . EU 4	SB4D005-658-15.5	09/13/2000 Phase 2	VOC, RAD	Investigate the extent of the organic compounds and uranium isotopes found at SB415.
SB4D006 - Central Acid Area, southeast of SB415 . EU 4	SB4D006-659-15.0	09/14/2000 Phase 2	VOC SVOC RAD	Investigate the extent of the organic compounds and uranium isotopes found at SB415.
SB-DRUM04 - Central portion of EU 4.	SB-DRUM04-3379-1.0	07/09/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Chemically and radiologically characterize the soil beneath abandoned drum.
SB-DRUM05 - North-central portion of EU 4	SB-DRUM05-3382-1.0	07/09/2003 Phase 3	VOC , SVOC, Metals, RAD, PEST, PCB, PAH	Chemically and radiologically characterize the soil beneath abandoned drum.
SB-DRUM06 - Northeast quadrant of EU 4	SB-DRUM06-3396-1.0	07/12/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Chemically and radiologically characterize the soil beneath abandoned drum.
SB-DRUM07 - West-central portion of EU 4	SB-DRUM07-3399-1.0	07/12/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Chemically and radiologically characterize the soil beneath abandoned drum.
SB-EU041 - West central portion of EU 4 near rubble filled depression	SB-EU041-3310-1.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of chemical and radiological compounds found in SB412.
SB-EU042 - West central portion of EU 4 south of rubble filled depression	SB-EU042-3311-1.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-MW422 – South of SB424, southeast of MW415A. EU 4	SB-MW422-15.0-3609	09/17/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH , Explosives	Samples collected from MW411A, MW415A and sewer water samples in this area contained chlorinated solvents. This boring was installed and sampled to further investigate the extent of the chlorinated solvents and the presence or absence of other parameters in the soil.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-MW423 – South of SB424 and northeast of MW415A. EU 4	SB-MW423-15.0-3612	09/16/2003 Phase 3	VOC SVOC, Metals, RAD, PEST, PCB, PAH, Explosives	Samples collected from MW411A, MW415A and sewer water samples in this area contained chlorinated solvents. This boring was installed and sampled to further investigate the extent of the chlorinated solvents and the presence or absence of other parameters in the soil.
SB-MW424 – East of MW411A and north of MW423. EU 4	SB-MW424-14.0-3621	09/22/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Samples collected from MW411A, MW415A and sewer water samples in this area contained chlorinated solvents. This boring was installed and sampled to further investigate the extent of the chlorinated solvents and the presence or absence of other parameters in the soil.
TB404 - Acid Area, south of “N” Street. EU 4	TB404-2824-03.3-005	05/17/2002 Phase 3	SVOC RAD PEST PCB	This trench was located to investigate the sewer and underground piping, as well as the potential debris area in the former Acid Area just south of “N” Street. The location of the trench examined ferrous zone anomalies FZ310 and FZ 328 that were reported in the geophysical investigation of the area.
TB404 - Acid Area, south of “N” Street. EU 4	TB404-2825-06.2-021	05/17/2002 Phase 3	SVOC RAD PEST PCB	This trench was located to investigate the sewer and underground piping, as well as the potential debris area in the former Acid Area just south of “N” Street. The location of the trench examined ferrous zone anomalies FZ310 and FZ 328 that were reported in the geophysical investigation of the area.
TB404 - Acid Area, south of “N” Street. EU 4	TB404-2856-02.3-028	05/17/2002 Phase 3	SVOC RAD PEST PCB	This trench was located to investigate the sewer and underground piping, as well as the potential debris area in the former Acid Area. The location of the trench examined ferrous zone anomalies FZ310 and FZ 328 that were reported in the geophysical investigation of the area.
TB406 - South of “N” Street and west of Castle Garden Road. EU 4	TB406-2826-07.0-043	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of “N” Street and west of Castle Garden Road cut-through in the former Acid Area. The debris pile includes PVC and steel pipes, rubble, and gray foam products. The location of the trench examined ferrous zone anomalies FZ333 and FZ328 that were reported in the geophysical investigation of the area.
TB406 - South of “N” Street and west of Castle Garden Road. EU 4	TB406-2827-02.0-027	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of “N” Street and west of Castle Garden Road cut-through in the former Acid Area. The debris pile includes PVC and steel pipes, rubble, and gray foam products. The location of the trench examined ferrous zone anomalies FZ333 and FZ328 that were reported in the geophysical investigation of the area.
TB406 - South of “N” Street and west of Castle Garden Road. EU 4	TB406-2828-01.0-010	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of “N” Street and west of Castle Garden Road cut-through in the former Acid Area. The debris pile includes PVC and steel pipes, rubble, and gray foam products. The location of the trench examined ferrous zone anomalies FZ333 and FZ328 that were reported in the geophysical investigation of the area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB408 - South of "N" Street and west of Castle Garden Road. EU 4	TB408-2829-02.7-005	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of "N" Street and east of Castle Garden Road cut-through in the former Acid Area. The debris pile includes rubble and asphalt roofing materials. The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
TB408 - South of "N" Street and west of Castle Garden Road. EU 4	TB408-2830-03.9-021	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of "N" Street and east of Castle Garden Road cut-through in the former Acid Area. The debris pile includes rubble and asphalt roofing materials. The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
TB408 - South of "N" Street and west of Castle Garden Road. EU 4	TB408-2831-04.7-054	05/16/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of "N" Street and east of Castle Garden Road cut-through in the former Acid Area. The debris pile includes rubble and asphalt roofing materials. The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
TB414 - Western end of the Acid Area. EU 4	TB414-2844-05.5-004	05/20/2002 Phase 3	SVOC, RAD	It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. No gamma walkover survey was provided in this area. The location of the trench examined ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
TB414 - Western end of the Acid Area. EU 4	TB414-2845-08.0-040	05/20/2002 Phase 3	SVOC, RAD	It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. No gamma walkover survey was provided in this area. The location of the trench examined ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
TB414 - Western end of the Acid Area. EU 4	TB414-2846-01.0-043	05/20/2002 Phase 3	SVOC, RAD	It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. No gamma walkover survey was provided in this area. The location of the trench examined ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.
SB420 – Southern perimeter of EU 5, adjacent to wells OW20D and OW20S	SB420-142-7	11/17/1999 Phase 1	VOC SVOC, Metals, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the ammonia manufacturing plant and a 1953 explosion and fire site and investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil west of this location.
SB421 - East of central Acid Area. EU 5	SB421-143-16	12/01/1999 Phase 1	SVOC Metals RAD TOC	Investigate the potential presence or absence of chemical and radiological compounds in soil in the central portion of the panhandle of the NFSS.
SB423 - Southern perimeter of EU 5, west of BH60	SB423-719-10.0	09/12/2000 Phase 2	SVOC Metals RAD	Investigate the potential presence or absence of chemical and radiological compounds in the soil along the southern boundary of the NFSS along the former haul road and rail line for the K-65 waste and the location of a drum storage and handling area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB424 – Northern perimeter of EU 5 and NFSS, east of BH51	SB424-720-16.0	09/10/2000 Phase 2	RAD	Investigate the potential presence or absence of radiological compounds in the soil along the northern boundary of the NFSS near the former haul road for the K-65 waste.
SB4G002 - North-central Panhandle. EU 5	SB4G002-2366	10/07/2001 Phase 3	RAD	Investigate the presence or absence of radiological compounds east of the Acid Area.
SB4G002 - North-central Panhandle. EU 5	SB4G002-2367	10/07/2001 Phase 3	RAD	Investigate the presence or absence of radiological compounds east of the Acid Area.
SB4G002 - North-central Panhandle. EU 5	SB4G002-2368	10/07/2001 Phase 3	RAD	Investigate the presence or absence of radiological compounds east of the Acid Area.
SB601 - Central Panhandle, west of former Building 434. EU 5	SB601-150-13	12/02/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds east of the Acid Area and west of former Building 434 which stored radioactive residue.
SB605 – South and adjacent to O St. and south of TWP604	SB605-726-16.5	09/11/2000 Phase 2	Metals RAD	Further delineate the extent of the gamma measurements, uranium isotopes and metals found in SB603. O St. was a haul road and this area was also the location of the former “thaw house.”
SB6A001 - West of former Building 434, in SE corner of EU 5.	SB6A001-2318 2.0	10/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB6A001 - West of former Building 434, in SE corner of EU 5.	SB6A001-2362	10/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB6A001 - West of former Building 434, in SE corner of EU 5.	SB6A001-2363	10/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB6A006 - West of former Building 434, in SE corner of EU 5.	SB6A006-2324 2.0	10/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB811 - Formerly uninvestigated area, northeast corner of EU 5.	SB811-164-23	12/02/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the potential presence or absence of chemical and radiological compounds in soil along the northern boundary of the panhandle of the NFSS. No previous soil data was obtained near this location.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-EU051 - Southeast corner of EU 5, southeast of 6A001.	SB-EU051-3312-1.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of organic, inorganic and radiological compounds found in SB6A001.
SB-EU052 - South-central portion of EU 5.	SB-EU052-3313-1.5	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
TB410 - Northwest of a foundation south of "N" Street. EU 5	TB410-2832-06.0-008	05/21/2002 Phase 3	VOC SVOC RAD	This trench was located to investigate a potential tank located northwest of a building foundation south of "N" Street. This trench was placed on the western edge of the slab. The trench was positioned to examine an unnamed conductive zone anomaly that was reported in the geophysical investigation of the area.
TB410 - Northwest of a foundation south of "N" Street. EU 5	TB410-2833-02.0-035	05/21/2002 Phase 3	VOC SVOC RAD	This trench was located to investigate a potential tank located northwest of a building foundation south of "N" Street. This trench was placed on the western edge of the slab. The trench was positioned to examine an unnamed conductive zone anomaly that was reported in the geophysical investigation of the area.
TB410 - Northwest of a foundation south of "N" Street. EU 5	TB410-2834-04.0-055	05/21/2002 Phase 3	VOC SVOC RAD	This trench was located to investigate a potential tank located northwest of a building foundation south of "N" Street. This trench was placed on the western edge of the slab. The trench was positioned to examine an unnamed conductive zone anomaly that was reported in the geophysical investigation of the area.
SB602 – Southwest corner of EU 6, southwest of former Building 434.	SB602-151-15	11/16/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the potential presence or absence of chemical and radiological compounds in the soil near the former water storage tower where K-65 wastes were stored.
SB603 – Near former Building 434, south of N St. EU 6	SB603-152-15	11/16/1999 Phase 1	VOC	Investigate the potential presence or absence of organic compounds in the soil near the former water storage tower where K-65 wastes were stored.
SB604 - Southeast of SB603 and former Building 434. EU 6	SB604-153-15	11/07/1999 Phase 1	SVOC Metals RAD TOC	Investigate the potential presence or absence of chemical and radiological compounds in the soil near the former water storage tower where K-65 wastes were stored.
SB606 - Southeast corner of EU 6.	SB606-727-18.0	08/25/2000 Phase 2	RAD	Investigate the presence or absence of radiological impact at the property line. This area is southeast of the former "thaw house"
SB607 – Eastern NFSS perimeter, near BH63 and BH57. EU 6	SB607-728-17.0	09/11/2000 Phase 2	VOC SVOC Metals RAD	Further delineate the extent of chemical and radiological parameters found in SB603, to investigate the presence or absence of chemical and radiological compounds in the soil at the NFSS boundary+E204. This sample point is located southwest of the extraction wells for the CWM property.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB6B005 - West of southeast corner, along "O" Street. EU 6	SB6B005-2359	10/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB6B005 - West of southeast corner, along "O" Street. EU 6	SB6B005-2360	10/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB6B005 - West of southeast corner, along "O" Street. EU 6	SB6B005-2361	10/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB812 - Northeast corner of panhandle, north of "N" Street. EU 6	SB812-165-10	11/08/1999 Phase 1	SVOC, Metals, RAD, TOC, Explosives	Investigate the formerly uninvestigated area north of former Building 434 residual storage.
SB824 - Northern property line. EU 6	SB824-741-13.0	09/11/2000 Phase 2	RAD	Investigate the formerly uninvestigated area along the northern property line with CWM.
SB825 - Northeast corner of EU 6 northeast of Building 434.	SB825-742-9.5	09/11/2000 Phase 2	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Further delineate the radiological parameters found in SB603, to investigate the presence or absence of chemical and radiological compounds in the soil at the NFSS boundary in an area that has not previously been investigated.
SB828 - Property line with Modern Landfill. EU 6	SB828-418-0.5	08/31/2000 Phase 2	RAD	The purpose of this boring was investigate the formerly uninvestigated area along the northern property line with Modern Landfill.
SB829 - Southeast corner of EU 6.	SB829-419-1.3	09/15/2000 Phase 2	RAD	Investigate the presence or absence of radiological compounds at the property line. This area is southeast of the former "thaw house"
SB-EU061 - Southeast corner of EU 6.	SB-EU061-3314-2.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of chemical and radiological compounds found in SB829.
SB-EU062 - Southeast corner of EU 6.	SB-EU062-3315-2.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of chemical and radiological compounds found in SB829.
SB806 - Between Campbell Street and Central Ditch. EU 7	SB806-159-18.9	11/06/1999 Phase 1	VOC, Metals, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil in an area that has not previously been investigated.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB807 - East of Lutts Road, "O" Street, the Central Ditch and "N" Street. EU 7	SB807-160-18.2	11/06/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil in an area that has not previously been investigated. No previous soil data was obtained near this location.
SB820 - North of the IWCS, Disposal Area B. EU 7	SB820-737-18.5	09/08/2000 Phase 2	RAD	Further delineate the elevated levels of radium-226 found in SB806 and SB807 and to confirm previous remediation performed by DOE. Documentation of confirmation sampling was not found during the records search.
SB821 – Northwest of the IWCS, NFSS boundary. EU 7	SB821-738-12.0	09/09/2000 Phase 2	RAD	Confirm previous remediation performed by DOE. Documentation of confirmation sampling was not found during the records search. This location is west of SB807 that exhibited levels of radium-226.
SB8D003 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D003-2233 0.75	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D003 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D003-2236 1.0	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D003 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D003-4.5-3645	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D004 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D004-2222 1.8	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D006 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D006-2.5-3646	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D006 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D006-2232 0.8	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D006 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D006-2237 1.5	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D006 - Southeast intersection Lutz Road and "O" Street EU 7	SB8D006-2238 2.0	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.

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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB8D007 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D007-2223 1.8	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D009 - North of IWCS; east of Lutz Road. EU 7	SB8D009-2.5- 3647	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D009 - North of IWCS; east of Lutz Road. EU 7	SB8D009-2224 2.0	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D011 - North of IWCS; east of Lutz Road. EU 7	SB8D011-2225 2.0	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D012 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D012-2227 2.0	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D013 - Southwest intersection Lutz Road and "O" Street. EU 7	SB8D013-2228 1.7	09/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D014 - North of IWCS; west of Lutz Road. EU 7	SB8D014-2229 2.0	09/07/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D015 - Southeast intersection Lutz Road and "O" Street. EU 7	SB8D015-2230 2.0	09/05/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D016 - North of IWCS; east of Lutz Road. EU 7	SB8D016-2231 2.0	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8D016 - North of IWCS; east of Lutz Road. EU 7	SB8D016-3.5- 3634	09/22/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8E003 - North of IWCS; South of "O" Street. EU 7	SB8E003-2234 1.0	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB8E003 - North of IWCS; South of "O" Street. EU 7	SB8E003-2235 1.5	09/06/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB8E003 - North of IWCS; South of "O" Street. EU 7	SB8E003-5.0-3649	10/02/2003 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB-EU071 - West-central portion of EU 7	SB-EU071-3316-2.0	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of chemical and radiological compounds found in SB8D006 and SB8D009.
SB-EU072 - West-central portion of EU 7	SB-EU072-3317-1.5	07/10/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the extent of chemical and radiological compounds found in SB8D006 and SB8D009.
SB835 – Northwest of the IWCS, north of SB821. EU 7	SB-TWP835-15.0-3516	09/20/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence, absence and migration of chemical and radiological compounds in the soil associated with a former disposal area near this location.
SB836 – Northeast of intersection of Lutts Rd. and IWCS. EU 7	SB-TWP836-15.0-3519	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further characterize the soil at the former DOE organic burial area, delineate the radium and thorium present in SB820. Activities in the organic burial area may have resulted in the presence of a wide variety of radiological and non-radiological compounds.
SB837 – East of SB807 and the IWCS. EU 7	SB-TWP837-19.0-3522	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	The boring is located within the former DOE dewatering Pond 3 to delineate chemical and radiological compounds present in SB807.
SB-TWP838 - Former Disposal Area, north of IWCS. EU 7	SB-TWP838-14.0-3525	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This trench was located to investigate the former disposal area located north of the IWCS.
SB840 – Northeast of the IWCS. EU 7	SB-TWP840-12.0-3531	09/18/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	The boring is located within the former DOE dewatering Pond 4 to investigate the radium present in SB806 and to further characterize chemical constituents at the location. Previous activities within the DOE WWTP may have resulted in the presence of a wide variety of radiological and non-radiological compounds.
TB802 - Disposal area north of the IWCS. EU 7	TB802-2901-04.2-008	05/23/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	This trench was located to investigate the former disposal area located north of the IWCS.
TB802 - Disposal area north of the IWCS. EU 7	TB802-2902-04.0-018	05/23/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	This trench was located to investigate the former disposal area located north of the IWCS.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB802 - Disposal area north of the IWCS. EU 7	TB802A-2903-03.8-096	05/31/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB	This trench was located to investigate the former disposal area located north of the IWCS.
TB808 - Organic burial area north of the IWCS. EU 7	TB808-2850-04.5-016	05/20/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	The location of this trench was to investigate the organic burial area north of the IWCS. Some of the material in the organic burial area trench may have been partially burned prior to placement.
TB808 - Organic burial area north of the IWCS. EU 7	TB808-2851-01.5-020	05/20/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	The location of this trench was to investigate the organic burial area north of the IWCS. Some of the material in the organic burial area trench may have been partially burned prior to placement.
TB808 - Organic burial area north of the IWCS. EU 7	TB808-2852-01.5-016	05/20/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	The location of this trench was to investigate the organic burial area north of the IWCS. Some of the material in the organic burial area trench may have been partially burned prior to placement.
SB301 - Southern Shop Area. EU 8	SB301-103-10	12/01/1999 Phase 1	SVOC, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds associated with a trench of unknown origin present at this location.
SB302 - Near Building 421 and the K-65 drum storage area. EU 8	SB302-104-11	11/18/1999 Phase 1	VOC, SVOC, Metals, RAD, PCB, PEST, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a nearby concrete rubble pile and the former K-65 drum storage area, to investigate the extent of organic and/or organic compounds previously identified in the LOOW RI in the soil near this area.
SB303 - In the central Shop Area, adjacent to former gas station. EU 8	SB303-105-8	12/01/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a possible fuel oil pipeline, UST and former uranium rod storage area.
SB304 - East of change house and uranium rod storage area. EU 8	SB304-106-9	12/01/1999 Phase 1	SVOC, Metals, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a possible fuel oil pipeline, railroad bed and former uranium rod storage area.
SB305 - East of the Shop Area, adjacent to Manhole 41. EU 8	SB305-110-12.5	12/02/1999 Phase 1	SVOC, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a trench of unknown origin present at this location.
SB306 - East of the former combined shop building. EU 8	SB306-111-12.5	12/02/1999 Phase 1	VOC SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the combined shop and nearby locomotive shop and to investigate potential migration of site-related constituents near the property boundary.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TWP307 - South of the former combined shop building. EU 8	SB307-112-10	12/02/1999 Phase 1	SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a trench of unknown origin present at this location.
SB308 - Adjacent to the former combined shop building. EU 8	SB308-113-19	11/17/1999 Phase 1	VOC, SVOC, Metals, RAD, PCB, PEST, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 430 and to investigate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this area.
SB309 - Adjacent to the former combined shop building. EU 8	SB309-114-19	11/17/1999 Phase 1	VOC, SVOC, Metals, RAD, PCB, PEST, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with former Building 430.
SB310 – Near former change houses. EU 8	SB310-115-8.5	12/02/1999 Phase 1	VOC SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the change houses.
SB311 – Between the riggers shop and the millwright shop. EU 8	SB311-116-13	11/18/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the riggers shop (uranium dust stored).
SB312 – West side of the EU and Shop Area. EU 8	SB312-117-15	11/18/1999 Phase 1	VOC SVOC RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the service house.
SB314 - West of Sixth Street near the "O" Street south ditch. EU 8	SB314-415-1.5	09/14/2000 Phase 2	RAD	Investigate the 34,000 cpm gamma measurement found during the walkover survey.
SB3A017 - Northwest corner of EU 8.	SB3A017-2249 1.0	09/08/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during the gamma walkover.
SB3A017 - Northwest corner of EU 8.	SB3A017-5.0- 3635	09/17/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3A020 - Northwest corner of EU 8.	SB3A020-2391 2.0	11/16/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3A020 - Northwest corner of EU 8.	SB3A020-5.0- 3636	09/22/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3B011 - Central Shop Area. EU 8	SB3B011-2399 2.0	11/15/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3B013 - Central Shop Area. EU 8	SB3B013-2403 2.0	11/15/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB3C014 - South of Combined Shops Area. EU 8	SB3C014-2472 1.0	11/16/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3C014 - South of Combined Shops Area. EU 8	SB3C014-2473 2.0	11/16/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3C014 - South of Combined Shops Area. EU 8	SB3C014-5.0-3638	09/17/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3C015 - Adjacent to Combined Shops Area. EU 8	SB3C015-2475 1.5	11/16/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3C015 - Adjacent to Combined Shops Area. EU 8	SB3C015-5.0-3639	09/17/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3D001 - Eastern perimeter of EU 8, adjacent to debris pile.	SB3D001-2476 1.0	11/16/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3D001 - Eastern perimeter of EU 8, adjacent to debris pile.	SB3D001-5.0-3632	10/01/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3D002 - Eastern perimeter of EU 8, adjacent to debris pile.	SB3D002-5.0-3633	09/22/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB3D003 - Eastern perimeter of EU 8, north of debris pile.	SB3D003-2417 2.0	11/17/2001 Phase 3	RAD	Investigate the horizontal and vertical extent of radiological activity above background found during field activities.
SB3D006 - Northeast corner of Combined Shops Building. EU 8	SB3D006-5.0-3630	09/22/2003 Phase 3	RAD	Investigate the vertical extent of radiological compounds at an area of radiological activity above background found during field activities.
SB-EU081 - Southeast corner of EU 8, within debris pile.	SB-EU081-3318-1.5	07/11/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further investigate the debris pile.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-EU082 - Southeast corner of EU 8, within debris pile.	SB-EU082-3319-1.5	07/11/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Further investigate the debris pile.
SB-MH41 - Eastern perimeter of EU 8, north of debris pile.	SB-MH41-8.0-3656	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 41.
SB-MH43 - Central Shops Area. EU 8	SB-MH43-9.0-3655	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 43.
SB-MH45 - Central Shops Area. EU 8	SB-MH45-9.0-3654	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 45.
SB-MW313 – West of Building 421. EU 8	SB-MW313-11.0-3591	09/17/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Samples collected from MW302A (east of MW313) indicated the presence of VOCs, SVOCs and uranium isotopes. This boring was installed and sampled to investigate the presence or absence of chemical and radiological parameters in the soil west of MW302A.
SB-MW314 - South of debris pile. EU 8	SB-MW314-15.0-3594	09/17/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Samples collected from MW302A (northeast of MW314) indicated the presence of VOCs, SVOCs and uranium isotopes. This boring was installed and sampled to investigate the presence or absence of chemical and radiological parameters in the soil west of MW302A.
SB-Pipe74 - Former Garage Building EU 8	SB-PIPE74-7.0-3657	10/03/2003 Phase 3	VOC RAD	Further investigate chemical and radiological parameters found in Pipe 74.
TB301 - Pipeline visible from a former rail line, south of “Z” Street. EU 8	TB301-2809-03.5-034	05/20/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate the pipeline and suspect UST. The location of the trench examined a ferrous zone anomaly FZ535 that was reported in the geophysical investigation of the area.
TB301 - Pipeline visible from a former rail line, south of “Z” Street. EU 8	TB301-2810-01.5-003	05/20/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate the pipeline and suspect UST. The location of the trench examined a ferrous zone anomaly FZ535 that was reported in the geophysical investigation of the area.
TB301 - Pipeline visible from a former rail line, south of “Z” Street. EU 8	TB301-2811-01.0-029	05/20/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate the pipeline and suspect UST. The location of the trench examined a ferrous zone anomaly FZ535 that was reported in the geophysical investigation of the area.
TB302 - Debris pile south of “Z” Street and west of Castle Garden Road. EU 8	TB302-2812-08.0-004	05/21/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of “Z” Street and west of Castle Garden Road. The debris pile includes large blocks of concrete. Due to uneven terrain, no gamma walkover activities were performed in the area of this debris pile. The location of the trench examined a ferrous zone anomaly FZ536 that was reported in the geophysical investigation of the area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB302 - Debris pile south of "Z" Street and west of Castle Garden Road. EU 8	TB302-2813-01.0-042	05/21/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of "Z" Street and west of Castle Garden Road. The debris pile includes large blocks of concrete. Due to uneven terrain, no gamma walkover activities were performed in the area of this debris pile. The location of the trench examined a ferrous zone anomaly FZ536 that was reported in the geophysical investigation of the area.
TB302 - Debris pile south of "Z" Street and west of Castle Garden Road. EU 8	TB302-2814-06.0-074	05/21/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	This trench investigated the debris pile south of "Z" Street and west of Castle Garden Road. The debris pile includes large blocks of concrete. Due to uneven terrain, no gamma walkover activities were performed in the area of this debris pile. The location of the trench examined a ferrous zone anomaly FZ536 that was reported in the geophysical investigation of the area.
TB303 - North of a building foundation. EU 8	TB303-2815-05.0-009	05/17/2002 Phase 3	VOC, SVOC, RAD	This trench was located to investigate a potential tank located north of a building foundation. The trench was placed along the concrete foundation. The location of the trench examined ferrous zone anomaly FZ530 that was reported in the geophysical investigation of the area.
TB303 - North of a building foundation. EU 8	TB303-2816-01.0-016	05/17/2002 Phase 3	VOC, SVOC, RAD	This trench was located to investigate a potential tank located north of a building foundation. The trench was placed along the concrete foundation. The location of the trench examined ferrous zone anomaly FZ530 that was reported in the geophysical investigation of the area.
TB303 - North of a building foundation. EU 8	TB303-2817-05.0-033	05/17/2002 Phase 3	VOC, SVOC, RAD	This trench was located to investigate a potential tank located north of a building foundation. The trench was placed along the concrete foundation. The location of the trench examined ferrous zone anomaly FZ530 that was reported in the geophysical investigation of the area.
TB304 - Former garage/maintenance area. EU 8	TB304-2818-01.3-000	05/21/2002 Phase 3	SVOC, RAD	This trench was located to investigate an open concrete sump and potential underground piping in the former garage/maintenance area of the former LOOW. Petroleum staining was observed during collection of the samples from the pipe during the pipeline investigation. The location of the trench examined a ferrous zone anomaly FZ539 that was reported in the geophysical investigation of the area.
TB304 - Former garage/maintenance area. EU 8	TB304-2819-06.5-023	05/21/2002 Phase 3	SVOC, RAD	This trench was located to investigate an open concrete sump and potential underground piping in the former garage/maintenance area of the former LOOW. Petroleum staining was observed during collection of the samples from the pipe during the pipeline investigation. The location of the trench examined a ferrous zone anomaly FZ539 that was reported in the geophysical investigation of the area.
TB304 - Former garage/maintenance area. EU 8	TB304-2820-07.0-073	05/21/2002 Phase 3	SVOC, RAD	This trench was located to investigate an open concrete sump and potential underground piping in the former garage/maintenance area of the former LOOW. Petroleum staining was observed during collection of the samples from the pipe during the pipeline investigation. The location of the trench examined a ferrous zone anomaly FZ539 that was reported in the geophysical investigation of the area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB305 - debris pile south of "Z" Street and west of Castle Garden Road. EU 8	TB305-2922-04.0-014	06/01/2002 Phase 3	RAD	This trench was located to further investigate the debris pile south of "Z" Street and west of Castle Garden Road.
TB305 - debris pile south of "Z" Street and west of Castle Garden Road. EU 8	TB305-2923-05.0-050	06/01/2002 Phase 3	RAD	This trench was located to further investigate the debris pile south of "Z" Street and west of Castle Garden Road.
TB305 - debris pile south of "Z" Street and west of Castle Garden Road. EU 8	TB305-2924-05.0-080	06/01/2002 Phase 3	RAD	This trench was located to further investigate the debris pile south of "Z" Street and west of Castle Garden Road.
SB101 - Western perimeter of EU 10, west of the IWCS.	SB101-714-10.5	09/08/2000 Phase 2	RAD	Investigate the potential extent of radiological compounds in the soil in an area previously remediated by DOE. Documentation of confirmation sampling was not found during the records search. This location is north of sediment sample SD703 that exhibited radiological activity above background.
TWP102 - Western perimeter of EU 10, west of the IWCS.	SB102-715-9.5	09/08/2000 Phase 2	Metals, RAD, SVOC	Confirm previous remediation of the area and provide a representative number of sampling points in this EU. Documentation of confirmation sampling was not found during the records search.
SB103 - Western perimeter of EU 10, west of the IWCS.	SB103-716-10.5	09/08/2000 Phase 2	Metals, RAD	Confirm previous remediation of the area and provide a representative number of sampling points in this EU. Documentation of confirmation sampling was not found during the records search.
SB864 - West of IWCS. EU 10	SB864-10.0-3648	10/02/2003 Phase 3	RAD	To delineate radiological compounds found in the adjacent ditch.
SB-EU101 - North-central portion of EU 10.	SB-EU101-3400-1.0	07/11/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-EU102 - South-central portion of EU 10.	SB-EU102-3323-2.0	07/11/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-EU103 - East-central portion of EU 10.	SB-EU103-3324-1.0	07/11/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence and extent of chemical and radiological compounds previously identified in the LOOW RI in the soil near this area. This area was not part of any previous radiological investigation at the site.
SB-MH06 - Southeast quadrant of EU 10.	SB-MH06-8.5-3650	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 6.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-MH07 - Southeast corner of EU 10	SB-MH07-11.0-3651	09/30/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 6.
SB-MW860 - Eastern slope of IWCS. EU 10	SB-MW860-15.0-3597	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Groundwater samples collected from A50, and A45 northwest of this location contained radiological parameters. This boring was installed and sampled to further investigate the extent of these parameters and the presence or absence of other chemical and radiological parameters in the soil on the northeastern perimeter of the IWCS.
SB-MW861 - Eastern slope of IWCS. EU 10	SB-MW861-34.5-3596	09/20/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Groundwater samples collected from A50, and A45 northwest of this location contained radiological parameters. This boring was installed and sampled to further investigate the extent of these parameters and the presence or absence of other chemical and radiological parameters in the soil on the northeastern perimeter of the IWCS.
SB-MW861 - Eastern slope of IWCS. EU 10	SB-MW861-38.0-3600	09/20/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Groundwater samples collected from A50, and A45 northwest of this location contained radiological parameters. This boring was installed and sampled to further investigate the extent of these parameters and the presence or absence of other chemical and radiological parameters in the soil on the northeastern perimeter of the IWCS.
SB-MW862 - Eastern slope of IWCS. EU 10	SB-MW862-11.5-3603	09/20/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Groundwater samples collected from A50, and A45 northwest of this location contained radiological parameters. This boring was installed and sampled to further investigate the extent of these parameters and the presence or absence of other chemical and radiological parameters in the soil on the northeastern perimeter of the IWCS.
SB-MW863 - Eastern slope of IWCS. EU 10	SB-MW863-32.0-3606	09/20/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Groundwater samples collected from A50, and A45 northwest of this location contained radiological parameters. This boring was installed and sampled to further investigate the extent of these parameters and the presence or absence of other chemical and radiological parameters in the soil on the northeastern perimeter of the IWCS.
SB830 – Fenced area surrounding the IWCS, adjacent to the southwest corner. EU 10	SB-TWP830-15.0-3501	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located outside of the southern clay dike for the IWCS. It was positioned to investigate the integrity of the subsurface clay dike near the southern perimeter of the IWCS.
SB831 - Fenced area surrounding the IWCS, south of the IWCS. EU 10	SB-TWP831-15.0-3504	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located outside of the southern clay dike for the IWCS. It was positioned to investigate the integrity of the subsurface clay dike near the southern perimeter of the IWCS.
SB832 - Fenced area surrounding the IWCS, south of SB858. EU 10	SB-TWP832-12.5-3507	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located outside of the southern clay dike for the IWCS. It was positioned to investigate the integrity of the subsurface clay dike near the southern perimeter of the IWCS.

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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB833 - Fenced area surrounding the IWCS, near wells OW6A. EU 10	SB-TWP833-10.0-3510	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located outside of the southern clay dike for the IWCS. It was positioned to investigate the integrity of the subsurface clay dike near the southern perimeter of the IWCS.
SB834 - Fenced area surrounding the IWCS, southeast corner . EU 10	SB-TWP834-14.0-3513	10/03/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located outside of the southern clay dike for the IWCS. It was positioned to investigate the integrity of the subsurface clay dike near the southern perimeter of the IWCS.
SB839 - Fenced area surrounding the IWCS, northeast of the IWCS. EU 10	SB-TWP839-14.0-3528	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located adjacent to the former DOE disposal area B. It was positioned to further characterize the presence or absence of chemical and radiological compounds in the soil near disposal area B and delineate the levels of radiological parameters found in TWP820 and wells A45 and A52.
SB-TWP844 - West of Hittman Building. EU 10	SB-TWP844-11.0-3543	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located to investigate the Former South Pond.
SB-TWP850 - South of IWCS, outside fence. EU 10	SB-TWP850-17.0-3561	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located to investigate the Former Stockpile Area.
SB-TWP851 - South of IWCS, outside fence. EU 10	SB-TWP851-18.0-3564	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located to investigate the Former Stockpile Area.
SB852 - Fenced area for the IWCS, southwest of the IWCS. EU 10	SB-TWP852-15.0-3567	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
SB853 - Fenced area for the IWCS, east of SB855 and south of SB832 . EU 10	SB-TWP853-16.5-3570	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	The boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
SB854 - Fenced area for the IWCS, south of well A23A. EU 10	SB-TWP854-13.0-3573	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
SB855 - Fenced area for the IWCS, south of wells A56 and A57. EU 10	SB-TWP855-15.0-3576	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located within a geophysical anomaly. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with the geophysical anomaly.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB856 - Fenced area for the IWCS, on the west side. EU 10	SB-TWP856-11.0-3579	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
SB-TWP857 - East of IWCS, between wells OW11B and OW12B. EU 10	SB-TWP857-11.0-3582	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was positioned to investigate a geophysical anomaly.
SB858 - Fenced area for the IWCS, adjacent to the southern perimeter. EU 10	SB-TWP858-16.0-3585	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
SB859 - Fenced area for the IWCS, southwestern perimeter. EU 10	SB-TWP859-18.0-3588	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring was located adjacent to the former Building 409 foundation. It was positioned to investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 409.
TB809 - Water storage pits, north of Hittman Building. EU 10	TB809-2906-01.0-045	05/30/2002 Phase 3	RAD	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
SB218 - Shallow ditch next to Campbell Street and west of Building 429. EU 11	SB218-410-2.0	09/10/2000 Phase 2	RAD	This boring was positioned to investigate the gamma measurement above background found during the walkover survey. No characterization data for this area was available from previous site investigations.
SB2A002 - West of Building 401. EU 11	SB2A002-646-11.0	09/12/2000 Phase 2	VOC, RAD	Investigate the extent of the uranium isotopes found in the groundwater at SB217 and the organics found in SB201. This location is near Building 401 that was used to store radioactive wastes and residues. Associated USTs, a sludge bed and solvent and paint storage buildings were located near Building 401.
SB2A003 – South+A316west of Building 401. EU 11	SB2A003-647-11.5	09/12/2000 Phase 2	VOC, RAD	Investigate the extent of the TCE and the uranium isotopes found in SB201. This location is near the former coal-fired boiler house that was used to store radioactive wastes and residues. Associated USTs and a solvent and paint storage buildings were located near Building 401.
SB2A005 - West of Campbell Street, east of Hittman Building. EU 11	SB2A005-2220-1.7	09/08/2001 Phase 3	RAD	Investigate the gamma measurement above background found during the field screening. No characterization data for this area was available from previous site investigations.
SB2A005 - West of Campbell Street, east of Hittman Building. EU 11	SB2A005-2240	09/08/2001 Phase 3	RAD	Investigate the gamma measurement above background found during the field screening. No characterization data for this area was available from previous site investigations.

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Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB801 – Southwest corner of EU 11, south of the IWCS.	SB801-154-18	11/06/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence, absence and migration of chemical and radiological compounds in the soil south of the IWCS at the NFSS boundary.
SB802 – Southeast corner of the IWCS. EU 11	SB802-155-17	11/06/1999 Phase 1	SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence, absence and migration of chemical and radiological compounds near the IWCS associated with the former “lay down area”.
SB803 - West of fenceline, north of "R" Street. EU 11	SB803-156-7.5	11/17/1999 Phase 1	SVOC Metals RAD TOC	Investigate a previously uninvestigated area south of Building 401 and west of a low-lying marshy area.
SB805 – Northeast of the IWCS and the South 16 Ditch. EU 11	SB805-158-7.5	11/07/1999 Phase 1	SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence, absence and migration of chemical and radiological compounds in the soil near the IWCS and the former DOE WWTP (dewatering Pond 5).
SB813 – Southern perimeter of EU 11, south of the IWCS.	SB813-730-10.5	09/09/2000 Phase 2	Metals RAD	Further define the extent of radium, thorium and metals identified in SB801 and investigate the presence, absence and migration of inorganic and radiological compounds in the soil south of the IWCS at the NFSS boundary.
SB814 - Main south entrance to the NFSS. EU 11	SB814-731-19.0	08/30/2000 Phase 2	RAD	Investigate gamma measurements noted during field activities.
SB819 - South of the Decon Pad. EU 11	SB819-736-9.0	09/11/2000 Phase 2	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives	Investigate potential migration of chemical and radiological compounds from the Decon Pad.
SB826 - Southern property line at the Central Ditch. EU 11	SB826-416-1.3	09/14/2000 Phase 2	RAD	Investigate gamma measurements noted during field activities.
SB827 - Southern property line, along Campbell Street. EU 11	SB827-417-2.0	09/13/2000 Phase 2	RAD	Investigate gamma measurements noted during field activities.
SB830 – Northeast corner of EU 11, south-central NFSS property line.	SB830-1037-2.0	09/10/2000 Phase 2	RAD	This boring was located at gamma measurements of 215,000 cpm.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB8A001 - Northeast of Hittman Building. EU 11	SB8A001-2221 2.0	09/08/2001 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB8A003 - Northeast of Hittman Building. EU 11	SB8A003-2217 2.0	09/08/2001 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB8A009 – Southwest corner of EU 11, south of the IWCS	SB8A009-2218 2.0	09/07/2001 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB8A011 - Northeast of Hittman Building. EU 11	SB8A011-2219 2.0	09/10/2001 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB8B008 – Northeast corner of EU 11.	SB8B008-2440 2.0	11/18/2001 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB-EU111 - North of Hittman Building. EU 11	SB-EU111- 3325-1.5	07/12/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the 'clean water ponds'.
SB-MH07/08 - Southeast of IWCS, between manholes MH07 and MH08. EU 11	SB-MH07/08- 11.0-3652	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manholes 7 and 8.
SB-MH08 - Southeast of IWCS. EU 11	SB-MH08-11.0 3653	10/01/2003 Phase 3	RAD	Further investigate radiological parameters found in Manhole 8.
SB-TWP841 - Northern portion of EU 11.	SB-TWP841- 10.0-3534	09/18/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate former Pond 5.
SB842 –Western perimeter of EU 11.	SB-TWP842- 10.0-3537	10/04/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located within the former DOE WWTP (de-watering Pond 5).further investigate the extent of chemical and radiological parameters found in the soil in trenches TB810 and TB811 and in the groundwater in well OW08B.
SB-TWP843 - Northwest of Hittman Building. EU 11	SB-TWP843- 10.0-3540	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate former North Pond.
SB845 - Western perimeter of EU 11.	SB-TWP845- 13.0-3546	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located within the former DOE WWTP (south pond).further characterize the presence or absence of chemical and radiological compounds in the soil within the former WTP and investigate the extent of radiological parameters found in the soil in trenches TB809 and TB810 and in the groundwater in well BH70.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB846 – Adjacent to the southeast corner of the IWCS. EU 11	SB-TWP846-16.0-3549	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located within the former DOE area designated as the “laydown area”. The purpose of the boring was characterize the presence or absence of chemical and radiological compounds in the soil within this area and delineate the extent of radium and thorium found in the groundwater in wells BH70 and OW12B.
SB847 – Adjacent to the southeast corner of the IWCS. EU 11	SB-TWP847-10.0-3552	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located within the former DOE area designated as the “laydown area”. The purpose of the boring was characterize the presence or absence of chemical and radiological compounds in the soil within this area and delineate the extent of radium and thorium found in the groundwater in wells BH70 and OW12B.
SB-TWP848 - Southern perimeter of EU 11.	SB-TWP848-11.0-3555	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate Total U, Th-230 and U-234 found in the subsurface and to further characterize chemical constituents at the location.
SB849 – Southwest portion of EU 11	SB-TWP849-11.0-3558	09/21/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	This boring is located within the former DOE area designated as the “stockpile area”. The purpose of the boring was characterize the presence or absence of chemical and radiological compounds in the soil within this area and delineate extent of radiological parameters found in the groundwater in TWP801 and TWP813.
TB810 - Former water storage pits, north of Hittman Building. EU 11	TB810-2907-02.9-012	06/01/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
TB810 - Former water storage pits, north of Hittman Building. EU 11	TB810-2908-01.8-041	06/01/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
TB810 - Former water storage pits, north of Hittman Building. EU 11	TB810-2909-05.8-045	06/01/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
TB811 - Former water storage pits, north of Hittman Building. EU 11	TB811-2910-04.8-044	06/01/2002 Phase 3	VOC, SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
TB811 - Former water storage pits, north of Hittman Building. EU 11	TB811-2911-02.3-012	06/01/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.
TB811 - Former water storage pits, north of Hittman Building. EU 11	TB811-2912-04.0-047	06/01/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB812 - South-central perimeter, possible drum staging area. EU 11	TB812-2913-03.0-055	06/01/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate gamma measurements above background found during previous studies.
TB812 - South-central perimeter, possible drum staging area. EU 11	TB812-2914-03.0-014	06/01/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate gamma measurements above background found during previous studies.
TB812 - South-central perimeter, possible drum staging area. EU 11	TB812-2915-05.0-001	06/01/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	The location of this trench was to investigate gamma measurements above background found during previous studies.
TB813 - Southwest perimeter. EU 11	TB813-2925-08.0-013	06/01/2002 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
TB813 - Southwest perimeter. EU 11	TB813-2926-01.0-021	06/01/2002 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
TB813 - Southwest perimeter. EU 11	TB813-2927-03.9-029	06/01/2002 Phase 3	RAD	Investigate gamma measurements noted during the gamma walkover survey.
SB204 - Southwest corner of EU 12, near Building B-2.	SB204-088-2	11/19/1999 Phase 1	SVOC	Investigate the presence and extent of organic compounds in the soil associated with residual coal on the surface south of Building 401.
SB204 - Southwest corner of EU 12, near Building B-2.	SB204-088-9	11/19/1999 Phase 1	VOC, SVOC, Metals, RAD, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with Building 401 that was later used to store radioactive wastes and residues. A sludge bed, USTs, and solvent and paint storage buildings were also associated with this area.
SB205 - Southeast corner of EU 12, east-southeast of Building 401.	SB205-089-12.5	11/17/1999 Phase 1	VOC, SVOC, RAD, TOC	This location is near a former railroad line and potentially receives runoff from Modern Landfill.
SB206 – East central perimeter of EU 12, east-northeast of Building 401.	SB206-090-9	11/17/1999 Phase 1	VOC, SVOC, Metals, RAD, TOC	This location is near a former railroad line and potentially receives runoff from Modern Landfill.
SB215 - Northeast of Building 401. EU 12	SB215-099-7.5	12/01/1999 Phase 1	VOC, SVOC, Metals, RAD, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a concrete vault of unknown origin. This location is near the former coal-fired boiler house that was later used to store radioactive wastes and residues.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB219 - South 16 ditch north of Building 401. EU 12	SB219-411-2.0	09/15/2000 Phase 2	RAD	Investigate the gamma measurement found during the walkover survey. No characterization data for this area was available from previous site investigations.
SB2A001 - Northwest of Building 401. EU 12	SB2A001-645-11.0	09/11/2000 Phase 2	VOC, RAD	Investigate the extent of uranium isotopes found in SB215 and organic compounds found in SB213.
SB2B001 - Southeast of Building 401. EU 12	SB2B001-648-16.0	08/30/2000 Phase 2	SVOC, RAD	Investigate the extent of organic and radiological concentrations found in Phase I.
SB2B002 - Southeast of Building 401. EU 12	SB2B002-649-9.5	08/30/2000 Phase 2	SVOC, RAD	Investigate the extent of organic and radiological concentrations found in Phase I.
SB2C001 – Northwest quadrant of EU 12, north of Building 401.	SB2C001-652-17.0	09/12/2000 Phase 2	VOC, RAD	Investigate the extent of the organic compounds in SB213 and radiological parameters found in SB215. This location is near the former coal-fired boiler house that was later used to store radioactive wastes and residues.
SB3B015 - Southern Shop Area. EU 12	SB3B015-2471-1.25	11/15/2001 Phase 3	RAD	Investigate gamma measurements noted during field activities.
SB3B015 - Southern Shop Area. EU 12	SB3B015-5.0-3637	09/17/2003 Phase 3	RAD	Investigate gamma measurements noted during field activities.
SB-BH218 - Northeast of Building 401. EU 12	SB-BH218-15.0-3660	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate Ra226, Th230, total U and U238 found in trench 203 and to further characterize chemical constituents at the location.
SB-BH219 - North of Building 401. EU 12	SB-BH219-6.0-3661	10/03/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate Ra226, Th230, total U and U238 found in trench 203 and to further characterize chemical constituents at the location.
SB-EU121 - Center of EU 12.	SB-EU121-3326-2.0	07/12/2003 Phase 3	SVOC, Metals, PEST, PCB, PAH	This boring was located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB-EU122 - Northeast corner of EU 12	SB-EU122-3407-1.0	07/12/2003 Phase 3	SVOC, Metals, PEST, PCB, PAH	This boring was located in a previously uninvestigated area to investigate the presence and extent of organic, inorganic or radiological compounds previously identified in the LOOW RI in the soil near this area.
SB201 - Southwest corner of EU 13, south of Building 401	SB201-085-10	11/18/1999 Phase 1	RAD, SVOC, TOC, VOC	The purpose of the boring was to investigate the presence and extent of previously identified TCE in the soil in this area and investigate the presence or absence of organic, inorganic or radiological compounds in the soil associated with the former sludge bed south of Building 401 and associated USTs and solvent and paint storage buildings.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB203 - Southern perimeter of EU 13, south of Building 401	SB203-087-12	11/19/1999 Phase 1	RAD, VOC, SVOC, TOC	Investigate the presence and extent of previously identified TCE in the soil (old soil gas survey) in this area and investigate the presence or absence of organic, inorganic or radiological compounds in the soil associated with the former sludge bed south of Building 401 and associated USTs and solvent and paint storage buildings.
SB207 - Southwest corner of EU 13, east of Buildings 401, 405, 406 and 407	SB207-091-14	11/21/1999 Phase 1	VOC SVOC Metals RAD TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated a former fuel oil UST that may have been located west of this boring.
SB208 - East of Building 401 and 405, south of 406 and 407. EU 13	SB208-092-05	11/21/1999 Phase 1	SVOC	Investigate the presence or absence of chemical compounds in the soil associated a former fuel oil UST, paint shop and emergency generator that were present near this location.
SB208 - East of Building 401 and 405, south of 406 and 407. EU 13	SB208-092-12	11/21/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated a former fuel oil UST, paint shop and emergency generator that were present near this location.
SB209 - Northeast of Building 401 and adjacent to Building 407. EU 13	SB209-093-10	11/21/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, TOC, Explosives, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the building foundation for Building 407 (paint shop).
SB210 - Northeast of Building 401. EU 13	SB210-094-13	11/21/1999 Phase 1	VOC, SVOC, RAD, TOC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with the building foundation for Building 407 (paint shop).
SB211 – Adjacent to the former power transformer station. EU 13	SB211-095-11	11/21/1999 Phase 1	VOC, SVOC, RAD, PEST, PCB, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with two large USTs located west of the building foundation for Building 407 (paint shop).
SB212 - North of Building 401, near the power transformer station. EU 13	SB212-096-12.5	11/18/1999 Phase 1	VOC, SVOC, RAD, TOC	Investigate the presence and extent of previously identified TCE and to investigate the presence or absence of chemical and radiological compounds in the soil associated with a small concrete pad with potential fill pipes.
SB213 - North of Building 401 and the power transformer station. EU 13	SB213-097-12.5	11/18/1999 Phase 1	VOC, SVOC, Metals, RAD, PCB, PEST, Explosives, TOC, CEC	Investigate the presence and extent of previously identified TCE and to investigate the presence or absence of chemical and radiological compounds in the soil associated with a small concrete pad with potential fill pipes.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB213 - North of Building 401 and the power transformer station. EU 13	SB213-097-3	11/18/1999 Phase 1	SVOC, Metals, PEST, PCB	Investigate the presence and extent of previously identified TCE and to investigate the presence or absence of chemical and radiological compounds in the soil associated with a small concrete pad with potential fill pipes.
SB213 - North of Building 401 and the power transformer station. EU 13	SB213-097-7.5	11/18/1999 Phase 1	SVOC, Metals, PEST, PCB	Investigate the presence and extent of previously identified TCE and to investigate the presence or absence of chemical and radiological compounds in the soil associated with a small concrete pad with potential fill pipes.
SB214 - Southwest quadrant of EU 13, north of Building 401.	SB214-098-15	11/18/1999 Phase 1	VOC, SVOC, RAD, TOC	Investigate the presence and extent of previously identified TCE and to investigate the presence or absence of chemical and radiological compounds in the soil associated with a small concrete pad with potential fill pipes.
SB216 - Northwest corner of Building 401. EU 13	SB216-100-10.5	11/18/1999 Phase 1	VOC, SVOC, RAD, TOC, PEST, PCB	Investigate the presence or absence of chemical and radiological compounds in the soil associated with a potential small UST (shown on facility drawings).
SB217 - Southwest corner of Building 401. EU 13	SB217-101-13	11/19/1999 Phase 1	VOC, SVOC, Metals, RAD, PCB PEST, Explosives, TOC, CEC	Investigate the presence or absence of chemical and radiological compounds in the soil associated with an area of stressed vegetation and a possible vent for an UST.
SB220 - East of and adjacent to Building 401. EU 13	SB220-412-1.0	09/13/2000 Phase 2	RAD	Investigate the gamma measurement found during the walkover survey. No characterization data for this area was available from previous site investigations.
SB221 - Southeast of Building 401. EU 13	SB221-413-2.0	09/10/2000 Phase 2	RAD	Investigate the gamma measurement found during the walkover survey. No characterization data for this area was available from previous site investigations.
SB-BH220 - Northwest of Building 401. EU 13	SB-BH220-20.0-3662	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the chemical and radiological compounds found in Trench 203.
SB-BH221A - Northwest of Building 401. EU 13	SB-BH221-15.0-3663	09/30/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the chemical and radiological compounds found in Trench 203.
SB-BH222 - Southwest of Building 401. EU 13	SB-BH222-6.0-3664	10/03/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	The purpose of this boring was investigate the possible tank cradles west of Building 401.
SB-BH224 - Southwest of Building 401. EU 13	SB-BH224-10.0-3666	10/04/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate TCE and 1,2-DCE found in boring SB201 and to further characterize chemical constituents at the location.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-BH225 - Southeast of Building 401. EU 13	SB-BH225-10.0-3667	10/03/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the total U found in trench 205 and to further characterize chemical constituents at the location.
SB-BH226 - Southeast of Building 401. EU 13	SB-BH226-12.0-3668	10/03/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate the total U found in trench 205 and to further characterize chemical constituents at the location.
SB-CORE01 - Building 401. EU 13	SB-CORE01-0.5-3731	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE02 - Building 401. EU 13	SB-CORE02-0.5-3733	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE03 - Building 401. EU 13	SB-CORE03-1.5-3735	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE04 - Building 401. EU 13	SB-CORE04-0.5-3737	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE05 - Building 401. EU 13	SB-CORE05-0.5-3739	10/06/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE06 - Building 401. EU 13	SB-CORE06-0.5-3741	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE07 - Building 401. EU 13	SB-CORE07-0.5-3743	10/07/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE08 - Building 401. EU 13	SB-CORE08-0.5-3745	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-CORE09 - Building 401. EU 13	SB-CORE09-0.5-3747	10/06/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB-CORE10 - Building 401. EU 13	SB-CORE10-0.5-3749	10/05/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Investigate the presence or absence of organic, inorganic and/or radiological compounds beneath building 401.
SB-EU131 - East-central portion of EU 13.	SB-EU131-3408-2.0	07/09/2003 Phase 3	Metals	Investigate the presence and extent of inorganic compounds previously identified in the LOOW RI in the soil near this area.
SB-MW228 - South of Building 401 and SB2B006. EU 13	SB-MW228-11.0-3615	09/19/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Samples collected from MW201A and MW203A indicated the presence of organic, inorganic and radiological parameters. This boring was installed and sampled to investigate the presence or absence of chemical and radiological parameters in the soil.
SB-MW229 - South of Building 401 and SB2B006. EU 13	SB-MW229-11.0-3614	09/18/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Samples collected from MW201A and MW203A indicated the presence of chemical and radiological parameters. This boring was installed and sampled to investigate the presence or absence of chemical and radiological parameters in the soil.
SB-MW229 - South of Building 401 and SB2B006. EU 13	SB-MW229-28.5-3618	09/18/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH, Explosives	Samples collected from MW201A and MW203A indicated the presence of chemical and radiological parameters. This boring was installed and sampled to investigate the presence or absence of chemical and radiological parameters in the soil.
TB201 - West side of Building 401. EU 13	TB201-2800-05.0-036	05/22/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate a potential tank located adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area.
TB201 - West side of Building 401. EU 13	TB201-2801-01.0-013	05/22/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate a potential tank located adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area.
TB201 - West side of Building 401. EU 13	TB201-2802-01.0-001	05/22/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate a potential tank located adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area.
TB201 - West side of Building 401. EU 13	TB201-2862-02.4-015	05/22/2002 Phase 3	RAD	This trench was located to investigate a potential tank located adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
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Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
TB202 - South side of Building 401. EU 13	TB202-2803-05.2-038	05/19/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	A storm sewer grated inlet was observed on the south side of Building 401. This trench was located to investigate that inlet, its associated piping, and the disturbed area to the south of the inlet. The location of the trench examined a ferrous zone anomaly FZ540 and metallic zone anomaly 549 that were reported in the geophysical investigation of the area.
TB202 - South side of Building 401. EU 13	TB202-2804-03.5-025	05/18/2002 Phase 3	SVOC, Metals, RAD, PEST, PCB	A storm sewer grated inlet was observed on the south side of Building 401. This trench was located to investigate that inlet, its associated piping, and the disturbed area to the south of the inlet. The location of the trench examined a ferrous zone anomaly FZ540 and metallic zone anomaly 549 that were reported in the geophysical investigation of the area.
TB202 - South side of Building 401. EU 13	TB202-2805-03.0-062	05/19/2002 Phase 3	VOC SVOC, Metals, RAD, PEST, PCB	A storm sewer grated inlet was observed on the south side of Building 401. This trench was located to investigate that inlet, its associated piping, and the disturbed area to the south of the inlet. The location of the trench examined a ferrous zone anomaly FZ540 and metallic zone anomaly 549 that were reported in the geophysical investigation of the area.
TB203 - North side of building 401. EU 13	TB203-2806-01.0-013	05/18/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate a potential tank located north of Building 401. The trench was placed along the west side of the concrete pad. Concentrations of organics and metals were found in the groundwater samples from this area. The location of the trench examined a ferrous zone anomaly FZ541 that was reported in the geophysical investigation of the area.
TB203 - North side of building 401. EU 13	TB203-2807-04.0-058	05/18/2002 Phase 3	VOC SVOC Metals RAD	This trench was located to investigate a potential tank located north of Building 401. Concentrations of organics and metals were found in the groundwater samples from this area. The location of the trench examined a ferrous zone anomaly FZ541 that was reported in the geophysical investigation of the area.
TB204 - Southeast of Building 401. EU 13	TB204-2916-08.0-030	05/31/2002 Phase 3	RAD	This trench was located to investigate a spoils pile located southeast of Building 401.
TB204 - Southeast of Building 401. EU 13	TB204-2917-10.0-035	05/31/2002 Phase 3	RAD	This trench was located to investigate a spoils pile located southeast of Building 401.
SB202 - Southwest corner of EU 14, south of Building 401.	SB202-086-10	11/22/1999 Phase 1	CEC, Explosives, PEST, PCB, RAD, SVOC, TOC, VOC, Metals	The purpose of the ring was to investigate the presence and extent of previously identified TCE in the soil in this area and investigate the presence or absence of chemical and/or radiological compounds in the soil associated with the former sludge bed south of Building 401 and associated USTs and solvent and paint storage buildings.
SB2B003 - Southeast of Building 401. EU 14	SB2B003-650-8.0	09/12/2000 Phase 2	SVOC, RAD	Investigate the extent of chemical and radiological concentrations found in Phase I.
SB2B006 – Northwest corner of EU 14, south of Building 401.	SB2B006-651-13.0	09/15/2000 Phase 2	VOC, RAD	Investigate the extent of the TCE and the uranium isotopes found in SB201.

Table 3-6
Summary of Subsurface Soil Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Analysis Parameters	Rationale for Sample Location and Analyses
SB2B0014 – Northwest corner of EU 14, south of Building 401.	SB2B014-2375 2.0	11/17/2001 Phase 3	RAD	Investigate the extent of radiological concentrations found in Phase I.
SB804 - Southeast quadrant of EU 14.	SB804-157-7.5	12/02/1999 Phase 1	VOC, SVOC, Metals, RAD, PEST, PCB, Explosives, TOC, CEC	Investigate the presence, absence and migration of chemical and radiological compounds in the soil near the southeastern NFSS boundary in an area that has not previously been investigated.
SB815 - Southern perimeter of EU 14.	SB815-732- 11.0	09/10/2000 Phase 2	RAD	The purpose of the boring to further delineate the extent of radiological parameters found in SB201 and SB203.
SB816 - Southeast corner of NFSS. EU 14	SB816-733- 12.0	08/25/2000 Phase 2	SVOC Metals RAD	Investigate the presence, absence and migration of chemical and radiological compounds in the soil near the southeastern NFSS boundary.
SB817 - Eastern perimeter of EU 14.	SB817-734- 10.1	09/09/2000 Phase 2	RAD	Further delineate the extent of radiological parameters found in SB205.
SB818 - Southeast of Building 401. EU 14	SB818-735- 10.5	09/12/2000 Phase 2	RAD	Further delineate the extent of the uranium isotopes found in SB203.
SB8B002 - Southeast corner of NFSS. EU 14	SB8B002-2432 2.0	11/17/2001 Phase 3	RAD	Investigate the extent of radiological concentrations found in Phase I.
SB-BH223 - Southwest of Building 401. EU 14	SB-BH223-3.0- 3665	10/02/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate TCE and 1,2-DCE found in boring SB201.
SB-BH227 - South of Building 401. EU 14	SB-BH227- 15.0-3669	10/04/2003 Phase 3	VOC, SVOC, Metals, RAD, Pest, PCB, PAH	Delineate total U in trench 205.
TB204 - Southeast of Building 401. EU 14	TB204-2918- 07.0-070	05/31/2002 Phase 3	RAD	This trench was located to investigate a spoils pile located southeast of Building 401.
TB205 - South side of Building 401. EU 14	TB205-2919- 03.0-055	05/31/2002 Phase 3	VOC SVOC, Metals, RAD, PEST, PCB	This trench was located to further investigate the ‘pesticide’ odor noted in trench T202
TB205 - South side of Building 401. EU 14	TB205-2920- 06.5-060	05/31/2002 Phase 3	VOC SVOC, Metals, RAD, PEST, PCB	This trench was located to further investigate the ‘pesticide’ odor noted in trench T202
TB205 - South side of Building 401. EU 14	TB205-2921- 08.0-001	05/31/2002 Phase 3	VOC SVOC, Metals, RAD, PEST, PCB	This trench was located to further investigate the ‘pesticide’ odor noted in trench T202

Table 3-7
Summary of Subsurface Soil Samples Collected and Analyses Performed
LOOW Remedial Investigation

Sample Location (Station ID and EU)		Sample ID	Collection Date	Analyses
C5-VS-B300	EU1	C5-VS-SO-B300-1	7/13/1998	General Chemistry,
C5-VS-D300	EU1	C5-VS-SO-D300-14	7/13/1998	General Chemistry,
C5-AC-F200	EU2	C5-AC-SO-F200-1	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C5-AC-BP3	EU3	C5-AC-SO-BP3-14	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-PIPE1	EU4	C7-NFSS-SO-PIPE1	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-PIPE2	EU4	C7-NFSS-SO-PIPE2	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C5-SO-D200	EU8	C5-SO-SO-D200-8	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C5-SO-D800	EU8	C5-SO-SO-D800-1	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C5-SO-D800	EU8	C5-SO-SO-D800-10	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs

Table 3-8
Summary of Background Subsurface Soil Samples and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Alias ID	Date Collected	Sample Depth (Feet)	Rationale for Sample Location and Analysis*
B001 - Located on private property north of Pletcher Rd at 435 Guard St, approximately 1,400 feet west of the NFSS.	SBBW001-824	BKGD-SO-3-11.5	10/05/00	11.0-11.5	Prior to construction of the LOOW, this location was unoccupied forested land. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the land is not actively used and is private property.
B002- Located on a private roadway just north of Pletcher Road (435 Guard St), approximately 1,800 feet southwest of the southwest corner of the NFSS.	SBBW002-825	BKGD-SO-4-10.5	10/05/00	10.0-10.5	Prior to construction of the LOOW, this sampling location was an orchard. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the land is not actively used and is private property.
B003 – Located in an open area adjacent to the Lewiston-Porter school complex at 4061 Creek Rd, approximately 5,500 feet west of the NFSS.	SBBW003-826-9.5	BKGD-SO-5-9.5	10/05/00	9.0-9.5	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. This sampling location is now open land that belongs to the Lewiston-Porter School System. The school complex is located in a residential area.
B004 – Located on residential property at 4403 Creek Rd, approximately 8,700 feet southwest of the southwest corner of the NFSS.	SBBW004-828	BKGD-SO-6-12	10/05/00	11.5-12.0	Prior to construction of the LOOW, this sampling location was open unused land or part of a highway. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently the property is part of a residential area.
B005 – Located in the north-central portion of the National Guard training area, 1551 Balmer Rd, approximately 7,400 feet northeast of the northeast corner of the NFSS.	SBBW005-829	BKGD-SO-7-6	11/09/00	5.5-6.0	Prior to construction of the LOOW, this sampling location was farmland and orchard. During operation of the LOOW, this area was part of the LOOW TNT magazine storage area. The area is currently part of the National Guard weekend area.
B006 – Located in the east-central quadrant of the National Guard training area, 1551 Balmer Rd, approximately 6,000 feet northeast of the northeast corner of the NFSS.	SBBW006-830-6	BKGD-SO-8-6	11/09/00	5.5-6.0	Prior to construction of the LOOW, this sampling location was farmland and orchard. During operation of the LOOW, this area was part of the LOOW TNT magazine storage area. The area is currently part of the National Guard training area.
B007 - Located on CWM property at 1550 Balmer Rd in the eastern portion of the facility near Porter Center Rd, approximately 4,100 feet east-northeast of the northeast corner of the NFSS.	SBBW007-831	BKGD-SO-9-20	11/09/00	19.5-20.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. This location is currently a part of the CWM.

Table 3-8
Summary of Background Subsurface Soil Samples and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Alias ID	Date Collected	Sample Depth (Feet)	Rationale for Sample Location and Analysis*
B008 – Located on the western end of a farm at 4452 Porter Center Rd, approximately 10,400 feet northeast of the northeast corner of the NFSS.	SBBW008-832	BKGD-SO-10-20	11/09/00	19.5-20.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, the area was part of the LOOW buffer zone. Current land use is once again agricultural (farm).
B009 – On Modern property 47, near the intersection of the southeastern boundary of CWM and the northeastern boundary of Modern, approximately 5,800 feet east-southeast of the northeast corner of the NFSS.	SBBW009-833-12	BKGD-SO-11-12	11/09/00	11.5-12.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. The property is currently a part of Modern landfill.
B010 – Located on property belonging to the 3F Gun Club at 1166 Swann Rd, approximately 7,900 feet south-southwest of the NFSS.	SBBW010-834	BKGD-SO-12-11.5	11/10/00	11.0-11.5	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. The property is now a gun club. The surrounding area is residential.
B011 – Located south of the 3F gun club in a grassy area near a pond, approximately 9,500 feet south-southwest of the NFSS.	SBBW011-835-7	BKGD-SO-13-7	11/10/00	6.5-7.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, the area was part of the LOOW buffer zone. Current land use is once again agricultural (farm).
B012 – Located on forested property at 1074 Cain Rd., approximately 9,100 feet northwest of the northwest corner of the NFSS.	SBBW012-836-14	BKGD-SO-14-14	11/10/00	13.5-14.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was part of the LOOW buffer zone. Currently, the property is a privately owned forested area.
B013 – Collected from the front lawn of a private residence located at 338 Howard Drive, approximately 16,000 feet west-northwest of the NFSS.	SBBW013-837-17	BKGD-SO-15-17	11/10/00	16.5-17.0	This area has always been a residential area.
B014 – Collected behind the softball field of the Lewiston-Porter school complex located at 4061 Creek Rd, approximately 6,100 feet west of the NFSS.	SBBW014-838-16	BKGD-SO-16-16	11/11/00	15.5-16.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was a part of the LOOW buffer zone. The land is now part of Lewiston-Porter the school complex and is surrounded by a residential area.
B015 – Located in the northern portion of the Lewiston-Porter school complex located at 4061 Creek Rd, approximately 7,000 feet west of the NFSS.	SBBW015-839-20	BKGD-SO-17-20	11/11/00	19.5-20.0	Prior to construction of the LOOW, this sampling location was farmland. During operation of the LOOW, this area was a part of the LOOW buffer zone. The land is now part of the Lewiston-Porter school complex and is surrounded by a residential area.

Table 3-8
Summary of Background Subsurface Soil Samples and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Alias ID	Date Collected	Sample Depth (Feet)	Rationale for Sample Location and Analysis*
SBBK1-14 - Located north of Pletcher Road and slightly east of SW18 Creek Road. About one mile west of NFSS.	SBBK1-14	BKGD-1-12-14	7/13/98	13.5-14.0	Collected during Phase I LOOW RI to obtain data representing the general area of the LOOW that was not impacted by site-specific operations.
SBBK2-14 – Located north of Balmer Road about two miles north of NFSS.	SBBK2-14	BKGD-2-14	7/14/98	13.5-14.0	Collected during Phase I LOOW RI to obtain data representing the general area of the LOOW that was not impacted by site-specific operations.
SBBK2-2 – Located north of Balmer Road about two miles north of NFSS.	SBBK2-2	BKGD-2-2	7/14/98	1.0-2.0	Collected during Phase I LOOW RI to obtain data representing the general area of the LOOW that was not impacted by site-specific operations.

Radiological Parameters included: gross alpha, gross beta, total uranium and the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, potassium-40, protactinium-231, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236 uranium-238, and total uranium.

* These samples were collected to characterize background conditions. Sample locations were selected because they are outside the zone of impacted soil associated with activities at the NFSS and LOOW. For each sample, analytical parameters included: radiological parameters, SVOCs, PAHs, metals and total organic carbon. Parameters were selected to detect a wide range of compounds.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 1				
SW712 – In the West Ditch at its confluence with the West Patrol Road Ditch.	SW712-318	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the Baker Smith Area where radiological residues were stored. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary and the Baker Smith Area. The analytical parameters were selected to detect a wide range of compounds.
SW713 - In the West Ditch adjacent and just south of the northern property line.	SW713-323	11/08/99	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the Baker Smith Area where radiological residues were stored. The runoff at this location exits the site and flows north. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
SW714 – In the West Patrol Road Ditch, upstream of SW/SD712 and downstream of the former storehouse (Building 444) and pipe shop (Building 445).	SW714-325	11/03/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the Baker Smith Area where radiological residues were stored. This sampling location was selected to investigate the presence or absence of site-related constituents downstream of Buildings 444 and 445. The analytical parameters were selected to detect a wide range of compounds.
EU 4				
SW740 - In a ditch/depression containing ponded water located adjacent to SUMP25 in the TNT mixed acid storage area.	SW740-390	11/03/99	Metals	This location is adjacent to the mixed acid storage area and the associated sumps and piping. Metals may have leached from the tanks and soil due to the storage of acids in the area. The sample was collected to investigate the presence or absence of site-related constituents in the ponded water. The analytical parameters were selected based on the historical activities in the area.
EU 5				
SW726 - In a low-lying area containing ponded water, north of O Street, at the west end of the depression.	SW726-354	11/05/99	Radiological Parameters VOCs SVOCs Metals	This location receives runoff from the Acidification Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected to detect a wide range of compounds.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 5 (Continued)				
SW727 - In a low-lying area containing ponded water, north of O Street and east of SD/SW726.	SW727-356	11/05/99	Radiological Parameters Pesticides and PCBs	This location receives runoff from the Acidification Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected based on historical activities.
SW728 - In a low-lying area containing ponded water, north of O Street and east of SD/SW727, in the central portion of the depression.	SW728-358	11/05/99	Radiological Parameters SVOCs Metals	This location receives runoff from the Acidification Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected based on historical activities.
SW729 - In a low-lying area containing ponded water, north of O Street and east of SD/SW728, in the eastern half of the depression, southwest of the former water tower.	SW729-363	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the former water tower (stored K-65 waste) and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected to detect a wide range of compounds.
SW730 - In a low-lying area containing ponded water, north of O Street and east of SW729, at the eastern end of the depression, southwest of the former water tower.	SW730-365	11/05/99	Radiological Parameters SVOCs	This location receives runoff from roads formerly used to haul radiological wastes and the former water tower (stored K-65 wastes) and “thaw house”. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected based on historical activities.
SW735 - In the CWM Ditch adjacent and just south of the northern property line, north of N St., and on the dividing line between EUs 5 and 6.	SW735-376	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 5 (Continued)				
SW736 - In the N Street North Ditch at its confluence of the CWM Ditch, north of N St. and on the dividing line between EUs 5 and 6.	SW736-378	11/04/99	Radiological Parameters SVOCs Metals	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in this ditch approximately 300 feet south of the property boundary. The analytical parameters were selected based on historical activities.
SW737 - In the N Street North Ditch, north of N St. and the Acidification Area and west of well BH51.	SW737-380	11/04/99	Radiological Parameters SVOCs Pesticides and PCBs Metals	This location receives runoff from the Panhandle Area. The LOOW RI identified the presence of organic and inorganic compounds above their evaluation criteria in the soil and groundwater southwest of this location. This sampling location was selected to investigate the presence or absence of site-related constituents in this ditch. The analytical parameters were selected based on historical activities and historical analytical data.
SW738 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch, in the eastern half of the depression.	SW738-382	11/04/99	Radiological Parameters SVOCs Metals	This location receives runoff from the Panhandle Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected based on historical activities.
SW739 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch and SD/SW738, in the western half of the depression.	SW739-384	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the Panhandle Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area. The analytical parameters were selected to detect a wide range of compounds and were chosen provide a representative database.
EU 6				
SW731- In the MacArthur Street West Ditch, at its confluence with the O Street North Ditch.	SW731-367	11/03/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from former haul roads and the former water tower used to store K65 wastes and "thaw house". This sampling location was selected to investigate the presence or absence of site-related constituents in the ditch. The analytical parameters were selected to detect a wide range of compounds and provide a representative database.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 6 (Continued)				
SW732 - In the MacArthur Street West Ditch, west of MacArthur Street, at its confluence with the O Street North Ditch.	SW732-369	11/03/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from roads formerly used to haul radiological wastes and from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
SW733 - In the MacArthur Street West Ditch, at the northeast corner of the NFSS property.	SW733-371	11/02/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
SW734 – In a low-lying area containing ponded water, along the northern property boundary, east of the CWM Ditch.	SW734-374	11/03/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This low-lying area is at the perimeter of the site. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
EU 7				
SW711 - In the O St. South Ditch, approximately 25 feet east of the intersection of O St. and Lutts Rd.	SW711-316	11/04/99	Radiological Parameters Metals	This location receives runoff from the organic burial area and the former IWCS stormwater pond 3 and flows into the Lutts Rd. East Ditch. This sampling location was selected to investigate the presence or absence of site-related constituents near the organic disposal area. The analytical parameters were selected based on historical activities in the area.
SW744 - In the O St. South Ditch, approximately at the intersection of O St. and Lutts Rd. and the confluence of the O. St. South Ditch and the Lutts Rd East Ditch	SW744-681	5/21/01	Radiological Parameters ¹	This location receives runoff from the former IWCS stormwater pond 3 and organic burial area. This sampling location was selected to investigate the presence or absence of site-related constituents at the confluence of the two ditches. The analytical parameters were selected based on historical activities in the area.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 8				
SW723 – In the Castle Garden Rd West Ditch, and southeast of the former combined shop building (uranium billet storage)	SW723-348	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the western side of the Shop Area. In the LOOW RI, organic and inorganic compounds were identified above their evaluation criteria near this area. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. The analytical parameters were selected to detect a wide range of compounds.
SW724 – In the O Street South Ditch immediately east of Campbell Street, near the intersection of O St. and Campbell St.	SW724-350	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the former haul roads for radiological residues and from the combined shop building where uranium billets were stored. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. The analytical parameters were selected to detect a wide range of compounds.
SW725 – In the O Street South Ditch, adjacent and west of Sixth Street and north of the combined shop building.	SW725-352	11/05/99	Radiological Parameters SVOCs Metals	This location receives runoff from the former haul roads for radiological residues and the combined shop building where uranium billets were stored. In the LOOW RI, organic and inorganic compounds were identified above their evaluation criteria near this area. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. The analytical parameters were selected based on historical activities and analytical results.
EU 10				
SW701 – In the central-northwest IWCS lateral ditch, east of the West Drainage Ditch, adjacent to the NFSS western perimeter fence and north of well cluster OW15.	SW701-292	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. The analytical parameters were selected to detect a wide range of compounds.
SW702 – In the central-southwest IWCS lateral ditch, east of the West Drainage Ditch, adjacent to the NFSS western perimeter fence and north of well cluster OW17.	SW702-294	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. The analytical parameters were selected to detect a wide range of compounds.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 10 (Continued)				
SW703 – In the southwest IWCS ditch, east of the West Drainage Ditch, adjacent to the NFSS western perimeter fence, west of the southwest corner of the IWCS and north of well cluster OW18.	SW703-296	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. The analytical parameters were selected to detect a wide range of compounds.
SW741 – Outside the fenced perimeter of the IWCS, in the IWCS southwest lateral ditch, south of TWP856 and upstream of SW/SD 703.	SW741-678	5/21/01	Radiological Parameters ¹	This location receives runoff from the IWCS. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE. The analytical parameters were selected based on historical activities and analytical results.
EU 11				
SW704 – In the Central Ditch adjacent to R St., just north of the southern NFSS property boundary and southeast of the IWCS.	SW704-301	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the former DOE stockpile area and adjacent properties located south of the NFSS. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
EU12				
SW719 – In a low-lying area containing ponded water, south of South 16 Ditch, west of Castle Garden Rd and northeast of Building 401.	SW719-339	11/05/99	Radiological Parameters SVOCs	This location receives runoff from Building 401 and surrounding area. This sampling location was selected to investigate the presence or absence of site-related constituents in an area downstream of the Building 401 area. The analytical parameters were selected based on historical activities in the area.
EU 15				
SW705 – Within the fenced perimeter of the IWCS, in the South 31 Ditch, approximately 20 feet east of its confluence with the Central Ditch.	SW705-303	11/04/99	Radiological Parameters SVOCs Metals	This location receives runoff from Building 401, the former IWCS stormwater ponds and the decontamination pad. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches near the IWCS downstream of Building 401 and the former IWCS stormwater ponds. The analytical parameters were selected based on historical activities in this area.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 15 (Continued)				
SW706 – Within the fenced perimeter of the IWCS, in the Central Ditch, east of well A50.	SW706-305	11/04/99	Radiological Parameters VOCs Pesticides and PCBs Metals	This location receives runoff from the IWCS and the former IWCS stormwater ponds. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE. The analytical parameters were selected based on historical activities and analytical results.
SW707 – Within the fenced perimeter of the IWCS, in the Central Ditch, south of its confluence with South 16 Ditch.	SW707-307	11/04/99	Radiological Parameters SVOCs Metals	This location receives runoff from the IWCS and the former IWCS stormwater ponds. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE. The analytical parameters were selected based on historical activities and analytical results.
SW708 - In the Central Ditch, 200 feet south of O Street South Ditch, downstream of the IWCS, the former IWCS stormwater ponds.	SW708-309	11/04/99	Radiological Parameters VOCs Metals	This location was sampled to characterize this portion of the Central Ditch and investigate the presence or absence of organic and inorganic compounds in the ditch downstream of the IWCS and former IWCS stormwater ponds. The analytical parameters were selected based on historical activities and analytical results.
SW709 – In the Central Ditch, downstream of its confluence with the O Street South Ditch, north of O St and downstream of the IWCS and the former IWCS stormwater ponds.	SW709-312	11/04/99	Radiological Parameters SVOCs PAHs Pesticides and PCBs Metals	This location was sampled to characterize this portion of the Central Ditch and investigate the presence or absence of organic and inorganic compounds in the ditch downstream of the IWCS and former IWCS stormwater ponds. The analytical parameters were selected to detect a wide range of compounds based on historical use and analytical results.
SW710 - In the Central Ditch adjacent and just south of the northern property line and north of N St.	SW710-314	11/04/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the IWCS and the former IWCS stormwater ponds. The runoff at this location exits the site and flows north. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
SW715 – In the Modern Landfill Ditch at its confluence with the R St. North Ditch, adjacent to R St., just north of the southern NFSS property boundary and southeast of Building 401	SW715-327	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from Modern Landfill located south of the NFSS. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.

Table 3-9
Summary of Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
EU 15 (Continued)				
SW716 – In the South 31 Ditch, east of Campbell St. and downstream of Building 401.	SW716-329	11/05/99	Radiological Parameters VOCs Pesticides and PCBs Metals	This location receives runoff from Building 401. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches downstream of Building 401. The analytical parameters were selected detect a wide range of compounds.
SW717 – In the Modern Landfill Ditch at its confluence with the South 31 Ditch, east of Campbell St and South of Building 401.	SW717-332	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the southeastern quadrant of the NFSS and Building 401. This sampling location was selected to investigate the presence or absence of site-related constituents in an area downstream of Building 401. The analytical parameters were selected to detect a wide range of compounds.
SW718 – In the Castle Garden East Ditch, east and adjacent to its confluence with the South 31 Ditch, north of TWP817, and adjacent to the eastern NFSS boundary.	SW718-334	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from the eastern edge of the NFSS and Modern Landfill located to the east. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. The analytical parameters were selected to detect a wide range of compounds.
SW720 – In the South 16 Ditch, east of Campbell St, south of the former Shop Area and north of Building 401	SW720-342	11/05/99	Radiological Parameters SVOCs Pesticides and PCBs Metals	This location receives runoff from Building 401 and the southern Shop Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the South 16 Ditch. The analytical parameters were selected detect a wide range of compounds.
SW721 – In the South 16 Ditch, between Campbell St and Castle Garden Rd, south of the former Shop Area and northeast of Building 401.	SW721-344	11/05/99	Radiological Parameters SVOCs Metals	This location receives runoff from Building 401 and the southern Shop Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the South 16 Ditch. The analytical parameters were selected detect a wide range of compounds.
SW722 – In the Castle Garden East Ditch, approximately 50 feet north of its confluence with the South 16 Ditch, near Building 421 and the former K-65 drum storage area and adjacent to the eastern NFSS boundary	SW722-346	11/05/99	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	This location receives runoff from Modern Landfill and the western side of the Shop Area. In the LOOW RI, organic and inorganic compounds were identified above their evaluation criteria near this area. This sampling location was selected to investigate the presence or absence of site-related constituents in the Castle Garden East Ditch. The analytical parameters were selected to detect a wide range of compounds.

* Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5. Filtered and unfiltered samples for metals analyses were collected except where noted. Radiological Parameters included gross alpha, gross beta, total uranium and the following isotopes: radium-226, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236, uranium-238, and total uranium. Additional isotopes added to some samples are listed in footnote 1.

1. An unfiltered sample was collected for the isotopes listed above plus the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-228 and uranium-235.

Table 3-10
Summary of Surface Water Samples Collected and Analyses Performed
LOOW Remedial Investigation

Sample Location (Station ID and EU)		Sample ID	Collection Date	Analyses
C9-4-1	EU10	C9-4-SW-1	7/21/1998	General Chemistry, Explosives, Metals
C9-4-2	EU10	C9-4-SW-2	7/21/1998	General Chemistry, Explosives, Metals
C7-NFSS-ST9	EU2	C7-NFSS-WW-ST9	7/7/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-ST6	EU4	C7-NFSS-WW-ST6	7/7/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C9-4-3	EU7	C9-4-SW-3	7/21/1998	General Chemistry, Explosives, Metals
C7-NFSS-SS10	EU8	C7-NFSS-WW-SS10	7/6/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-SS8	EU8	C7-NFSS-WW-SS8	6/30/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-SS9	EU8	C7-NFSS-WW-SS9	7/6/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs

Note: Rationale for parameter selection was to test for LOOW marker compounds.

Table 3-11
Summary of Background Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
SWBKG-01 – Located in the West Ditch outside and 75 feet south of the southwest corner of the NFSS perimeter fence	SWBKG-01-3202	3/09/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located off-site and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-02 – Located in the Central Ditch just within the fenced NFSS southern perimeter as the ditch enters the site.	SWBKG-01-3200	3/08/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-03 – Located in the northwest corner of the NFSS in the ditch that originates on property owned by the town of Lewiston. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SWBKG-01-3204	3/15/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-04 – Located along the northern perimeter of EU 2 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SWBKG-01-3206	3/17/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-05 - Located along the northern perimeter fence and the line separating EUs 4 and 5 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SWBKG-01-3208	3/18/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-06 - Located along the northern perimeter fence and the line separating EUs 5 and 6 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SWBKG-01-3210	3/19/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.

Table 3-11
Summary of Background Surface Water Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	Analysis Parameters*	Rationale for Sample Location and Analysis
SWBKG-07 – Located along the eastern perimeter fence at the intersection of O St. and Castle Garden Road in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SWBKG-01-3212	3/14/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-08 - Located along the eastern perimeter fence, east of Castle Garden Rd, north of the intersection of the Eastern Ditch and South 16 Ditch in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SWBKG-01-3214	3/08/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-09 - Located along the eastern perimeter fence, east of Castle Garden Rd, 100 ft north of the intersection of the Eastern Ditch and South 31 Ditch in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SWBKG-01-3216	3/20/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.
SWBKG-10 - Located along the southern perimeter fence, 175 ft east of Campbell St, south of the intersection of a southern ditch with the ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SWBKG-01-3218	3/09/03	Radiological Parameters VOCs SVOCs PAHs Pesticides and PCBs Metals Nitroaromatics	The purpose of this sample is to characterize background conditions. This collocated surface water and sediment sampling location is located just within the NFSS perimeter and outside the zone of impacted surface water associated with the NFSS. The analytical parameters were selected to detect a wide range of compounds.

* Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5. Filtered and unfiltered samples for metals and radionuclide analyses were collected except where noted.
CWM = Chemical Waste Management, Inc.
ID = Identification number

Radiological Parameters included a filtered and unfiltered sample for: gross alpha, gross beta, total uranium and the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium 235, uranium-235/236, uranium-238, and total uranium.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 1				
SD712 – In the West Ditch at its confluence with the West Patrol Road Ditch.	SD712-319	12/01/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the Baker Smith Area where radiological residues were stored. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary and the Baker Smith Area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD713 - In the West Ditch adjacent and just south of the northern property line.	SD713-324	12/01/99	Radiological Parameters VOCs, SVOCs Pesticides and PCBs, Metals	This location receives runoff from the Baker Smith Area where radiological residues were stored. The runoff at this location exits the site and flows north. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD714 – In the West Patrol Road Ditch, upstream of SW/SD712 and downstream of the former storehouse (Building 444) and welding shop (Building 445).	SD714-326	12/01/99	Radiological Parameters VOCs, SVOCs Pesticides and PCBs, Metals	This location receives runoff from the Baker Smith Area where radiological residues were stored. This sampling location was selected to investigate the presence or absence of site-related constituents downstream of Buildings 444 and 445. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD747 - In the West Ditch, at its confluence with an eastern lateral ditch, downstream of the IWCS and SW/SD712, and southeast of former Buildings 443 (welding shop), 444 (storehouse) and 445 (pipe shop).	SD747-2152 SD747-2253	9/09/01	Radiological Parameters ¹	Samples collected at the location of a surface gamma reading of 35,800 cpm. Sample SD 747-225 was collected from a depth interval of 1' – 1.5' to vertically characterize this location. For purposes of risk modeling, this location is considered to be representative of soil conditions.
EU 5				
SD726 - In a low-lying area containing ponded water, north of O Street, at the west end of the depression.	SD726-355	12/03/99	Radiological Parameters VOCs, SVOCs, Metals	This location receives runoff from the Acid Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.
SD727 - In a low-lying area containing ponded water, north of O Street and east of SW/SD726.	SD727-357	12/04/99	Radiological Parameters Pesticides and PCBs	This location receives runoff from the Acid Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former “thaw house” where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 5 (Continued)				
SD728 - In a low-lying area containing ponded water, north of O Street and east of SW/SD727, in the central portion of the depression.	SD728-359	12/04/99	Radiological Parameters SVOCs, Metals	This location receives runoff from Acid Area and roads formerly used to haul radiological wastes. This area also receives runoff from the former "thaw house" where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.
SD729 - In a low-lying area containing ponded water, north of O Street and east of SW/SD728, in the eastern half of the depression and southwest of former Building 434.	SD729-364	12/04/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from former Building 434 (stored K-65 waste) and roads formerly used to haul radiological wastes. This area also receives runoff from the former "thaw house" where drums of residue were offloaded from rail cars. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.
SD730 - In a low-lying area containing ponded water, north of O Street and east of SD729, at the eastern end of the depression, southwest of former Building 434.	SD730-366	12/04/99	Radiological Parameters SVOCs	This location receives runoff from roads formerly used to haul radiological wastes and former Building 434 (subsequently used to store K-65 waste) and the former "thaw house". This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.
SD735 - In the CWM Ditch adjacent and just south of the northern property line, north of N St., and on the border between EUs 5 and 6.	SD735-377	12/03/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary.
SD736 - In the N Street North Ditch at its confluence of the CWM Ditch, north of N St. and on the border between EUs 5 and 6.	SD736-379	12/03/99	Radiological Parameters SVOCs, Metals	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in this ditch approximately 300 feet south of the property boundary.
SD737 - In the N Street North Ditch, north of N St. and the Acid Area and west of well BH51.	SD737-381	12/04/99	Radiological Parameters VOCs, Pesticides and PCBs,	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in this ditch. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD738 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch, in the eastern half of the depression.	SD738-383	12/04/99	Radiological Parameters SVOCs, Metals	This location collects runoff from the Panhandle Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 5 (Continued)				
SD739 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch and SW/SD738, in the western half of the depression.	SD739-385	12/04/99	Radiological Parameters VOCs, SVOCs Pesticides and PCBs, Metals	This location collects runoff from the Panhandle Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the low-lying ponded area.
SEDC01 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch and SW/SD738, in the central portion of the depression and northwest of former Building 434.	SEDC01-04-2123 ⁴	8/21/01	Radiological Parameters ³ SVOCs, PCBs	Four samples of the sediment were collected at this location at two discrete depths to vertically characterize the soft sediment in the low-lying area. SEDC01-04-2123 and SEDC01-04-2465 were collected from a depth interval of 0 to 4 inches. SEDC01-08-2125 and SEDC01-08-2460 were collected from a depth of 4 to 8 inches. This location collects runoff from the Panhandle Area.
	SEDC01-08-2125 ⁴	8/21/01	Radiological Parameters ³	
	SEDC01-04-2465 ⁴	11/14/01	VOCs	
	SEDC01-08-2460 ⁴	11/14/01	VOCs	
SEDC02 - In a low-lying area containing ponded water, south of N Street and west of the CWM Ditch, in the eastern half of the depression.	SEDC02-06-2128 ⁴	8/21/01	Radiological Parameters ³ SVOCs, PCBs, Metals	This location receives runoff from the Panhandle Area and former Building 434 (used to store K-65 wastes).
	SEDC02-06-2467 ⁴	11/14/01	VOCs	
SEDC03 - In a low-lying area containing ponded water, north of O Street at the central portion of the depression.	SEDC03-05-2132 ⁴	8/22/01	Radiological Parameters ³ SVOCs, PCBs, Metals	Four samples of the sediment were collected at this location at two discrete intervals to vertically characterize the soft sediment in the low-lying area. SEDC03-05-2132 and SEDC03-05-2466 were collected from a depth interval of 0 to 5 inches. SEDC03-10-2133 and SEDC03-10-2461 were collected from a depth interval of 5 to 10 inches. This location receives runoff from the Panhandle Area, roads formerly used to haul radiological wastes and the former "thaw house" where drums of residue were offloaded from rail cars.
	SEDC03-10-2133 ⁴	8/22/01	Radiological Parameters ³	
	SEDC03-05-2466 ⁴	11/14/01	VOCs	
	SEDC03-10-2461 ⁴	11/14/01	VOCs	
SEDC04 - In a low-lying area containing ponded water, north of O Street and east of SD/SW729, at the eastern end of the depression, southwest of former Building 434.	SEDC04-05-2136 ⁴	8/22/01	Radiological Parameters ³ SVOCs, PCBs, Metals	Four samples of the sediment were collected at this location at two discrete intervals to vertically characterize the soft sediment in the low-lying area. SEDC04-05-2136 and SEDC04-05-2463 were collected from a depth interval of 0 to 5 inches. SEDC04-10-2138 and SEDC04-10-2462 were collected from a depth interval of 5 to 10 inches. This location receives runoff from former Building 434 (used to store K-65 wastes) and roads formerly used to haul radiological wastes.
	SEC04-10-2138 ⁴	8/22/01	Radiological Parameters ³	
	SEC04-05-2463 ⁴	11/14/01	VOCs	
	SEC04-10-2462 ⁴	11/14/01	VOCs	

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 6				
SD731- In the MacArthur Street West Ditch, at its confluence with the O Street North Ditch.	SD731-368	12/04/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from former haul roads and former Building 434 used to store K-65 wastes. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditch. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD732 - In the MacArthur Street West Ditch, west of MacArthur Street, at its confluence with the O Street North Ditch.	SD732-370	12/02/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD733 - In the MacArthur Street West Ditch, at the northeast corner of the NFSS property.	SD733-373	12/02/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD734 – In a low-lying area containing ponded water, along the northern property boundary, east of the CWM Ditch.	SD734-375	12/03/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This low-lying area is at the perimeter of the site. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
EU 7				
SD711 - In the O St. South Ditch, approximately 25 feet east of the intersection of O St. and Lutts Rd.	SD711-317	12/03/99	Radiological Parameters Metals	This location receives runoff from the organic burial area and flows into the Lutts Rd. East Ditch. This sampling location was selected to investigate the presence or absence of site-related constituents near the organic disposal area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD743 - In Lutts Rd East Ditch, east of Lutts Rd., approximately 60 ft. south of the intersection of Lutts Rd and O St.	SD743-675	10/03/00	Radiological Parameters ³	This location receives runoff from the former IWCS stormwater pond 3 and the organic burial area. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditch adjacent to the organic burial area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 7 (Continued)				
SD744 - In the O St. South Ditch, approximately at the intersection of O St. and Lutts Rd. and the confluence of the O. St. South Ditch and the Lutts Rd East Ditch.	SD744-676	10/03/00	Radiological Parameters ³	This location receives runoff from former IWCS stormwater pond 3 and the organic burial area. This sampling location was selected to investigate the presence or absence of site-related constituents at the confluence of the two ditches. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD745 - In the O St. South Ditch, approximately 90 feet east of the intersection of O St. and Lutts Rd.	SD745-677	10/03/00	Radiological Parameters ³	This location receives runoff from the organic burial area and the former IWCS stormwater pond 3 and flows into the Lutts Rd. East Ditch. This sampling location was selected to investigate the presence or absence of site-related constituents near the disposal area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD748 - In Lutts Rd East Ditch, between O St. and the fenced perimeter of the IWCS, and downstream of SD743.	SD748-2153	9/07/01	Radiological Parameters ¹	Samples were collected where a surface gamma reading of 21,200 cpm was recorded downstream of the IWCS stormwater pond 3. Sample SD748-2239 was collected from a depth interval of 0.5' to 1', immediately below SD748-2153 to further characterize the vertical extent of the radiological parameters. For purposes of risk modeling, this location is considered to be representative of soil conditions.
	SD748-2239			
SD749 - In the O St. South Ditch, approximately 50 feet west of the Central Ditch.	SD749-2154	9/06/01	Radiological Parameters ¹	Samples were collected adjacent and west of SD750 where a gamma reading of 46,700 cpm was recorded. One sample was collected at the 0-0.5' surface interval to characterize the radionuclides in the sediment near SD750 which is located downstream of the IWCS stormwater pond 3. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD750 - In the O St. South Ditch, approximately 40 feet west of the Central Ditch.	SD750-2155	9/06/01	Radiological Parameters ¹	Samples were collected where a gamma reading of 46,700 cpm was recorded downstream of the IWCS stormwater pond 3. Sample SD750-2216 was collected from a depth interval of 1.5' – 2' to characterize the vertical extent of radiological parameters. For purposes of risk modeling, this location is considered to be representative of soil conditions.
	SD750-2216			
SD751 - In the O St. South Ditch, approximately 30 feet west of the Central Ditch.	SD751-2156	9/06/01	Radiological Parameters ¹	Samples were collected adjacent and east of SD750 where a gamma reading of 46,700 cpm was recorded. One sample was collected at the 0-0.5' surface interval to characterize the radionuclides in the sediment near SD750 which is located downstream of the IWCS stormwater pond 3. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 8				
SD723 – In the Castle Garden Rd West Ditch, and southeast of the former combined shop building (uranium billet storage)	SD723-349	12/04/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the western side of the Shop Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD724 – In the O Street South Ditch immediately east of Campbell Street, near the intersection of O St. and Campbell St.	SD724-351	12/04/99	Radiological Parameters Pesticides and PCBs, Metals	This location receives runoff from the former haul roads for radiological residues and from the combined shop building where uranium billets were stored. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD725 – In the O Street South Ditch, adjacent and west of Sixth Street and north of the combined shop building.	SD725-353	11/21/99	Radiological Parameters ² SVOCs, Metals	This location receives runoff from the former haul roads for radiological residues and the combined shop building where uranium billets were stored. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD725 – In the O Street South Ditch, adjacent and west of Sixth Street and north of the combined shop building.	SD725-353	11/21/99	Radiological Parameters ² SVOCs, Metals	This location receives runoff from the former haul roads for radiological residues and the combined shop building where uranium billets were stored. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the Shop Area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SEDC05 – In the eastern end of a low-lying depression in the central Shop Area, south of X St. and near the former gas station.	SEDC05-06-2141 ⁴	8/23/01	Radiological Parameters ³ SVOCs, PCBs, Metals	This location receives runoff from the former gas station and the combined shop area. Fuel and uranium billets were stored in these buildings. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
	SEDC05-06-2470 ⁴	11/15/01	VOCs	
SEDC06 - In the central portion of a low-lying depression in the central Shop Area, south of X St. and near the former gas station.	SECD06-04-2145 ⁴	8/23/01	Radiological Parameters ³ SVOCs, PCBs, Metals	Four samples of the sediment were collected at this location at two discrete depths to vertically characterize the soft sediment in the low-lying area. Samples SEDC06-04-2145 and SEDC06-04-2468 were collected from a depth interval of 0 to 4'. Samples SEDC06-08-2146 and SEDC06-08-2469 were collected from a depth interval of 4' – 8'.
	SEDC06-08-2146 ⁴	8/23/01	Radiological Parameters ³	

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
	SEDC06-04-2468 ⁴	11/15/01	VOCs	This location receives runoff from the former gas station and the combined shop area. Fuel and uranium billets were stored in these buildings, respectively. In addition, during the LOOW RI, organic and/or inorganic compounds were identified above their evaluation criteria in the soil near this area. For purposes of risk modeling, this location is considered to be representative of soil conditions.
	SEDC06-08-2469 ⁴	11/15/01	VOCs	
EU 10				
SD701 – In the central-northwest lateral IWCS ditch, east of the West Drainage Ditch, adjacent to the NFSS western perimeter fence and north of well cluster OW15.	SD701-293	11/22/99	Radiological Parameters ² VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD702 – In the central-southwest lateral IWCS ditch, east of the West Drainage Ditch, adjacent to the NFSS western perimeter fence and north of well cluster OW17.	SD702-295	11/21/99	Radiological Parameters ² VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD703 – In the southwest lateral IWCS ditch, southwest of the West Drainage Ditch, adjacent to the NFSS western perimeter fence, west of the southwest corner of the IWCS and north of well cluster OW18.	SD703-297	11/22/99	Radiological Parameters ² VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD741 – Outside the fenced perimeter of the IWCS, in the IWCS southwest lateral ditch, south of TWP856 and upstream of SW/SD703.	SD741-672	10/03/00	Radiological Parameters ³	This location receives runoff from the IWCS. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD742 – In the northwest lateral IWCS ditch, east of the West Ditch, adjacent to the NFSS western perimeter fence and north of well cluster OW14.	SD741-674	10/03/00	Radiological Parameters ³	This location receives runoff from the IWCS, the southwestern quadrant of the site and off-site adjacent property. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches associated with the IWCS and the southwestern quadrant of the site. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 11				
SD704 – In the Central Ditch adjacent to R St., just north of the southern NFSS property boundary and southeast of the IWCS.	SD704-302	12/01/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals	This location receives runoff from the former DOE stockpile area and adjacent properties located south of the NFSS. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
SD752 - In the South 16 Ditch, west of Campbell St, south of the former Shop Area, northwest of Building 401, and adjacent to the former IWCS stormwater pond 5 and north pond.	SD752-2241	9/08/99	Radiological Parameters	Samples were collected at this location where a surface gamma reading of 29,500 cpm was recorded. One sediment sample was collected at the surface to characterize the sediment in an area that receives runoff from the IWCS stormwater ponds (Pond 5 and north pond), Building 401 and the southern Shop Area. Two soil samples were collected below this sample at depths of 1' and 1.5' (SB752-225 and SB752-2250, respectively) to characterize extent and evaluate migration. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
EU 12				
SD719 – In a low-lying area containing ponded water, south of South 16 Ditch, west of Castle Garden Rd and northeast of Building 401.	SD719-341	12/03/99	Radiological Parameters SVOCs	This location receives runoff from Building 401 and surrounding area. This sampling location was selected to investigate the presence or absence of site-related constituents in an area downstream of the Building 401 area. For purposes of risk modeling, this location is considered to be representative of surface soil conditions.
EU 15				
SD705 – Within the fenced perimeter of the IWCS, in the South 31 Ditch, approximately 20 feet east of its confluence with the Central Ditch.	SD705-304	11/30/99	Radiological Parameters SVOCs, Metals	This location receives runoff from Building 401, the former IWCS stormwater ponds and the decontamination pad. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches near the IWCS and downstream of Building 401 and the former IWCS stormwater ponds.
SD706 – Within the fenced perimeter of the IWCS, in the Central Ditch, east of well A50.	SD706-306	11/30/99	Radiological Parameters VOCs, Pesticides and PCBs, Metals	This location receives runoff from the IWCS and the former IWCS stormwater ponds. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 15 (Continued)				
SD707 – Within the fenced perimeter of the IWCS, in the Central Ditch, south of its confluence with South 16 Ditch.	SD707-308	11/30/99	Radiological Parameters SVOCs, Metals	This location receives runoff from the IWCS and the former IWCS stormwater ponds. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches located near the IWCS that were remediated or partially remediated by DOE.
SD708 - In the Central Ditch, 200 feet south of O Street South Ditch, downstream of the IWCS, the former IWCS stormwater ponds.	SD708-311	12/01/99	Radiological Parameters VOCs, Metals	This location was sampled to characterize this portion of the Central Ditch and investigate the presence or absence of chemical and radiological ¹ compounds in the ditch downstream of the IWCS and the former IWCS stormwater ponds.
SD709 – In the Central Ditch, downstream of its confluence with the O Street South Ditch, north of O St and downstream of the IWCS and the former IWCS stormwater ponds.	SD709-313	11/20/99	Radiological Parameters ² SVOCs, Pesticides and PCBs, Metals	This location was sampled to characterize this portion of the Central Ditch and investigate the presence or absence of chemical and radiological ¹ compounds in the ditch downstream of the IWCS and former IWCS stormwater ponds.
SD710 - In the Central Ditch adjacent and just south of the northern property line and north of N St.	SD710-315	11/20/99	Radiological Parameters ² VOCs, SVOCs, Pesticides and PCBs Metals, Nitroaromatics	This location receives runoff from the IWCS and the former IWCS stormwater ponds. The runoff at this location exits the site and flows north. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary.
SD715 – In the Modern Landfill Ditch at its confluence with the R St. North Ditch, adjacent to R St., just north of the southern NFSS property boundary and southeast of Building 401	SD715-328	12/03/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from Modern Landfill located south of the NFSS. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary.
SD716 – In the South 31 Ditch, east of Campbell St. and downstream of Building 401.	SD716-330	12/03/99	Radiological Parameters VOCs, Pesticides and PCBs, Metals	This location receives runoff from Building 401. This sampling location was selected to investigate the presence or absence of site-related constituents in the ditches downstream of Building 401.
SD717 – In the Modern Landfill Ditch at its confluence with the South 31 Ditch, east of Campbell St and South of Building 401.	SD717-333	12/02/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from the southeastern quadrant of the NFSS and Building 401. This sampling location was selected to investigate the presence or absence of site-related constituents in an area downstream of Building 401.

Table 3-12
Summary of Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Analysis Parameters**	Rationale for Sample Location and Analysis
EU 15 (Continued)				
SD718 – In the Castle Garden East Ditch, east and adjacent to its confluence with the South 31 Ditch, north of TWP817, and adjacent to the eastern NFSS boundary.	SD718-338	12/02/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from the eastern edge of the NFSS and Modern Landfill located to the east. This sampling location was selected to investigate the presence or absence of site-related constituents near the property boundary.
SD720 – In the South 16 Ditch, east of Campbell St, south of the former Shop Area and north of Building 401	SD720-343	12/04/99	Radiological Parameters SVOCs, Pesticides and PCBs, Metals	This location receives runoff from Building 401 and the southern Shop Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the South 16 Ditch.
SD721 – In the South 16 Ditch, between Campbell St and Castle Garden Rd, south of the former Shop Area and northeast of Building 401.	SD721-345	12/04/99	Radiological Parameters SVOCs, Metals	This location receives runoff from Building 401 and the southern Shop Area. This sampling location was selected to investigate the presence or absence of site-related constituents in the South 16 Ditch.
SD722 – In the Castle Garden East Ditch, approximately 50 feet north of its confluence with the South 16 Ditch, near Building 421 and the former K-65 drum storage area and adjacent to the eastern NFSS boundary	SD722-347	12/04/99	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This location receives runoff from Modern Landfill and the western side of the Shop Area. Chemical and radiological ¹ compounds were identified in the LOOW RI above their evaluation criteria near this area. This sampling location was selected to investigate the presence or absence of site-related constituents in the Castle Garden East Ditch.

*Sample depths are 0-0.5' unless otherwise noted

** Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5.

Radiological Parameters includes gross alpha, gross beta, total uranium and the following isotopes: cesium-137, thorium-228 (alpha), radium-226, thorium-230 (alpha), thorium-232 (alpha), uranium-233/234, uranium-235/236, and uranium-238. Additional isotopes added or deleted to some samples are listed in footnotes 1 through 3 below.

1. Except for gross alpha and gross beta, samples were collected/analyzed for the isotopes listed above plus the following isotopes: actinium-227, americium-241, cobalt-60, protactinium-231, radium-228 (gamma), thorium-228 (gamma) and uranium-235 (gamma). Samples were not collected for gross alpha and gross beta.
2. With the following exceptions, samples were collected/analyzed for the parameters listed above under "Radiological Parameters". Samples were not analyzed for cesium-137 or uranium 235/236, but the following isotope was added to those listed under "Radiological Parameters"- uranium235 (gamma).
3. Samples were collected/analyzed for the isotopes listed above under "Radiological Parameters", plus the following isotopes: actinium-227, americium-241, cobalt-60, protactinium-231, radium-228, and uranium-235. Samples were collected for gross alpha and gross beta.
4. Because of problems with sample preservations, the VOC samples at these locations were later recollected.

Table 3-13
Summary of Sediment Samples Collected and Analyses Performed
LOOW Remedial Investigation

Sample Location (Station ID and EU)		Sample ID	Collection Date	Analyses
C9-4-1	EU10	C9-4-SD-1	7/21/1998	Explosives, Metals
C9-4-2	EU10	C9-4-SD-2	7/21/1998	Explosives, Metals
C7-NFSS-ST9	EU2	C7-NFSS-SL-ST9	7/7/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-PIPE1	EU4	C7-NFSS-SL-PIPE1	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-PIPE2	EU4	C7-NFSS-SL-PIPE2	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-ST6	EU4	C7-NFSS-SL-ST6	7/7/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-SUMP1	EU4	C7-NFSS-SL-SUMP1	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C7-NFSS-SUMP2	EU4	C7-NFSS-SL-SUMP2	7/13/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C9-4-3	EU7	C9-4-SD-3	7/21/1998	Explosives, Metals
C7-NFSS-SS10	EU8	C7-NFSS-SL-SS10	7/6/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs

Note: Rationale for parameter selection was to test for LOOW marker compounds.

Table 3-14
Summary of Background Sediment Samples Collected and Analyses Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location*	Sample ID	Date Collected
SDBKG-01 – Located in the West Ditch outside and 75 feet south of the southwest corner of the NFSS perimeter fence	SDBKG-01-3203	3/09/03
SDBKG-02 – Located in the Central Ditch just within the fenced NFSS southern perimeter as the ditch enters the site.	SDBKG-01-3201	3/08/03
SDBKG-03 – Located in the northwest corner of the NFSS in the ditch that originates on property owned by the town of Lewiston. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SDBKG-01-3205	3/15/03
SDBKG-04 – Located along the northern perimeter of EU 2 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SDBKG-01-3207	3/17/03
SDBKG-05 - Located along the northern perimeter fence and the line separating EUs 4 and 5 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SDBKG-01-3209	3/18/03
SDBKG-06 - Located along the northern perimeter fence and the line separating EUs 5 and 6 in a ditch that originates on property belonging to CWM. This sample was collected just inside the northern perimeter fence where the ditch enters the site.	SDBKG-01-3211	3/19/03
SDBKG-07 – Located along the eastern perimeter fence at the intersection of O St. and Castle Garden Road in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SDBKG-01-3213	3/14/03
SDBKG-08 - Located along the eastern perimeter fence, east of Castle Garden Rd, north of the intersection of the Eastern Ditch and South 16 Ditch in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SDBKG-01-3215	3/08/03
SDBKG-09 - Located along the eastern perimeter fence, east of Castle Garden Rd, 100 ft north of the intersection of the Eastern Ditch and South 31 Ditch in a ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SDBKG-01-3217	3/20/03
SDBKG-10 - Located along the southern perimeter fence, 175 ft east of Campbell St, south of the intersection of a southern ditch with the ditch that originated on property belonging to Modern Landfill. This sample was collected just inside the eastern perimeter fence where the ditch enters the site.	SDBKG-01-3219	3/09/03

* Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5. Filtered and unfiltered samples for metals and radionuclides analyses were collected except where noted.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
BH61 – Northwest corner of the NFSS and Baker Smith Area, west of West Patrol Road	GWBH61-274	1/6/00 Phase 1	N	46.00	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence, absence and migration of chemical and radiological parameters at the NFSS boundary near the former LOOW pipe shop. Drums of L-30 and KAPL wastes were stored in this area.
	GWBH61-3284	5/20/03 Phase 3				All above parameters plus: PAHs, Miscellaneous parameters ⁴ (No TDS or alkalinity)	Previous samples collected from BH61 indicated the presence of VOCs. This well was resampled to confirm these results and evaluate the presence of other parameters at detection limits lower than those obtained in Phase 2.
BH62 – Northwest corner of the NFSS and Baker Smith Area, west of West Patrol Road	GWBH62-275	1/7/00 Phase 1	N	98.00	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence, absence and migration of chemical and radiological parameters in the lower water-bearing zone at the NFSS boundary near the former Pipe Shop. Drums of L-30 and KAPL wastes were stored in this area.
MW505 – Northwest corner of the NFSS, adjacent and east of West Patrol Rd and adjacent to the northern perimeter fence.	GW505-783	9/28/00 Phase 2	Y	18.50	Upper	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Installed northwest of buildings formerly used to store radioactive residues (Buildings 443, 444 and 445) to further evaluate the presence of VOCs, metals, radiological and other non-radiological parameters in wells at the property boundary. Samples of groundwater collected from the permanent wells BH61 and BH62, installed in the lower water-bearing zone, indicated the presence of VOCs and metals. Samples from TWP502 and TWP503, located southeast of MW505, exhibited gross alpha and radionuclides.
	GW505-3279	5/29/03 Phase 3				All above parameters plus: PAHs, Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous sample collected from this well indicated the presence of VOCs, SVOCs and metals and radiological parameters. This well was resampled to confirm the previous results, further characterize the groundwater in the upper water-bearing zone near the property boundary and evaluate the presence of organic parameters at revised reporting limits.
BH50 – East of the Baker Smith Area, along the northern perimeter of NFSS, east of Lutts Rd.	GWBH50-267	1/10/00 Phase 1	N	44.00	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence, absence and migration of chemical and radiological parameters at the NFSS boundary.
	GWBH50-3283	5/29/03 Phase 3				All above parameters plus: PAHs, Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous samples collected from BH50 indicated the presence of VOCs and SVOCs. This well was resampled to confirm the previous chemical and radiological results and evaluate the presence of organic parameters at revised reporting limits.
MW404A – East of Campbell St, between N and O Streets, near former Building 433 (radium vault)	GW404A-779	9/27/00 Phase 2	Y	25.00	Upper	Radiological Parameters ¹	Further evaluate the extent of the radiological parameters found in the groundwater at TWP404. The well and TWP were installed near a former fuel oil storage area and the radium vault (Building 433).

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
GW808A – East of the Baker Smith Area in a wooded area bounded by Lutts Rd, O St., the Central Ditch and N St., approximately 10 ft. from TWP808	GW808A-787	9/29/00 Phase 2	Y	17.00	Upper	Radiological Parameters ¹	Further evaluate the extent of the thorium, uranium and radium found in the groundwater at TWP808. The well was installed in an area that had not been previously investigated.
	GW808A-3257	5/28/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of radiological parameters. This well was resampled to confirm the previous results, further characterize the chemical and radiological compounds in the groundwater in the upper water-bearing zone in EU 2 and evaluate the presence of organic parameters at revised reporting limits.
GW810A – South of N St., 400 feet west of Campbell Streets approximately 10 ft. from TWP810	GW810A-788	9/28/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ VOCs	Further evaluate the extent of the VOCs and thorium, uranium and radium found in the groundwater at TWP810. The well and TWP were installed in an area that had not been previously investigated.
	GW810A-3258	5/28/03 Phase 3				All above parameters plus: SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, VOCs	Previous samples collected from this well indicated the presence of VOCs and radiological parameters (cesium, radium and thorium). This well was resampled to confirm the previous results, further characterize chemical and radiological compounds in the groundwater in the upper water-bearing zone and evaluate the presence of organic parameters at revised reporting limits.
MW411A – Northwest of the intersection of N St. and Castle Garden Rd.	GW411A-780	9/29/00 Phase 2	Y	17.00	Upper	Radiological Parameters ¹	Further evaluate the extent of the thorium and radium found in the groundwater at TWP411. The well and TWP were installed at the NFSS boundary north of the Acid Area where radiological wastes were stored.
	GW411A-3255	5/19/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well, MW415A, and nearby sewer lines indicated the presence of VOCs and inorganic parameters. This well was resampled to confirm the previous results, further characterize the extent of the chemical and radioactive constituents and evaluate the presence of organic parameters at revised reporting limits.
MW415A – Central Acid Area, north of O street and east of building 431	GW415A-781	9/29/00 Phase 2	Y	15.00	Upper	Radiological Parameters ² VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Further evaluate the extent of the chlorinated VOCs, SVOCs, metals, and radiological parameters found in the groundwater at TWP415 and investigate the presence of other non-radiological parameters. The well and TWP were installed near the former nitric acid concentrator and Buildings 431 and 432.
	GW415A-3280	5/19/03 Phase 3	Y	15.00	Upper	All above parameters plus: PAHs, Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous samples collected from this well and the sewer lines indicated the presence of VOCs and inorganic parameters. This well was resampled to confirm the previous results, further characterize the extent of the chlorinated solvents and other chemical in the upper water-bearing zone in EU4 and evaluate the presence of organic parameters at revised reporting limits.
MW422 – Upgradient from MW415A	GW-MW422-3610	9/17/03 Phase 3	Y	10	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics Miscellaneous Parameters ⁴	Samples collected from MW411A, MW415A and sewer lines in this area contained chlorinated solvents. This well was installed and sampled to further evaluate the extent of the chlorinated solvents and the presence or absence of other parameters in the upper water-bearing zone in this area.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
MW423 – South of N St. and TWP424 and northeast of MW415A	GW-MW423-3613	10/6/03 Phase 3	Y	22.35	Upper	VOCs, SVOCs, Miscellaneous Parameters ⁴ (Gaseous hydrocarbons only)	Samples collected from MW411A, MW415A and sewer lines in this area contained chlorinated solvents. This well was installed and sampled to further evaluate the extent of the chlorinated solvents and the presence or absence of other parameters in the upper water-bearing zone in this area.
MW424 – North of N St, east of MW411A and north of MW423	GW-MW424-3610	10/4/03 Phase 3	Y	21.60	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics Miscellaneous Parameters ⁴	Samples collected from MW411A, MW415A and sewer lines in this area contained chlorinated solvents. This well was installed and sampled to further evaluate the extent of the chlorinated solvents and the presence or absence of other parameters in this area.
BH51 – Northern perimeter of the NFSS, west of TWP424, north of N St.	GWBH51-269	1/8/00 Phase 1	N	52.00	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence, absence and migration of chemical and radiological parameters in the lower water-bearing zone at the NFSS boundary east of the former water tower used to store the K-65 waste.
	GWBH51-3293	6/2/03 Phase 3				Metals	This well was resampled to confirm previous analytical results for metals.
BH60 – Southern perimeter of the NFSS along O St., west of TWP423	GWBH60-273	1/5/00 Phase 1	N	45.80	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters in the lower water-bearing zone at the NFSS boundary near the former haul road for the K-65 waste.
OW20D – Along O St., 800 feet east of Castle Garden Rd.	GWOW20D-257	1/7/00 Phase 1	N	48.50	Lower	Radiological Parameters ¹ VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters. Southwest of former Building 434 used to store the K-65 waste and near the site of a 1953 explosion and fire on the CWM site. O St. was used as a haul road for the K-65 waste.
OW20S - Along O St., 800 feet east Castle Garden Rd.	GWOW20S-263	1/7/00 Phase 1	N	22.00	Upper	Radiological Parameters ¹ VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters. Southwest of the former Building 434 used to store the K-65 waste and near the site of a 1953 explosion and fire on the CWM site. O St. was used as a haul road for the K-65 waste.
	GWBO2WO20S-3287	5/15/03 Phase 3				All above parameters plus: PAHs, Pesticides and PCBs, Nitroaromatics, Miscellaneous Parameters ⁴	Previous samples collected from this well and OW20D indicated the presence of SVOC and radiological parameters. This well was resampled as a part of the environmental surveillance program. In addition, the sample was collected to confirm the previous results, further characterize the groundwater near the property boundary and evaluate the presence of organic parameters at revised reporting limits.
BH57 – East of McArthur St. along the eastern NFSS perimeter, near BH63 and TWP607	GWBH57-271	1/8/00 Phase 1	N	101.50	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	This existing well was sampled to evaluate the presence, absence and migration of chemical and radiological parameters in the lower water-bearing zone at the NFSS boundary near the former Building 434.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
	GWBH57-3278	5/31/03 Phase 3	N	101.50	Lower	All above parameters plus: PAHs, Nitroaromatics, Miscellaneous parameters ⁴ (No TDS or alkalinity)	Previous samples collected from A57 indicated the presence of radium-226. This well was resampled to confirm these results, investigate non-radiological compounds and evaluate the presence of organic parameters at revised reporting limits.
BH63 - East of McArthur St. along the eastern NFSS perimeter, near BH57 and TWP607	GWBH63-277	1/5/00 Phase 1	N	48.70	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters in the lower water-bearing zone at the NFSS boundary near the former Building 434.
GW603A – Near the location of former Building 434, approximately 10 ft. from TWP603	GW603A-785	9/27/00 Phase 2	Y	20.00	Upper	Radiological Parameters ¹	Further evaluate the extent of the uranium and radium found in the groundwater at TWP603. The well and TWP were installed near the former Building 434 where K-65 wastes were stored.
	GW603A-3256	5/18/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	This well was resampled to evaluate the presence of chemical and radiological parameters at revised reporting limits.
GW606 - Southeast corner of the NFSS	GW606-786	9/27/00 Phase 2	Y	20.00	Upper	Radiological Parameters ¹	Samples of groundwater collected from the nearby wells BH57 and BH63, installed in the lower water-bearing zone, indicated the presence of radium and thorium. These parameters were also in samples collected from TWP604 and TWP605 installed northwest and west of MW606. This well was installed near the Modern Landfill property line southeast of the former water storage tower (K-65 waste storage) and the former “thaw house” where drums of residue were offloaded from rail cars.
BH5 – Shop Area, South of Z St, and near Campbell Street	GWBH05-251	1/5/00 Phase 1	N	52.50	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the Shop Area.
BH15 – Central Shop Area, south of X St and TWP310, and near former change houses (titanium alloys stored)	GWBH15-253	1/6/00 Phase 1	N	104.50	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone (titanium alloy storage) and to evaluate the presence and extent of organic and/or inorganic compounds previously identified in the LOOW RI in the soil near this area.
	GWBH15-3276	6/1/03 Phase 3				All above parameters plus: PAHs, Pesticides and PCBs, Nitroaromatics, Miscellaneous Parameters ⁴ (No TDS, alkalinity)	Previous sample collected from BH15 indicated the presence of VOCs and radium-226. This well was resampled to confirm and further characterize the extent of VOCs and radium in the upper water-bearing zone, investigate other non radiological parameters and evaluate the presence of organic parameters at revised reporting limits.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
WO19D - East of Castle Garden Road in the southeast corner of the Shop Area, near Buildings 420, 421 and the former K-65 drum storage area	WO19D-260	1/6/00 Phase 1	N	48.20	Lower	Radiological Parameters ¹ VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the groundwater associated with a nearby concrete rubble pile and the former K-65 drum storage area, to evaluate the extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area and to investigate potential site-related constituents near the property boundary.
MW302A – West of Castle Garden Rd in the southeast corner of the Shop Area, near Buildings 420, 421 and the former K-65 drum storage area	GW302A-777	9/27/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹	Further evaluate the extent of the uranium isotopes found in the groundwater at TWP302. The well and TWP were installed near a concrete rubble pile and K-65 drum storage area in the Shop Area.
	GW302A-3253	5/18/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of radiological parameters. This well was resampled to confirm the previous results, further characterize the radiological and non-radiological parameters in the groundwater in the upper water-bearing zone near Buildings 420 and 421 and evaluate the presence of organic parameters at revised reporting limits.
MW303A – Central Shop Area, south of Z St., adjacent to the former gas station and near Building 422 (uranium rod storage)	GW303A-778	9/29/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ VOCs	Further evaluate the extent of the VOCs and radiological parameters found in the groundwater at TWP303. The well and TWP were installed near a former pipeline, UST and uranium rod storage area in the Shop Area.
	GW303A-3254	5/18/03 Phase 3				Radiological Parameters VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of VOCs and uranium isotopes. This well was resampled to confirm the previous results, further characterize the radiological and non-radiological parameters in the groundwater in the upper water-bearing zone near Building 422 and evaluate the presence of organic parameters at revised reporting limits.
MW313 – South of Z St., and west of the foundation for Building 421	GW-MW313-3592	10/3/03 Phase 3	Y	22.00	Upper	Radiological Parameters ³ VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals	Samples collected from MW302A indicated the presence of VOCs, SVOCs and uranium isotopes. This well was installed and sampled to evaluate the presence or absence of radiological and chemical parameters in the upper water-bearing zone west of MW302A.
A23A – Southeast of the IWCS and east of well cluster OW06	GWA23A-285	1/10/00 Phase 1	N	78.50	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
A42 – West of the IWCS and north of well cluster OW01	GWA42-254	1/6/00 Phase 1	N	22.50	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.

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Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
	GWA42-3275	5/29/03 Phase 3				All above parameters plus: PAHs, , Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous samples collected from A42 indicated the presence of radiological activity. This well was resampled to confirm the presence of radionuclides in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
A43 – West of the IWCS and south of cluster OW01 and well A42	GWA43-264	1/5/00 Phase 1	N	14.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.
	GWA43-3259	5/17/03 Phase 3				All above parameters plus: PAHs	Previous samples collected from A43 indicated the presence of radiological activity. This well was resampled to confirm the presence of radionuclides in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
A45 – Northeast of the IWCS and east of A52	GWA45-256	1/5/00 Phase 1	N	20.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.
	GWA45-3285	5/16/03 Phase 3	N	20.00	Upper	All above parameters plus: PAHs, Miscellaneous Parameters ⁴	Previous samples collected from A45 indicated the presence of radiological activity. This well was resampled as part of the environmental surveillance program and to confirm the presence of radionuclides in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
A50 – East of the IWCS and south of cluster MW860/861	GWA50-258	1/9/00 Phase 1	N	23.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.
	GWA50-3286	5/15/03 Phase 3				All above parameters plus: PAHs, Miscellaneous Parameters ⁴	Previous samples collected from A50 indicated the presence of VOCs. This well was resampled as part of the surveillance program and to confirm the presence of VOCs in the upper water-bearing zone, investigate chemical and radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
A51 - East of the IWCS and south of cluster MW860/861	GWA51-270	1/7/00 Phase 1	N	21.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.
A52 - North of the IWCS and west of A45	GWA52-259	1/10/00 Phase 1	N	15.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone adjacent to the IWCS.

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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
	GWA52-3260	5/19/03 Phase 3				All above parameters plus: PAHs	Previous samples collected from A52 indicated the presence of radiological activity. This well was resampled to confirm the presence of radionuclides in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
A54 – West of the IWCS and south of A43	GWA54-280	1/8/00 Phase 1	N	38.79	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
A55 - South corner of the IWCS and south of A54	GWA55-3265	5/17/03 Phase 3	N	39.00	Lower	Radiological Parameters VOCs, SVOCs, PAHs Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
A56 – South of the IWCS and west of cluster OW06	GWA56-282	1/6/00 Phase 1	N	40.40	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
A57 – South of the IWCS and west of cluster OW06	GWA57-281	1/6/00 Phase 1	N	80.00	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
BH49 – Northwest of the IWCS	GWBH49-266	1/9/00 Phase 1	N	50.90	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS.
BH49A – Northwest of the IWCS	GWBH49A-790	9/30/00 Phase 2	N	19.50	Upper	Radiological Parameters ¹ VOCs	VOCs found in BH49 (lower water-bearing zone). BH49A sampled to investigate vertical extent of VOCs and to investigate if radiological parameters are present.
	GWBH49A-3261	5/15/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals and TOC, Nitroaromatics	Previous samples collected from BH49A indicated the presence of radiological parameters. This well was resampled to confirm the presence of radionuclides in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
BH70 - East of the IWCS and A51 and east of the Central Ditch	GWBH70-283	1/10/00 Phase 1	N	45.00	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone adjacent to the IWCS and east of the Central Ditch.
OW01A – West of the IWCS and north of A43	GWOW01A-3273	6/1/03 Phase 3	N	47.00	Lower	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from A42 and A43 indicated the presence of radiological parameters. This well was not previously sampled and was sampled to further characterize the radiological and chemical parameters near the IWCS, investigate the potential connectivity between the upper and lower water-bearing zones and evaluate the presence of organic parameters at revised reporting limits.

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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
OW01B – West of the IWCS and north of A43	GWOW01B-793	9/30/00 Phase 2	N	17.00	Upper	Radiological Parameters ¹	Previous samples collected from A42 and A43 indicated the presence of radiological activity. This well was sampled to evaluate the extent of radionuclides in the upper water-bearing zone near the IWCS.
OW02A – Along the northwest perimeter of the IWCS, and north of A42	GWOW02A-794	9/30/00 Phase 2	N	46.00	Lower	Radiological Parameters ¹	Samples collected from A42 and A43 indicated the presence of radiological activity. This well was sampled to further characterize the extent of radionuclides in the lower water-bearing zone and the hydraulic connection between the upper and lower water-bearing zones.
OW02B – Along the northwest perimeter of the IWCS, and north of A42	GWOW02B-795	10/1/00 Phase 2	N	20.00	Upper	Radiological Parameters ¹	Samples collected from A42 and A43 indicated the presence of radiological activity. This well was sampled to further characterize the extent of radionuclides in the upper water-bearing zone on the west side of the IWCS.
	GWOW02B-3264	5/16/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Samples collected from OW02B indicated the presence of radiological parameters. This well was resampled to confirm the results, further characterize the extent of the radiological compounds in the upper water-bearing zone, investigate non-radiological parameters and evaluate the presence of organic parameters at revised reporting limits.
OW03A – Northwest of the IWCS, and north of the OW02 well cluster	GWOW03A-286	1/8/00 Phase 1	N	42.00	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone northwest of the IWCS.
OW03B - North of the OW02 well cluster	GWOW03B-261	1/9/00 Phase 1	N	16.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone northwest of the IWCS.
OW04A- North of the IWCS, and in between of the OW03 well cluster and A52	GWOW04A-279	1/9/00 Phase 1	N	40.60	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone north of the IWCS. Activities performed near the LOOW WWTP and the IWCS may have resulted in the presence of a wide variety of radiological and non-radiological compounds. Analytical parameters were selected based on historical use of the area.
OW04B- Well cluster OW04 located within the fenced area for the IWCS, north of the IWCS, and in between the OW03 well cluster and A52	GWOW04B-3290	5/15/03 Phase 3	N	17.00	Upper	Radiological Parameters VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, Miscellaneous parameters ⁴ (No TOC)	Previous samples collected from OW04A and A52 indicated the presence of VOCs (OW04A) and radiological parameters (A52). This well was not previously sampled and was sampled as a part of the environmental surveillance program. This well was sampled to further characterize chemical and radiological parameters in the groundwater in this area, investigate the potential connectivity between the upper and lower water-bearing zones and evaluate the presence of organic parameters at revised reporting limits.
OW05A – North of the IWCS along the fence perimeter, and north of cluster OW04	GWOW05A-278	1/9/00 Phase 1	N	44.30	Lower	Radiological Parameters ² VOCs, SVOCs, Metals	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone north of the IWCS.

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OW05B – Well cluster OW05 located within the fenced area for the IWCS, north of the IWCS along the fence perimeter, and north of cluster OW04	GWOW05B-3274	5/30/03 Phase 3	N	17.00	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from OW04A, OW05A and A52 indicated the presence of VOCs (OW04A, OW05A) and radiological parameters (A52). This well was not previously sampled and was sampled to further characterize chemical and radiological parameters in the groundwater in this area, investigate the potential connectivity between the upper and lower water-bearing zones and evaluate the presence of organic parameters at revised reporting limits.
OW06A – Southeast of the IWCS and west of A23A	GWOW06A-287	1/8/00 Phase 1	N	40.20	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone southeast of the IWCS.
OW06B - Southeast of the IWCS and west of A23A	GWOW06B-262	1/8/00 Phase 1	N	17.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone southeast of the IWCS.
	GWOW06B-3291	5/16/03 Phase 3				All above parameters plus: PAHs, Miscellaneous parameters ⁴	This well was resampled as a part of the environmental surveillance program.
OW07A - Southeast of the IWCS and east of cluster OW13	GWOW07A-796	10/2/00 Phase 2	N	39.60	Lower	Radiological Parameters ¹	Further characterize radiological parameters in the lower water-bearing zone southeast of the IWCS and evaluate the potential hydraulic connection between the upper and lower water-bearing zones.
	GWOW07A-3294	5/31/03 Phase 3				Radiological Parameters ²	Previous samples collected from this well indicated the presence of radium-226 and thorium isotopes. This well was resampled to confirm results.
OW07B - Southeast of the IWCS and east of cluster OW13	GWOW07B-3292	5/13/03 Phase 3	N	13.00	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals, Nitroaromatics Miscellaneous parameters ⁴	Previous samples collected from OW07A indicated the presence of radium-226 and thorium isotopes. This well was not previously sampled and was sampled as a part of the environmental surveillance program and to further characterize the chemical and radiological parameters in the groundwater in this area, investigate the potential connectivity between the upper and lower water-bearing zones and evaluate the presence of organic parameters at revised reporting limits.
OW08A – Northeast of the IWCS	GWOW08A-797	10/1/00 Phase 2	N	44.60	Lower	Radiological Parameters ¹	Further characterize radiological parameters in the lower water-bearing zone northeast of the IWCS and evaluate the potential hydraulic connection between the upper and lower water-bearing zones.
OW08B - Northeast of the IWCS	GWOW08B-798	9/30/00 Phase 2	N	12.00	Upper	Radiological Parameters ¹	This existing well was sampled to further characterize radiological parameters in the upper water-bearing zone northeast of the IWCS and evaluate the potential hydraulic connection between the upper and lower water-bearing zones. Analytical parameters were selected based on the burial of radiological residues and waste in the area.
OW09A - East of the IWCS and south of well cluster OW08	GWOW09A-799	10/1/00 Phase 2	N	41.10	Lower	Radiological Parameters ¹	Further characterize radiological parameters in the lower water-bearing zone east of the IWCS and evaluate the potential hydraulic connection between the upper and lower water-bearing zones.

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Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
OW09B - East of the IWCS and south of well cluster OW08	GWOW09B-800	10/2/00 Phase 2	N	4.60	Upper	Radiological Parameters ¹ SVOCs	Further characterize SVOC and radiological parameters in the upper water-bearing zone east of the IWCS.
	GWOW09B-3262	5/30/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from OW09B indicated the presence of radiological parameters (radium-226, total uranium and uranium isotopes). This well was resampled to further characterize the radiological and chemical parameters in the groundwater in this area, and evaluate the presence of organic parameters at revised reporting limits.
OW10A - East of the IWCS and southwest of the decon pad	GWOW10A-288	1/9/00 Phase 1	N	40.30	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone east of the IWCS near the decon pad and evaluate the potential hydraulic connection between the upper and lower water-bearing zones.
OW10B - East of the IWCS and southwest of the decon pad	GWOW10B-801	10/1/00 Phase 2	N	29.00	Upper	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone east of the IWCS near the decon pad.
	GWOW10B-3277	6/1/03 Phase 3	N			All above parameters plus: PAHs, Miscellaneous parameters ⁴ (No alkalinity)	Previous samples collected from well clusters OW09 and OW10 indicated the presence of SVOCs (OW10B), VOCs (OW10A) and radiological parameters (radium-226, thorium isotopes, total uranium and uranium isotopes). This well was resampled to further characterize the chemical and radiological parameters in the groundwater in this area, and evaluate the presence of organic parameters at revised reporting limits.
OW11A – East of the IWCS and south of cluster OW10	GWOW11A-3266	5/31/03 Phase 3	N	37.20	Lower	Radiological Parameter ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from well clusters OW09 and OW10 indicated the presence of SVOCs (OW10B), VOCs (OW10A) and radiological parameters (radium-226, thorium isotopes, total uranium and uranium isotopes). This well was not previously sampled and was sampled to further characterize the chemical and radiological parameters in the groundwater in this area, investigate the potential connectivity between the upper and lower water-bearing zones and evaluate the presence of organic parameters at revised reporting limits.
OW11B – East of the IWCS and south of	GWOW11B-803	10/2/00 Phase 2	N	16.00	Upper	Radiological Parameters ¹	Further characterize radiological parameters in the upper water-bearing zone southeast of the IWCS.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
cluster OW10	GWOW11B-3263	5/28/03 Phase 3				Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	The previous sample collected from OW11B contained levels of most of the radiological parameters. This well contained the highest concentrations of total and isotopic uranium found in groundwater samples collected from the permanent groundwater wells. This well was resampled to confirm those results, further characterize the chemical and radiological parameters in the groundwater in the upper water-bearing zone in this area, and evaluate the presence of organic parameters at revised reporting limits.
OW12B - East of the IWCS and south of cluster OW11	GWOW12B-804	10/2/00 Phase 2	N	12.20	Upper	Radiological Parameters ¹	Further characterize radiological parameters in the upper water-bearing zone southeast of the IWCS.
OW13A – South of the IWCS and west of cluster OW07	GWOW13A-805	10/1/00 Phase 2	N	41.10	Lower	Radiological Parameters ¹	Further characterize radiological parameters in the lower water-bearing zone south of the IWCS.
	GWOW13A-3294	5/31/03 Phase 3	N	41.10	Lower	Radiological Parameters ²	Previous samples collected from OW07A and A56 indicated the presence of radiological parameters (radium-226 and thorium isotopes). This well was resampled to further characterize the chemical and radiological parameters in the groundwater in the lower water-bearing zone in this area and investigate the potential connectivity between the upper and lower water-bearing zones.
OW13B – South of the IWCS and west of cluster OW07	GWOW13B-3267	5/14/03 Phase 3	N	14.00	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from OW07A and A56 indicated the presence of radiological parameters (radium-226 and thorium isotopes). This well was not previously sampled and was sampled to further characterize the chemical and radiological parameters in groundwater the upper water-bearing zone in this area.
OW14B – West of the northwest corner of the IWCS and west of cluster OW02	GWOW14B-3268	5/15/03 Phase 3	N	15.10	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from OW02B indicated the presence of radiological parameters (radium-226). This well was not previously sampled and was sampled to further characterize the chemical and radiological parameters in groundwater in the upper water-bearing zone at the property boundary.
OW15B - West of the IWCS and west of A42	GWOW15B-806	9/30/00 Phase 2	N	12.00	Upper	Radiological Parameters ¹	Previous samples collected from OW02B, A42 and A43 indicated the presence of radiological activity. This well was sampled to further characterize the extent of radionuclides in the upper water-bearing zone near the property boundary.
	GWOW15B-3288	5/13/03 Phase 3	N	12.00	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, Miscellaneous Parameters ⁴	This well was resampled as a part of the environmental surveillance program to confirm previous results, further characterize the chemical and radiological parameters in the groundwater in the upper water-bearing zone at the property boundary, and evaluate the presence of organic parameters at revised reporting limits.
OW16A – West of the IWCS and west of A43	GWOW16A-3269	5/16/03 Phase 3	N	45.20	Lower	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from A43 indicated the presence of radiological parameters. This well was not previously sampled and was sampled to further characterize the chemical and radiological compounds in the groundwater in the lower water-bearing zone at the property boundary, and investigate the connectivity between the upper and lower water-bearing zones.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
OW16B – West of the IWCS and west of A43	GWOW16B-3270	5/17/03 Phase 3	N	13.20	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from A43 indicated the presence of radiological parameters. This well was not previously sampled and was sampled to further characterize the chemical and radiological compounds in the groundwater in the upper water-bearing zone at the property boundary.
OW17A – West of the IWCS and west of A54	GWOW17A-289	1/10/00 Phase 1	N	42.50	Lower	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone along the western boundary of the NFSS west of the IWCS.
OW17B – West of the IWCS and west of A54	GWOW17B-3292	5/14/03 Phase 3	N	16.90	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, Miscellaneous Parameters ⁴	This well, not previously sampled for the RI, was sampled as a part of the surveillance program and to evaluate the presence or absence of chemical and radiological parameters in the upper water-bearing zone along the western boundary of the NFSS west of the IWCS.
OW18A – West of the IWCS and west of A55	GWOW18A-3271	5/18/03 Phase 3	N	47.80	Lower	Radiological Parameters VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters in the lower water-bearing zone along the western boundary of the NFSS west of the IWCS.
OW18B – West of the IWCS and west of A55	GWOW18B-3272	5/18/03 Phase 3	N	16.60	Upper	Radiological Parameters VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence or absence of chemical and radiological parameters along the western boundary of the NFSS west of the IWCS.
MW860 – East of the IWCS, between A45, A50 and A51	GW-MW860-3598	9/30/03 Phase 3	Y	23.00	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals	Samples collected from A50 and A45 located northwest of this location contained radiological parameters. This well was installed and sampled to further evaluate the extent of the chemical and radiological compounds and the presence or absence of other organic and inorganic parameters.
MW861 - East of the IWCS, between A45, A50 and A51	GW-MW861-3601	10/1/03 Phase 3	Y	42.25	Lower	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals	Samples collected from A50, and A45 located northwest of this location contained radiological parameters. This well was installed and sampled to further evaluate the extent of the chemical and radiological compounds and the presence or absence of other organic and inorganic parameters.
MW862 – East of the IWCS, between A23A, A50 and A51	GW-MW862-3604	10/2/03 Phase 3	Y	21.95	Upper	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals	Samples collected from OW11B located northeast of this location contained radiological parameters. This well was installed and sampled to further evaluate the extent of the chemical and radiological compounds and the presence or absence of other organic and inorganic parameters southeast of the IWCS.
MW863 - East of the IWCS, between A23A, A50 and A51	GW-MW863-3607	10/2/03 Phase 3	Y	42.15	Lower	Radiological Parameters ² VOCs, SVOCs, PAHs Pesticides and PCBs, Metals	Samples collected from OW11B located northeast of this location contained radiological parameters. This well was installed and sampled to further evaluate the extent of the chemical and radiological compounds and the presence or absence of other organic and inorganic parameters southeast perimeter IWCS.
BH12 – East of Campbell St. and adjacent to BH59.	GWBH12-252	1/8/00 Phase 1	N	95.00	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters south of the IWCS near the NFSS southern boundary.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
BH59 – East of Campbell St. and adjacent to BH12.	GWBH59-272	1/10/00 Phase 1	N	40.50	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters south of the IWCS near the NFSS southern boundary.
MW215A – Northeast of Building 401, east of Campbell St., approximately 10 ft. from TWP215	GW215A-776	9/28/00 Phase 2	Y	10.00	Upper	Radiological Parameters ¹ (No Alpha/Beta collected)	Further evaluate the extent of the uranium isotopes found in the groundwater at TWP215 installed near a concrete vault.
	GW215A-3252	5/31/03 Phase 3	Y	10.00	Upper	Radiological Parameters VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of radiological parameters. This well was resampled to confirm the previous results, further characterize the chemical and radiological compounds in the groundwater in the upper water-bearing zone near Building 401 and evaluate the presence of organic parameters at revised reporting limits.
MW201A - 10 ft from TWP201, south of Building 401 and north of a former sludge bed associated with Building 401	GW201A-773	9/28/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ VOCs	Evaluate the extent of TCE and the uranium isotopes found in the groundwater at TWP201. USTs and solvent and paint storage buildings were located near this location.
	GW201A-3250	5/29/03 Phase 3				All above parameters plus: SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of VOCs and radiological parameters. This well was resampled to confirm the previous results, further characterize the chemical and radiological compounds in the groundwater and evaluate the presence of organic parameters at revised reporting limits.
MW203A – South of Building 401, within 10 ft. of TWP203 and north of the former sludge bed	GW203A-774	9/29/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ VOCs	Evaluate the extent of the VOCs and radiological parameters found in the groundwater at TWP203. Associated USTs and solvent and paint storage buildings were located near Building 401.
	GW203A-3251	5/30/03 Phase 3				All above parameters plus: SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics	Previous samples collected from this well indicated the presence of VOCs and radiological parameters. This well was resampled to confirm the previous results, investigate other non-radiological compounds and evaluate the presence of organic parameters at revised reporting limits.
MW213A – North of Building 401 and the power transformer station, approximately 10 ft. from TWP213	GW213A-775	9/29/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ VOCs, Metals	Further evaluate the extent of the VOCs and radiological and metal parameters found in the groundwater at TWP213.
	GW213A-3281	5/20/03 Phase 3				All above parameters plus: SVOCs, PAHs, Pesticides and PCBs, Nitroaromatics, Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous samples collected from this well indicated the presence of VOCs and metals and radiological parameters. This well was resampled to confirm the previous results, investigate other non-radiological compounds and evaluate the presence of organic parameters at revised reporting limits.
BH48 – Southern perimeter of NFSS, east of TWP815	GWBH48-265	1/5/00 Phase 1	N	44.00	Lower	Radiological Parameters VOCs, SVOCs, Metals	Evaluate the presence, absence and migration of chemical and radiological parameters at the NFSS boundary. Analytical parameters were selected based on historical activities near Building 401 located north of this well.
GW816 – Extreme southeast corner of	GW816-789	9/28/00 Phase 2	Y	15.00	Upper	Radiological Parameters ¹ SVOCs, Metals	Further evaluate the presence or absence of chemical and radiological parameters near the southeast NFSS boundary.

Table 3-15
Summary of Samples Collected from New and DOE Installed Groundwater Monitoring Wells and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Date Collected	New Well Y/N	Well Depth TOC (ft)	Water-Bearing Zone	Analysis Parameters*	Rationale for Sample Location and Analysis
the NFSS	GW816-3282	5/18/03 Phase 3				All above parameters plus: VOCs, PAHs, Pesticides and PCBs, Nitroaromatics, Miscellaneous Parameters ⁴ (No TDS or alkalinity)	Previous samples collected from this well indicated the presence of SVOCs and metals and radiological parameters. This well was resampled to confirm the previous results, investigate other non-radiological compounds and further characterize the groundwater.
MW228 – East of Campbell St. and south of Building 401	GW-MW228-3616	10/5/03 Phase 3	Y	20.25	Upper	Radiological Parameters ¹ VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, Miscellaneous Parameters ⁴	Samples collected from MW201A and MW203A indicated the presence of VOCs and radiological parameters. This well was installed and sampled to evaluate the presence or absence of chemical and radiological parameters south of MW201A and MW203A.
MW229 - East of Campbell St. and south of Building 401	GW-MW229-3619	10/6/03 Phase 3	Y	42.30	Lower	Radiological Parameters ² VOCs, SVOCs, PAHs, Pesticides and PCBs, Metals, Nitroaromatics, Miscellaneous Parameters ⁴	Samples collected from MW201A and MW203A indicated the presence of VOCs and radiological parameters. This well was installed and sampled to evaluate the presence or absence of chemical and radiological parameters south of MW201A and MW203A.

* Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5. Filtered and unfiltered samples for metals analyses were collected except where noted.

1. Radiological parameters included total uranium and the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-228, uranium-235, radium-226, alpha/gamma Th-228, Th-230, Th-232, U-233/234, U-235/236, alpha/gamma U-238, and gross alpha/beta.

2. Filtered and unfiltered samples were collected for total uranium and the following isotopes; actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-228, uranium-235, radium-226, alpha/gamma Th-228, Th-230, Th-232, U-233/234, U-235/236, alpha/gamma U-238, and gross alpha/beta.

3. Radiological parameters include those listed below and those designated in Footnote 2 plus strontium-90 and plutonium-238 and plutonium-239/240

4. Miscellaneous parameters included gaseous hydrocarbons (methane, ethane, ethene), anions (sulfate, nitrate, nitrite, chloride, fluoride), phosphate, total dissolved solids and total organic carbon.

Table 3-16
Summary of Groundwater Samples Collected and Analyses Performed
LOOW Remedial Investigation

Sample Location (Station ID and EU)	Sample ID	Collection Date	Analyses
C5-VS-D300 EU1	C5-VS-GW-D300	7/20/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs
C5-AC-BP3 EU3	C5-AC-GW-BP3	7/12/1998	General Chemistry, Explosives, Metals, PAHs, Pesticides, SVOCs, VOCs
C5-SO-D800 EU8	C5-SO-GW-D800	7/14/1998	General Chemistry, Explosives, Metals, PAHs, PCBs, Pesticides, SVOCs, VOCs

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP501 – Southwest corner of the Baker Smith Area	GW501-229	11/9/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near the former welding shop (Building 443) and storehouse (Building 444) where radioactive residue was stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained near this location.
TWP502 – Central Baker Smith Area, northeast of TWP501	GW502-230	12/2/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near the former pipe shop (Building 445) where drums of L-30 and KAPL radioactive wastes were stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained near this location.
TWP503 - Central portion of the Baker Smith Area	GW503-231	11/17/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near the former pipe shop (Building 445) where drums of L-30 and KAPL radioactive wastes were stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained near this location.
TWP504 - Southeast Corner of Baker Smith Area	GW504-752	9/13/00 Phase 2	18.5	Radiological Parameters ¹ SVOCs Metals	Further delineate the extent of the radiological parameters found in TWP503 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area.
TWP506 - Northeast Corner of Baker Smith Area	GW506-753	9/15/00 Phase 2	13.5	Radiological Parameters ¹	Further delineate the extent of the radiological parameters found in TWP503, to investigate the presence of organic and inorganic compounds in the groundwater at the NFSS boundary and to provide sufficient and representative data for characterization of this EU.
TWP401 – West of Campbell Street near O St.	GW401-204	11/18/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the two pipes found in the ground during the gamma walkover survey and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil east of this location. No previous groundwater data was obtained from this area.
TWP402 - East of Campbell Street, adjacent to former Building 433	GW402-205	11/17/99 Phase 1	25.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with two nearby concrete slabs and the former radium vault (located to the north) and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.
TWP403 - East of Campbell Street between N and O St., near former Building 433	GW403-206	11/9/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a former fuel oil storage area and radium vault (Building 433) and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.
TWP404 - East of Campbell Street, between N and O St., near former Building 433	GW404-207	11/9/99 Phase 1	25.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a former fuel oil storage area and radium vault and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP405 - East of Campbell Street between N and O St, near former Building 433	GW405-208	11/9/99 Phase 1	25.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a former fuel oil storage area and radium vault and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.
TWP406 –North of the intersection of N and Campbell Streets	GW406-209	12/2/99 Phase 1	20.0	Radiological Parameters SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with former railroad lines, and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil southeast of this location. No previous groundwater data was obtained from this area.
TWP808 – In an area bounded by Lutts Rd, O St., the Central Ditch and N St.	GW808-243	11/9/99 Phase 1	20.0	Radiological Parameters (Does not include α/β) SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater in an area that has not previously been investigated and to provide sufficient and representative data to characterize the EU. Due to the limited amount of water present in the TWP and very slow recharge, samples were not collected for all of the parameters originally selected for analysis.
TWP809 – East of the Baker Smith Area, north of N St. and east of Lutts Rd.	GW809-244	11/16/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater at the property boundary in an area that has not previously been investigated and to provide sufficient and representative data to characterize the EU.
TWP810 – South of N St., 400 feet west Campbell Street.	GW810-245	12/1/99 Phase 1	15.0	Radiological Parameters VOCs, Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater in an area that has not previously been investigated.
TWP822 – North of O St. between TWP401 and TWP808	GW822-765	9/9/00 Phase 2	13.5	Radiological Parameters ¹ SVOCs Metals	Further delineate the extent of the uranium isotopes found in TWP808 and TWP401 to investigate the presence or absence of organic and inorganic compounds in the groundwater. No previous groundwater data was obtained at this location.
TWP823 – Northern perimeter of the NFSS, near intersection of N and Campbell Streets	GW823-766	9/14/00 Phase 2	15.0	Radiological Parameters ¹	Further delineate the radium-226 found in TWP406 and TWP810, and to investigate the presence or absence of organic and inorganic compounds in the groundwater in at the NFSS boundary. No previous groundwater data was obtained at this location.
TWP407 – South of N St., east of Campbell Streets, and northeast of former Building 433	GW407-210	11/9/99 Phase 1	20.0	Radiological Parameters SVOCs Metals Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a hummocky area near former railroad lines, and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil southeast of this location.
TWP313 – Near intersection of O St. and Castle Garden Rd. and east of the combined Shop Area	GW313-747	9/16/00 Phase 2	15.0	Radiological Parameters ¹ VOCs SVOCs Pesticides and PCBs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater at the property boundary near the location of a 1953 explosion and fire east of the NFSS. This location is also south of TWPs 4D010, 417 and 413 where PCBs were identified in the soil.
TWP409 –Acid Area, west of former Buildings 431 and 432 (uranium rod storage)	GW409-212	12/1/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with sulfuric acid storage and Building 432 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP410 - Acid Area, northwest of former Buildings 431 and 432 (uranium rod storage)	GW410-213	12/3/99 Phase 1	15.0	Radiological Parameters SVOCs, Metals Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater in a hummocky area near former rail lines, tank cradles and Buildings 431 and 432 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the Acid Area near this location.
TWP411 – Northwest of the intersection of N St. and Castle Garden Rd.	GW411-214	11/18/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the northern NFSS boundary. This location receives runoff from the CWM property and is north of the Acid Area where organic and inorganic compounds were previously identified (LOOW RI). No previous groundwater data was obtained from this area.
TWP415 - Central Acid Area, north of O Street and east of building 431	GW415-221	12/1/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near the former nitric acid concentrator and Buildings 431 and 432 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.
TWP417 – South-central Acid Area	GW417-223	12/1/99 Phase 1	10.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near a concrete slab and potential UST and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this location. No previous groundwater data was obtained from this area.
TWP422 – Southern perimeter of EU along O St., 400 feet east of Castle Garden Rd.	GW422-748	9/11/00 Phase 2	15.0	Radiological Parameters ¹	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the southern boundary of the NFSS along the former haul road and rail line for the waste. No previous groundwater data was obtained near this location.
TWP425 – Northeast corner of the EU along the northern NFSS boundary	GW425-751	9/12/00 Phase 2	14.0	Radiological Parameters ¹ VOCs Nitroaromatics	Evaluate the presence or absence of radiological and non-radiological compounds in the groundwater along the northern NFSS boundary. No previous groundwater data was obtained near this location.
TWP4D003 – Central Acid Area, west of TWP415	GW4D003-668	9/14/00 Phase 2	18.5	Radiological Parameters ¹ VOCs SVOCs Metals Nitroaromatics	Investigate the extent of the VOCs, metals and uranium isotopes found in the groundwater at TWP415 and PCBs found in the soil at TWP417 and Investigate the presence or absence of nitroaromatic compounds at this location.
TWP4D005 - Central Acid Area, south of TWP415	GW4D005-670	9/14/00 Phase 2	18.5	Radiological Parameters ¹ VOCs SVOCs	Investigate the extent of the organic compounds and uranium isotopes found in the groundwater at TWP415.
TWP420 – Along O St., 800 feet east of Castle Garden Rd.	GW420-226	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the ammonia manufacturing plant and a 1953 explosion and fire site, and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil west of this location.
TWP423 - Along O St., east of BH60	GW423-749	9/14/00 Phase 2	18.5	Radiological Parameters ¹ SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the southern boundary of the NFSS along the former haul road and rail line for the K-65 waste and the location of a drum storage and handling area.
TWP424 – Northern perimeter of EU and NFSS, east of BH51	GW424-750	9/11/00 Phase 2	17.0	Radiological Parameters ¹	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the northern boundary of the NFSS near the former haul road for the K-65 waste.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP605 – South of O St., south of TWP604	GW605-754	9/12/00 Phase 2	18.5	Radiological Parameters ¹ Metals	Further delineate the extent of the uranium isotopes and metals found in TWP603.
TWP602 –North of N St. and southwest of Building 434	GW602-233	11/18/99 Phase 1	16.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence radiological and non-radiological compounds in the groundwater near the former water storage tower where K-65 wastes were stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI west of this area. No previous groundwater data was obtained near this location.
TWP603 – Near the former location of Building 434, south of N St.	GW603-234	11/17/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Evaluate the presence or absence of radiological and non-radiological compounds in the groundwater near the former Building 434 where K-65 wastes were stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil west of this area. No previous groundwater data was obtained near this location.
TWP604 - Southeast of TWP603 and former Building 434	GW604-235	11/9/99 Phase 1	15.0	Radiological Parameters SVOCs, Metals	Evaluate the presence or absence radiological and non-radiological compounds in the groundwater near the former Building 434 where K-65 wastes were stored and to evaluate the presence and extent of organic and inorganic compounds previously identified in LOOW RI in the soil west of this area. No previous groundwater data was obtained near this location
TWP607 – East of McArthur St. along the eastern NFSS perimeter	GW607-755	9/12/00 Phase 2	19.0	Radiological Parameters ² VOCs, SVOCs, Metals	Further delineate the extent of the metals and radiological parameters found in TWP603, and to investigate the presence or absence of organic and inorganic compounds in the groundwater at the NFSS boundary. This sample point is located southwest of the extraction wells for the CWM property.
TWP825 – At NFSS property line, northeast of Building 434	GW825-768	9/12/00 Phase 2	12.0	Radiological Parameters ¹ VOCs, SVOCs Pesticides and PCBs Metals	Further delineate the radiological parameters found in TWP 603, and to investigate the presence or absence of organic and inorganic compounds in the groundwater at the NFSS boundary in an area that has not previously been investigated. No previous groundwater data was obtained at this location.
TWP806 – Southwest of the intersection of O and Campbell Streets, north of the IWCS and adjacent to the former dewatering Pond 4	GW806-241	11/9/99 Phase 1	19.5	Radiological Parameters (Does not include gross α/β) VOCs Metals (filtered only)	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater associated with the IWCS and the former DOE dewatering Pond 4. Due to the limited amount of water present in the TWP and very slow recharge, samples were not collected for all of the parameters originally selected for analysis.
TWP807 – Southeast of the intersection of O St. and Lutts Rd., north of the IWCS and within the former DOE organic burial area	GW807-242	11/7/99 Phase 1	21.0	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater associated with the IWCS and the former DOE organic burial area. No previous groundwater data was obtained near this location.
TWP820 - North of the IWCS in the DOE area designated as Disposal Area B	GW820-763	9/9/00 Phase 2	22.0	Radiological Parameters ¹	Further delineate the radium-226 found in TWP806 and TWP807 and to confirm previous remediation performed by DOE. Documentation of confirmation sampling was not found during the records search.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP821 – Northwest of the IWCS and west of Lutts Rd.	GW821-764	9/9/00 Phase 2	13.5	Radiological Parameters ¹	Confirm previous remediation performed by DOE. Documentation of confirmation sampling was not found during the records search. This location is west of TWP807 that exhibited levels of radium-226. Results of the gamma walkover survey along the western NFSS property boundary indicated that the gamma readings increased toward the property line. No previous groundwater data was obtained from this area.
TWP835 – Northwest of the intersection of Lutts Rd and O St., northwest of the IWCS, north of TWP821	GW-TWP835-3517	9/22/03 Phase 3	17.0	Radiological Parameters ¹ VOCs SVOCs PCBs Metals PAHs	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater associated with a former disposal area near this location. No previous groundwater data was obtained near this location.
TWP836 – Northeast of the intersection of Lutts Rd.	GW-TWP836-3520	10/1/03 Phase 3	15.0	Radiological Parameters ¹ VOCs SVOCs Pesticides and PCBs Metals PAHs	Characterize the radiological and non-radiological compounds in the groundwater at the former DOE organic burial area and delineate the radium and thorium found in TWP820.
TWP837 – East of TWP807, between O St, Lutts Rd, Campbell St. and the fenced area containing the IWCS	GW-TWP837-3523	9/22/03 Phase 3	20.0	Radiological Parameters ¹ VOCs SVOCs Pesticides and PCBs Metals PAHs	Further characterize the radiological and non-radiological compounds in the groundwater at the former DOE dewatering Pond 3 and delineate the radium found in TWP807.
TWP840 – Northeast of the IWCS, south of TWP806, east of TWP807 and west of Campbell St.	GW-TWP840-3532	10/2/03 Phase 3	14.9	VOCs	Further characterize the groundwater associated with the former DOE WWTP (dewatering Pond 4) and delineate the radium present in TWP806. Due to the limited amount of water present in the TWP and very slow recharge, samples were only collected for VOCs.
TWP301 - Southern Shop Area, southeast of the former motor vehicle repair shop and Building 422, and north of the South 16 Ditch	GW301-191	12/4/99 Phase 1	15.0	SVOCs	Investigate the presence or absence of SVOC compounds present at this location. No previous groundwater data was obtained from this area. Due to the limited amount of water present in the TWP and very slow recharge, samples were not collected for all of the parameters originally selected for analysis
TWP302 - West of Castle Garden Road in the southeast corner of the Shop Area, near Buildings 420 and 421 and the former K-65 drum storage area	GW302-192	11/19/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a nearby concrete rubble pile and the former K-65 drum storage area, to evaluate the extent of organic and organic compounds previously identified in the LOOW RI in the soil near this area and to investigate potential site-related constituents near the property boundary.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP303 - In the central Shop Area, along the south side of Z St., adjacent to the northwest corner of the former gas station and near Building 422	GW303-193	12/2/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs Pesticides and PCBs Metals Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a possible fuel oil pipeline, UST and former uranium rod storage area and to evaluate the presence and extent of organic and inorganic compounds previously identified in LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP304 - In the central Shop Area, south of Z St. and east of the former change house	GW304-194	12/2/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a possible fuel oil pipeline, railroad bed and former uranium rod storage area and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP306 - In the northeast corner Shop Area, south of O St. and east of the former combined shop building (uranium billet storage)	GW306-196	12/3/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the combined shop and nearby locomotive shop, to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area and to investigate potential migration of site-related constituents near the property boundary. No previous groundwater data was obtained from this area.
TWP307 -South of the Building 430 - uranium billet storage	GW307-197	12/4/99 Phase 1	15.0	Radiological Parameters SVOCs Metals	Investigate the presence or absence radiological and non-radiological compounds in the groundwater. No previous groundwater data was obtained from this area.
TWP308 – Shop area, north of Building 430 - uranium billet storage	GW308-198	11/19/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 430 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP309 –Shop area, north of Building 430 - uranium billet storage	GW309-199	11/19/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 430 and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP310 – Shop Area, south of X St. and near former changes houses	GW310-200	12/3/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the change houses and gas station, and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP311 – Shop Area, north of X St. near the riggers shop (uranium dust stored)	GW311-201	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides, PCBs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the riggers shop (uranium dust stored) and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.
TWP312 – West side Shop Area, north of Z St. and near the former LOOW service house.	GW312-203	11/19/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the service house, and to evaluate the presence and extent of organic and inorganic compounds previously identified in the LOOW RI in the soil near this area. No previous groundwater data was obtained from this area.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP101 - Western perimeter of NFSS, west of the IWCS	GW101-744	9/9/00 Phase 2	15.0	Radiological Parameters ²	Evaluate the potential extent and migration of radiological compounds in the groundwater in an area previously remediated by DOE. Documentation of confirmation sampling was not found during the records search. Several radioisotopes were found in SD730, which is located to the south. Results of the gamma walkover survey along the western NFSS property boundary indicated that the gamma readings increased toward the property line. No previous groundwater data was obtained from this area.
TWP102 - Western perimeter of NFSS, west of the IWCS	GW102-745	9/9/00 Phase 2	15.0	Radiological Parameters ² SVOCs Metals	Evaluate previous remediation of radiological and non-radiological compounds in the area. Documentation of confirmation sampling was not found during the records search. Results of the gamma walkover survey along the western NFSS property boundary indicated that the gamma readings increased toward the property line. No previous groundwater data were obtained from this area.
TWP103 - West of the IWCS	GW103-746	9/9/00 Phase 2	15.0	Radiological Parameters ² Metals	This purpose of the TWP was to confirm previous remediation of metals and radiological compounds in the area. Documentation of confirmation sampling was not found during the records search. Results of the gamma walkover survey along the western NFSS property boundary indicated that the gamma readings increased toward the property line. No previous groundwater data were obtained from this area.
TWP830A – Adjacent to the southwest corner of the IWCS	GW-TWP830-3502	10/3/03 Phase 3	19.15	Radiological Parameters ¹ VOCs, SVOCs Pesticides and PCBs Metals, PAHs	The purpose of the TWP was to evaluate the integrity of the subsurface clay dike near the southern perimeter of the IWCS and the presence or absence of radiological and non-radiological compounds.
TWP831 - South of the IWCS	GW-TWP831-3505	10/3/03 Phase 3	15.0	Radiological Parameters ¹ VOCs, SVOCs Pesticides and PCBs Metals, PAHs	The purpose of the TWP was to evaluate the integrity of the subsurface clay dike near the southern perimeter of the IWCS and the presence or absence of radiological and non-radiological compounds.
TWP832 - South of the IWCS	GW-TWP832-3508	10/3/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides, PCBs, Metals, PAHs	Evaluate the integrity of the subsurface clay dike near the southern perimeter of the IWCS and the presence or radiological and non-radiological compounds.
TWP833 - Southeast of the IWCS	GW-TWP833-3511	10/3/03 Phase 3	15.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Evaluate the integrity of the subsurface clay dike near the southern perimeter of the IWCS and the presence or radiological and non-radiological compounds.
TWP834 - Southeast of the IWCS	GW-TWP834-3514	10/3/03 Phase 3	15.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Evaluate the integrity of the subsurface clay dike near the southern perimeter of the IWCS and the presence or radiological and non-radiological compounds.
TWP838 - Northeast of the IWCS and east of well OW05A	GW-TWP838-3526	9/30/03 Phase 3	19.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Further characterize the presence or absence of radiological and non-radiological compounds within DOE Disposal Area B and delineate the radiological parameters found in TWP820 and wells A45 and A52.
TWP839 - Northeast of the IWCS and well A52	GW-TWP839-3529	9/30/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Further characterize the presence or absence of radiological and non-radiological compounds in the groundwater near DOE Disposal Area B and delineate the radiological parameters found in TWP820 and wells A45 and A52.
TWP852 – South of IWCS, near former building 409	GW-TWP852-3568	10/1/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP853 – South of IWCS, near former Building 409	GW-TWP853-3571	10/1/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.
TWP854 – South of IWCS, near former Building 409	GW-TWP854-3574	10/1/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.
TWP855 - South of the IWCS and wells A56 and A57	GW-TWP855-3577	10/1/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	This TWP was located near a geophysical anomaly. Investigate the presence or absence of or radiological and non-radiological compounds in the groundwater associated with the geophysical anomaly.
TWP856 - West of the IWCS near former Building 409	GW-TWP856-3580	10/2/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.
TWP858 – South of the IWCS near former Building 409	GW-TWP858-3586	10/3/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.
TWP859 -Southwest of the IWCS near former Building 409	GW-TWP859-3589	10/4/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 409.
TWP2A002 - West of Building 401, west of TWP217	GW2A002-661	9/15/00 Phase 2	15.0	Radiological Parameters ¹ VOCs	Investigate the extent of the uranium isotopes found in the groundwater at TWP217 and the VOCs found in TWP201. This location is near Building 401. Associated USTs, a sludge bed and solvent and paint storage buildings were located near Building 401.
TWP2A003 – Southwest of Building 401, southwest of TWP201	GW2A003-662	9/14/00 Phase 2	15.0	Radiological Parameters ¹ VOCs	Investigate the extent of the TCE and the uranium isotopes found in the groundwater at TWP201 near Building 401. Associated USTs and a solvent and paint storage buildings were located near Building 401. Analytical parameters were selected based on current RI results
TWP801 – South of the IWCS	GW801-236	11/7/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater south of the cell at the NFSS boundary. This TWP is near an area used by DOE to stockpile soil. No previous groundwater data was obtained near this location.
TWP802 – Southeast the IWCS, near the area called the “lay down area”	GW802-237	11/8/99 Phase 1	20.0	Radiological Parameters SVOCs Metals	Investigate the presence, absence and migration of radiological and non-radiological compounds near the IWCS associated with the former “lay down area”.
TWP805 – Northeast of the IWCS, in the area of the former Dewatering Pond 5	GW805-240	11/20/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Metals (filtered only), Nitroaromatics	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater near the IWCS and the former DOE WWTP Dewatering Pond 5. No previous groundwater data was obtained near this location due to limited amount of water present in the TWP and very slow recharge; samples were not collected for all planned parameters.
TWP813 – South of the IWCS	GW813-756	9/9/00 Phase 2	15.0	Radiological Parameters ² Metals	Further define the extent of radium, thorium and metals identified in TWP 801 and investigate the presence, absence and migration of metals in the groundwater south of the IWCS at the NFSS boundary. This TWP is near an area used by DOE to stockpile soil and south of the DOE WWTP and dewatering ponds.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP830 – Near the south-central NFSS property line, east of Campbell St.	GW830-757	9/15/00 Phase 2	15.0	Radiological Parameters ¹	Located in an area with a gamma reading of 215,000 cpm to delineate the presence and extent of radiological compounds in the groundwater associated with the area.
TWP842 – North of South 16 Ditch, west of Campbell St., east of the IWCS	GW-TWP842-3538	9/19/03 Phase 3	10.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE WWTP (de-watering Pond 5) to further delineate the extent of the radiological parameters found in the soil in trenches TB810 and TB811 and in the groundwater in well OW08B and to Investigate the presence or absence of non-radiological compounds.
TWP844 - South of South 16 Ditch, west of Campbell St., east of the IWCS	GW-TWP844-3544	9/19/03 Phase 3	12.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE WWTP North Pond to further characterize the presence or absence of radiological and non-radiological compounds in the groundwater within the former WWTP and delineate extent of the radiological parameters found in the soil in trenches TB809 and TB810 and in the groundwater in wells BH70, and OW09B.
TWP845 - South of South 16 Ditch, west of Campbell St., east of the IWCS	GW-TWP845-3547	9/20/03 Phase 3	13.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE WWTP South Pond to further characterize the presence or absence of radiological and non-radiological compounds in the groundwater within the former WWTP and delineate extent of the radiological parameters found in the soil in trenches TB809 and TB810 and in the groundwater in well BH70.
TWP846 – Southeast of the IWCS, southeast of well OW12B	GW-TWP846-3550	9/20/03 Phase 3	17.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE area designated as the “laydown area” to characterize the presence or absence of radiological and non-radiological compounds in the groundwater within this area and delineate radium and thorium found in the groundwater in wells BH70 and OW12B.
TWP847 – Southeast of IWCS, south of South 31 Ditch	GW-TWP847-3553	9/20/03 Phase 3	12.5	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE area designated as the “laydown area” to characterize the presence or absence of organic and inorganic compounds in the groundwater within this area and radium and thorium found in the groundwater in wells BH70 and OW12B.
TWP849 – South of the IWCS and northwest of TWP813	GW-TWP849-3559	9/22/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE area designated as the “stockpile area” to characterize the presence or absence of radiological and non-radiological compounds in the groundwater within this area and delineate radiological parameters found in the groundwater in TWP801 and TWP813.
TWP850 - South of the IWCS and southwest of well OW13A	GW-TWP850-3562	9/22/03 Phase 3	20.0	Radiological Parameters ¹ (No filtered or unfiltered alpha/beta), VOCs, Total Metals, PAHs	Located within the former DOE area designated as the “stockpile area” to characterize the presence or absence of radiological and non-radiological compounds in the groundwater within this area and delineate extent of the radiological parameters found in the groundwater in TWP801.
TWP851 – Southwest of the IWCS and south of OW13A	GW-TWP851-3565	9/22/03 Phase 3	20.0	Radiological Parameters ¹ VOCs, SVOCs, Pesticides and PCBs, Metals, PAHs	Located within the former DOE area designated as the “stockpile area” to characterize the presence or absence of radiological and non-radiological compounds in the groundwater within this area and delineate extent of radiological parameters found in the groundwater in TWP801.
TWP204 - East-southeast of Building 401	GW204-173	12/2/99 Phase 1	10.0	Radiological Parameters ³ VOCs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with Building 401. A sludge bed, USTs, and solvent and paint storage buildings were also associated with this area. Pieces of coal were found on the ground surface at this location and the area is downgradient of the former sludge bed. No previous groundwater data was obtained from this area.
TWP205 - Southeast of Building 401	GW205-174	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the eastern NFSS boundary. This location is near a former railroad line and potentially receives run-on from Modern Landfill. No previous groundwater data was obtained from this area.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
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Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP206 – East of Building 401	GW206-175	11/19/99 Phase 1	13.5	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater along the eastern NFSS boundary. This location is near a former railroad line and potentially receives runoff from Modern Landfill. No previous groundwater data was obtained from this area.
TWP207 - East of Building 401	GW207-176	11/22/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated a former fuel oil UST that may have been located west of this TWP. Building 401 was used to store radioactive wastes and residues. Associated USTs, a sludge bed, and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP215 - Northeast of Building 401 and 50' east of Campbell St.	GW215-188	12/2/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Metals	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a concrete vault of unknown origin. This location is near Building 401 and was used to store radioactive wastes and residues. Associated USTs, a sludge bed, and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP2A001 - Northwest of Building 401 and TWP213 and east of TWP215	GW2A001-660	9/14/00 Phase 2	15.0	Radiological Parameters ¹ VOCs Metals	Investigate the extent of the uranium isotopes found in the groundwater at TWP215 and metals and VOCs found in TWP213. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs, a sludge bed, and solvent and paint storage buildings were located near Building 401.
TWP2C001 – North of Building 401 and TWP213	GW2C001-664	9/13/00 Phase 2	19.0	Radiological Parameters ¹ VOCs, Metals	Investigate the extent of the VOCs and metals in TWP213 and radiological parameters found in the groundwater at TWP215. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs, a sludge bed, and solvent and paint storage buildings were located near Building 401.
TWP201 - South of Building 401	GW201-167	11/19/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs	Evaluate the presence and extent of previously identified TCE in the soil (LOOW RI soil gas survey) in this area and Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the former sludge bed south of Building 401 and associated USTs and solvent and paint storage buildings.
TWP203 - South of Building 401	GW203-172	11/22/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs	Evaluate the presence and extent of previously identified TCE in the soil (LOOW RI soil gas survey) in this area and Investigate the presence or absence of radiological and non-radiological compounds in the groundwater near Building 401 and associated USTs, solvent and paint storage buildings and a sludge bed. No previous groundwater data was obtained from this area.
TWP208 - East of Building 401	GW208-178	11/22/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated a former fuel oil UST, paint shop and emergency generator that were present near this location. This location is near Building 401 that was later used to store radioactive wastes and residues. No previous groundwater data was obtained from this area.
TWP209 - Northeast of Building 401 and adjacent to Building 407	GW209-182	11/22/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the building foundation for Building 407 (paint shop). Associated USTs and solvent storage buildings were located near this area. No previous groundwater data was obtained from this area.
TWP210 - Northeast of Building 401, north of Building 407	GW210-183	12/1/99 Phase 1	15.0	Radiological Parameters VOCs SVOCs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with the building foundation for Building 407 (paint shop). No previous groundwater data was obtained from this area.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP211 – North of Building 401 near the former power transformer station	GW211-184	12/1/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with two large USTs located west of the building foundation for Building 407 (paint shop). No previous groundwater data was obtained from this area.
TWP212 - North of Building 401, near the power transformer station	GW212-185	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs	Evaluate the presence and extent of previously identified TCE (LOOW RI soil gas survey) and to Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a small concrete pad with potential fill pipes. No previous groundwater data was obtained from this area. Analytical parameters were selected based on historical use.
TWP213 - North of Building 401	GW213-186	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Evaluate the presence and extent of previously identified TCE (LOOW RI soil gas survey) and to Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a small concrete pad with potential fill pipes. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP214 - North of Building 401 and the power transformer station	GW214-187	11/19/99 Phase 1	20.0	Radiological Parameters VOCs, SVOCs	Evaluate the presence and extent of previously identified TCE (LOOW RI soil gas survey) and to Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a small concrete pad with potential fill pipes. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP216 - Northwest of Building 401	GW216-189	11/19/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs Pesticides and PCBs	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with a potential small UST (shown on facility drawings). This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP217 - Southwest of Building 401	GW217-190	11/20/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence or absence of radiological and non-radiological compounds in the groundwater associated with an area of stressed vegetation and a possible vent for an UST. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs and solvent and paint storage buildings were located near Building 401. No previous groundwater data was obtained from this area.
TWP2B006 – South of Building 401 and TWP201	GW2B006-663	9/16/00 Phase 2	15.0	Radiological Parameters ¹ VOCs	Investigate the extent of the TCE and the uranium isotopes found in the groundwater at TWP201. This location is near Building 401 that was later used to store radioactive wastes and residues. Associated USTs and solvent and paint storage buildings were located near Building 401.
TWP803 – East of Campbell St. and south of the South 31 Ditch	GW803-238	11/19/99 Phase 1	10.0	Radiological Parameters (Does not include α/β)	Investigate the presence, absence and migration of radiological compounds in the groundwater in an area south of Building 401 that has not previously been investigated and to provide sufficient and representative data to characterize the EU. No previous groundwater data was obtained near this location.
TWP804 – East of Campbell St. southeast of building 401	GW804-239	12/3/99 Phase 1	15.0	Radiological Parameters VOCs, SVOCs, Pesticides and PCBs, Metals, Nitroaromatics	Investigate the presence, absence and migration of radiological and non-radiological compounds in the groundwater near the southeastern NFSS boundary in an area that has not previously been investigated.

Table 3-17
Summary of Samples Collected from TWP Locations and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Well Depth (Ft. bgl)	Analysis Parameters*	Rationale for Sample Location and Analyses
TWP815 - Southern perimeter of the NFSS, west of BH48	GW815-758	9/11/00 Phase 2	15.0	Radiological Parameters ¹	Further delineate the extent of the radiological parameters found in TWP201 and TWP203.
TWP817 - Eastern perimeter of NFSS, south of TWP205	GW817-759	9/12/00 Phase 2	15.0	Radiological Parameters ¹	Further delineate the extent of the radiological parameters found in TWP205.
TWP818 - Southeast of Building 401, between TWP203 and TWP804	GW818-760	9/15/00 Phase 2	13.5	Radiological Parameters ¹	Further delineate the extent of the uranium isotopes found in TWP203.

Parameters:

* Parameters include the Target Analyte and Target Compound Lists shown in Section 2.5. Filtered and unfiltered samples for metals analyses were collected except where noted.

Radiological Parameters includes gross alpha, gross beta, total uranium and the following isotopes: radium-226, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium-235/236 and uranium-238. Additional isotopes added to some samples are listed in footnotes 1 and 2 below.

1. Filtered and unfiltered samples were collected for total uranium, the isotopes listed above plus the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-228 and uranium-235.

2. In addition to the radiological isotopes listed above Under “Radiological Parameters”, the analysis included the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-228 and uranium-235. No filtered samples were collected for radiological parameters.

3. This sample was analyzed for the radiological isotopes listed below and total uranium. Samples for gross alpha and beta were not collected due to the lack of water in the TWP and very slow recharge.

Table 3-18
Background Groundwater Monitoring Wells
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Well Depth TOC (ft)	Water-Bearing Zone
GW2A – Well Cluster GW2 located in the southwestern quadrant of Modern Landfill, southeast of the NFSS on the north side of Pletcher Rd., south of W12 cluster.	GW2A-U-3103	3/11/03	18.35	Upper
GW2B – Well Cluster GW2 located in the southwestern quadrant of Modern Landfill, southeast of the NFSS on the north side of Pletcher Rd., south of W12 cluster.	GW2B-L-3129	3/11/03	29.60	Lower
MW17 – Located on the eastern side of Modern Landfill, east of the NFSS and on the north side of Pletcher Rd., between cluster PZ25 and cluster PZ24.	MW17-L-3116	3/07/03	19.50	Lower
PZ18M – Piezometer Cluster PZ18 located in the southwest corner of Modern Landfill, along the entrance road, north of the power plant and along the fence line for the NFSS.	PZ18M-U-3100	3/04/03	29.30	Upper
PZ18S – Piezometer Cluster PZ18 located in the southwest corner of Modern Landfill, along the entrance road, north of the power plant and along the fence line for the NFSS.	PZ18S-U-3106	3/05/03	12.10	Upper
PZ21D– Piezometer Cluster PZ21 located in the central portion of Modern Landfill, east of the NFSS and west of well W1R2.	PZ21D-L-3121	3/06/03	41.50	Lower
PZ21M – Piezometer Cluster PZ21 located in the central portion of Modern Landfill, east of the NFSS and west of well W1R2.	PZ21M-U-3202	3/12/03	18.40	Upper
PZ21S – Piezometer Cluster PZ21 located in the central portion of Modern Landfill, east of the NFSS and west of well W1R2.	PZ21S-U-3108	3/10/03	12.00	Upper
PZ23S – Piezometer Cluster PZ23 located in the southeastern end of Modern Landfill, east of the NFSS and east of cluster SP3.	PZ23S-U-3110	3/07/03	9.50	Upper
PZ25S – Piezometer PZ25S located on eastern end of Modern Landfill, east of the NFSS and adjacent to SP11D.	PZ25S-U-3107	3/06/03	12.28	Upper
PZ7M – Piezometer cluster PZ7 located in the northeastern corner of Modern Landfill, and north of well W3R.	PZ7M-L-3113	3/06/03	40.90	Lower
PZ8D – Piezometer Cluster PZ8 located in the northeast quadrant of Modern Landfill, east of the NFSS and east of well W3R.	PZ8D-L-3120	3/07/03	41.50	Lower
PZ8M – Piezometer Cluster PZ8 located in the northeast quadrant of Modern Landfill, east of the NFSS and east of well W3R.	PZ8M-L-3117	3/07/03	27.50	Lower
SP14D – Well S14D located on in the west-central portion of Modern Landfill, east of the southeastern corner of the NFSS and east of Piezometer PZ20M.	SP14D-L-3119	3/05/03	44.85	Lower
SP1D – Well Cluster SP1 located in the southwest quadrant of Modern Landfill, southeast of the NFSS and east of the guard house.	SP1D-L-3123	3/11/03	43.70	Lower

Table 3-18
Background Groundwater Monitoring Wells
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID*	Date Collected	Well Depth TOC (ft)	Water-Bearing Zone
SP1M – Well Cluster SP1 located in the southwest quadrant of Modern Landfill, southeast of the NFSS and east of the guard house.	SP1M-L-3115	3/10/03	24.70	Lower
SP2M – Well Cluster SP2 located on the south-central portion of Modern Landfill, southeast of the NFSS and north of cluster SP4.	SP2M-L-3128	3/12/03	18.90	Lower
SP5M – Well Cluster SP5 located on the southern end of Modern Landfill, southeast of the NFSS and northeast of wells W16 and W11.	SP5M-U-3105	3/11/03	17.70	Upper
SP9D – Well Cluster SP9 located in the southwestern corner of Modern Landfill, southeast of the NFSS and east of cluster PZ18 and the entrance rd.	SP9D-L-3122	3/06/03	44.20	Lower
SP9M – Well Cluster SP9 located in the southwestern corner of Modern Landfill, southeast of the NFSS and east of cluster PZ18 and the entrance rd.	SP9M-L-3114	3/04/03	29.90	Lower
W11 – Well located on the southern end of Modern Landfill, southeast of the NFSS and southwest of wells W16 and cluster SP5.	W11-L-3127	3/12/03	33.00	Lower
W12D – Well Cluster W12 located in the southwest quadrant of Modern Landfill, southeast of the NFSS and east of cluster SP13 and the entrance rd.	W12D-L-3125	3/10/03	42.00	Lower
W12 – Well Cluster W12 located in the southwest quadrant of Modern Landfill, southeast of the NFSS.	W12-L-3118	3/08/03	20.00	Lower
W13D – Well Cluster W13 located on in the southwest corner of Modern Landfill, southeast of the NFSS.	W13D-L-3126	3/07/03	40.00	Lower
W14D – Well Cluster located in the southwest corner of Modern Landfill, southeast of the NFSS, west of cluster GW1.	W14D-L-3124	3/12/03	42.50	Lower
W3R – Well located in the northeast quadrant of Modern Landfill, east of the NFSS and west of cluster PZ8.	W3R-L-3112	3/12/03	30.75	Lower

*Analysis Parameters: Total and Dissolved Radiological Parameters, VOC, SVOCs, PAHs, Pesticides, PCBs, Total and Dissolved Metals, Metals, Nitroaromatics, TOC

Radiological Parameters included a filtered and unfiltered sample for: gross alpha, gross beta, total uranium and the following isotopes: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-233/234, uranium 235, uranium-235/236, uranium-238, and total uranium.

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T201	Building 401 Area	40	1 foot at the A end to 5 feet at the B end	Suspect UST West of Building 401	Subsurface	<p>This trench was positioned to investigate the potential presence of a tank adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. A boring was installed at this location during Phase I activities, but it may not have completely defined subsurface conditions. Phase I groundwater results indicated trichloroethylene at 9.5 parts per million in a sample collected approximately 100 feet south of this location.</p> <p>The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area.</p> <p>TB201-2800-05.0-036: collected above concrete slab (metals, Rad, SVOC, VOC) TB201-2801-01.0-013: collected in fill material (metals, Rad, SVOC, VOC) TB201-2802-01.0-001: collected in fill material (metals, Rad, SVOC, VOC)</p>
T202	Building 401 Area	80	4 feet near the inlet to 7 feet at the southern end	Storm Sewer Inlet / Former Salt Ponds	Subsurface	<p>A storm sewer grated inlet was observed on the south side of Building 401. This trench was positioned to investigate that inlet, its associated piping, and the disturbed area to the south of the inlet (area covered with heavy clayey soil with little grass growing).</p> <p>The location of the trench examined a ferrous zone anomaly FZ540 and metallic zone anomaly 549 that were reported in the geophysical investigation of the area.</p> <p>TB202-2803-05.2-038: collected at random location (metals, Pest/PCB, Rad, SVOC) TB202-2804-03.5-025: collected at random location (metals, Pest/PCB, Rad, SVOC) TB202-2805-03.0-062: pesticide odor (metals, pest/PCB, Rad, SVOC, VOC)</p>
T203	Building 401 Area	65	8 feet	Suspect UST	Subsurface Surface	<p>This trench was positioned to investigate the potential presence of a tank located north of Building 401. The trench was placed along the west side of the concrete pad. A boring was installed at this location during Phase I activities but may not have completely defined subsurface conditions. Concentrations of VOCs and metals were found in the groundwater samples from this area during Phase I.</p> <p>The location of the trench examined a ferrous zone anomaly FZ541 that was reported in the geophysical investigation of the area.</p> <p>TB203-2806-01.0-013: gamma reading above background (metals, Rad, SVOC, VOC) TB203-2807-04.0-058: soil color change (metals, Rad, SVOC, VOC) TS203-2808-020: surface soil sample, debris (metals, Rad, SVOC, VOC)</p>
T204	Building 401 Area	70	5 to 10 feet	Spoils pile	Subsurface	<p>This trench was positioned to investigate a spoils pile located southeast of Building 401.</p> <p>TB204-2916-08.0-030; first native soil (Rad) TB204-2917-10.0-035; random, bottom of trench (Rad) TB204-2918-05.0-070; random, bottom of trench (Rad)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T205	Building 401 Area	65	8 feet	Pesticide Odor	Subsurface	<p>This trench was positioned to further investigate the ‘pesticide’ odor noted in trench T202.</p> <p>TB205-2919-03.0-055; odor (metals, Pest/PCB, Rad, SVOC, VOC) TB205-2920-06.5-060; PID above background (metals, Pest/PCB, Rad, SVOC, VOC) TB205-2921-08.0-001; sand lens (metals, Pest/PCB, Rad, SVOC, VOC)</p>
T301	Shops Area	50	6 feet near the A end and 3 feet along the pipeline	Pipeline and Suspect UST	Subsurface	<p>A pipeline is visible from a former rail line on the property south of “Z” Street. Approximately halfway from the rail line to the street the pipeline becomes buried and potentially ends at a UST. This trench was positioned to investigate the pipeline and suspect UST.</p> <p>The location of the trench examined a ferrous zone anomaly FZ535 that was reported in the geophysical investigation of the area.</p> <p>TB301-2809-03.5-034; bluish-gray staining (metals, Rad, SVOC, VOC) TB301-2810-01.5-003; black staining (metals, Rad, SVOC, VOC) TB301-2811-01.0-029; gamma reading above background (metals, Rad, SVOC, VOC)</p>
T302	Shops Area	110	5 feet below the original ground surface (9 feet total depth)	Debris Pile	Subsurface	<p>This trench was positioned to investigate the debris pile south of “Z” Street and west of Castle Garden Road. The debris pile includes large blocks of concrete. Due to uneven terrain, no gamma walkover activities were performed in the area of this debris pile.</p> <p>The location of the trench examined a ferrous zone anomaly FZ536 that was reported in the geophysical investigation of the area.</p> <p>TB302-2812-08.0-004; sand lens (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB302-2813-01.0-042; white powdery substance (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB302-2814-06.0-074; sand lens (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC)</p>
T303	Shops Area	42	7 feet	Suspect UST	Subsurface Soil	<p>This trench was positioned to investigate the potential presence of a tank located north of a building foundation. The trench was placed along the concrete foundation.</p> <p>The location of the trench was selected to examine a ferrous zone anomaly FZ530 that was reported in the geophysical investigation of the area.</p> <p>TB303-2815-05.0-009; sand lens (Rad, SVOC, VOC) TB303-2816-01.0-016; tar-like substance (Rad, SVOC, VOC) TB303-2817-05.0-033; sand lens (Rad, SVOC, VOC)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T304	Shops Area	73	7 feet	Open Concrete Sump and Pipe	Subsurface Soil	<p>This trench was located to investigate an open concrete sump and potential presence of underground piping in the former garage/maintenance area of the former LOOW. Petroleum staining was observed during collection of the samples from the pipe during the pipeline investigation.</p> <p>The location of the trench examined a ferrous zone anomaly FZ539 that was identified in the geophysical investigation of the area.</p> <p>TB304-2818-01.3-000; black staining (Rad, SVOC) TB304-2819-06.5-023; sand lens (Rad, SVOC) TB304-2820-07.0-073; random (Rad, SVOC)</p>
T305	Shops Area	85	5 feet	Debris Pile	Subsurface Soil	<p>This trench was located to further investigate the debris pile south of “Z” Street and west of Castle Garden Road.</p> <p>TB305-2922-04.0-014; sand lens (Rad) TB305-2923-05.0-050; random (Rad) TB305-2924-05.0-080; random (Rad)</p>
T403	Acidification Area	50	8 feet	Rubble Filled Depression	Subsurface Soil	<p>This trench investigated the rubble filled depression in the former acidification area between “O” Street and “N” Street. The debris pile includes sheet metal and rubble. This area has been called the New Naval Dump. Due to the uneven terrain, no gamma walkover survey was completed in this area.</p> <p>The location of the trench examined a ferrous zone anomaly FZ310 and metallic zone anomaly MZ317 that were identified in the geophysical investigation of the area.</p> <p>TB403-2821-04.0-008; water seep (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB403-2822-07.0-024; sand lens (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB403-2823-08.0-045; random (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC)</p>
T404	Acidification Area	57	1.5 feet at the “B” end to 8 feet at the “A” end	Sewer Line / Potential Debris Area	Subsurface	<p>This trench was positioned to investigate the sewer and underground piping, as well as the potential presence of a debris area in the former acidification area of the former LOOW just south of “N” Street. The trench was located in a hummocky area north of the former sulfuric acid concentrator house.</p> <p>The location of the trench examined ferrous zone anomalies FZ310 and FZ328 that were reported in the geophysical investigation of the area.</p> <p>TB404-2824-03.3-005; random (Pest/PCB, Rad, SVOC) TB404-2825-06.2-021; adjacent to pipe (Pest/PCB, Rad, SVOC) TB404-2856-02.3-028; adjacent to pipe (Pest/PCB, Rad, SVOC)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T406	Acidification Area	60	5 feet below original ground surface (7 feet total)	Rubble Filled Depression	Subsurface	<p>This trench investigated the debris pile south of “N” Street and west of Castle Garden Road cut-through in the former acidification area. The debris pile includes PVC and steel pipes, rubble, and gray foam products.</p> <p>The location of the trench examined ferrous zone anomalies FZ333 and FZ328 that were reported in the geophysical investigation of the area.</p> <p>TB406-2826-07.0-043; sand lens (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB406-2827-02.0-027; oily gravel (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB406-2828-01.0-010; adjacent to pipe (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC)</p>
T408	Acidification Area	60	5 feet below original ground surface (7 feet total)	Debris Pile	Surface Subsurface	<p>This trench investigated the debris pile south of “N” Street and east of Castle Garden Road cut-through in the former acidification area. The debris pile includes rubble and asphalt roofing materials.</p> <p>The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.</p> <p>TS408-2860-007; random (asbestos, Rad) TB408-2829-02.7-005; random (nitros, metals, Pest/PCB, Rad, SVOC, VOC) TB408-2830-03.9-021; random (nitros, metals, Pest/PCB, Rad, SVOC, VOC) TB408-2831-04.7-054; random (nitros, metals, Pest/PCB, Rad, SVOC, VOC)</p>
T410	Acidification Area	65	6 feet	Suspect UST	Subsurface	<p>This trench was positioned to investigate the potential presence of a tank located northwest of a building foundation south of “N” Street. This trench was excavated on the western edge of the slab.</p> <p>The location of the trench examined an unnamed conductive zone anomaly that was reported in the geophysical investigation of the area.</p> <p>TB410-2832-06.0-008; random (Rad, SVOC, VOC) TB410-2833-02.0-035; random (Rad, SVOC, VOC) TB410-2834-04.0-055; random (Rad, SVOC, VOC)</p>
T411	Acidification Area	65	7 feet	Disturbed Ground in former Storage Area	Subsurface	<p>This trench was positioned to investigate the soils at the western end of the acidification area that were reportedly remediated. This area has been called the New Naval Dump. Manhole MH18 was also in this area, but it has been destroyed or covered. Bars of radioactive material had been located in a vault south of this area. It appears that the soil surrounding the trench location has been disturbed. No confirmatory sampling results were found during the Phase I literature search.</p> <p>The location of the trench examined ferrous zone anomalies FZ310 and conductive zone anomaly CZ316 that were reported in the geophysical investigation of the area.</p> <p>TB411-2835-05.0-028; sand lens (Rad) TB411-2836-01.5-034; elevated gamma reading (Rad) TB411-2837-01.5-052; elevated gamma reading (Rad)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T412	Acidification Area	65	7 feet	Disturbed Ground in former Storage Area	Subsurface	<p>This trench was positioned to investigate the soils at the western end of the acidification area that were reportedly remediated. This area has been called the New Naval Dump. Manhole MH18 was also in this area, but it has been destroyed or covered. Bars of radioactive material had been located in a vault south of this area. It appears that the soil surrounding the trench location has been disturbed. No confirmatory sampling results were found during the Phase I literature search.</p> <p>The location of the trench examined ferrous zone anomaly FZ310 and metallic anomaly MZ317 that were reported in the geophysical investigation of the area.</p> <p>TB412-2838-05.0-050; first native soil (Rad) TB412-2839-05.0-034; sand lens (Rad) TB412-2840-04.0-025; white nodules (Rad)</p>
T413	Acidification Area	90	10 feet	Disturbed Ground in former Storage Area	Subsurface	<p>This trench was positioned to investigate the area where bars of radioactive material were stored in a vault at the western end of the acidification area. This area has been called the New Naval Dump. It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. Videos of this area indicate that this was the general asbestos burial area for the NFSS. No confirmatory sampling results were found during the Phase I literature search.</p> <p>The location of the trench examined a metallic zone anomaly MZ317 that was reported in the geophysical investigation of the area.</p> <p>TB413-2841-09.0-050; sand lens (Rad) TB413-2842-03.0-019; white nodules (Rad) TB413-2843-03.0-015; under pipe (Rad)</p>
T414	Acidification Area	50	10 feet	Near Large Concrete Foundation near former Storage Area	Subsurface	<p>This trench was positioned to investigate piles of debris on the west side of a concrete foundation at the western end of the acidification area. Bars of radioactive material were located in a vault west of this area. It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. No confirmatory sampling results were found during the Phase I literature search. The trench was located adjacent to the foundation slab. No gamma walkover survey was conducted in this area.</p> <p>The location of the trench examined ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area.</p> <p>TB414-2844-05.5-004; stained soil (Rad, SVOC) TB414-2845-08.0-040; stained soil (Rad, SVOC) TB414-2846-01.0-043; fibrous white material (Rad, SVOC)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T501	Baker Smith Area	150	5 feet	Among the Foundations in the Central Portion of the Area	Subsurface	<p>This trench was located to investigate several areas on an east-west trending line across the area. Various foundations are located near the line of the trench. Gamma readings above background in surface and subsurface samples were noted during the soil sample collection after the gamma walkover.</p> <p>The location of the trench examined conductive zone anomalies CZ208 and CZ217, metallic zone anomaly MZ207, and ferrous zone anomaly FZ220 that were reported in the geophysical investigation of the area.</p> <p>TB501-2847-01.5-130; debris (metals, Rad, SVOC) TB501-2848-03.0-095; gravel fill (metals, Rad, SVOC) TB501-2849-02.7-068; random (metals, Rad, SVOC)</p>
T802	Historically Uninvestigated Area	230 (N-S) 198 (E-W)	7 feet 3 – 7 feet	Former Disposal Area	Subsurface	<p>This trench was positioned to investigate the former disposal area located north of the IWCS.</p> <p>TB802-2901-04.2-008; debris (metals, Pest/PCB, Rad, SVOC) TB802-2902-04.0-018; debris (metals, Pest/PCB, Rad, SVOC) TB802A-2903-03.8-096; gamma reading above background (metals, Pest/PCB, Rad, SVOC, VOC)</p>
T808	Historically Uninvestigated Area	45 (N-S) 60 (E-W)	10 feet 4 feet	Organic Burial Area	Subsurface	<p>The location of this trench was selected to investigate the organic burial area north of the IWCS. Some of the material in the organic burial area trench may have been partially burned prior to placement.</p> <p>No anomalies were reported in the geophysical investigation of the area.</p> <p>TB808-2850-04.5-016; chip with gamma above background (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB808-2851-01.5-020; fill (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC) TB808-2852-01.5-016; fill (nitroaromatics, metals, Pest/PCB, Rad, SVOC, VOC)</p>
T809	Historically Uninvestigated Area	50	4 feet	Former Water Storage Area	Subsurface Surface	<p>The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.</p> <p>TS809-2904-001; random (Pest/PCB, Rad) TS809-2905-007; gamma reading above background (Rad) TB809-2906-01.0-045; gamma reading above background (Rad)</p>
T810	Historically Uninvestigated Area	55	6 feet	Former Water Storage Area	Subsurface	<p>The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building.</p> <p>TB810-2907-02.9-012; fill (metals, Pest/PCB, Rad, SVOC, VOC) TB810-2908-01.8-041; gamma reading above background (metals, Pest/PCB, Rad, SVOC, VOC) TB810-2909-05.8-045; sand lens (metals, Pest/PCB, Rad, SVOC, VOC)</p>

Table 3-19
Justification of Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length (feet)	Trench Depth	Sample Location	Soil Matrices	Justification for Sample Point And Samples Collected
T811	Historically Uninvestigated Area	53	7 feet	Former Water Storage Area	Subsurface	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building. TB811-2910-04.8-044; first native soil (metals, Pest/PCB, Rad, SVOC, VOC) TB811-2911-02.3-012; debris (metals, Pest/PCB, Rad, SVOC) TB811-2912-04.0-047; sand lens (metals, Pest/PCB, Rad, SVOC)
T812	Historically Uninvestigated Area	62	5 feet	Southern Perimeter of NFSS	Surface Subsurface	The location of this trench was to investigate a gamma reading above background found during the Gamma Walkover Survey. TS812-2928-062; asphalt sample (Rad) TB812-2913-03.0-055; first native soil (metals, Pest/PCB, Rad, SVOC) TB812-2914-03.0-014; gamma reading above background (metals, Pest/PCB, Rad, SVOC) TB812-2915-05.0-001; random (metals, Pest/PCB, Rad, SVOC)
T813	Historically Uninvestigated Area	40	4 feet	Southern Perimeter of NFSS	Subsurface	The location of this trench was to investigate a gamma reading above background reported in the Gamma Walkover Survey. TB813-2925-08.0-013; gamma reading above background (Rad) TB813-2926-01.0-021; random (Rad) TB813-2927-03.9-029; random (Rad)

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-01	Building 401, Sanitary Sewer	North of Building 401 Upstream manhole: none Downstream manhole: MH-09	56	72	Clear water. Insufficient amount of sediment present to sample. Primary sewer connection for Building 401.	Water, 05-16-01 MH01W-2000	Metals-total Metals-dissolved Radionuclides SVOC
MH-02	Building 401, Storm Sewer	Storm Sewer grated manhole located south of Building 401. Upstream manhole: none Downstream manhole: none	12	15.5	It is not known if this sewer segment is connected to other lines or discharges to an outfall. An outfall has not been identified. This manhole is near Boring 203, where 1,120 pCi/g of radium was detected.	Water, 05-21-01 MH02W-2001 Sediment, 05-23-01 MH02S-2002	Metals-total Metals-dissolved Radionuclides SVOC
MH-03	Building 401, Sanitary Sewer	Manhole to 12' x 12' concrete box marked as sanitary sewer (sump or water valve location), west of Campbell St and northeast of former Building 403. Upstream manhole: none Downstream manhole: none	46.125	72	Sediment depth: approx. 2" Clear water. Sediment color was gray.	Water, 05-16-01 MH03W-2004 Sediment, 05-20-01 MH03S-2005	Metals-total Metals-dissolved Radionuclides SVOC
MH-04	Building 401, Sanitary Sewer	Manhole to 8' octagonal concrete box marked as sanitary sewer (sump or water valve location) located west of Campbell St northeast of former Building 403. Upstream manhole: none Downstream manhole: none	56.25	84	Sediment depth: approx. 1" Clear water. Sediment color was gray.	Water, 05-17-01 MH04W-2006 Sediment, 05-20-01 MH04S-2007	Metals-total Metals-dissolved Radionuclides SVOC
MH-05	Building 401 Water Line	Manhole to concrete box located east of Campbell St northwest of Building 401. Upstream manhole: none Downstream manhole: none	43.25	99	Water in manhole exhibited sheen and little sediment was noted.	Water, 05-16-01 MH05W-2008	VOC Metals-total Metals-dissolved Radionuclides SVOC
MH-06	IWCS Sanitary Sewer	North of the South 31 Ditch. Near the confluence of the South 31 and Central Ditches Upstream manhole: MH-07 Downstream manhole: MH-09	84.25	86	The lower section of this manhole was filled with concrete. No sediment present. Water in this manhole is murky brown. A pipe was observed heading west from this manhole towards the former fresh water treatment plant for the LOOW (now included in the IWCS).	Water, 05-17-01 MH06W-2009	Radionuclides PCB VOC
			84		Resample to confirm the presence of elevated uranium isotopes in the initial sample and provide additional data.	Water, 09-18-03 MH06W-3681	Radionuclides ² TDS TSS

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-07	IWCS Sanitary Sewer	East of the Central Ditch and southeast of the IWCS. Upstream manhole: MH-08 Downstream manhole: MH-06	50	112	Water and approximately 6" of gray sediment was noted.	Water, 05-17-01 MH07W-2011 Sediment, 05-20-01 MH07S-2012	Radionuclides
			59		Water depth: 3.90' Sediment depth: approx. 7" Resampled to confirm the previous results and provide additional data.	Water, 09-17-03 MH07W-3683 Sediment, 09-17-03 MH07S-3682	Radionuclides ² TDS TSS
MH-08	IWCS Sanitary Sewer	West of the Central Ditch and southeast of the IWCS. Upstream manhole: off the NFSS property to the south Downstream manhole: MH-07	51.75	121	Water exhibited a sheen. Sediment depth: approx. 4".	Water, 05-17-01 MH08W-2013 Sediment, 05-13-01 MH08S-2015	Radionuclides Metals-total Metals-dissolved VOC SVOC
			63		Water depth: 4.15'. Sediment depth: approx. 8" Resampled to confirm the presence of elevated uranium isotopes in the initial sample and provide additional data.	Water, 09-18-03 MH08W-3685 Sediment, 09-18-03 MH08S-3684	Radionuclides ² TDS TSS
MH-09	DOE WWTP, Sanitary Sewer	Northeast of Building 429 and northwest of former Building 403. Manhole buried under 1.75" of soil. Upstream manholes: MH-06 and MH-01 Downstream manhole: MH-10	81	121.5	Water exhibited a sheen Sediment depth: approx. 7".	MH09W-2016 05-18-01 MH09S-2017 06-13-01	VOC Radionuclides Metals-total Metals-dissolved SVOC PCB
MH-10	DOE WWTP Sanitary Sewer	North of the South 16 Ditch and west of Campbell St. Upstream manhole: MH-09 Downstream manhole: MH-11	77	99	The lower section of this manhole was filled with concrete. Water in this manhole is murky brown and little sediment was present. Top of manhole was damaged. Water may be infiltrate from surface.	Water, 05-17-01 MH10W-2018	Radionuclide SVOC

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-12	Shop Area, Sanitary Sewer	East of Campbell St and halfway between X and Z Streets. This manhole was completely buried under soil. Upstream manhole: MH-44 Downstream manhole: MH-11	19.25	96.5	Water in the manhole has a sheen. Sediment depth: 6” Sediment gray in color. Manhole exhibited a septic odor.	Water, 05-18-01 MH12W-2019 Sediment, 05-21-01 MH12S-2020	VOC Radionuclides Metals-total Metals-dissolved SVOC
MH-13	Acid Area, Storm Sewer	West of Campbell St and north of O Street. Upstream manhole: MH-29 Downstream: Outfall-01	Dry	57	Manhole had leaf litter over a layer of gravel and sediment was present below a gravel layer. Sample collected from below gravel. This location potentially drained the former radium storage vault in the western Acid area.	Sediment, 05-20-01 MH13S-2021	Radionuclides SVOC
MH-15	Acid Area, Storm Sewer	East of Campbell St and south of N Street. Upstream manhole: MH-17 Downstream: Outfall-02	42.5	51.5	Sediment Depth: approx. 0.25” (insufficient to sample)	Water, 05-17-01 MH15W-2023	Radionuclides SVOC
MH-16	Acid Area, Sanitary Sewer	Sanitary Sewer manhole located west of Campbell St and between N and O Streets. Upstream manhole: MH-14 Downstream manhole: off of NFSS property to the north	102.75	178	Sediment Depth: approx. 0.5” Bricks present in manhole.	Water, 05-18-01 MH16W-2024 Sediment, 05-22-01 MH16S2026	Radionuclides SVOC Metals-total Metals-dissolved Nitroaromatics
MH-19	Acid Area, Sanitary Sewer	Sanitary Sewer manhole located east of Campbell St and between N and O Streets along unnamed north/south trending road. Upstream manhole: MH-31 Downstream manhole: MH-16	Dry	88	Manhole lid not present. Sediment appeared to consist of leaf litter. Manhole may have been filled with concrete.	Sediment, 05-22-01 MH19S-2028	Radionuclides SVOC Nitroaromatics
MH-22	Acid Area, Storm Sewer	South of N Street in central portion of Acid Area. Upstream manhole: none Downstream manhole: possibly MH-40	Dry	21	Sediment sample appeared to consist of leaf litter and detritus. VOCs present in nearby soil and groundwater samples.	Sediment, 05-22-01 MH22S-2029	SVOC Radionuclides VOC

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-24	Acid Area, Storm Sewer	South of N Street in the central Acid area. Upstream manhole: none Downstream manhole: MH-23	Dry	46	Sediment depth: 0.25" This location is near haul routes for the former K-65 waste	Sediment, 05-22-01 MH24S-2031	Radionuclides SVOC
MH-26	Acid Area, Storm Sewer	North of O Street. Upstream manhole: MH-25 Downstream manhole: MH-27	49.25	56.5	PCBs present in nearby soil samples (413, 417, and 4D010). Not enough sediment present to sample.	Water, 05-18-01 MH26W-2032	Radionuclides PCB Metals-total Metals-dissolved
MH-29	Acid Area, Storm Sewer	Northeast of the intersection of O Street and Campbell Street. Upstream manhole: MH-28 Downstream manhole: MH-13	Dry	38	The west side of this manhole has collapsed and the bottom of the manhole was filled with soil. This location is southwest of the former sellite plant and is downgradient of the Acid area fuel oil storage location.	Sediment, 05-23-01 MH29S-2033	Radionuclides PCB SVOC Metals
MH-30	Acid Area, Acid/Process Sewer	South of N Street and east of the former sulfuric acid concentrator house. Upstream manhole: MH-32 Downstream manhole: off the NFSS property to the north-northwest	Dry	150	This manhole has no lid. Also noted in this manhole was 6" and 12" entering from the northeast. Sediment depth: 1" Sediment appeared to consist of leaf liter and detritus.	Sediment, 05-23-01 MH30S-2034	Radionuclides SVOC
MH-31	Acid Area Sanitary Sewer	South of N Street, north of the nitric acid concentrator house. Upstream manhole: MH-37 Downstream manhole: MH-19	110.5	125.5	Manhole exhibited septic smell. Water was murky and exhibited a sheen. Manhole has an 8" VCP entering from the south. Insufficient amount of sediment to sample.	Water, 05-19-01 MH31W-2035	Radionuclides SVOC VOC
MH-32	Acid Area, Acid/Process Sewer	South of N Street Upstream manhole: MH-33 Downstream manhole: MH-30	142	142	Water exhibited a sheen. Manhole has a 12" VCP entering from the southwest. Insufficient amount of sediment for sampling. VOCs were present in the soil and groundwater at nearby TWP 415.	Water, 05-19-01 MH32W-2036	VOC
MH-33	Acid Area, Acid/Process Sewer	South of N Street Upstream manhole: MH-34 Downstream manhole: MH-32	Dry	135	A 24" line enters from the east and a 16" line enters from the south from this manhole.	Sediment, 05-20-01 MH33S-2037	Radionuclides SVOC
MH-35	Acid Area Acid/Process Sewer	South of N Street near storm sewer manhole MH-22. Upstream manhole: MH-36 Downstream manhole: MH-34	127	128	Sediment depth: approx. 0.5" A 24" line enters from the east and a 24" line enters from the west. VOCs were present in the soil and groundwater samples near this location.	Water, 05-19-01 MH35W-2038 Sediment, 05-16-01 MH35S-2039	Radionuclides SVOC VOC

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-37	Acid Area, Sanitary Sewer	South of N street near the east end of the Acid area. Upstream manhole: none Downstream manhole: MH-31	Dry	99	A 6" VCP trends to the southeast from this manhole.	Sediment, 05-23-01 MH37S-2040	Radionuclides
MH-41	Shop Area Sanitary Sewer	Northwest of the intersection of Castle Garden Road and Y Street. Upstream manhole: off site on Modern Landfill property (may have been removed) Downstream manhole: MH-42	32	79	Sediment depth: approx. 1" This location received drainage from the former locomotive shop and LOOW laboratory.	Water, 05-17-01 MH41W-2041 Sediment, 05-24-01 MH41S-2042	Radionuclides SVOC PCB
			Dry		Sediment depth: 6". Resampled to confirm the presence of elevated uranium isotopes in the initial sample.	Sediment, 09-17-03 MH41S-3690	Radionuclides ²
MH-42	Shop Area, Sanitary Sewer	In Seventh Street between X and Z Streets, south of the former combined shops building. Upstream manholes: MH-41 and MH-46 Downstream manhole: MH-43	37	108	Sediment depth: approx. 1"	Water, 05-18-01 MH42W-2043 Sediment, 05-24-01 MH42S-2044	Radionuclides SVOC PCB
MH-43	Shop Area, Sanitary Sewer	Between X and Z Streets and west of Seventh St and east of Campbell Street. Upstream manhole: MH-42 Downstream manhole: MH-44	26	97	Water exhibited a sheen. Sediment depth: approx. 1"	Water, 05-21-01 MH43W-2045 Sediment, 05-24-01 MH43S-2046	VOC Radionuclides SVOC
			89		Approximately 8" of sediment was present in the bottom of the manhole. Resampled to confirm the elevated uranium isotopes in the initial sample and provide additional data.	Water, 09-17-03 MH43W-3689 Sediment, 09-17-03 MH43S-3688	Radionuclides ² TDS TSS
MH-44	Shop Area, Sanitary Sewer	Between X and Z Streets and west of Seventh St and east of Campbell Street. Upstream manholes: MH-43 and MH-45 Downstream manhole: MH-12	26	106	Sediment depth: approx. 0.5" The manhole was open and the lid was found nearby. Lid placed back on manhole after sampling.	Water, 05-19-01 MH44W-2047 Sediment, 05-24-01 MH44S-2048	Radionuclides

Table 3-20
Summary of Manhole Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Manhole Number	Area of Investigation/ Sewer System	Manhole Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
MH-45	Shop Area, Sanitary Sewer	South of Z Street and west of Seventh St. Upstream: sump and 10" VCP from former garage area Downstream manhole: MH-44	31	60	This manhole was covered with approximately 7" of soil. A slight sheen exhibited on water. Sediment depth: approx. 0.5"	Water, 05-19-01 MH45W-2049 Sediment, 05-24-01 MH45S-2050	VOC Radionuclides SVOC
			61*		Less than 1" of water present. Sediment depth: 3" Septic odor exhibited. Resampled to confirm the presence of elevated uranium isotopes in the initial sample and provide additional data. *Field note discrepancy	Water, 09-17-03 MH45W-3687 Sediment, 09-17-03 MH45S-3686	Radionuclides ² TDS TSS
MH-46	Shop Area, Sanitary Sewer	South of the intersection of Z Street and Seventh St. Upstream manhole: none Downstream manhole: MH-42	44	108	A slight sheen exhibited on water. Sediment depth: approx. 0.5" A shed and general storehouse buildings where drums of K-65 residue were stored are to the east of this location and to the west was a fuel oil pipeline. A rail spur was to the south.	Water, 05-21-01 MH46W-2051 Sediment, 05-24-01 MH46S-2053	VOC Radionuclides SVOC

1. Depth to Water and Depth to Invert were measured from the top of the manhole cover or, if the manhole cover was missing, where the cover is anticipated to have formerly existed.
2. Radionuclides also included total uranium. In addition a filtered and unfiltered sample was collected, except as noted in the table.

Table 3-21
Summary of Pipe and Sump Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Pipe/Sump Number	Area of Investigation/ Sewer System	Description	Pipe/Sump Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comment	Matrix/Date Collected/Sample ID	Analysis Parameters
PIPE15	Acid Area, Acid Process	10" VCP	East-central end of the former north acid storage tanks.	Dry	37	Elbow to the south. Insufficient volume of sediment in pipe for sampling. VOCs were present in the soil and groundwater at nearby TWP415.	Sediment, 06-12-01 PIPE15S-2054	Metals VOC SVOC Radionuclides PCB
PIPE23	Acid Area, Acid Process	20" VCP	Southernmost end of the former TNT mix storage tanks.	Dry	24	Pipe obstructed with gravel. Sample collected with hand auger adjacent to pipe at a depth of 24". VOCs were present in the soil and groundwater at nearby TWP415 and PCBs were found southeast of this area.	Sediment, 05-22-01 PIPE23S-2055	Metals VOC SVOC Radionuclides PCB
PIPE28	Acid Area, Unknown	10" Steel with a heavy flange.	Southern end of the former nitric acid concentrator plant foundation.	10	32	Water in pipe exhibited oil sheen and odor. Pipe obstructed with gravel. Sediment sample collected with hand auger adjacent to pipe at a depth of 32".	Water, 05-20-01 PIPE28W-2056 Sediment, 05-22-01 PIPE28S-2058	Metals-Total Metals-Dissolved VOC SVOC Radionuclides
PIPE33	Acid Area Acid Process	10" VCP	East-central portion of the former south sulfuric acid storage tanks.	Dry	26	Broken elbow to the north. Sediment sample collected with hand auger adjacent to pipe at a depth of 26".	Sediment, 05-23-01 PIPE33S-2059	Metals SVOC Radionuclides Pesticides
PIPE41	Acid Area, Acid Process	10" VCP	Easternmost end of the former south acid storage tanks	Dry	32	Elbow to the north. No soil or sediment was present in the pipe. Sediment sample collected with hand auger adjacent to pipe at a depth of 32".	Sediment, 05-24-01 PIPE41S-2060	Metals SVOC Radionuclides
PIPE42	Acid Area, Acid Process	4" VCP	Southeast end of the former concentrated mix area.	Dry	54	Pipe contained an insufficient volume of sediment for sampling. Sediment sample collected with hand auger adjacent to pipe at a depth of 54".	Sediment, 05-24-01 PIPE42S-2062	Metals VOC SVOC Radionuclides
PIPE47	Acid Area, Acid Process	10" VCP	Northern end of the former concentrated mix area.	Dry	41	Elbow to the west. Sample appeared to consist of detritus. Pipe has metal collar.	Sediment, 05-20-01 PIPE47S-2063	Metals SVOC Radionuclides
PIPE57	Acid Area, Acid Process	10" VCP	This 10" VCP is located in the central portion of the former concentrated nitric acid storage tanks.	Dry	8	Sediment appeared to consist of detritus.	Sediment, 05-20-01 PIPE57S-2064	Metals SVOC Radionuclides Pesticides
PIPE63	Acid Area, Acid Process	6" Steel	Northernmost pit at the former ammonia oxidation plant.	Dry	20	Broken joint noted in the pipe. Insufficient volume of sediment in pipe for sampling. Sediment sample collected with hand auger adjacent to pipe at a depth of 20".	Sediment, 05-23-01 PIPE63S-2065	Metals SVOC Radionuclides PCB

Table 3-21
Summary of Pipe and Sump Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Pipe/Sump Number	Area of Investigation/ Sewer System	Description	Pipe/Sump Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comment	Matrix/Date Collected/Sample ID	Analysis Parameters
PIPE72	Acid Area, Acid Process	10" VCP	Northern end of the former TNT mix storage tanks.	Dry	Unknown	Pipe filled to surface with detritus, soil and sediment. Hand- augered to a depth of 36" inside the pipe to provide sufficient volume for a sample. This area is directly adjacent to a former fuel oil storage location.	Sediment, 05-23-01 PIPE72S-2066	Metals SVOC Radionuclides Pesticides PCB
PIPE74	Shop Area, EU 8/Unknown	10" VCP	Within the Garage and Repair Shop foundation slab south of Z Street. Pipe elbows to the west	20	59	Water in pipe exhibited sheen.	Water, 05-21-01 PIPE74W-2067 Sediment, 06-13-01 PIPE74S-2068	Metals-Total Metals- Dissolved VOC SVOC Radionuclides
				66*		About 4" of water. Sediment sample appeared to consist chiefly of leaves. Water level did not decrease as collected sample. Resampled to confirm the presence of VOCs and elevated uranium isotopes in the initial sample. *Not measured from the same reference point.	Water, 09-17-03 PIPE74W-3693 Sediment, 09-17-03 PIPE74S-3692	VOC Radionuclides ² TSS TDS
SUMP02	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Southern end of the former residual sulfuric acid storage tanks	Dry	Unknown	Sump was covered with utility poles and was inaccessible. Sediment sample collected with hand auger adjacent to sump at a depth of 30". This sump potentially received drainage from the former sulfuric acid storage tanks and the sulfuric acid concentrator house.	Sediment, 06-12-01 SUMP02S-2069	Metals SVOC Radionuclides
SUMP07	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Located at the western end of the former northern acid storage tanks.	Dry	Unknown	Filled to surface rocks. Sediment sample collected with hand auger adjacent to sump at a depth of 30". This location drained the north acid tanks and potentially received runoff from the former rail lines in the immediate vicinity.	Sediment, 06-12-01 SUMP07S-2070	Pesticides SVOC Radionuclides

Table 3-21
Summary of Pipe and Sump Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Pipe/Sump Number	Area of Investigation/ Sewer System	Description	Pipe/Sump Location	Depth to Water (inches) ¹	Depth to Invert (inches) ¹	Comment	Matrix/Date Collected/Sample ID	Analysis Parameters
SUMP13	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Northern end of the former TNT mix storage tanks.	Dry	unknown	Pipe obstructed with gravel. Sediment sample collected with hand auger adjacent to sump at a depth of 45". A pipe and sump sample near this location collected for the LOOW RI had detectable levels of VOCs. In addition, this location is north of soil sampling locations (413, 417 and 4D010) where detectable levels of PCBs were found.	Sediment, 06-12-01 SUMP13S-2071	VOC PCB SVOC Radionuclides
SUMP14	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Western end of the former south sulfuric acid storage tanks.	Dry	unknown	Pipe obstructed. Sediment sample collected with hand auger adjacent to sump at a depth of 45".	Sediment, 06-12-01 SUMP14S-2072	Pesticides SVOC Radionuclides
SUMP19	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Western end of the former south acid storage tanks.	Dry	12	Pipe obstructed. Sediment sample collected with hand auger adjacent to sump at a depth of 48".	Sediment, 06-14-01 SUMP19S-2073	PCB Pesticides SVOC Radionuclides
SUMP25	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	North-central portion of the former concentrated mix storage tanks.	Dry	12	Pipe obstructed. Sediment sample collected with hand auger adjacent to sump at a depth of 18".	Sediment, 06-14-01 SUMP25S-2074	SVOC Radionuclides
SUMP32	Acid Area, Acid Process	30" x 45" brick lined sump with a 10" VCP	Central portion of the former TNT mix storage tanks.	Dry	12	Pipe obstructed. Sediment sample collected with hand auger adjacent to sump at a depth of 18".	Sediment, 06-12-01 SUMP32S-2075	Metals PCB SVOC Pesticides Radionuclides
SUMP35	Shop Area, Unknown	3' x 3' pit partially filled with concrete rubble	Within the Garage and Repair Shop foundation slab south of Z Street.	14	35	Sheen was present on the water in the sump and 5" of sediment was noted. This sump may be part of an oil-water separator or a sump for the discharge from the vehicle repair shop.	Water, 05-21-01 SUMP35W-2077 Sediment, 06-14-01 SUMP35S-2078	VOC SVOC Radionuclides

- 1 Depth to Water and Depth to Invert were measured from the top of the pipe rim or sump rim. Depth to Invert was measured to the detritus or to the bottom of the pipe or sump, whichever was encountered first.
- 2 Radionuclides also included total uranium. In addition a filtered and unfiltered sample was collected, except as noted in the table.

Table 3-22
Summary of Drain Samples Collected at Building 401 and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Drain Number	Drain Location	Depth to Water (ft) ¹	Depth to Sediment (ft) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
Drain 1	Large sump located along the east side of the Boiler Room (Room 120), east of the boiler tanks.	2.9	4.5	Water depth = 1.6 feet and thickness of sediment less than 0.1 feet. Depth to invert is 4.5 feet below ground level. Sediment was black and wet with a slight septic and hydrocarbon odor.	Water, 09-30-03 DRAIN01-W-3700 Sediment, 10-02-03 DRAIN01-S-3701	VOC Metals-total Metals-dissolved Radionuclides Radionuclides-dissolved SVOC, PAH Pesticides/PCBs
Drain 2	Pipe chase located within the northeast wall of the Boiler Room (Room 120), north of the boiler tanks and sump.	1.7	2.3	Water depth = 0.6 feet and thickness of sediment = 0.2 feet. Depth to invert is 2.5 feet below ground level. Sediment was black and wet with a septic odor.	Water, 09-30-03 DRAIN02-W-3702 Sediment, 10-02-03 DRAIN02-S-3703	VOC Metals-total Metals-dissolved Radionuclides-dissolved SVOC, PAH Pesticides/PCBs
Drain 3	Floor drain located in the northeast quadrant of Room 131.	0.8	1.0	Free phase oil that smelled similar to turpentine was floating on the surface of the water. Water depth = 0.2 feet and thickness of the sediment and oil phase was less than 0.1 feet. Depth to invert was 1.0 foot below ground level. Due to lack of sufficient sample volume, drain water analyzed for VOCs and radionuclides and the oil sample was analyzed for SVOCs, pesticides and PCBs.	Water, 10-01-03 DRAIN03-W-3704 Sediment, 10-02-03 DRAIN03-S-3705 Oil, 10-01-03 DRAIN03-O-3720	VOC Metals-total Radionuclides SVOC, PAH Pesticides/PCBs
Drain 4	Floor drain located in the southwestern quadrant of Room 131	0.6	0.8	Free phase oil that smelled similar to turpentine was floating on the surface of the water. Water depth = 0.2 feet and thickness of the sediment was 0.2 feet. The thickness of the oil phase was less than 0.1 feet. Depth to invert was 1.0 feet below ground level. Sediment was black and wet with a petroleum odor. Due to lack of sufficient sample volume, oil and drain water were not analyzed for PAHs and total uranium (one of the radionuclide parameters).	Water, 10-01-03 DRAIN04-W-3706 Sediment, 10-02-03 DRAIN04-S-3707 Oil, 10-01-03 DRAIN04-O-3719	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 5	Sump with floor drain located in the northwest quadrant of Room 129	0.8	1.2	Water depth = 0.4 feet and thickness of sediment was less than 0.1 feet. Depth to invert was 1.2 feet below ground level. Sediment gray and wet. Due to lack of sufficient sample volume, sediment was analyzed for radionuclides only.	Water, 10-01-03 DRAIN05-W-3708 Sediment, 10-02-03 DRAIN05-S-3709	Metals-total Metals-dissolved Radionuclides SVOC, PAH Pesticides/PCBs

Table 3-22
Summary of Drain Samples Collected at Building 401 and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Drain Number	Drain Location	Depth to Water (ft) ¹	Depth to Sediment (ft) ¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
Drain 6	Floor drain located in the western half of Room 127	0.8	1.0	Water depth = 0.2 feet and thickness of sediment was less than 0.1 feet. Sediment was black with a slight hydrocarbon and septic odor. Due to lack of sufficient sample volume, drain water was analyzed for radionuclides only.	Water, 10-01-03 DRAIN06-W-3710 Sediment, 10-02-03 DRAIN06-S-3711	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 7	Floor drain located at the end of a trench in the western half of Room 121	NA	1.5	No water was present. Sediment reddish-brown and moist.	Sediment, 10-02-03 DRAIN07-S-3712	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 8	Floor drain and associated catch basin located in a hallway southwest of room 132.	NA	0.5	No water was present.	Sediment, 10-02-03 DRAIN08-S-3713	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 9	Floor drain located along the former western wall of Room 119	NA	0.5	No water was present. Sediment brown and dry with wood fragments present.	Sediment, 10-02-03 DRAIN09-S-3714	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 10	Floor drain located in the south central half of Room 122.	NA	1.5	No water was present. Sediment gray and moist.	Sediment, 10-02-03 DRAIN10-S-3715	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 11	Floor drain located east of the eastern boiler tank in Room 120.	NA	1.0	No water was present. Sediment grayish brown and moist.	Sediment, 10-02-03 DRAIN11-S-3716	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 12	Toilet drain located along the northern wall in Room 117.	NA	0.5	No water was present. Sediment brown and moist.	Sediment, 10-02-03 DRAIN12-S-3717	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs
Drain 13	Floor drain located in the northwest corner of Room 116.	NA	1.5	No water was present. Sediment black and moist with a petroleum odor.	Sediment, 10-03-03 DRAIN13-S-3718	VOC Radionuclides SVOC Pesticides/PCBs

Table 3-22
Summary of Drain Samples Collected at Building 401 and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Drain Number	Drain Location	Depth to Water (ft)¹	Depth to Sediment (ft)¹	Comments	Matrix/ Date Collected/ Sample ID	Analytical Parameters
Drain 14	Floor drain associated with a sump and sump pump located in the northeastern corner of Room 111.	NA	0.5	No water was present. Sediment reddish-brown, and dry.	Sediment, 10-03-03 DRAIN14-S-3719	VOC Metals Radionuclides SVOC, PAH Pesticides/PCBs

* The drain samples were collected to characterize the drain water and sediment associated with the indoor drains and sumps located within Building 401. Building 401 was used as a power plant and a boron isotope separation plant. Radioactive wastes were also stored in this building. The analytical parameters were selected to detect a wide range of compounds. When sample volume was minimal, parameters were prioritized based on these past activities in the building.

1. Depth to Water and Depth to Sediment were measured from the top of the floor.

NA = Not Applicable; no water

Table 3-23
Summary of Railroad Ballast Samples and Justifications for Collection
Niagara Falls Storage Site Remedial Investigation

Sample Number*	Area of Investigation	Collection Date	Justification
RB01	Acid Area, EU 4	10/3/00, Phase 2	During the field gamma survey at BH417, railroad ballast at this location exhibited higher gamma readings than the surrounding soil.
RB02	Shops Area, EU 8	10/3/00, Phase 2	During the field gamma survey at BH306, railroad ballast at this location exhibited higher gamma readings than the surrounding soil.
RB03	Southeast of Building 401, EU 12	10/3/00, Phase 2	Along the rail line that serviced Building 401.
RB04	South of Building 401, EU 14	10/3/00, Phase 2	Along the rail line that serviced Building 401, at the location at which coal was off-loaded to the storage silos.
RB05	Shops Area, EU 8	10/3/00, Phase 2	During the field gamma survey at BH304, railroad ballast at this location exhibited higher gamma readings than the surrounding soil.

*All railroad ballast samples were analyzed for: actinium-227, americium-241, cesium-137, cobalt-60, protactinium-231, radium-226, radium-228, alpha/gamma thorium-228, uranium-235 (gamma), alpha/gamma uranium-238, thorium-230, thorium-232, uranium-233/234, uranium-235/236, total uranium, and gross alpha/beta.

Table 3-24
Summary of Road and Pad Core Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample ID	Collection Date	Exposure Unit	Location	Parameters	Justification/Remarks
RC01-964	9/15/2000	11	Campbell Street near site entrance.	Rad	Near 50,000 cpm gamma reading found at location of nearby former guardshack.
RC02-965	9/15/2000	11	Campbell Street between Buildings 429 and 403	Rad	Near 70,000 cpm gamma reading in nearby ditch.
RC03-966	9/16/2000	12	Castle Garden Road at Vine Street.	Rad	At former railroad crossing, reported to have been used as temporary storage of drummed radioactive residues.
RC04-968	9/15/2000	8	Campbell Street north of Z Street	Rad	Along suspected haul route used for past remedial actions.
RC05-969	9/15/2000	1	West Patrol Road at suspected entrance to Baker-Smith Area	Rad	Along suspected haul route used to transport radioactive residues to the Baker-Smith Area for storage.
RC06-970	9/15/2000	2	Lutts Road north of O Street	Rad	Former railroad crossing located here. This track lead to the unloading platforms north of the Baker-Smith Area.
RC07-971	9/15/2000	8	Campbell Street at O Street	Rad	Along suspected haul route used for past remedial actions.
RC08-972	9/15/2000	4	Campbell Street south of O Street at railroad crossing	Rad	The rail line carried radioactive residues to in the combined shops building, located to the west, for storage.
RC09-973	9/15/2000	5	O Street at Vine Street	Rad	This area was the location of a former railroad crossing, reported to have been used as temporary storage of drummed residues.
RC10-974	9/14/2000	6	MacArthur Street north of O Street.	Rad	This area was reported to be used for temporary storage of drummed radioactive residues.
RC11-976	9/14/2000	3	N Street at the driveway to the former radium vault	Rad	Along suspected haul route used for past remedial actions.
RC12-977	9/14/2000	5	N Street, near Building 434, where the pavement was removed during a past remedial action.	Rad	This area was reportedly remediated, but no confirmatory sample data was available.
RC13-978	9/14/2000	6	N Street, near Building 434, where the pavement was removed during a past remedial action.	Rad	This area was reportedly remediated, but no confirmatory sample data was available.
RC14-979	9/14/2000	6	MacArthur Street south of N Street at former railroad crossing	Rad	This area was reported to be used for temporary storage of drummed radioactive residues.
RC15-2445	11/14/2001	8	200 feet east of intersection of Campbell Street and O Street	Rad	Gamma reading of 15,000 cpm at this location
RC16-2447	11/14/2001	12	Castle Garden Road at Vine Street, approximately 30 feet south of RC03-966	Rad	Gamma reading of 26,000 cpm at this location
RC17-2448	11/13/2001	2	20 feet north of the intersection of Campbell Street and N Street	Rad	Gamma reading of 40,000 cpm at this location
RC18-2449	11/14/2001	6	O Street, approximately 500 feet east of RC09-973	Rad	Gamma reading of 82 KCPM at this location
RC19-2450	11/14/2001	11	R Street, approximately 250 feet west of Campbell Street	Rad	Gamma reading of 22,000 cpm at this location

Table 3-24
Summary of Road and Pad Core Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample ID	Collection Date	Exposure Unit	Location	Parameters	Justification/Remarks
RC-CORE01-3730	10/14/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 131 at location of floor stain.
RC-CORE02-3732	10/14/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 131 at location of electrical transformers.
RC-CORE03-3734	10/14/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 120 at location of electrical transformers.
RC-CORE04-3736	10/15/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 121 at loading ramp.
RC-CORE05-3738	10/15/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 108, suspected laboratory area, at location of floor stain.
RC-CORE06-3740	10/13/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 122, next to a sieve shaker.
RC-CORE07-3742	10/13/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 101, in a suspected laboratory area.
RC-CORE08-3744	10/13/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	In loading area.
RC-CORE09-3746	10/13/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 119, near transformers.
RC-CORE10-3748	10/13/2003	13	Inside Building 401	Rad, Total Metals, SVOC, PAHs, VOCs, Pest/PCB	Room 122, located in area of patched concrete.

Table 3-25
Summary of Niagara-Mohawk Surface and Subsurface Soil Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation

Sample Location	Sample ID	Collection Date	Parameter	Rationale for Sample Location and Analyses
SS901 and SB901 - Co-located at southern end of property, east side of West Ditch, EU 9.	SB901-2080-2.0 SS901-2079	11/15/2001	VOC, SVOC, METALS, RAD, PCB, Nitoraromatics (SS only)	Investigate the presence or absence of radiological compounds at the southern boundary of the property.
SS902 and SB902 - Co-located at southern end of property, west of West Ditch, EU 9.	SB902-2082-2.0 SS902-2081	11/15/2001	VOC, METALS, RAD, PCB	Investigate a gamma reading approximately 1.5 times background found during the Gamma Walkover Survey.
SS903 and SB903 - Co-located at 300 feet north of southern end of property, east side of West Ditch, EU 9.	SB903-2085-2.0 SS903-2083	11/18/2001	VOC, SVOC, METALS, RAD, PCB, Nitoraromatics (SS only)	Investigate the presence or absence of radiological compounds at the southeastern boundary of the property.
SS904 and SB904 - Co-located 500 feet north of southern end of property, west side of West Ditch, EU 9.	SB904-2088-3.0 SS904-2087	11/18/2001	VOC, METALS, RAD, PCB	Located in an apparent spoils pile, near the location of a sediment sample which exhibited a field gamma reading of approximately twice background.
SS905 and SB905 - Co-located 600 feet north of southern end of property, west side of West Ditch, EU 9.	SB905-2090-2.0 SS905-2089	11/18/2001	VOC, METALS, RAD, PCB	Investigate a rubble pile that could have originated from the former LOOW or NFSS.
SS906 and SB906 - Co-located 900 feet north of southern end of property, west bank of West Ditch, EU 9.	SB906-2092-3.0 SS906-2091	11/18/2001	VOC, METALS, RAD, PCB	Investigate a gamma reading approximately 1.5 times background found during the Gamma Walkover Survey.
SS907 and SB907 - Co-located 1100 feet north of southern end of property, west side of West Ditch, EU 9.	SB907-2094-2.5 SS907-2093	11/15/2001	VOC, SVOC, METALS, RAD, PCB, Nitoraromatics (SS only)	Investigate the presence or absence of radiological compounds at the eastern boundary of the property.
SS908 and SB908 - Co-located 600 feet south of northern end of property, west bank of West Ditch, EU 9.	SB908-2096-2.5 SS908-2095	11/18/2001	VOC, METALS, RAD, PCB	Investigate the possibility of radiological compounds migrating from the NFSS.
SS909 and SB909 - Co-located 350 feet south of northern end of property, west bank of West Ditch, EU 9.	SB909-2098-2.0 SS909-2097	11/14/2001	VOC, METALS, RAD, PCB	Investigate the possibility of radiological compounds migrating from the NFSS.
SS910 and SB910 - Co-located at northern end of property, west of West Ditch, EU 9.	SB910-2100-2.0 SS910-2099	11/14/2001	VOC, METALS, RAD, PCB	Investigate an apparent spoils pile dredged from the West Ditch.
SS913 and SB913 - Co-located 500 feet north of southern end of property, east side of West Ditch, EU 9.	SB913-2474-1.5 SS913-2105	11/15/2001	RAD	Investigate a field gamma reading found during field activities which was approximately twice background.
SS-EU091 and SB-EU091 - Co-located southwest of IWCS	SB-EU091-3320-2.0 SS-EU091-3340	7/11/2003	VOC, SVOC (SB only), METALS, RAD, PEST, PCB, PAH	To delineate the extent of radiological compounds found in SB913 and characterize area of former freshwater pond used during operation of the LOOW.
SS-EU092 and SB-EU092 - Co-located southwest of IWCS	SB-EU092-3321-2.0 SS-EU092-3341	7/11/2003	VOC, SVOC (SB only), METALS, RAD, PEST, PCB, PAH	To delineate the extent of radiological compounds found in SB913 and characterize area of former freshwater pond used during operation of the LOOW.
SS-EU093 and SB-EU093 - Co-located southwest of IWCS	SB-EU093-3322-2.0 SS-EU093-3342	7/11/2003	VOC, SVOC (SB only), METALS, RAD, PEST, PCB, PAH	To delineate the extent of radiological compounds found in SB913 and characterize area of former freshwater pond used during operation of the LOOW.

Table 3-26

**Summary of Niagara-Mohawk Sediment and Surface Water Samples Collected and Analysis Performed
Niagara Falls Storage Site Remedial Investigation**

Sample Location	Sample ID	Collection Date	Parameter	Rationale for Sample Location and Analyses
911 - Southern end of property, in the West Ditch, EU 9.	SW911-2102 SD911-2101	11/15/2001	RAD	Determine the presence or absence of radiological compounds at the southern boundary of the property.
912 - 175 feet north of southern end of property, in the West Ditch, EU 9.	SW912-2104 SD912-2103	11/15/2001	RAD	Determine the presence or absence of radiological compounds at this location.
914 - 600 feet north of southern end of property, in the West Ditch, EU 9.	SW914-2109 SD914-2108	11/14/2001	RAD	Downstream of a gamma measurement above background.
915 - 600 feet north of southern end of property, in the West Ditch, EU 9.	SW915-2112 SD915-2109	11/15/2001	RAD	Investigate a location marked 'contaminated' on historical documents.
916 - 1000 feet north of southern end of property, in the West Ditch, EU 9.	SW916-2114 SD916-2113	11/15/2001	RAD	Investigate a location marked 'contaminated' on historical documents.
917 - 600 feet south of northern end of property, in the West Ditch, EU 9.	SW917-2116 SD917-2115	11/14/2001	RAD	Investigate a location marked 'contaminated' on historical documents.
918 - 525 feet south of northern end of property, in the West Ditch, EU 9.	SW918-2118 SD918-2117	11/14/2001	RAD	Investigate a location marked 'contaminated' on historical documents.
919 - 200 feet south of northern end of property, in the West Ditch, EU 9.	SW919-2120 SD919-2119	11/14/2001	RAD	Determine the presence or absence of radiological compounds at this location.
920 - Northern end of property, in the West Ditch, EU 9.	SW920-2122 SD920-2121	11/13/2001	RAD	Determine the presence or absence of radiological compounds at the northern boundary of the property.

Table 4-1
Field Observations at Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length	Trench Depth	Sample Location	Field Evidence Of Contamination	Field Observations
T201	Building 401 Area	40 feet	1 - 5 feet	Suspect UST West of Building 401	No elevated gamma readings No elevated PID readings	This trench was located to investigate a potential tank located adjacent to the west side of Building 401. A large vent was observed at the wall of the building and the vegetation over the top of the potential tank was stressed. The location of the trench examined a ferrous zone anomaly FZ540 that was reported in the geophysical investigation of the area. No tanks were found. Concrete slabs, of unknown purpose, were uncovered.
T202	Building 401 Area	80 feet	4 feet near the inlet to 7 feet at the southern end	Storm Sewer Inlet / Former Salt Ponds	No elevated gamma readings Organic odor From 0+46' to 0+58'	A storm sewer grated inlet was observed on the south side of Building 401. This trench was located to investigate that inlet, its associated piping, and the disturbed area to the south of the inlet (area covered in heavy clayey soil with little grass growing). The disturbed area may have been a portion of the boron salt sludge pits during the operation of the boron separation plant. The location of the trench examined a ferrous zone anomaly FZ540 and metallic zone anomaly 549 that were reported in the geophysical investigation of the area. No metallic objects found. Organic odor was medium strong and 'pesticide' like. Laboratory sample was collected from this area.
T203	Building 401 Area	65 feet	8 feet	Suspect UST	No elevated gamma readings No elevated PID readings	This trench was located to investigate a potential tank located north of Building 401. The trench was placed along the west side of the concrete pad. A boring was installed in this location but may not have completely defined the contamination potential for the tank. Concentrations of VOCs and metals were found in the groundwater samples from this area. The location of the trench examined a ferrous zone anomaly FZ541 that was reported in the geophysical investigation of the area. No tanks found. Several metallic objects (debris) found. 6" gas line found.
T204	Building 401 Area	70 feet	5 – 10 feet	Spoils pile	No elevated gamma readings No elevated PID readings	This trench was located to investigate a spoils pile located southeast of Building 401. No metallic objects found.
T205	Building 401 Area	65 feet	8 feet	Pesticide Odor	No elevated gamma readings Numerous slightly elevated PID readings	This trench was located to further investigate the 'pesticide' odor noted in trench T202. No metallic objects found. Pesticide odor noted from 0+28 to 0+65. Laboratory sample collected from this area. Three sand lenses found.

Table 4-1
Field Observations at Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length	Trench Depth	Sample Location	Field Evidence Of Contamination	Field Observations
T301	Shops Area	50 feet	6 feet near the A end and 3 feet along the pipeline	Pipeline and Suspect UST	Elevated gamma reading at 0+29' No elevated PID readings	A pipeline is visible from a former rail line on the property south of "Z" Street. Approximately halfway from the rail line to the street the pipeline becomes buried and is suspected to end at a UST. This trench was located to investigate the pipeline and suspect UST. The location of the trench examined a ferrous zone anomaly FZ535 that was reported in the geophysical investigation of the area. No tank found. Waterline and metallic debris found. Area of elevated gamma reading sampled. Water infiltrating trench from RR ballast.
T302	Shops Area	110 feet	5 feet below the original ground surface (9 feet total depth)	Debris Pile	No elevated gamma readings No elevated PID readings	This trench investigated the debris pile south of "Z" Street and west of Castle Garden Road. The debris pile includes large blocks of concrete. Due to uneven terrain, no gamma walkover activities were performed in the area of this debris pile. The location of the trench examined a ferrous zone anomaly FZ536 that was reported in the geophysical investigation of the area. Large amount of broken concrete debris. No metallic objects found.
T303	Shops Area	42 feet	7 feet	Suspect UST	No elevated gamma readings No elevated PID readings	This trench was located to investigate a potential tank located north of a building foundation. The trench was placed along the concrete foundation. The location of the trench examined ferrous zone anomaly FZ530 that was reported in the geophysical investigation of the area. No tank found. No metallic objects found. Large sand lens at 0+35.
T304	Shops Area	73 feet	7 feet	Open Concrete Sump and Pipe	No elevated gamma readings No elevated PID readings	This trench was located to investigate an open concrete sump and potential underground piping in the former garage/maintenance area of the former LOOW. Gross contamination was observed during collection of the samples from the pipe during the pipeline investigation. The location of the trench examined a ferrous zone anomaly FZ539 that was reported in the geophysical investigation of the area. Copper and vitrified clay piping found.
T305	Shops Area	85 feet	5 feet	Debris Pile	No elevated gamma readings No elevated PID readings	This trench was located to further investigate the debris pile south of "Z" Street and west of Castle Garden Road. No metallic objects found. Small sand lens at 0+14.
T403	Acidification Area	50 feet	8 feet	Rubble Filled Depression	No elevated gamma readings No elevated PID readings	This trench investigated the rubble filled depression in the former acidification area between "O" Street and "N" Street. The debris pile includes sheet metal and rubble. This area has been called the New Naval Dump. Due to the uneven terrain, no gamma walkover survey was completed in this area. The location of the trench examined a ferrous zone anomaly FZ310 and metallic zone anomaly MZ 317 that were reported in the geophysical investigation of the area. Miscellaneous metallic objects in fill layer. Two sand lenses.

Table 4-1
Field Observations at Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length	Trench Depth	Sample Location	Field Evidence Of Contamination	Field Observations
T404	Acidification Area	57 feet	8 feet	Sewer Line / Potential Debris Area	No elevated gamma readings No elevated PID readings	This trench was located to investigate the sewer and underground piping, as well as the potential debris area in the former acidification area of the former LOOW just south of "N" Street. The trench will be located in a hummocky area north of the former sulfuric acid concentrator house. The location of the trench examined ferrous zone anomalies FZ310 and FZ 328 that were reported in the geophysical investigation of the area. 12" vitrified clay pipe and 36" concrete pipe found. Trenching terminated from 0+40 to 0+60 due to water infiltration.
T406	Acidification Area	60 feet	5 feet below original ground surface (7 feet total)	Rubble Filled Depression	No elevated gamma readings No elevated PID readings	This trench investigated the debris pile south of "N" Street and west of Castle Garden Road cut-through in the former acidification area. The debris pile includes PVC and steel pipes, rubble, and gray foam products. The location of the trench examined ferrous zone anomalies FZ333 and FZ328 that were reported in the geophysical investigation of the area. 8" vitrified clay pipe and 36" concrete pipe found. Three sand lenses.
T408	Acidification Area	60 feet	5 feet below original ground surface (7 feet total)	Debris Pile	Slightly elevated gamma reading at 0+21' No elevated PID readings	This trench investigated the debris pile south of "N" Street and east of Castle Garden Road cut-through in the former acidification area. The debris pile includes rubble and asphalt roofing materials. The location of the trench examined a ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area. 12" pipe found. Undefined magnetic anomaly at 0+54'.
T410	Acidification Area	65 feet	6 feet	Suspect UST	No elevated gamma readings No elevated PID readings	This trench was located to investigate a potential tank located northwest of a building foundation south of "N" Street. This trench was placed on the western edge of the slab. The location of the trench examined an unnamed conductive zone anomaly that was reported in the geophysical investigation of the area. No tank found. No metallic objects found.
T411	Acidification Area	65 feet	7 feet	Disturbed Ground in former Storage Area	Two areas of elevated gamma readings in fill/rubble. No elevated PID readings	This trench was located to investigate the soils at the western end of the acidification area that were reportedly remediated. This area has been called the New Naval Dump. Manhole MH18 was also in this area, but it has been destroyed or covered. Bars of pure radioactive material were located in a vault south of this area. It appears that the soil surrounding the trench location has been disturbed. No confirmatory sampling results were found in the site documentation. The location of the trench examined ferrous zone anomalies FZ310 and conductive zone anomaly CZ316 that were reported in the geophysical investigation of the area. Several metallic objects (rebar) found in fill/rubble. Two areas of elevated gamma sampled.

Table 4-1
Field Observations at Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length	Trench Depth	Sample Location	Field Evidence Of Contamination	Field Observations
T412	Acidification Area	65 feet	7 feet	Disturbed Ground in former Storage Area	No elevated gamma readings One slightly elevated PID reading.	This trench was located to investigate the soils at the western end of the acidification area that have reportedly been remediated. This area has been called the New Naval Dump. Bars of pure radioactive material were located in a vault southeast of this area. It appears that the soil surrounding the trench location has been disturbed. No confirmatory sampling results were found in the site documentation. The location of the trench examined ferrous zone anomaly FZ310 and metallic anomaly MZ317 that were reported in the geophysical investigation of the area. Metallic debris found in fill layer. Two sand lenses. PID reading of 7 ppm in area with white clay nodules; sample collected.
T413	Acidification Area	90 feet	10 feet	Disturbed Ground in former Storage Area	No elevated gamma readings No elevated PID readings	This trench was located to investigate the area where bars of pure radioactive material were stored in a vault at the western end of the acidification area. This area has been called the New Naval Dump. It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. Videos of this area indicate that this was the general asbestos burial area for the NFSS. No confirmatory sampling results were found in the site documentation. The location of the trench examined a metallic zone anomaly MZ317 that was reported in the geophysical investigation of the area. 4" iron pipe found. Trenching terminated at 5' BGL from 0+69 to 0+90 due to water infiltrating from RR ballast.
T414	Acidification Area	50 feet	10 feet	Near Large Concrete Foundation near former Storage Area	No elevated gamma readings No elevated PID readings	This trench was located to investigate piles of debris on the west side of a concrete foundation at the western end of the acidification area. Bars of pure radioactive material were located in a vault west of this area. It appears that the soil surrounding the trench location has been disturbed and/or previously remediated. No confirmatory sampling results were found in the site documentation. The trench was located adjacent to the foundation slab. No gamma walkover survey was provided in this area. The location of the trench examined ferrous zone anomaly FZ328 that was reported in the geophysical investigation of the area. Debris/rubble/concrete with rebar found.
T501	Baker Smith Area	150 feet	5 feet	Among the Foundations in the Central Portion of the Area	No elevated gamma readings No elevated PID readings	This trench was located to investigate several areas on an east-west trending line across the area. Various foundations are located near the line of the trench. Elevated gamma readings in surface and subsurface samples were noted during the soil sample collection after the gamma walkover. The location of the trench examined conductive zone anomalies CZ208 and CZ217, metallic zone anomaly MZ207, and ferrous zone anomaly FZ220 that were reported in the geophysical investigation of the area. Numerous small metallic items found in debris/fill layer.

Table 4-1
Field Observations at Trench Locations
Niagara Falls Storage Site Phase III Remedial Investigation

Trench Number	Area of Investigation	Trench Length	Trench Depth	Sample Location	Field Evidence Of Contamination	Field Observations
T802	Historically Uninvestigated Area	230 feet (N-S) 198 feet (E-W)	7 feet 3 – 7 feet	Former Disposal Area	Several slightly elevated gamma readings No elevated PID readings	This trench was located to investigate the former disposal area located north of the IWCS. This area was shown on the site videos. Large quantity of fill/debris/rubble encountered.
T808	Historically Uninvestigated Area	45 feet (N-S) 60 feet (E-W)	10 feet 4 feet	Organic Burial Area	Several slightly elevated gamma readings No elevated PID readings	The location of this trench was to investigate the organic burial area north of the IWCS. This area was shown on the site videos. Some of the material in the organic burial area trench may have been partially burned prior to placement. Large quantity of fill/debris/rubble encountered. Several radium chips found.
T809	Historically Uninvestigated Area	50 feet	4 feet	Former Water Storage Area	Two areas of slightly elevated gamma readings No elevated PID readings	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building. This area was shown on the site videos. 36" concrete pipe and 8" iron pipe uncovered. Numerous small metallic objects in surface layer
T810	Historically Uninvestigated Area	55 feet	6 feet	Former Water Storage Area	One area of elevated gamma readings No elevated PID readings	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building. This area was shown on the site videos. Fill from 0' – 3' deep. One sand lens
T811	Historically Uninvestigated Area	53 feet	7 feet	Former Water Storage Area	No elevated gamma readings No elevated PID readings	The location of this trench was to investigate the area of the former water storage pits located north of the Hittman Building. This area was shown on the site videos. Fill/debris from 0' – 3'. Numerous metallic objects in fill layer. Large sand layer.
T812	Historically Uninvestigated Area	62 feet	5 feet	Southern Perimeter	No elevated gamma readings below asphalt No elevated PID readings	The location of this trench was to investigate a known gamma 'hotspot'. Elevated gamma readings appear to be confined to the surface.
T813	Historically Uninvestigated Area	40 feet	4 feet	Southern Perimeter	One slightly elevated gamma reading No elevated PID readings	The location of this trench was to investigate a gamma 'hotspot' reported in the Gamma Walkover Survey. Fill from 0' – 2'. Elevated 'hotspot' area was sampled.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU4	RB01			
Radionuclides		Alpha	pCi/g	57
		Beta	pCi/g	52.9
		Cesium-137, Gamma	pCi/g	0.118
		Radium-226	pCi/g	5.13
		Radium-228, Gamma	pCi/g	1.09
		Thorium-228, Alpha	pCi/g	1.1
		Thorium-228, Gamma	pCi/g	1.12
		Thorium-230, Alpha	pCi/g	6.48
		Thorium-232, Alpha	pCi/g	0.919
		Total Uranium	µg/g	19.4
		Uranium-234, Alpha	pCi/g	5.79
		Uranium-235, Alpha	pCi/g	0.177
		Uranium-235, Gamma	pCi/g	0.304
		Uranium-238, Alpha	pCi/g	5.96
		Uranium-238, Gamma	pCi/g	5.59
EU8	RB02			
Radionuclides		Alpha	pCi/g	39.6
		Beta	pCi/g	19.5
		Cesium-137, Gamma	pCi/g	0.0779
		Radium-226	pCi/g	4.67
		Radium-228, Gamma	pCi/g	0.671
		Thorium-228, Alpha	pCi/g	1.06
		Thorium-228, Gamma	pCi/g	1.04
		Thorium-230, Alpha	pCi/g	5.71
		Thorium-232, Alpha	pCi/g	0.903
		Total Uranium	µg/g	25.3
		Uranium-234, Alpha	pCi/g	4.98
		Uranium-235, Alpha	pCi/g	0.287
		Uranium-238, Alpha	pCi/g	4.01
		Uranium-238, Gamma	pCi/g	5.04
EU12	RB03			
Radionuclides		Alpha	pCi/g	24.4
		Beta	pCi/g	16.6
		Radium-226	pCi/g	2.59
		Radium-228, Gamma	pCi/g	0.531
		Thorium-228, Alpha	pCi/g	0.666
		Thorium-228, Gamma	pCi/g	0.552
		Thorium-230, Alpha	pCi/g	3.28
		Thorium-232, Alpha	pCi/g	0.478
		Total Uranium	µg/g	7.63
		Uranium-234, Alpha	pCi/g	2.9
		Uranium-235, Gamma	pCi/g	0.166
		Uranium-238, Alpha	pCi/g	3.74
		Uranium-238, Gamma	pCi/g	3.34

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU14	RB04			
Radionuclides		Alpha	pCi/g	5.94
		Beta	pCi/g	14.9
		Potassium-40	pCi/g	13
		Radium-226	pCi/g	0.389
		Radium-228, Gamma	pCi/g	0.441
		Thorium-228, Alpha	pCi/g	0.256
		Thorium-228, Gamma	pCi/g	0.405
		Thorium-230, Alpha	pCi/g	0.349
		Thorium-232, Alpha	pCi/g	0.367
		Total Uranium	µg/g	4.15
		Uranium-234, Alpha	pCi/g	0.982
		Uranium-235, Gamma	pCi/g	0.155
		Uranium-238, Alpha	pCi/g	1.35
		Uranium-238, Gamma	pCi/g	0.821
EU8	RB05			
Radionuclides		Alpha	pCi/g	33.5
		Beta	pCi/g	18.1
		Cesium-137, Gamma	pCi/g	0.168
		Radium-226	pCi/g	5.13
		Radium-228, Gamma	pCi/g	0.917
		Thorium-228, Alpha	pCi/g	0.903
		Thorium-228, Gamma	pCi/g	0.977
		Thorium-230, Alpha	pCi/g	5.01
		Thorium-232, Alpha	pCi/g	0.8
		Total Uranium	µg/g	11.6
		Uranium-234, Alpha	pCi/g	3.65
		Uranium-235, Alpha	pCi/g	0.21
		Uranium-238, Alpha	pCi/g	2.64
		Uranium-238, Gamma	pCi/g	3.74
EU11	RC01-964			
Radionuclides		Actinium-227, Gamma	pCi/g	0.504
		Alpha	pCi/g	37.8
		Beta	pCi/g	16.8
		Cesium-137, Gamma	pCi/g	0.052
		Radium-226	pCi/g	7.31
		Radium-228, Gamma	pCi/g	0.268
		Thorium-228, Alpha	pCi/g	0.44
		Thorium-228, Gamma	pCi/g	0.378
		Thorium-230, Alpha	pCi/g	5.28
		Thorium-232, Alpha	pCi/g	0.324
		Total Uranium	µg/g	12.6
		Uranium-234, Alpha	pCi/g	4.02
		Uranium-235, Alpha	pCi/g	0.225
		Uranium-235, Gamma	pCi/g	0.402
		Uranium-238, Alpha	pCi/g	2.88
		Uranium-238, Gamma	pCi/g	3.43

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU11	RC02-965			
Radionuclides		Alpha	pCi/g	52.4
		Beta	pCi/g	26.8
		Cesium-137, Gamma	pCi/g	0.0372
		Radium-226	pCi/g	6.34
		Radium-228, Gamma	pCi/g	1.05
		Thorium-228, Alpha	pCi/g	1.23
		Thorium-228, Gamma	pCi/g	1.32
		Thorium-230, Alpha	pCi/g	7.11
		Thorium-232, Alpha	pCi/g	0.97
		Total Uranium	µg/g	22.3
		Uranium-234, Alpha	pCi/g	7.02
		Uranium-235, Alpha	pCi/g	0.348
		Uranium-235, Gamma	pCi/g	0.397
		Uranium-238, Alpha	pCi/g	5.48
		Uranium-238, Gamma	pCi/g	7.58
EU12	RC03-966			
Radionuclides		Actinium-227, Gamma	pCi/g	0.738
		Alpha	pCi/g	44.3
		Beta	pCi/g	27.3
		Radium-226	pCi/g	10.5
		Radium-228, Gamma	pCi/g	0.766
		Thorium-228, Alpha	pCi/g	0.49
		Thorium-228, Gamma	pCi/g	0.785
		Thorium-230, Alpha	pCi/g	3.24
		Thorium-232, Alpha	pCi/g	0.556
		Total Uranium	µg/g	9.43
		Uranium-234, Alpha	pCi/g	2.44
		Uranium-235, Alpha	pCi/g	0.138
		Uranium-235, Gamma	pCi/g	0.407
		Uranium-238, Alpha	pCi/g	2.75
		Uranium-238, Gamma	pCi/g	2.7
EU8	RC04-968			
Radionuclides		Alpha	pCi/g	22
		Beta	pCi/g	11.5
		Cesium-137, Gamma	pCi/g	0.0244
		Radium-226	pCi/g	3.2
		Radium-228, Gamma	pCi/g	1.22
		Thorium-228, Alpha	pCi/g	1.2
		Thorium-228, Gamma	pCi/g	1.3
		Thorium-230, Alpha	pCi/g	3.27
		Thorium-232, Alpha	pCi/g	0.692
		Total Uranium	µg/g	9.33
		Uranium-234, Alpha	pCi/g	3.27
		Uranium-235, Gamma	pCi/g	0.313
		Uranium-238, Alpha	pCi/g	2.78
		Uranium-238, Gamma	pCi/g	3.72

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU1	RC05-969			
Radionuclides		Alpha	pCi/g	27.2
		Beta	pCi/g	20.5
		Cesium-137, Gamma	pCi/g	0.0735
		Potassium-40	pCi/g	7.32
		Radium-226	pCi/g	4.47
		Radium-228, Gamma	pCi/g	0.368
		Thorium-228, Alpha	pCi/g	0.313
		Thorium-228, Gamma	pCi/g	0.353
		Thorium-230, Alpha	pCi/g	5.74
		Thorium-232, Alpha	pCi/g	0.254
		Total Uranium	µg/g	1.81
		Uranium-234, Alpha	pCi/g	0.284
		Uranium-238, Gamma	pCi/g	0.359
EU2	RC06-970			
Radionuclides		Alpha	pCi/g	27.4
		Beta	pCi/g	19.3
		Cesium-137, Gamma	pCi/g	0.227
		Radium-226	pCi/g	2.92
		Radium-228, Gamma	pCi/g	1.19
		Thorium-228, Alpha	pCi/g	1.42
		Thorium-228, Gamma	pCi/g	1.31
		Thorium-230, Alpha	pCi/g	4.08
		Thorium-232, Alpha	pCi/g	1.18
		Total Uranium	µg/g	9.69
		Uranium-234, Alpha	pCi/g	3.04
		Uranium-238, Alpha	pCi/g	3.02
		Uranium-238, Gamma	pCi/g	3.47
EU2	RC07-971			
Radionuclides		Alpha	pCi/g	24.5
		Beta	pCi/g	12.2
		Cesium-137, Gamma	pCi/g	0.057
		Radium-226	pCi/g	2.85
		Radium-228, Gamma	pCi/g	0.724
		Thorium-228, Alpha	pCi/g	1.02
		Thorium-228, Gamma	pCi/g	0.724
		Thorium-230, Alpha	pCi/g	2.81
		Thorium-232, Alpha	pCi/g	0.665
		Total Uranium	µg/g	6.52
		Uranium-234, Alpha	pCi/g	2.67
		Uranium-235, Alpha	pCi/g	0.228
		Uranium-235, Gamma	pCi/g	0.23
		Uranium-238, Alpha	pCi/g	2.77
		Uranium-238, Gamma	pCi/g	2.8

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU4	RC08-972			
Radionuclides		Actinium-227, Gamma	pCi/g	0.75
		Alpha	pCi/g	84.3
		Beta	pCi/g	62.7
		Cesium-137, Gamma	pCi/g	0.054
		Potassium-40	pCi/g	8.59
		Radium-226	pCi/g	11.7
		Radium-228, Gamma	pCi/g	1.2
		Thorium-228, Alpha	pCi/g	1.2
		Thorium-228, Gamma	pCi/g	1.41
		Thorium-230, Alpha	pCi/g	14
		Thorium-232, Alpha	pCi/g	1.18
		Total Uranium	µg/g	37
		Uranium-234, Alpha	pCi/g	14.4
		Uranium-235, Alpha	pCi/g	0.697
		Uranium-235, Gamma	pCi/g	1.07
		Uranium-238, Alpha	pCi/g	13.6
		Uranium-238, Gamma	pCi/g	14.5
EU5	RC09-973			
Radionuclides		Alpha	pCi/g	34.3
		Beta	pCi/g	18.2
		Cesium-137, Gamma	pCi/g	0.178
		Radium-226	pCi/g	5.42
		Radium-228, Gamma	pCi/g	0.469
		Thorium-228, Alpha	pCi/g	0.68
		Thorium-228, Gamma	pCi/g	0.644
		Thorium-230, Alpha	pCi/g	2.89
		Thorium-232, Alpha	pCi/g	0.512
		Total Uranium	µg/g	8.89
		Uranium-234, Alpha	pCi/g	2.71
		Uranium-235, Gamma	pCi/g	0.265
		Uranium-238, Alpha	pCi/g	2.76
		Uranium-238, Gamma	pCi/g	2.61
EU6	RC10-974			
Radionuclides		Alpha	pCi/g	24.8
		Beta	pCi/g	16.9
		Cesium-137, Gamma	pCi/g	0.308
		Radium-226	pCi/g	3.37
		Radium-228, Gamma	pCi/g	0.805
		Thorium-228, Alpha	pCi/g	0.965
		Thorium-228, Gamma	pCi/g	0.872
		Thorium-230, Alpha	pCi/g	4.15
		Thorium-232, Alpha	pCi/g	0.663
		Total Uranium	µg/g	8.03
		Uranium-234, Alpha	pCi/g	2.93
		Uranium-235, Gamma	pCi/g	0.37
		Uranium-238, Alpha	pCi/g	3.33
		Uranium-238, Gamma	pCi/g	2.39

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU3	RC11-976			
Radionuclides		Radium-226	pCi/g	0.429
		Radium-228, Gamma	pCi/g	0.132
		Thorium-228, Gamma	pCi/g	0.128
		Thorium-230, Alpha	pCi/g	0.292
		Total Uranium	µg/g	2.07
		Uranium-234, Alpha	pCi/g	0.317
		Uranium-238, Alpha	pCi/g	0.731
		Uranium-238, Gamma	pCi/g	0.345
EU5	RC12-977			
Radionuclides		Alpha	pCi/g	41.4
		Beta	pCi/g	21.1
		Radium-226	pCi/g	3.96
		Radium-228, Gamma	pCi/g	0.985
		Thorium-228, Alpha	pCi/g	1.22
		Thorium-228, Gamma	pCi/g	0.997
		Thorium-230, Alpha	pCi/g	4.55
		Thorium-232, Alpha	pCi/g	0.879
		Total Uranium	µg/g	10.8
		Uranium-234, Alpha	pCi/g	3.93
		Uranium-235, Alpha	pCi/g	0.148
		Uranium-235, Gamma	pCi/g	0.422
		Uranium-238, Alpha	pCi/g	4.52
		Uranium-238, Gamma	pCi/g	4.26
EU6	RC13-978			
Radionuclides		Alpha	pCi/g	35.2
		Beta	pCi/g	20.4
		Radium-226	pCi/g	4.67
		Radium-228, Gamma	pCi/g	0.876
		Thorium-228, Alpha	pCi/g	0.848
		Thorium-228, Gamma	pCi/g	1.02
		Thorium-230, Alpha	pCi/g	4.83
		Thorium-232, Alpha	pCi/g	0.581
		Total Uranium	µg/g	13.1
		Uranium-234, Alpha	pCi/g	5.09
		Uranium-235, Alpha	pCi/g	0.183
		Uranium-235, Gamma	pCi/g	0.391
		Uranium-238, Alpha	pCi/g	3.28
		Uranium-238, Gamma	pCi/g	5.13

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU6	RC14-979			
Radionuclides		Alpha	pCi/g	37.7
		Beta	pCi/g	20.3
		Cesium-137, Gamma	pCi/g	0.0339
		Radium-226	pCi/g	5.66
		Radium-228, Gamma	pCi/g	0.895
		Thorium-228, Alpha	pCi/g	1.17
		Thorium-228, Gamma	pCi/g	1.04
		Thorium-230, Alpha	pCi/g	3.59
		Thorium-232, Alpha	pCi/g	0.733
		Total Uranium	µg/g	8.07
		Uranium-234, Alpha	pCi/g	3.41
		Uranium-235, Alpha	pCi/g	0.207
		Uranium-235, Gamma	pCi/g	0.256
		Uranium-238, Alpha	pCi/g	3.76
		Uranium-238, Gamma	pCi/g	3.22
EU8	RC15-2445			
Radionuclides		Potassium-40	pCi/g	2.42
		Radium-226	pCi/g	3.27
		Radium-228, Gamma	pCi/g	0.815
		Thorium-228, Alpha	pCi/g	1.35
		Thorium-228, Gamma	pCi/g	0.847
		Thorium-230, Alpha	pCi/g	5.36
		Thorium-232, Alpha	pCi/g	1.27
		Total Uranium	µg/g	7.67
		Uranium-234, Alpha	pCi/g	3.72
		Uranium-235, Alpha	pCi/g	0.355
		Uranium-235, Gamma	pCi/g	0.323
		Uranium-238, Alpha	pCi/g	3.82
		Uranium-238, Gamma	pCi/g	3.9
EU12	RC16-2447			
Radionuclides		Cesium-137, Gamma	pCi/g	0.113
		Potassium-40	pCi/g	5.04
		Radium-226	pCi/g	10.5
		Radium-228, Gamma	pCi/g	0.761
		Thorium-228, Alpha	pCi/g	0.888
		Thorium-228, Gamma	pCi/g	0.759
		Thorium-230, Alpha	pCi/g	6.66
		Thorium-232, Alpha	pCi/g	0.675
		Total Uranium	µg/g	12.7
		Uranium-234, Alpha	pCi/g	5
		Uranium-235, Alpha	pCi/g	0.261
		Uranium-235, Gamma	pCi/g	0.389
		Uranium-238, Alpha	pCi/g	4.76
		Uranium-238, Gamma	pCi/g	4.65

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU2	RC17-2448			
Radionuclides		Actinium-227, Gamma	pCi/g	1.59
		Cesium-137, Gamma	pCi/g	0.236
		Potassium-40	pCi/g	1.51
		Radium-226	pCi/g	32
		Thorium-228, Alpha	pCi/g	0.537
		Thorium-228, Gamma	pCi/g	0.334
		Thorium-230, Alpha	pCi/g	2.52
		Thorium-232, Alpha	pCi/g	0.308
		Total Uranium	µg/g	5.19
		Uranium-234, Alpha	pCi/g	1.61
		Uranium-238, Alpha	pCi/g	1.73
		Uranium-238, Gamma	pCi/g	2.36
EU6	RC18-2449			
Radionuclides		Actinium-227, Gamma	pCi/g	5.06
		Potassium-40	pCi/g	2.92
		Radium-226	pCi/g	129
		Radium-228, Gamma	pCi/g	0.703
		Thorium-228, Alpha	pCi/g	1.04
		Thorium-228, Gamma	pCi/g	0.889
		Thorium-230, Alpha	pCi/g	34.4
		Thorium-232, Alpha	pCi/g	0.901
		Total Uranium	µg/g	24.9
		Uranium-234, Alpha	pCi/g	9.99
		Uranium-235, Alpha	pCi/g	0.462
		Uranium-235, Gamma	pCi/g	1.85
		Uranium-238, Alpha	pCi/g	8.94
EU11	RC19-2450			
Radionuclides		Potassium-40	pCi/g	3.01
		Radium-226	pCi/g	21.4
		Thorium-228, Gamma	pCi/g	0.2
		Thorium-230, Alpha	pCi/g	25.9
		Thorium-232, Alpha	pCi/g	0.192
		Total Uranium	µg/g	3.72
		Uranium-234, Alpha	pCi/g	1.29
		Uranium-235, Gamma	pCi/g	0.374
		Uranium-238, Alpha	pCi/g	0.815

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU13	RC-CORE01-3730			
Metals		Aluminum	mg/Kg	6530
		Antimony	mg/Kg	0.601 BN
		Arsenic	mg/Kg	5.19
		Barium	mg/Kg	44.2 *
		Beryllium	mg/Kg	0.109 B
		Boron	mg/Kg	15.9
		Cadmium	mg/Kg	0.135 B
		Calcium	mg/Kg	132000
		Chromium	mg/Kg	8.39
		Cobalt	mg/Kg	2.71
		Copper	mg/Kg	12.8 E
		Iron	mg/Kg	9270
		Lead	mg/Kg	6.64 *
		Lithium	mg/Kg	12.9 N*
		Magnesium	mg/Kg	34700
		Manganese	mg/Kg	429
		Mercury	mg/Kg	0.641 *
		Nickel	mg/Kg	8.47
		Potassium	mg/Kg	1050 EN
		Silver	mg/Kg	0.054 B
		Sodium	mg/Kg	315 E*
		Thallium	mg/Kg	0.103
		Vanadium	mg/Kg	11.4
		Zinc	mg/Kg	27.4 N*
PAHs		Benzo(a)anthracene	µg/Kg	5.48 P
		Benzo(k)fluoranthene	µg/Kg	1.55
		Chrysene	µg/Kg	2.8
		Fluoranthene	µg/Kg	10.1
		Naphthalene	µg/Kg	52.8
		Phenanthrene	µg/Kg	13.2 JP
		Pyrene	µg/Kg	10.2 P
PCBs		Aroclor-1254	µg/Kg	26000
Radionuclides		Alpha	pCi/g	4.74
		Beta	pCi/g	7.38
		Radium-226	pCi/g	0.461
		Radium-228, Gamma	pCi/g	0.309
		Thorium-228, Gamma	pCi/g	0.386
		Thorium-230, Alpha	pCi/g	0.704
		Thorium-232, Alpha	pCi/g	0.405
		Total Uranium	µg/g	1.34
		Uranium-234, Alpha	pCi/g	0.692
		Uranium-238, Alpha	pCi/g	0.558
		Uranium-238, Gamma	pCi/g	0.862

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
Semivolatile Organics		bis(2-Ethylhexyl)phthalate	µg/Kg	30.7 J
		Butylbenzylphthalate	µg/Kg	96.7 J
		Di-n-butylphthalate	µg/Kg	177 J
		m,p-Cresols	µg/Kg	411
		Naphthalene	µg/Kg	40.1
EU13	RC-CORE02-3732			
Metals		Aluminum	mg/Kg	5220
		Antimony	mg/Kg	1.03 BN
		Arsenic	mg/Kg	2.25
		Barium	mg/Kg	267 *
		Beryllium	mg/Kg	0.118 B
		Boron	mg/Kg	16.7
		Cadmium	mg/Kg	1.02 B
		Calcium	mg/Kg	147000
		Chromium	mg/Kg	7.66
		Cobalt	mg/Kg	1.4
		Copper	mg/Kg	11.4 E
		Iron	mg/Kg	4790
		Lead	mg/Kg	23.3 *
		Lithium	mg/Kg	9.94 N*
		Magnesium	mg/Kg	57300
		Manganese	mg/Kg	512
		Mercury	mg/Kg	0.044 *
		Nickel	mg/Kg	5.46
		Potassium	mg/Kg	899 EN
		Silver	mg/Kg	0.048 B
		Sodium	mg/Kg	212 E*
		Thallium	mg/Kg	0.044 B
		Vanadium	mg/Kg	8.7
		Zinc	mg/Kg	81.5 N*
PAHs		Phenanthrene	µg/Kg	135
PCBs		Aroclor-1254	µg/Kg	110
		Aroclor-1260	µg/Kg	39.8
Radionuclides		Alpha	pCi/g	4.87
		Beta	pCi/g	7.89
		Radium-226	pCi/g	0.373
		Radium-228, Gamma	pCi/g	0.187
		Thorium-228, Gamma	pCi/g	0.222
		Thorium-230, Alpha	pCi/g	1.07
		Thorium-232, Alpha	pCi/g	0.33
		Total Uranium	µg/g	1.1
		Uranium-234, Alpha	pCi/g	0.53
		Uranium-238, Alpha	pCi/g	0.503
		Uranium-238, Gamma	pCi/g	1.14

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
Semivolatile Organics		2-Methylnaphthalene	µg/Kg	299
		bis(2-Ethylhexyl)phthalate	µg/Kg	33.9 J
		Di-n-butylphthalate	µg/Kg	1380
		Naphthalene	µg/Kg	36.7
		Phenanthrene	µg/Kg	205
EU13	RC-CORE03-3734			
Metals		Aluminum	mg/Kg	5760
		Antimony	mg/Kg	0.715 BN
		Arsenic	mg/Kg	3.14
		Barium	mg/Kg	44.2 *
		Beryllium	mg/Kg	0.164 B
		Boron	mg/Kg	23.6
		Cadmium	mg/Kg	0.779 B
		Calcium	mg/Kg	147000
		Chromium	mg/Kg	8
		Cobalt	mg/Kg	2.09
		Copper	mg/Kg	13.2 E
		Iron	mg/Kg	7420
		Lead	mg/Kg	9.51 *
		Lithium	mg/Kg	6.43 N*
		Magnesium	mg/Kg	47100
		Manganese	mg/Kg	628
		Mercury	mg/Kg	0.083 *
		Nickel	mg/Kg	7.78
		Potassium	mg/Kg	2490 EN
		Silver	mg/Kg	0.105 B
		Sodium	mg/Kg	731 E*
		Thallium	mg/Kg	0.037 B
		Vanadium	mg/Kg	11.8
		Zinc	mg/Kg	69.9 N*
PAHs		Benzo(g,h,i)perylene	µg/Kg	6.53
		Dibenzo(a,h)anthracene	µg/Kg	2.91
		Fluoranthene	µg/Kg	16.7 P
		Phenanthrene	µg/Kg	54.3
		Pyrene	µg/Kg	36.5
PCBs		Aroclor-1254	µg/Kg	32.3
		Aroclor-1260	µg/Kg	26.2
Radionuclides		Alpha	pCi/g	5.93
		Beta	pCi/g	7.24
		Plutonium-239, Alpha	pCi/g	5.72
		Radium-226	pCi/g	0.392
		Radium-228, Gamma	pCi/g	0.275
		Thorium-228, Gamma	pCi/g	0.276
		Thorium-230, Alpha	pCi/g	0.983
		Thorium-232, Alpha	pCi/g	0.456
		Total Uranium	µg/g	1.01
		Uranium-234, Alpha	pCi/g	0.32
		Uranium-238, Alpha	pCi/g	0.694
		Uranium-238, Gamma	pCi/g	0.518

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
Semivolatile Organics		2-Methylnaphthalene	µg/Kg	24.3 J
		bis(2-Ethylhexyl)phthalate	µg/Kg	186 J
		Di-n-butylphthalate	µg/Kg	221 J
		Phenanthrene	µg/Kg	56.7
		Pyrene	µg/Kg	29.2 J
EU13	RC-CORE04-3736			
Metals		Aluminum	mg/Kg	7090
		Arsenic	mg/Kg	4.46
		Barium	mg/Kg	70.2 *
		Beryllium	mg/Kg	0.173 B
		Boron	mg/Kg	25.4
		Cadmium	mg/Kg	0.179 B
		Calcium	mg/Kg	98600
		Chromium	mg/Kg	8.68
		Cobalt	mg/Kg	3.36
		Copper	mg/Kg	18.2 E
		Iron	mg/Kg	11000
		Lead	mg/Kg	4.9 *
		Lithium	mg/Kg	9.82 N*
		Magnesium	mg/Kg	7860
		Manganese	mg/Kg	398
		Mercury	mg/Kg	0.172 *
		Nickel	mg/Kg	11.4
		Potassium	mg/Kg	1760 EN
		Silver	mg/Kg	0.058 B
		Sodium	mg/Kg	525 E*
		Thallium	mg/Kg	0.036 B
		Vanadium	mg/Kg	14.3
		Zinc	mg/Kg	63.2 N*
PAHs		Benzo(a)anthracene	µg/Kg	11.6 P
		Chrysene	µg/Kg	6.34
		Fluoranthene	µg/Kg	18.8
		Naphthalene	µg/Kg	2.96 JP
		Phenanthrene	µg/Kg	19.5
		Pyrene	µg/Kg	23.1 P
PCBs		Aroclor-1254	µg/Kg	60.7
		Aroclor-1260	µg/Kg	53.3
Radionuclides		Alpha	pCi/g	5.75
		Beta	pCi/g	10.9
		Radium-226	pCi/g	0.468
		Radium-228, Gamma	pCi/g	0.427
		Thorium-228, Alpha	pCi/g	0.63
		Thorium-228, Gamma	pCi/g	0.486
		Thorium-230, Alpha	pCi/g	1.16
		Thorium-232, Alpha	pCi/g	0.348
		Total Uranium	µg/g	3.51
		Uranium-234, Alpha	pCi/g	0.776
		Uranium-235, Alpha	pCi/g	0.134
		Uranium-238, Alpha	pCi/g	1.3

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
		Uranium-238, Gamma	pCi/g	0.775
Semivolatile Organics		Phenanthrene	µg/Kg	20.1 J
EU13	RC-CORE05-3738			
Metals		Aluminum	mg/Kg	6180
		Arsenic	mg/Kg	4.88
		Barium	mg/Kg	54.9 *
		Beryllium	mg/Kg	0.125 B
		Boron	mg/Kg	10.7 B
		Calcium	mg/Kg	97100
		Chromium	mg/Kg	26.1
		Cobalt	mg/Kg	3.06
		Copper	mg/Kg	17.7 E
		Iron	mg/Kg	9750
		Lead	mg/Kg	4.83 *
		Lithium	mg/Kg	8.17 N*
		Magnesium	mg/Kg	11200
		Manganese	mg/Kg	462
		Mercury	mg/Kg	0.09 *
		Nickel	mg/Kg	10.7
		Potassium	mg/Kg	1080 EN
		Silver	mg/Kg	0.048 B
		Sodium	mg/Kg	277 E*
		Thallium	mg/Kg	0.045 B
		Vanadium	mg/Kg	29.7
		Zinc	mg/Kg	39.1 N*
		Fluoranthene	µg/Kg	82.1
		Phenanthrene	µg/Kg	118 JP
Radionuclides		Alpha	pCi/g	3.77
		Beta	pCi/g	10.3
		Cesium-137, Gamma	pCi/g	0.0229
		Radium-226	pCi/g	0.482
		Radium-228, Gamma	pCi/g	0.556
		Thorium-228, Alpha	pCi/g	0.3
		Thorium-228, Gamma	pCi/g	0.582
		Thorium-230, Alpha	pCi/g	0.676
		Thorium-232, Alpha	pCi/g	0.273
		Total Uranium	µg/g	1.5
		Uranium-234, Alpha	pCi/g	0.81
		Uranium-238, Alpha	pCi/g	0.668
		Uranium-238, Gamma	pCi/g	0.845
Semivolatile Organics		2-Methylnaphthalene	µg/Kg	123 J
		bis(2-Ethylhexyl)phthalate	µg/Kg	232 J
		Di-n-butylphthalate	µg/Kg	1540
		Phenanthrene	µg/Kg	123 J

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
EU13	RC-CORE06-3740			
Metals		Aluminum	mg/Kg	5940
		Arsenic	mg/Kg	6.04
		Barium	mg/Kg	66.3 *
		Beryllium	mg/Kg	0.134 B
		Boron	mg/Kg	22.3
		Cadmium	mg/Kg	0.18 B
		Calcium	mg/Kg	122000
		Chromium	mg/Kg	32.1
		Cobalt	mg/Kg	3.91
		Copper	mg/Kg	19.6 E
		Iron	mg/Kg	10200
		Lead	mg/Kg	8.71 *
		Lithium	mg/Kg	8.08 N*
		Magnesium	mg/Kg	31500
		Manganese	mg/Kg	448
		Mercury	mg/Kg	0.203 *
		Nickel	mg/Kg	11.6
		Potassium	mg/Kg	1090 EN
		Silver	mg/Kg	0.04 B
		Sodium	mg/Kg	326 E*
		Thallium	mg/Kg	0.035 B
		Vanadium	mg/Kg	28
		Zinc	mg/Kg	39.6 N*
PCBs		Aroclor-1254	µg/Kg	156
Radionuclides		Alpha	pCi/g	6.74
		Beta	pCi/g	13.6
		Radium-226	pCi/g	0.381
		Radium-228, Gamma	pCi/g	0.295
		Thorium-228, Gamma	pCi/g	0.385
		Thorium-230, Alpha	pCi/g	0.799
		Total Uranium	µg/g	2.27
		Uranium-234, Alpha	pCi/g	0.584
		Uranium-238, Alpha	pCi/g	0.756
		Uranium-238, Gamma	pCi/g	1.11
Semivolatile Organics		bis(2-Ethylhexyl)phthalate	µg/Kg	1530 J
EU13	RC-CORE07-3742			
Metals		Aluminum	mg/Kg	5680
		Arsenic	mg/Kg	7.19
		Barium	mg/Kg	47.4 *
		Beryllium	mg/Kg	0.118 B
		Boron	mg/Kg	7.78 B
		Calcium	mg/Kg	94100
		Chromium	mg/Kg	11.9
		Cobalt	mg/Kg	3.95
		Copper	mg/Kg	14.5 E
		Iron	mg/Kg	13100
		Lead	mg/Kg	3.92 *
		Lithium	mg/Kg	8.52 N*

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
		Magnesium	mg/Kg	9230
		Manganese	mg/Kg	740
		Mercury	mg/Kg	0.009 B*
		Nickel	mg/Kg	18.7
		Potassium	mg/Kg	969 EN
		Silver	mg/Kg	0.043 B
		Sodium	mg/Kg	340 E*
		Thallium	mg/Kg	0.041 B
		Vanadium	mg/Kg	17.1
		Zinc	mg/Kg	37.7 N*
PAHs		Benzo(a)pyrene	µg/Kg	46.9 P
		Fluoranthene	µg/Kg	48.9
		Naphthalene	µg/Kg	86.1 JP
		Phenanthrene	µg/Kg	52.7 JP
Radionuclides		Alpha	pCi/g	4.35
		Beta	pCi/g	9.4
		Radium-226	pCi/g	0.681
		Radium-228, Gamma	pCi/g	0.484
		Thorium-228, Gamma	pCi/g	0.533
		Thorium-230, Alpha	pCi/g	1.39
		Total Uranium	µg/g	2.86
		Uranium-234, Alpha	pCi/g	0.889
		Uranium-238, Alpha	pCi/g	1.2
		Uranium-238, Gamma	pCi/g	0.822
Semivolatile Organics		2-Methylnaphthalene	µg/Kg	190
		bis(2-Ethylhexyl)phthalate	µg/Kg	130 J
		Di-n-butylphthalate	µg/Kg	544 J
		Naphthalene	µg/Kg	120 J
EU13	RC-CORE08-3744			
Metals		Aluminum	mg/Kg	6070
		Arsenic	mg/Kg	6.04
		Barium	mg/Kg	387 *
		Beryllium	mg/Kg	0.146 B
		Boron	mg/Kg	39.5
		Cadmium	mg/Kg	0.294 B
		Calcium	mg/Kg	92400
		Chromium	mg/Kg	9.01
		Cobalt	mg/Kg	3.38
		Copper	mg/Kg	29 E
		Iron	mg/Kg	10600
		Lead	mg/Kg	3.94 *
		Lithium	mg/Kg	10.3 N*
		Magnesium	mg/Kg	9450
		Manganese	mg/Kg	556
		Mercury	mg/Kg	0.29 *
		Nickel	mg/Kg	22.1
		Potassium	mg/Kg	891 EN
		Silver	mg/Kg	0.038 B
		Sodium	mg/Kg	288 E*

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
		Thallium	mg/Kg	0.036 B
		Vanadium	mg/Kg	11.8
		Zinc	mg/Kg	209 N*
PAHs		Benzo(b)fluoranthene	µg/Kg	89.2 P
		Benzo(g,h,i)perylene	µg/Kg	16.2 P
		Fluoranthene	µg/Kg	88.6
		Naphthalene	µg/Kg	8.63 J
		Phenanthrene	µg/Kg	28.7
PCBs		Aroclor-1254	µg/Kg	316
		Aroclor-1260	µg/Kg	72.2
Radionuclides		Alpha	pCi/g	8.7
		Beta	pCi/g	11.8
		Cesium-137, Gamma	pCi/g	0.374
		Radium-226	pCi/g	0.663
		Radium-228, Gamma	pCi/g	0.4
		Thorium-228, Alpha	pCi/g	0.506
		Thorium-228, Gamma	pCi/g	0.549
		Thorium-230, Alpha	pCi/g	1.43
		Thorium-232, Alpha	pCi/g	0.379
		Total Uranium	µg/g	3.52
		Uranium-234, Alpha	pCi/g	1.17
		Uranium-235, Gamma	pCi/g	0.114
		Uranium-238, Alpha	pCi/g	1.08
		Uranium-238, Gamma	pCi/g	1.49
Semivolatile Organics		Di-n-butylphthalate	µg/Kg	98.6 J
		Fluoranthene	µg/Kg	42.3
		Phenanthrene	µg/Kg	24.6 J
EU13	RC-CORE09-3746			
Metals		Aluminum	mg/Kg	8020
		Arsenic	mg/Kg	4.78
		Barium	mg/Kg	120 *
		Beryllium	mg/Kg	0.219 B
		Boron	mg/Kg	34.8
		Cadmium	mg/Kg	0.212 B
		Calcium	mg/Kg	73100
		Chromium	mg/Kg	8
		Cobalt	mg/Kg	2.86
		Copper	mg/Kg	16.6 E
		Iron	mg/Kg	9930
		Lead	mg/Kg	4.74 *
		Lithium	mg/Kg	11.3 N*
		Magnesium	mg/Kg	8890
		Manganese	mg/Kg	391
		Mercury	mg/Kg	0.113 *
		Nickel	mg/Kg	10.9
		Potassium	mg/Kg	1700 EN
		Silver	mg/Kg	0.071 B
		Sodium	mg/Kg	555 E*
		Thallium	mg/Kg	0.036 B

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
		Vanadium	mg/Kg	11.9
		Zinc	mg/Kg	48.9 N*
PAHs		Benzo(a)anthracene	µg/Kg	23.7
		Benzo(b)fluoranthene	µg/Kg	32.2 P
		Fluoranthene	µg/Kg	40.3
		Phenanthrene	µg/Kg	18.8
		Pyrene	µg/Kg	31.5
PCBs		Aroclor-1254	µg/Kg	156
		Aroclor-1260	µg/Kg	116
Radionuclides		Alpha	pCi/g	7.71
		Beta	pCi/g	18.2
		Cesium-137, Gamma	pCi/g	0.0195
		Radium-226	pCi/g	0.586
		Radium-228, Gamma	pCi/g	0.51
		Thorium-228, Alpha	pCi/g	0.684
		Thorium-228, Gamma	pCi/g	0.628
		Thorium-230, Alpha	pCi/g	1.09
		Thorium-232, Alpha	pCi/g	0.54
		Total Uranium	µg/g	2.02
		Uranium-234, Alpha	pCi/g	0.616
		Uranium-238, Alpha	pCi/g	0.677
		Uranium-238, Gamma	pCi/g	1.19
Semivolatile Organics		bis(2-Ethylhexyl)phthalate	µg/Kg	671
		Di-n-butylphthalate	µg/Kg	2570
		Phenanthrene	µg/Kg	26.2 J
EU13	RC-CORE10-3748			
Metals		Aluminum	mg/Kg	6470
		Arsenic	mg/Kg	3.73
		Barium	mg/Kg	33.4 *
		Beryllium	mg/Kg	0.127 B
		Boron	mg/Kg	109
		Calcium	mg/Kg	106000
		Chromium	mg/Kg	8.66
		Cobalt	mg/Kg	3.25
		Copper	mg/Kg	19.8 E
		Iron	mg/Kg	10900
		Lead	mg/Kg	4.9 *
		Lithium	mg/Kg	11.4 N*
		Magnesium	mg/Kg	22900
		Manganese	mg/Kg	381
		Mercury	mg/Kg	0.022 *
		Nickel	mg/Kg	10.5
		Potassium	mg/Kg	813 EN
		Silver	mg/Kg	0.047 B
		Sodium	mg/Kg	271 E*
		Thallium	mg/Kg	0.037 B
		Vanadium	mg/Kg	12.2
		Zinc	mg/Kg	35.2 N*
PAHs		Fluoranthene	µg/Kg	26.5 JP

* Data qualifier included with concentration value.

Table 4-2
Data Summary
Positive Detections - Railroad Ballast and Core Samples
Niagara Falls Storage Site Remedial Investigation

EU	Sample ID	Parameter	Units	Concentration*
PCBs		Aroclor-1254	µg/Kg	1620
Radionuclides		Alpha	pCi/g	7.35
		Beta	pCi/g	11
		Radium-226	pCi/g	0.529
		Radium-228, Gamma	pCi/g	0.325
		Thorium-228, Alpha	pCi/g	0.47
		Thorium-228, Gamma	pCi/g	0.42
		Thorium-230, Alpha	pCi/g	0.607
		Thorium-232, Alpha	pCi/g	0.295
		Total Uranium	µg/g	2.25
		Uranium-234, Alpha	pCi/g	0.652
		Uranium-235, Alpha	pCi/g	0.201
		Uranium-235, Gamma	pCi/g	0.105
		Uranium-238, Alpha	pCi/g	0.903
		Uranium-238, Gamma	pCi/g	1.02

* Data qualifier included with concentration value.

Table 4-3
Data Summary
Positive Detections - Unknown DRUM1 and DRUM2 Locations
Niagara Falls Storage Site Remedial Investigation

EU	Station	Sample ID	Sample Date	Parameter	Method	Concentration	Qualifier	Uncertainty	Units
EU2	DRUM01	DRUM1-2451	11/19/2001						
Metals				Aluminum		21.3	*		mg/Kg
				Arsenic		0.031	B		mg/Kg
				Barium		0.288	B		mg/Kg
				Boron		16.9			mg/Kg
				Calcium		116			mg/Kg
				Chromium		0.326	B		mg/Kg
				Copper		0.939			mg/Kg
				Iron		498			mg/Kg
				Lead		0.169	B		mg/Kg
				Lithium		3.79			mg/Kg
				Magnesium		58.9			mg/Kg
				Manganese		3.04			mg/Kg
				Nickel		1.27			mg/Kg
				Potassium		1280	E		mg/Kg
				Silver		0.028	B		mg/Kg
				Sodium		292000			mg/Kg
				Zinc		1.29			mg/Kg
PCBs				4CMX		25.2			µg/Kg
Radionuclides				Americium-241	GammaSpec	9.88		1.30	pCi/g
				Potassium-40	GammaSpec	2.91		0.78	pCi/g
				Radium-226	GammaSpec	2.32		0.38	pCi/g
				Thorium-228	AlphaSpec	0.38		0.20	pCi/g
				Thorium-230	AlphaSpec	12.8		2.57	pCi/g
				Thorium-232	AlphaSpec	0.186		0.14	pCi/g
				Total Uranium		22000		865.00	µg/g
				Uranium-233/234	AlphaSpec	7960		2160.00	pCi/g
				Uranium-235	GammaSpec	230		44.60	pCi/g
				Uranium-235/236	AlphaSpec	425		132.00	pCi/g
				Uranium-238	GammaSpec	3380		633.00	pCi/g
				Uranium-238	AlphaSpec	8010		2180.00	pCi/g

Table 4-3
Data Summary
Positive Detections - Unknown DRUM1 and DRUM2 Locations
Niagara Falls Storage Site Remedial Investigation

EU	Station	Sample ID	Sample Date	Parameter	Method	Concentration	Qualifier	Uncertainty	Units
EU4	DRUM02	DRUM2-2452	11/19/2001						
Metals				Aluminum		202	*		mg/Kg
				Antimony		0.71	B		mg/Kg
				Arsenic		0.453	B		mg/Kg
				Barium		8.18			mg/Kg
				Beryllium		0.032	B		mg/Kg
				Boron		238			mg/Kg
				Cadmium		0.062	B		mg/Kg
				Calcium		193000			mg/Kg
				Chromium		2.41			mg/Kg
				Cobalt		2.81			mg/Kg
				Copper		71.3			mg/Kg
				Iron		3490			mg/Kg
				Lead		6.65			mg/Kg
				Lithium		0.69	B		mg/Kg
				Magnesium		432			mg/Kg
				Manganese		44.3			mg/Kg
				Mercury		0.005	B		mg/Kg
				Nickel		397			mg/Kg
				Potassium		182	E		mg/Kg
				Selenium		0.975			mg/Kg
				Silver		0	B		mg/Kg
				Sodium		450			mg/Kg
				Vanadium		0.818			mg/Kg
				Zinc		8.03			mg/Kg
PCBs				4CMX		15.3			µg/Kg
Radionuclides				Radium-226	GammaSpec	0.673		0.10	pCi/g
				Total Uranium		0.858		0.02	µg/g
				Uranium-233/234	AlphaSpec	0.261		0.13	pCi/g
Volatile Organic Compounds				Benzene		0.25	J		µg/Kg

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU1	C5-VS-GW-D300			
General Chemistry			Cyanide	mg/L	0.01 UJ
GW	EU1	GW505-3279			
General Chemistry			Chloride	mg/L	138
			Fluoride	mg/L	0.28
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.114
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	1570
			Total Organic Carbon Average	mg/L	6.11
GW	EU1	GWBH61-3284			
General Chemistry			Chloride	mg/L	73.9
			Fluoride	mg/L	0.275
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.133
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	1080
			Total Organic Carbon Average	mg/L	1.21
GW	EU10	GWA42-3275			
General Chemistry			Chloride	mg/L	11.6
			Fluoride	mg/L	0.122
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	279
			Total Organic Carbon Average	mg/L	2.49
GW	EU10	GWA45-3285			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	465
			Bicarbonate alkalinity (CaCO ₃)	mg/L	464
			Carbonate alkalinity (CaCO ₃)	mg/L	1.45 U
			Chloride	mg/L	48.7
			Fluoride	mg/L	0.19
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	1800
			Sulfate	mg/L	777
			Total Organic Carbon Average	mg/L	2.93

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU10	GWA50-3286			
General Chemistry			Alkalinity, Total as CaCO3	mg/L	440
			Bicarbonate alkalinity (CaCO3)	mg/L	438
			Carbonate alkalinity (CaCO3)	mg/L	1.46 J
			Chloride	mg/L	19.6
			Fluoride	mg/L	0.316
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	1350
			Sulfate	mg/L	577
			Total Organic Carbon Average	mg/L	2.56
GW	EU10	GWOW04B-3290			
General Chemistry			Alkalinity, Total as CaCO3	mg/L	303
			Bicarbonate alkalinity (CaCO3)	mg/L	302
			Carbonate alkalinity (CaCO3)	mg/L	1.45 U
			Chloride	mg/L	90.4
			Fluoride	mg/L	0.521
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.161
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	1630
			Sulfate	mg/L	725
GW	EU10	GWOW06B-3291			
General Chemistry			Alkalinity, Total as CaCO3	mg/L	586
			Bicarbonate alkalinity (CaCO3)	mg/L	585
			Carbonate alkalinity (CaCO3)	mg/L	1.7 J
			Chloride	mg/L	27.3
			Fluoride	mg/L	0.308
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.238
			Solids, Total Dissolved	mg/L	1490
			Sulfate	mg/L	571
			Total Organic Carbon Average	mg/L	3.28

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU10	GWOW07B-3292			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	364
			Bicarbonate alkalinity (CaCO ₃)	mg/L	363
			Carbonate alkalinity (CaCO ₃)	mg/L	1.45 U
			Chloride	mg/L	19.5
			Fluoride	mg/L	0.305
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	2.96
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	1660
			Sulfate	mg/L	773
			Total Organic Carbon Average	mg/L	2.2
GW	EU10	GWOW10B-3277			
General Chemistry			Chloride	mg/L	13.5
			Fluoride	mg/L	0.308
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	382
			Total Organic Carbon Average	mg/L	2.09
GW	EU10	GWOW15B-3288			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	332
			Bicarbonate alkalinity (CaCO ₃)	mg/L	331
			Carbonate alkalinity (CaCO ₃)	mg/L	1.49 J
			Chloride	mg/L	6.45
			Fluoride	mg/L	0.591
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	1.05
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	840
			Sulfate	mg/L	317
			Total Organic Carbon Average	mg/L	2.98
GW	EU10	GWOW17B-3289			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	409
			Bicarbonate alkalinity (CaCO ₃)	mg/L	407
			Carbonate alkalinity (CaCO ₃)	mg/L	1.92 J
			Chloride	mg/L	11.3
			Fluoride	mg/L	0.324
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.099 J
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	1090
			Sulfate	mg/L	410
			Total Organic Carbon Average	mg/L	1.84

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU13	GW213A-3281			
General Chemistry			Chloride	mg/L	6.67
			Fluoride	mg/L	1.01
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	1.27
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	937
			Total Organic Carbon Average	mg/L	10.5
GW	EU13	GW-MW228-3616			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	427
			Bicarbonate alkalinity (CaCO ₃)	mg/L	426
			Carbonate alkalinity (CaCO ₃)	mg/L	1.45 U
			Chloride	mg/L	46.6
			Ethane	µg/L	4.77 U
			Ethene	µg/L	4.36 U
			Fluoride	mg/L	0.257
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 HU
			Nitrogen, Nitrite	mg/L	0.0542 HU
			Orthophosphate	mg/L	0.151 HU
			Sulfate	mg/L	556
			Total Organic Carbon	mg/L	7.09
			Total Organic Carbon	mg/L	5.99
			Total Organic Carbon	mg/L	7
			Total Organic Carbon	mg/L	6.77
			Total Organic Carbon Average	mg/L	6.72
GW	EU13	GW-MW229-3619			
General Chemistry			Alkalinity, Total as CaCO ₃	mg/L	90.1
			Bicarbonate alkalinity (CaCO ₃)	mg/L	89.7
			Carbonate alkalinity (CaCO ₃)	mg/L	1.45 U
			Chloride	mg/L	104
			Ethane	µg/L	4.77 U
			Ethene	µg/L	4.36 U
			Fluoride	mg/L	0.363
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	963
			Total Organic Carbon Average	mg/L	2.63

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU14	GW816-3282			
General Chemistry			Chloride	mg/L	114
			Fluoride	mg/L	0.237
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.106
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	537
			Total Organic Carbon Average	mg/L	4.02
GW	EU2	GWBH50-3283			
General Chemistry			Chloride	mg/L	36.5
			Fluoride	mg/L	0.516
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	510
			Total Organic Carbon Average	mg/L	3.51
GW	EU3	C5-AC-GW-BP3			
General Chemistry			Cyanide	mg/L	0.007 UJ
GW	EU4	GW415A-3280			
General Chemistry			Chloride	mg/L	139
			Fluoride	mg/L	1.13
			Methane	µg/L	39.7
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Sulfate	mg/L	985
			Total Organic Carbon Average	mg/L	34.9
GW	EU4	GW-MW423-3613			
General Chemistry			Ethane	µg/L	4.77 U
			Ethene	µg/L	4.36 U
			Methane	µg/L	14 U

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU4	GW-MW424-3610			
General Chemistry			Alkalinity, Total as CaCO3	mg/L	376
			Bicarbonate alkalinity (CaCO3)	mg/L	375
			Carbonate alkalinity (CaCO3)	mg/L	1.45 U
			Chloride	mg/L	9.89
			Ethane	µg/L	4.77 U
			Ethene	µg/L	4.36 U
			Fluoride	mg/L	0.452
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 HU
			Nitrogen, Nitrite	mg/L	0.0542 HU
			Orthophosphate	mg/L	0.151 HU
			Sulfate	mg/L	388
			Total Organic Carbon	mg/L	9.18
			Total Organic Carbon	mg/L	10.6
			Total Organic Carbon	mg/L	10.5
			Total Organic Carbon	mg/L	10.3
			Total Organic Carbon Average	mg/L	10.1
GW	EU5	GWB02W020S-3287			
General Chemistry			Alkalinity, Total as CaCO3	mg/L	455
			Bicarbonate alkalinity (CaCO3)	mg/L	452
			Carbonate alkalinity (CaCO3)	mg/L	2.34
			Chloride	mg/L	8.96
			Fluoride	mg/L	0.423
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.099 J
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.151 U
			Solids, Total Dissolved	mg/L	895
			Sulfate	mg/L	305
			Total Organic Carbon Average	mg/L	2.11
GW	EU6	GWBH57-3278			
General Chemistry			Chloride	mg/L	6950
			Fluoride	mg/L	0.368
			Methane	µg/L	14 U
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	5.42 HU
			Orthophosphate	mg/L	0.301 HU
			Sulfate	mg/L	1870
			Total Organic Carbon Average	mg/L	0.266
GW	EU8	C5-SO-GW-D800			
General Chemistry			Cyanide	mg/L	0.007 UJ

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
GW	EU8	GWBH15-3276			
General Chemistry			Chloride	mg/L	101
			Fluoride	mg/L	0.297
			Methane	µg/L	202
			Nitrogen, Nitrate	mg/L	0.0341 U
			Nitrogen, Nitrite	mg/L	0.0542 U
			Orthophosphate	mg/L	0.3
			Sulfate	mg/L	1120
			Total Organic Carbon Average	mg/L	10.3
MHS	EU2	C7-NFSS-SL-ST9			
General Chemistry			Moisture, Percent	%	27.8
MHS	EU4	C7-NFSS-SL-ST6			
General Chemistry			Moisture, Percent	%	63
MHS	EU8	C7-NFSS-SL-SS10			
General Chemistry			Cyanide	mg/Kg	0.41 UJ
			Moisture, Percent	%	51.8
MHW	EU10	MH06W-3681			
General Chemistry			Solids, Total Dissolved	mg/L	492
			Total Suspended Solids	mg/L	41.9
MHW	EU10	MH07W-3683			
General Chemistry			Solids, Total Dissolved	mg/L	365
			Total Suspended Solids	mg/L	1.59 U
MHW	EU11	MH08W-3685			
General Chemistry			Solids, Total Dissolved	mg/L	355
			Total Suspended Solids	mg/L	1.57 U
MHW	EU2	C7-NFSS-WW-ST9			
General Chemistry			Cyanide	mg/L	0.007 UJ
MHW	EU4	C7-NFSS-WW-ST6			
General Chemistry			Cyanide	mg/L	0.007 UJ
MHW	EU8	C7-NFSS-WW-SS10			
General Chemistry			Cyanide	mg/L	0.007 U
MHW	EU8	C7-NFSS-WW-SS8			
General Chemistry			Cyanide	mg/L	0.007 U
MHW	EU8	C7-NFSS-WW-SS9			
General Chemistry			Cyanide	mg/L	0.007 U
MHW	EU8	MH43W-3689			
General Chemistry			Solids, Total Dissolved	mg/L	426
			Total Suspended Solids	mg/L	3.39 J
MHW	EU8	MH45W-3687			
General Chemistry			Solids, Total Dissolved	mg/L	494
			Total Suspended Solids	mg/L	6.3 J
PIPES	EU4	C7-NFSS-SL-PIPE1			
General Chemistry			Cyanide	mg/Kg	0.77 UJ
			Moisture, Percent	%	70.3
PIPES	EU4	C7-NFSS-SL-PIPE2			
General Chemistry			Cyanide	mg/Kg	0.5 UJ
			Moisture, Percent	%	69

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
PIPEW	EU13	DRAIN01-W-3700			
General Chemistry			Solids, Total Dissolved	mg/L	218
			Total Suspended Solids	mg/L	5.32 J
PIPEW	EU13	DRAIN02-W-3702			
General Chemistry			Solids, Total Dissolved	mg/L	93
			Total Suspended Solids	mg/L	1.47 U
PIPEW	EU13	DRAIN05-W-3708			
General Chemistry			Solids, Total Dissolved	mg/L	485
			Total Suspended Solids	mg/L	1.06 J
PIPEW	EU8	PIPE74W-3693			
General Chemistry			Solids, Total Dissolved	mg/L	503
			Total Suspended Solids	mg/L	3.91 J
SB	EU1	C5-VS-SO-D300-14			
General Chemistry			Cyanide	mg/Kg	0.23 UJ
			Moisture, Percent	%	14.3
SB	EU1	SB501-144-12			
General Chemistry			Cation Exchange Capacity	meq/Kg	17
			Total Organic Carbon	mg/Kg	19500
SB	EU1	SB502-145-13			
General Chemistry			Cation Exchange Capacity	meq/Kg	107
			Total Organic Carbon	mg/Kg	7770
			Cation Exchange Capacity	meq/Kg	16.8
			Total Organic Carbon	mg/Kg	20100
SB	EU11	SB801-154-18			
General Chemistry			Cation Exchange Capacity	meq/Kg	12.7
			Total Organic Carbon	mg/Kg	19100
SB	EU11	SB802-155-17			
General Chemistry			Cation Exchange Capacity	meq/Kg	15.3
			Total Organic Carbon	mg/Kg	16100
SB	EU11	SB805-158-7.5			
General Chemistry			Cation Exchange Capacity	meq/Kg	17.6
			Total Organic Carbon	mg/Kg	8160
SB	EU12	SB204-088-9			
General Chemistry			Cation Exchange Capacity	meq/Kg	71.5
			Total Organic Carbon	mg/Kg	3860

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SB	EU12	SB205-089-12.5			
General Chemistry			Total Organic Carbon	mg/Kg	14500
SB	EU12	SB206-090-9			
General Chemistry			Total Organic Carbon	mg/Kg	14200
SB	EU12	SB215-099-7.5			
General Chemistry			Cation Exchange Capacity	meq/Kg	106
			Total Organic Carbon	mg/Kg	6190
SB	EU13	SB201-085-10			
General Chemistry			Total Organic Carbon	mg/Kg	7770
SB	EU13	SB203-087-12			
General Chemistry			Total Organic Carbon	mg/Kg	12200
SB	EU13	SB207-091-14			
General Chemistry			Total Organic Carbon	mg/Kg	2620
SB	EU13	SB208-092-12			
General Chemistry			Cation Exchange Capacity	meq/Kg	140
			Total Organic Carbon	mg/Kg	7570
SB	EU13	SB209-093-10			
General Chemistry			Cation Exchange Capacity	meq/Kg	86.5
			Total Organic Carbon	mg/Kg	6500
SB	EU13	SB210-094-13			
General Chemistry			Total Organic Carbon	mg/Kg	1360
SB	EU13	SB211-095-11			
General Chemistry			Cation Exchange Capacity	meq/Kg	109
			Total Organic Carbon	mg/Kg	1880
SB	EU13	SB212-096-12.5			
General Chemistry			Total Organic Carbon	mg/Kg	16700
			Cation Exchange Capacity	meq/Kg	75.9
			Total Organic Carbon	mg/Kg	12200
SB	EU13	SB214-098-15			
General Chemistry			Total Organic Carbon	mg/Kg	11500
SB	EU13	SB216-100-10.5			
General Chemistry			Total Organic Carbon	mg/Kg	14800
SB	EU13	SB217-101-13			
General Chemistry			Cation Exchange Capacity	meq/Kg	79.6
			Total Organic Carbon	mg/Kg	10100
SB	EU14	SB202-086-10			
General Chemistry			Cation Exchange Capacity	meq/Kg	152
			Total Organic Carbon	mg/Kg	2120
SB	EU14	SB803-156-7.5			
General Chemistry			Total Organic Carbon	mg/Kg	7670
			Cation Exchange Capacity	meq/Kg	87.1
			Total Organic Carbon	mg/Kg	932
SB	EU2	C5-AC-SO-F200-1			
General Chemistry			Cyanide	mg/Kg	0.22 UJ
			Moisture, Percent	%	9
SB	EU2	SB401-118-20			
General Chemistry			Total Organic Carbon	mg/Kg	9700

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SB	EU2	SB402-119-23			
General Chemistry			Total Organic Carbon	mg/Kg	10500
SB	EU2	SB403-120-18			
General Chemistry			Cation Exchange Capacity	meq/Kg	19.9
			Total Organic Carbon	mg/Kg	19000
SB	EU2	SB404-121-25			
General Chemistry			Total Organic Carbon	mg/Kg	20900
SB	EU2	SB404-121-4			
General Chemistry			Total Organic Carbon	mg/Kg	11300
SB	EU2	SB405-122-25			
General Chemistry			Cation Exchange Capacity	meq/Kg	6.97
			Total Organic Carbon	mg/Kg	20900
SB	EU2	SB406-123-18			
General Chemistry			Cation Exchange Capacity	meq/Kg	74.2
			Total Organic Carbon	mg/Kg	11600
SB	EU2	SB808-161-15			
General Chemistry			Total Organic Carbon	mg/Kg	7540
SB	EU2	SB809-162-18			
General Chemistry			Cation Exchange Capacity	meq/Kg	32.1
			Total Organic Carbon	mg/Kg	6560
SB	EU2	SB810-163-12.0			
General Chemistry			Total Organic Carbon	mg/Kg	3920
SB	EU3	C5-AC-SO-BP3-14			
General Chemistry			Cyanide	mg/Kg	0.25 UJ
			Moisture, Percent	%	13.3
SB	EU3	SB407-124-20			
General Chemistry			Total Organic Carbon	mg/Kg	13800
SB	EU3	SB408-125-20			
General Chemistry			Total Organic Carbon	mg/Kg	3240
SB	EU3	SB409-126-7.5			
General Chemistry			Cation Exchange Capacity	meq/Kg	107
SB	EU4	C7-NFSS-SO-PIPE1			
General Chemistry			Cyanide	mg/Kg	0.23 UJ
			Moisture, Percent	%	13.7

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SB	EU4	C7-NFSS-SO-PIPE2			
General Chemistry			Cyanide	mg/Kg	0.22 UJ
			Moisture, Percent	%	7.1
SB	EU4	SB410-128-11			
General Chemistry			Total Organic Carbon	mg/Kg	10800
SB	EU4	SB411-129-20			
General Chemistry			Cation Exchange Capacity	meq/Kg	80.4
			Total Organic Carbon	mg/Kg	11200
SB	EU4	SB412-130-15			
General Chemistry			Total Organic Carbon	mg/Kg	3520
SB	EU4	SB413-131-19			
General Chemistry			Cation Exchange Capacity	meq/Kg	85.3
			Total Organic Carbon	mg/Kg	8300
SB	EU4	SB414-135-21			
General Chemistry			Total Organic Carbon	mg/Kg	765
SB	EU4	SB415-136-14			
General Chemistry			Cation Exchange Capacity	meq/Kg	80
			Total Organic Carbon	mg/Kg	9870
SB	EU4	SB416-137-21			
General Chemistry			Total Organic Carbon	mg/Kg	4500
SB	EU4	SB417-138-8.9			
General Chemistry			Cation Exchange Capacity	meq/Kg	101
			Total Organic Carbon	mg/Kg	12900
SB	EU4	SB418-140-19			
General Chemistry			Cation Exchange Capacity	meq/Kg	74.6
			Total Organic Carbon	mg/Kg	11300
SB	EU4	SB419-141-17			
General Chemistry			Total Organic Carbon	mg/Kg	2960
SB	EU5	SB420-142-7			
General Chemistry			Total Organic Carbon	mg/Kg	12000
SB	EU5	SB421-143-16			
General Chemistry			Total Organic Carbon	mg/Kg	4370
SB	EU5	SB601-150-13			
General Chemistry			Total Organic Carbon	mg/Kg	965
SB	EU5	SB811-164-23			
General Chemistry			Cation Exchange Capacity	meq/Kg	110
			Total Organic Carbon	mg/Kg	1250
SB	EU6	SB602-151-15			
General Chemistry			Cation Exchange Capacity	meq/Kg	56
			Total Organic Carbon	mg/Kg	10500
SB	EU6	SB604-153-15			
General Chemistry			Total Organic Carbon	mg/Kg	12100
SB	EU6	SB812-165-10			
General Chemistry			Total Organic Carbon	mg/Kg	16900
SB	EU7	SB806-159-18.9			
General Chemistry			Total Organic Carbon	mg/Kg	7620

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SB	EU7	SB807-160-18.2			
General Chemistry			Cation Exchange Capacity	meq/Kg	14.4
			Total Organic Carbon	mg/Kg	16700
SB	EU8	C5-SO-SO-D200-8			
General Chemistry			Cyanide	mg/Kg	0.24 UJ
			Moisture, Percent	%	26.2
SB	EU8	C5-SO-SO-D800-1			
General Chemistry			Cyanide	mg/Kg	0.23 UJ
			Moisture, Percent	%	15.3
SB	EU8	C5-SO-SO-D800-10			
General Chemistry			Cyanide	mg/Kg	0.23 UJ
			Moisture, Percent	%	14.8
SB	EU8	SB301-103-10			
General Chemistry			Total Organic Carbon	mg/Kg	1580
SB	EU8	SB302-104-11			
General Chemistry			Cation Exchange Capacity	meq/Kg	70.8
			Total Organic Carbon	mg/Kg	5570
SB	EU8	SB303-105-8			
General Chemistry			Cation Exchange Capacity	meq/Kg	63.5
			Total Organic Carbon	mg/Kg	8480
SB	EU8	SB305-110-12.5			
General Chemistry			Cation Exchange Capacity	meq/Kg	109
			Total Organic Carbon	mg/Kg	1280
SB	EU8	SB306-111-12.5			
General Chemistry			Total Organic Carbon	mg/Kg	830
SB	EU8	SB307-112-10			
General Chemistry			Total Organic Carbon	mg/Kg	3260
SB	EU8	SB308-113-19			
General Chemistry			Cation Exchange Capacity	meq/Kg	58.5
			Total Organic Carbon	mg/Kg	6130
SB	EU8	SB309-114-19			
General Chemistry			Cation Exchange Capacity	meq/Kg	76.1
			Total Organic Carbon	mg/Kg	11800
SB	EU8	SB310-115-8.5			
General Chemistry			Total Organic Carbon	mg/Kg	876
SB	EU8	SB311-116-13			
General Chemistry			Total Organic Carbon	mg/Kg	9950
SB	EU8	SB312-117-15			
General Chemistry			Total Organic Carbon	mg/Kg	11200
SB	NA	C3-VS-SO-BP3-15			
General Chemistry			Cyanide	mg/Kg	0.071 UJ
SD	EU1	SD712-319			
General Chemistry			Cation Exchange Capacity	meq/Kg	85.6 N
			Total Organic Carbon	mg/Kg	14700
SD	EU1	SD713-324			
General Chemistry			Cation Exchange Capacity	meq/Kg	120
			Total Organic Carbon	mg/Kg	4090

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SD	EU1	SD714-326			
General Chemistry			Cation Exchange Capacity	meq/Kg	166
			Total Organic Carbon	mg/Kg	23100
SD	EU10	SD701-293			
General Chemistry			Cation Exchange Capacity	meq/Kg	160 N
			Total Organic Carbon	mg/Kg	6160
SD	EU10	SD702-295			
General Chemistry			Cation Exchange Capacity	meq/Kg	172 N
			Total Organic Carbon	mg/Kg	9150
SD	EU10	SD703-297			
General Chemistry			Cation Exchange Capacity	meq/Kg	162 N
			Total Organic Carbon	mg/Kg	7010
SD	EU10	SD705-304			
General Chemistry			Total Organic Carbon	mg/Kg	10200
SD	EU10	SD706-306			
General Chemistry			Total Organic Carbon	mg/Kg	15000
SD	EU10	SD707-308			
General Chemistry			Total Organic Carbon	mg/Kg	12900
SD	EU11	SD704-302			
General Chemistry			Cation Exchange Capacity	meq/Kg	117 N
			Total Organic Carbon	mg/Kg	12100
SD	EU11	SD716-330			
General Chemistry			Total Organic Carbon	mg/Kg	4310
SD	EU12	SD719-341			
General Chemistry			Total Organic Carbon	mg/Kg	26700
SD	EU12	SD720-343			
General Chemistry			Total Organic Carbon	mg/Kg	15800
SD	EU12	SD721-345			
General Chemistry			Total Organic Carbon	mg/Kg	10400
SD	EU14	SD715-328			
General Chemistry			Cation Exchange Capacity	meq/Kg	97.9
			Total Organic Carbon	mg/Kg	2170
SD	EU14	SD717-333			
General Chemistry			Cation Exchange Capacity	meq/Kg	70.3
			Total Organic Carbon	mg/Kg	40500
SD	EU14	SD718-338			
General Chemistry			Cation Exchange Capacity	meq/Kg	316 N
			Total Organic Carbon	mg/Kg	16800
SD	EU2	SD709-313			
General Chemistry			Total Organic Carbon	mg/Kg	65700
SD	EU2	SD710-315			
General Chemistry			Cation Exchange Capacity	meq/Kg	502
			Total Organic Carbon	mg/Kg	16000
SD	EU5	SD726-355			
General Chemistry			Total Organic Carbon	mg/Kg	2610
SD	EU5	SD727-357			
General Chemistry			Total Organic Carbon	mg/Kg	1970

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SD	EU5	SD728-359			
General Chemistry			Total Organic Carbon	mg/Kg	11100
SD	EU5	SD729-364			
General Chemistry			Cation Exchange Capacity	meq/Kg	49.8
			Total Organic Carbon	mg/Kg	5590
SD	EU5	SD730-366			
General Chemistry			Total Organic Carbon	mg/Kg	23200
SD	EU5	SD735-377			
General Chemistry			Cation Exchange Capacity	meq/Kg	338
			Total Organic Carbon	mg/Kg	14200
SD	EU5	SD736-379			
General Chemistry			Total Organic Carbon	mg/Kg	5390
SD	EU5	SD737-381			
General Chemistry			Total Organic Carbon	mg/Kg	17300
SD	EU5	SD738-383			
General Chemistry			Total Organic Carbon	mg/Kg	564
SD	EU5	SD739-385			
General Chemistry			Cation Exchange Capacity	meq/Kg	66.1
			Total Organic Carbon	mg/Kg	1490
SD	EU6	SD731-368			
General Chemistry			Cation Exchange Capacity	meq/Kg	155
			Total Organic Carbon	mg/Kg	9700
SD	EU6	SD732-370			
General Chemistry			Cation Exchange Capacity	meq/Kg	415
			Total Organic Carbon	mg/Kg	12800

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SD	EU6	SD733-373			
General Chemistry			Cation Exchange Capacity	meq/Kg	417
			Total Organic Carbon	mg/Kg	11700
SD	EU6	SD734-375			
General Chemistry			Cation Exchange Capacity	meq/Kg	614
			Total Organic Carbon	mg/Kg	26200
SD	EU7	SD708-311			
General Chemistry			Total Organic Carbon	mg/Kg	11800
SD	EU7	SD711-317			
General Chemistry			Total Organic Carbon	mg/Kg	10700
SD	EU8	SD722-347			
General Chemistry			Cation Exchange Capacity	meq/Kg	116
			Total Organic Carbon	mg/Kg	8150
SD	EU8	SD723-349			
General Chemistry			Cation Exchange Capacity	meq/Kg	192
			Total Organic Carbon	mg/Kg	14700
SD	EU8	SD724-351			
General Chemistry			Total Organic Carbon	mg/Kg	6660
SD	EU8	SD725-353			
General Chemistry			Total Organic Carbon	mg/Kg	31400
SS	EU1	C5-VS-SO-B300-1			
General Chemistry			Cyanide	mg/Kg	0.23 UJ
			Moisture, Percent	%	13.9
			Total Organic Carbon	mg/Kg	28700 J
SS	EU1	SS501-059			
General Chemistry			Cation Exchange Capacity	meq/Kg	34.4
			Total Organic Carbon	mg/Kg	21900
SS	EU1	SS502-060			
General Chemistry			Cation Exchange Capacity	meq/Kg	357
			Total Organic Carbon	mg/Kg	21900
SS	EU1	SS503-064			
General Chemistry			Cation Exchange Capacity	meq/Kg	44.2
			Total Organic Carbon	mg/Kg	32700
SS	EU11	SS801-070			
General Chemistry			Cation Exchange Capacity	meq/Kg	16.3
			Total Organic Carbon	mg/Kg	24200
SS	EU11	SS802-071			
General Chemistry			Cation Exchange Capacity	meq/Kg	23.1
			Total Organic Carbon	mg/Kg	21800
SS	EU11	SS805-074			
General Chemistry			Cation Exchange Capacity	meq/Kg	30
			Total Organic Carbon	mg/Kg	11300
SS	EU12	SS204-004			
General Chemistry			Cation Exchange Capacity	meq/Kg	382
			Total Organic Carbon	mg/Kg	253000
SS	EU12	SS205-008			
General Chemistry			Total Organic Carbon	mg/Kg	29600

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SS	EU12	SS206-009			
General Chemistry			Total Organic Carbon	mg/Kg	31600
SS	EU12	SS215-019			
General Chemistry			Cation Exchange Capacity	meq/Kg	246
			Total Organic Carbon	mg/Kg	7720
SS	EU13	SS201-001			
General Chemistry			Total Organic Carbon	mg/Kg	149000
SS	EU13	SS203-003			
General Chemistry			Total Organic Carbon	mg/Kg	109000
SS	EU13	SS207-010			
General Chemistry			Total Organic Carbon	mg/Kg	24500
SS	EU13	SS208-011			
General Chemistry			Cation Exchange Capacity	meq/Kg	171
			Total Organic Carbon	mg/Kg	54900
SS	EU13	SS209-012			
General Chemistry			Cation Exchange Capacity	meq/Kg	185
			Total Organic Carbon	mg/Kg	17000
SS	EU13	SS210-014			
General Chemistry			Total Organic Carbon	mg/Kg	13200
SS	EU13	SS211-015			
General Chemistry			Cation Exchange Capacity	meq/Kg	235
			Total Organic Carbon	mg/Kg	51200
SS	EU13	SS212-016			
General Chemistry			Total Organic Carbon	mg/Kg	17400
SS	EU13	SS213-017			
General Chemistry			Cation Exchange Capacity	meq/Kg	179
			Total Organic Carbon	mg/Kg	15600
SS	EU13	SS214-018			
General Chemistry			Total Organic Carbon	mg/Kg	15800
SS	EU13	SS216-020			
General Chemistry			Total Organic Carbon	mg/Kg	20200
SS	EU13	SS217-021			
General Chemistry			Cation Exchange Capacity	meq/Kg	194
			Total Organic Carbon	mg/Kg	30400

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SS	EU14	SS202-002			
General Chemistry			Cation Exchange Capacity	meq/Kg	142
			Total Organic Carbon	mg/Kg	4910
SS	EU14	SS803-072			
General Chemistry			Total Organic Carbon	mg/Kg	7120
SS	EU14	SS804-073			
General Chemistry			Cation Exchange Capacity	meq/Kg	654
			Total Organic Carbon	mg/Kg	29600
SS	EU2	SS401-037			
General Chemistry			Total Organic Carbon	mg/Kg	18900
SS	EU2	SS402-039			
General Chemistry			Total Organic Carbon	mg/Kg	4350
SS	EU2	SS403-040			
General Chemistry			Cation Exchange Capacity	meq/Kg	24.8
			Total Organic Carbon	mg/Kg	24600
SS	EU2	SS404-041			
General Chemistry			Total Organic Carbon	mg/Kg	30000
SS	EU2	SS405-042			
General Chemistry			Cation Exchange Capacity	meq/Kg	38
			Total Organic Carbon	mg/Kg	22400
SS	EU2	SS406-043			
General Chemistry			Cation Exchange Capacity	meq/Kg	191
			Total Organic Carbon	mg/Kg	35000
SS	EU2	SS808-077			
General Chemistry			Total Organic Carbon	mg/Kg	29300
SS	EU2	SS809-078			
General Chemistry			Total Organic Carbon	mg/Kg	21000
SS	EU2	SS810-079			
General Chemistry			Total Organic Carbon	mg/Kg	15300
SS	EU3	SS407-044			
General Chemistry			Total Organic Carbon	mg/Kg	32400
SS	EU3	SS408-045			
General Chemistry			Total Organic Carbon	mg/Kg	19000
SS	EU3	SS409-046			
General Chemistry			Cation Exchange Capacity	meq/Kg	175
			Total Organic Carbon	mg/Kg	11600
SS	EU4	SS410-047			
General Chemistry			Total Organic Carbon	mg/Kg	13400
SS	EU4	SS411-048			
General Chemistry			Cation Exchange Capacity	meq/Kg	123
			Total Organic Carbon	mg/Kg	14400
SS	EU4	SS412-049			
General Chemistry			Total Organic Carbon	mg/Kg	47400
SS	EU4	SS413-050			
General Chemistry			Cation Exchange Capacity	meq/Kg	267
			Total Organic Carbon	mg/Kg	32700
SS	EU4	SS414-051			
General Chemistry			Total Organic Carbon	mg/Kg	19200

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SS	EU4	SS415-052			
General Chemistry			Cation Exchange Capacity	meq/Kg	247
			Total Organic Carbon	mg/Kg	23800
SS	EU4	SS416-053			
General Chemistry			Total Organic Carbon	mg/Kg	13500
SS	EU4	SS417-054			
General Chemistry			Cation Exchange Capacity	meq/Kg	129
			Total Organic Carbon	mg/Kg	21400
SS	EU4	SS418-055			
General Chemistry			Cation Exchange Capacity	meq/Kg	241
			Total Organic Carbon	mg/Kg	43400
SS	EU4	SS419-056			
General Chemistry			Total Organic Carbon	mg/Kg	11400
SS	EU5	SS420-057			
General Chemistry			Total Organic Carbon	mg/Kg	19100
SS	EU5	SS421-058			
General Chemistry			Total Organic Carbon	mg/Kg	3280
SS	EU5	SS601-065			
General Chemistry			Total Organic Carbon	mg/Kg	15600
SS	EU5	SS811-080			
General Chemistry			Cation Exchange Capacity	meq/Kg	274
			Total Organic Carbon	mg/Kg	14100
SS	EU6	SS602-066			
General Chemistry			Cation Exchange Capacity	meq/Kg	144
			Total Organic Carbon	mg/Kg	2400
SS	EU6	SS603-068			
General Chemistry			Cation Exchange Capacity	meq/Kg	218
			Total Organic Carbon	mg/Kg	7650
SS	EU6	SS604-069			
General Chemistry			Total Organic Carbon	mg/Kg	4360
SS	EU6	SS812-084			
General Chemistry			Total Organic Carbon	mg/Kg	15700
SS	EU7	SS806-075			
General Chemistry			Cation Exchange Capacity	meq/Kg	45.3
			Total Organic Carbon	mg/Kg	28100
SS	EU7	SS807-076			
General Chemistry			Cation Exchange Capacity	meq/Kg	25.5
			Total Organic Carbon	mg/Kg	18100
SS	EU8	SS301-025			
General Chemistry			Total Organic Carbon	mg/Kg	2330
SS	EU8	SS302-026			
General Chemistry			Cation Exchange Capacity	meq/Kg	183
			Total Organic Carbon	mg/Kg	9030
SS	EU8	SS303-027			
General Chemistry			Cation Exchange Capacity	meq/Kg	171
			Total Organic Carbon	mg/Kg	25300
SS	EU8	SS304-028			
General Chemistry			Total Organic Carbon	mg/Kg	10800

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SS	EU8	SS305-029			
General Chemistry			Cation Exchange Capacity	meq/Kg	264
			Total Organic Carbon	mg/Kg	17200
SS	EU8	SS306-030			
General Chemistry			Total Organic Carbon	mg/Kg	30500
SS	EU8	SS307-031			
General Chemistry			Total Organic Carbon	mg/Kg	32500
SS	EU8	SS308-032			
General Chemistry			Cation Exchange Capacity	meq/Kg	170
			Total Organic Carbon	mg/Kg	65100
SS	EU8	SS309-033			
General Chemistry			Cation Exchange Capacity	meq/Kg	277
			Total Organic Carbon	mg/Kg	33100
SS	EU8	SS310-034			
General Chemistry			Total Organic Carbon	mg/Kg	8330
SS	EU8	SS311-035			
General Chemistry			Total Organic Carbon	mg/Kg	80400
SS	EU8	SS312-036			
General Chemistry			Total Organic Carbon	mg/Kg	54900
SS	NA	C3-VS-SO-BP3-0.5			
General Chemistry			Cyanide	mg/Kg	0.076 UJ
SUMPS	EU4	C7-NFSS-SL-SUMP1			
General Chemistry			Cyanide	mg/Kg	0.66 UJ
			Moisture, Percent	%	60.1
SUMPS	EU4	C7-NFSS-SL-SUMP2			
General Chemistry			Cyanide	mg/Kg	0.42 UJ
			Moisture, Percent	%	46.4
SW	EU1	SW713-323			
General Chemistry			Total Organic Carbon	mg/L	10.6
SW	EU10	C9-4-SW-1			
General Chemistry			Chloride	mg/L	90 E
			Fluoride	mg/L	2.4
			Nitrogen, Ammonia	mg/L	0.1 J
			Nitrogen, Nitrate	mg/L	0.002 U
			Nitrogen, Nitrite	mg/L	0.015 U
			Nitrogen, Total Kjeldahl	mg/L	1.3 J
			Orthophosphate	mg/L	0.097 U
			Oxygen Demand, Biological	mg/L	19.4 J
			Oxygen Demand, Chemical	mg/L	71.7
			Phosphorus, Total	mg/L	0.37
			Solids, Total Dissolved	mg/L	125
			Sulfate	mg/L	240 E
			Sulfide, Total	mg/L	0.45 U

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SW	EU10	C9-4-SW-2			
General Chemistry			Chloride	mg/L	150 E
			Fluoride	mg/L	1
			Nitrogen, Ammonia	mg/L	0.33
			Nitrogen, Nitrate	mg/L	0.17
			Nitrogen, Nitrite	mg/L	0.015 U
			Nitrogen, Total Kjeldahl	mg/L	0.57
			Orthophosphate	mg/L	0.097 U
			Oxygen Demand, Biological	mg/L	2.2
			Oxygen Demand, Chemical	mg/L	56.8
			Phosphorus, Total	mg/L	0.1
			Solids, Total Dissolved	mg/L	26
			Sulfate	mg/L	760 E
			Sulfide, Total	mg/L	0.45 U
SW	EU10	SW707-307			
General Chemistry			Total Organic Carbon	mg/L	9.25
SW	EU12	SW720-342			
General Chemistry			Total Organic Carbon	mg/L	10.8
SW	EU2	SW710-314			
General Chemistry			Total Organic Carbon	mg/L	10.4
SW	EU5	SW729-363			
General Chemistry			Total Organic Carbon	mg/L	11.5
SW	EU5	SW738-382			
General Chemistry			Total Organic Carbon	mg/L	6.6

* Data qualifier included with concentration value.

Table 4-4
Data Summary
General Chemistry Parameters
Niagara Falls Storage Site Remedial Investigation

Matrix	EU	Sample ID	Parameter	Units	Concentration*
SW	EU7	C9-4-SW-3			
General Chemistry			Chloride	mg/L	200 E
			Fluoride	mg/L	0.61
			Nitrogen, Ammonia	mg/L	0.08
			Nitrogen, Nitrate	mg/L	0.3
			Nitrogen, Nitrite	mg/L	0.015 U
			Nitrogen, Total Kjeldahl	mg/L	1.1
			Orthophosphate	mg/L	0.097 U
			Oxygen Demand, Biological	mg/L	3
			Oxygen Demand, Chemical	mg/L	47.8
			Phosphorus, Total	mg/L	0.36
			Solids, Total Dissolved	mg/L	78
			Sulfate	mg/L	1100 E
			Sulfide, Total	mg/L	0.45 U

* Data qualifier included with concentration value.

Table 4-5
Background Surface Soil (0-0.5') Summary Statistics
Niagara Falls Storage Site Remedial Investigation ¹

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
General Chemistry							
Moisture, Percent	%	1/ 1	14.6	14.6	14.6		D
Percent Solids	%	4/ 4	76.9	82.5	82.5		D
Total Organic Carbon	mg/Kg	15/ 15	8150	47300	48300	47300	N
Nitroaromatics							
1,3,5-Trinitrobenzene	µg/Kg	0/ 1					O
2,4,6-Trinitrotoluene	µg/Kg	0/ 1					O
2,4-Dinitrotoluene	µg/Kg	0/ 16					O
2,6-Dinitrotoluene	µg/Kg	0/ 16					O
2-Amino-4,6-dinitrotoluene	µg/Kg	0/ 1					O
2-Nitrotoluene	µg/Kg	0/ 1					O
3-Nitrotoluene	µg/Kg	0/ 1					O
4-Amino-2,6-dinitrotoluene	µg/Kg	0/ 1					O
4-Nitrotoluene	µg/Kg	0/ 1					O
HMX	µg/Kg	0/ 1					O
m-Dinitrobenzene	µg/Kg	0/ 1					O
Nitrobenzene	µg/Kg	0/ 16					O
RDX	µg/Kg	0/ 1					O
Tetryl	µg/Kg	0/ 1					O
Metals							
Aluminum	mg/Kg	16/ 16	4380	18400	21800	18400	N
Antimony	mg/Kg	6/ 16	0.26	0.94	0.94	0.94	D
Arsenic	mg/Kg	15/ 15	2.3	11.4	11.3	11.3	G
Barium	mg/Kg	16/ 16	45.2	279	375	279	G
Beryllium	mg/Kg	16/ 16	0.18	1	1.21	1	N
Boron	mg/Kg	12/ 16	1.7	10.1	15.8	10.1	G
Cadmium	mg/Kg	8/ 16	0.04	0.53	1.21	0.53	L
Calcium	mg/Kg	16/ 16	994	45200	60300	45200	L
Chromium	mg/Kg	16/ 16	5.3	24.3	29.9	24.3	N
Cobalt	mg/Kg	16/ 16	2.2	57.4	65.5	57.4	G
Copper	mg/Kg	16/ 16	4.4	34.7	43.1	34.7	N
Cyanide	mg/Kg	0/ 1					O
Iron	mg/Kg	16/ 16	6240	36400	43500	36400	N
Lead	mg/Kg	15/ 15	4.7	55.2	66.4	55.2	G
Lithium	mg/Kg	16/ 16	4.6	27.9	34.4	27.9	N
Magnesium	mg/Kg	16/ 16	931	10200	11500	10200	N
Manganese	mg/Kg	16/ 16	70	6650	5630	5630	L
Mercury	mg/Kg	9/ 16	0.03	0.27	0.27	0.27	X
Nickel	mg/Kg	16/ 16	5.8	37.5	41	37.5	N
Potassium	mg/Kg	16/ 16	138	1820	2050	1820	N
Selenium	mg/Kg	7/ 15	0.21	0.37	0.37	0.37	D
Silver	mg/Kg	2/ 16	0.27	0.27	0.27	0.27	D
Sodium	mg/Kg	16/ 16	51.7	286	286	286	X
Thallium	mg/Kg	0/ 16					O
Vanadium	mg/Kg	16/ 16	9.9	34	40.3	34	N
Zinc	mg/Kg	16/ 16	23.1	78	92	78	N

Table 4-5
Background Surface Soil (0-0.5') Summary Statistics
Niagara Falls Storage Site Remedial Investigation ¹

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL	Dist
		>Detection Limit				Criteria	
PAHs							
Acenaphthene	µg/Kg	0/ 16					O
Acenaphthylene	µg/Kg	0/ 16					O
Anthracene	µg/Kg	0/ 16					O
Benzo(a)anthracene	µg/Kg	2/ 16	208	284	284	284	D
Benzo(a)pyrene	µg/Kg	1/ 16	313	313	313	313	D
Benzo(b)fluoranthene	µg/Kg	3/ 16	2.5	396	396	396	D
Benzo(g,h,i)perylene	µg/Kg	0/ 16					O
Benzo(k)fluoranthene	µg/Kg	3/ 16	0.74	322	322	322	D
Chrysene	µg/Kg	2/ 16	303	378	378	378	D
Dibenzo(a,h)anthracene	µg/Kg	0/ 16					O
Fluoranthene	µg/Kg	3/ 16	2.3	889	889	889	D
Fluorene	µg/Kg	0/ 16					O
Indeno(1,2,3-cd)pyrene	µg/Kg	0/ 16					O
Naphthalene	µg/Kg	0/ 16					O
Phenanthrene	µg/Kg	1/ 16	538	538	538	538	D
Pyrene	µg/Kg	3/ 16	1.5	716	716	716	D
PCBs							
Aroclor-1016	µg/Kg	0/ 1					O
Aroclor-1221	µg/Kg	0/ 1					O
Aroclor-1232	µg/Kg	0/ 1					O
Aroclor-1242	µg/Kg	0/ 1					O
Aroclor-1248	µg/Kg	0/ 1					O
Aroclor-1254	µg/Kg	0/ 1					O
Aroclor-1260	µg/Kg	0/ 1					O
Pesticides							
4,4'-DDD	µg/Kg	0/ 1					O
4,4'-DDE	µg/Kg	0/ 1					O
4,4'-DDT	µg/Kg	0/ 1					O
Aldrin	µg/Kg	0/ 1					O
alpha-BHC	µg/Kg	0/ 1					O
alpha-Chlordane	µg/Kg	0/ 1					O
beta-BHC	µg/Kg	0/ 1					O
delta-BHC	µg/Kg	0/ 1					O
Dieldrin	µg/Kg	0/ 1					O
Endosulfan I	µg/Kg	0/ 1					O
Endosulfan II	µg/Kg	0/ 1					O
Endosulfan sulfate	µg/Kg	0/ 1					O
Endrin	µg/Kg	0/ 1					O
Endrin aldehyde	µg/Kg	0/ 1					O
Endrin ketone	µg/Kg	0/ 1					O
gamma-BHC (Lindane)	µg/Kg	0/ 1					O
gamma-Chlordane	µg/Kg	0/ 1					O
Heptachlor	µg/Kg	0/ 1					O
Heptachlor epoxide	µg/Kg	0/ 1					O
Methoxychlor	µg/Kg	0/ 1					O
Toxaphene	µg/Kg	0/ 1					O

Table 4-5
Background Surface Soil (0-0.5') Summary Statistics
Niagara Falls Storage Site Remedial Investigation ¹

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Radionuclides							
Actinium-227	pCi/g	0/ 15				0.08*	O
Alpha	pCi/g	4/ 4	10.4	13.9	13.9		D
Americium-241	pCi/g	0/ 15					O
Beta	pCi/g	4/ 4	21.4	27.5	27.5		D
Cesium-137	pCi/g	13/ 15	0.03	0.34	0.37	0.34	N
Cobalt-60	pCi/g	0/ 15					O
Potassium-40	pCi/g	11/ 11	10	31.1	34.2	31.1	N
Protactinium-231	pCi/g	0/ 15				0.08*	O
Radium-226	pCi/g	15/ 15	0.39	0.92	1.11	0.92	N
Radium-228	pCi/g	15/ 15	0.37	1.26	1.52	1.26	N
Thorium-228	pCi/g	15/ 15	0.60	1.64	1.75	1.64	N
Thorium-230	pCi/g	15/ 15	0.44	1.62	1.60	1.6	N
Thorium-232	pCi/g	15/ 15	0.47	1.24	1.46	1.24	N
Total Uranium	µg/g	15/ 15	1.22	3.94	4.07	3.94	N
Uranium-234	pCi/g	15/ 15	0.28	1.68	1.79	1.68	N
Uranium-235	pCi/g	1/ 15	0.08	0.08	0.10	0.08	D
Uranium-238	pCi/g	15/ 15	0.37	1.36	1.62	1.36	N
Semivolatile Organics							
1,2,4-Trichlorobenzene	µg/Kg	0/ 16					O
1,2-Dichlorobenzene	µg/Kg	0/ 16					O
1,3-Dichlorobenzene	µg/Kg	0/ 16					O
1,4-Dichlorobenzene	µg/Kg	0/ 16					O
2,4,5-Trichlorophenol	µg/Kg	0/ 16					O
2,4,6-Trichlorophenol	µg/Kg	0/ 16					O
2,4-Dichlorophenol	µg/Kg	0/ 16					O
2,4-Dimethylphenol	µg/Kg	0/ 16					O
2,4-Dinitrophenol	µg/Kg	0/ 16					O
2-Chloronaphthalene	µg/Kg	0/ 16					O
2-Chlorophenol	µg/Kg	0/ 16					O
2-Methyl-4,6-dinitrophenol	µg/Kg	0/ 16					O
2-Methylnaphthalene	µg/Kg	0/ 15					O
2-Nitroaniline	µg/Kg	0/ 16					O
2-Nitrophenol	µg/Kg	0/ 16					O
3,3'-Dichlorobenzidine	µg/Kg	0/ 16					O
3-Nitroaniline	µg/Kg	0/ 16					O
4-Bromophenylphenylether	µg/Kg	0/ 16					O
4-Chloro-3-methylphenol	µg/Kg	0/ 16					O
4-Chloroaniline	µg/Kg	0/ 16					O
4-Chlorophenylphenylether	µg/Kg	0/ 16					O
4-Nitroaniline	µg/Kg	0/ 16					O
4-Nitrophenol	µg/Kg	0/ 16					O
Benzoic acid	µg/Kg	0/ 15					O
bis(2-Chloroethoxy)methane	µg/Kg	0/ 16					O
bis(2-Chloroethyl)ether	µg/Kg	0/ 16					O
bis(2-Chloroisopropyl)ether	µg/Kg	0/ 16					O
bis(2-Ethylhexyl)phthalate	µg/Kg	3/ 16	320	5130	5130	5130	D
Butylbenzylphthalate	µg/Kg	0/ 16					O

Table 4-5
Background Surface Soil (0-0.5') Summary Statistics
Niagara Falls Storage Site Remedial Investigation ¹

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL	Dist
		>Detection Limit				Criteria	
Semivolatile Organics (continued)							
Carbazole	µg/Kg	0/ 16					O
Dibenzofuran	µg/Kg	0/ 16					O
Diethylphthalate	µg/Kg	0/ 16					O
Dimethylphthalate	µg/Kg	0/ 16					O
Di-n-butylphthalate	µg/Kg	0/ 16					O
Di-n-octylphthalate	µg/Kg	0/ 16					O
Hexachlorobenzene	µg/Kg	0/ 16					O
Hexachlorobutadiene	µg/Kg	0/ 16					O
Hexachlorocyclopentadiene	µg/Kg	0/ 16					O
Hexachloroethane	µg/Kg	0/ 16					O
Isophorone	µg/Kg	0/ 16					O
m,p-Cresols	µg/Kg	0/ 16					O
N-Nitroso-di-n-propylamine	µg/Kg	0/ 16					O
N-Nitrosodiphenylamine	µg/Kg	0/ 16					O
o-Cresol	µg/Kg	0/ 16					O
Pentachlorophenol	µg/Kg	0/ 16					O
Phenol	µg/Kg	0/ 16					O
Volatile Organics							
1,1,1-Trichloroethane	µg/Kg	0/ 1					O
1,1,2,2-Tetrachloroethane	µg/Kg	0/ 1					O
1,1,2-Trichloroethane	µg/Kg	0/ 1					O
1,1-Dichloroethane	µg/Kg	0/ 1					O
1,1-Dichloroethene	µg/Kg	0/ 1					O
1,2-Dichloroethane	µg/Kg	0/ 1					O
1,2-Dichloroethene	µg/Kg	0/ 1					O
1,2-Dichloropropane	µg/Kg	0/ 1					O
2-Butanone	µg/Kg	0/ 1					O
2-Hexanone	µg/Kg	0/ 1					O
4-Methyl-2-pentanone	µg/Kg	0/ 1					O
Acetone	µg/Kg	0/ 1					O
Benzene	µg/Kg	0/ 1					O
Bromodichloromethane	µg/Kg	0/ 1					O
Bromoform	µg/Kg	0/ 1					O
Bromomethane	µg/Kg	0/ 1					O
Carbon disulfide	µg/Kg	0/ 1					O
Carbon tetrachloride	µg/Kg	0/ 1					O
Chlorobenzene	µg/Kg	0/ 1					O
Chloroethane	µg/Kg	0/ 1					O
Chloroform	µg/Kg	0/ 1					O
Chloromethane	µg/Kg	0/ 1					O
cis-1,3-Dichloropropene	µg/Kg	0/ 1					O
Dibromochloromethane	µg/Kg	0/ 1					O
Ethylbenzene	µg/Kg	0/ 1					O
Methylene chloride	µg/Kg	0/ 1					O
Styrene	µg/Kg	0/ 1					O
Tetrachloroethene	µg/Kg	0/ 1					O
Toluene	µg/Kg	0/ 1					O

Table 4-5
Background Surface Soil (0-0.5') Summary Statistics
Niagara Falls Storage Site Remedial Investigation ¹

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL	Dist
		>Detection Limit				Criteria	
Volatile Organics (continued)							
trans-1,3-Dichloropropene	µg/Kg	0/ 1					O
Trichloroethene	µg/Kg	0/ 1					O
Vinyl chloride	µg/Kg	0/ 1					O
Xylenes (total)	µg/Kg	0/ 1					O

¹Background values based on removal of the following data:

Removal of SS outliers; selenium from BKG-12 and arsenic and lead from BKG-17

Substitutions:

*0.08 Uranium-235 SB UTL substituted for Actinium-227 and Protactinium-231 in SS

Dist Codes:

L - Distribution most similar to lognormal

N - Distribution most similar to normal

G - Distribution most similar to gamma

O - No detects, no UTL calculated

X - Distribution significantly different from normal and lognormal

D - Distribution not determined because less than 50% detects or less than 8 detects

Z - Distribution with negative results and therefore treated as normal

Table 4-6
Exposure Unit 1
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	10	4700 *	17000 *	10
Antimony	mg/Kg	10	0.32 BN	0.778 BN	3
Arsenic	mg/Kg	10	3.4	8.81 N	10
Barium	mg/Kg	10	55.1	279 J	10
Beryllium	mg/Kg	10	0.26 BE	0.85 E	10
Boron	mg/Kg	10	0.91 B	10.9	10
Cadmium	mg/Kg	10	0.36 B	1.1	3
Calcium	mg/Kg	10	3730	44900 E*	10
Chromium	mg/Kg	10	6.4	25.4	10
Cobalt	mg/Kg	10	4.2	19.7	10
Copper	mg/Kg	10	16.6 N	41.7 E*	10
Iron	mg/Kg	10	10500	36200	10
Lead	mg/Kg	10	6.4	37.7 *E	10
Lithium	mg/Kg	10	17.7 N	32.9 E	10
Magnesium	mg/Kg	10	2550 E	12900 *	10
Manganese	mg/Kg	10	504 *E	3670	10
Mercury	mg/Kg	10	0.025	1.1	9
Nickel	mg/Kg	10	8.8 E	46	10
Potassium	mg/Kg	10	697 E	2710 E	10
Selenium	mg/Kg	10	0.27 BN	1.7 N	9
Silver	mg/Kg	10	0.05 BN	0.75 N	8
Sodium	mg/Kg	10	39.1	255 *	10
Thallium	mg/Kg	10	0.07 B	0.285 B	8
Vanadium	mg/Kg	10	10.2	36.7 *	10
Zinc	mg/Kg	10	26.2	84 N	10
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	8	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	8	--	--	0
2,4-Dinitrotoluene	μg/Kg	10	--	--	0
2,6-Dinitrotoluene	μg/Kg	10	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	8	--	--	0
2-Nitrotoluene	μg/Kg	8	--	--	0
3-Dinitrobenzene	μg/Kg	8	--	--	0
3-Nitrotoluene	μg/Kg	8	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	8	--	--	0
4-Nitrotoluene	μg/Kg	8	--	--	0
HMX	μg/Kg	8	--	--	0
Nitrobenzene	μg/Kg	10	--	--	0
RDX	μg/Kg	8	--	--	0
Tetryl	μg/Kg	8	--	--	0
PAHs					
Acenaphthene	μg/Kg	10	--	--	0
Acenaphthylene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-6
Exposure Unit 1
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	10	--	--	0
Benzo(a)anthracene	μg/Kg	10	--	--	0
Benzo(a)pyrene	μg/Kg	10	--	--	0
Benzo(b)fluoranthene	μg/Kg	10	2.5	2.5	1
Benzo(g,h,i)perylene	μg/Kg	10	1.7	1.7	1
Benzo(k)fluoranthene	μg/Kg	10	--	--	0
Chrysene	μg/Kg	10	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	10	--	--	0
Fluoranthene	μg/Kg	10	--	--	0
Fluorene	μg/Kg	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	10	--	--	0
Naphthalene	μg/Kg	10	292 J	292 J	1
Phenanthrene	μg/Kg	10	2.5	252 J	2
Pyrene	μg/Kg	10	1.6	1.6	1
PCBs					
Aroclor-1016	μg/Kg	9	--	--	0
Aroclor-1221	μg/Kg	9	--	--	0
Aroclor-1232	μg/Kg	9	--	--	0
Aroclor-1242	μg/Kg	9	--	--	0
Aroclor-1248	μg/Kg	9	--	--	0
Aroclor-1254	μg/Kg	9	--	--	0
Aroclor-1260	μg/Kg	9	8.9 J	8.9 J	1
Pesticides					
4,4'-DDD	μg/Kg	9	0.357 J	0.357 J	1
4,4'-DDE	μg/Kg	9	0.69 J	2.67	2
4,4'-DDT	μg/Kg	9	2.24	2.24	1
Aldrin	μg/Kg	9	--	--	0
alpha-BHC	μg/Kg	9	--	--	0
alpha-Chlordane	μg/Kg	9	--	--	0
beta-BHC	μg/Kg	9	--	--	0
delta-BHC	μg/Kg	9	--	--	0
Dieldrin	μg/Kg	9	--	--	0
Endosulfan I	μg/Kg	9	--	--	0
Endosulfan II	μg/Kg	9	--	--	0
Endosulfan sulfate	μg/Kg	9	--	--	0
Endrin	μg/Kg	9	--	--	0
Endrin aldehyde	μg/Kg	9	--	--	0
Endrin ketone	μg/Kg	9	--	--	0
gamma-BHC (Lindane)	μg/Kg	9	--	--	0
gamma-Chlordane	μg/Kg	9	--	--	0
Heptachlor	μg/Kg	9	--	--	0
Heptachlor epoxide	μg/Kg	9	--	--	0
Methoxychlor	μg/Kg	9	--	--	0
Toxaphene	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-6
Exposure Unit 1
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	25	1.51	8	3
Alpha	pCi/g	8	10.3	230	8
Americium-241	pCi/g	25	0.32	0.32	1
Beta	pCi/g	8	19.5	219	8
Cesium-137	pCi/g	28	0.0417 J	1.13	24
Cobalt-60	pCi/g	25	--	--	0
Plutonium-238	pCi/g	1	--	--	0
Plutonium-239/240	pCi/g	1	--	--	0
Potassium-40	pCi/g	8	9.15	20.2	8
Protactinium-231	pCi/g	25	9.43	9.43	1
Radium-226	pCi/g	31	0.708	184	23
Radium-228	pCi/g	25	0.638	2.43	25
Thorium-228	pCi/g	31	0.812	2.38	30
Thorium-230	pCi/g	31	0.876 J	230	22
Thorium-232	pCi/g	31	0.593	1.73	31
Total Uranium	μg/g	31	1.85	366	31
Uranium-234	pCi/g	31	0.532	119	31
Uranium-235	pCi/g	31	0.0701 J	6.15	13
Uranium-238	pCi/g	31	0.7	120	31
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	10	--	--	0
1,2-Dichlorobenzene	μg/Kg	10	--	--	0
1,3-Dichlorobenzene	μg/Kg	10	--	--	0
1,4-Dichlorobenzene	μg/Kg	10	--	--	0
2,4,5-Trichlorophenol	μg/Kg	10	--	--	0
2,4,6-Trichlorophenol	μg/Kg	10	--	--	0
2,4-Dichlorophenol	μg/Kg	10	--	--	0
2,4-Dimethylphenol	μg/Kg	10	--	--	0
2,4-Dinitrophenol	μg/Kg	10	--	--	0
2-Chloronaphthalene	μg/Kg	10	--	--	0
2-Chlorophenol	μg/Kg	10	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	10	--	--	0
2-Methylnaphthalene	μg/Kg	9	440	440	1
2-Nitroaniline	μg/Kg	10	--	--	0
2-Nitrophenol	μg/Kg	10	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	10	--	--	0
3-Nitroaniline	μg/Kg	10	--	--	0
4-Bromophenylphenylether	μg/Kg	10	--	--	0
4-Chloro-3-methylphenol	μg/Kg	10	--	--	0
4-Chloroaniline	μg/Kg	10	--	--	0
4-Chlorophenylphenylether	μg/Kg	10	--	--	0
4-Nitroaniline	μg/Kg	10	--	--	0
4-Nitrophenol	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-6
Exposure Unit 1
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	9	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	10	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	10	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	10	241 J	332 J	2
Butylbenzylphthalate	μg/Kg	10	--	--	0
Carbazole	μg/Kg	10	--	--	0
Dibenzofuran	μg/Kg	10	--	--	0
Diethylphthalate	μg/Kg	10	--	--	0
Dimethylphthalate	μg/Kg	10	--	--	0
Di-n-butylphthalate	μg/Kg	10	--	--	0
Di-n-octylphthalate	μg/Kg	10	150 J	150 J	1
Diphenylamine	μg/Kg	8	--	--	0
Hexachlorobenzene	μg/Kg	10	--	--	0
Hexachlorobutadiene	μg/Kg	10	--	--	0
Hexachlorocyclopentadiene	μg/Kg	10	--	--	0
Hexachloroethane	μg/Kg	10	--	--	0
Isophorone	μg/Kg	10	--	--	0
m,p-Cresols	μg/Kg	9	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	10	--	--	0
N-Nitrosodiphenylamine	μg/Kg	2	--	--	0
o-Cresol	μg/Kg	10	--	--	0
p-Cresol	μg/Kg	1	--	--	0
Pentachlorophenol	μg/Kg	10	--	--	0
Phenol	μg/Kg	10	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	9	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	9	--	--	0
1,1,2-Trichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethene	μg/Kg	9	1.5	1.5	1
1,2-Dichloroethane	μg/Kg	9	--	--	0
1,2-Dichloroethene	μg/Kg	1	--	--	0
1,2-Dichloropropane	μg/Kg	9	--	--	0
2-Butanone	μg/Kg	9	5.1	6.5	3
2-Hexanone	μg/Kg	9	--	--	0
4-Methyl-2-pentanone	μg/Kg	9	--	--	0
Acetone	μg/Kg	9	8 J	65.6	4
Benzene	μg/Kg	9	0.54 J	0.54 J	1
Bromodichloromethane	μg/Kg	9	--	--	0
Bromoform	μg/Kg	9	--	--	0
Bromomethane	μg/Kg	9	--	--	0
Carbon disulfide	μg/Kg	9	1.2 J	1.8 J	2
Carbon tetrachloride	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-6
Exposure Unit 1
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chlorobenzene	μg/Kg	9	--	--	0
Chloroethane	μg/Kg	9	--	--	0
Chloroform	μg/Kg	9	--	--	0
Chloromethane	μg/Kg	9	--	--	0
cis-1,3-Dichloropropene	μg/Kg	9	--	--	0
Dibromochloromethane	μg/Kg	9	--	--	0
Ethylbenzene	μg/Kg	9	0.58 J	0.58 J	1
Methylene chloride	μg/Kg	9	--	--	0
Styrene	μg/Kg	9	--	--	0
Tetrachloroethene	μg/Kg	9	--	--	0
Toluene	μg/Kg	9	0.74	1.5	2
trans-1,3-Dichloropropene	μg/Kg	9	--	--	0
Trichloroethene	μg/Kg	9	--	--	0
Vinyl chloride	μg/Kg	9	--	--	0
Xylenes (total)	μg/Kg	9	0.39 J	1.3 J	2

* Data qualifier included with concentration value

Table 4-7
Exposure Unit 2
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	17	8360	40100	17
Antimony	mg/Kg	17	0.31 BN	1.83 N	6
Arsenic	mg/Kg	17	1.2	5.21 N	17
Barium	mg/Kg	17	89.6	481	17
Beryllium	mg/Kg	17	0.42 B	5.2	17
Boron	mg/Kg	17	1.5 B	147	17
Cadmium	mg/Kg	17	0.094 B	0.964	4
Calcium	mg/Kg	17	2170	238000 *	17
Chromium	mg/Kg	17	2.9	67	17
Cobalt	mg/Kg	17	0.24 BE	12.2 *	17
Copper	mg/Kg	17	3.1	57.6	17
Iron	mg/Kg	17	2260	39500	17
Lead	mg/Kg	17	3.5	588	17
Lithium	mg/Kg	17	15.7 E	103	17
Magnesium	mg/Kg	17	2080	44400	17
Manganese	mg/Kg	17	259	4070	17
Mercury	mg/Kg	17	0.01 B	1.5 N	17
Nickel	mg/Kg	17	0.65	46.8 *E	17
Potassium	mg/Kg	17	504 N	9150 N	17
Selenium	mg/Kg	17	0.19 BN	5.8 B	16
Silver	mg/Kg	17	0.05 BN	0.34	16
Sodium	mg/Kg	17	38.3	2410 *	17
Thallium	mg/Kg	17	0.06 B	0.249 E	16
Vanadium	mg/Kg	17	5	52	17
Zinc	mg/Kg	17	6.7 E	475	17
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	4	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	4	--	--	0
2,4-Dinitrotoluene	μg/Kg	21	--	--	0
2,6-Dinitrotoluene	μg/Kg	21	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	4	--	--	0
2-Nitrotoluene	μg/Kg	4	--	--	0
3-Dinitrobenzene	μg/Kg	4	--	--	0
3-Nitrotoluene	μg/Kg	4	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	4	--	--	0
4-Nitrotoluene	μg/Kg	4	--	--	0
HMX	μg/Kg	4	--	--	0
Nitrobenzene	μg/Kg	21	--	--	0
RDX	μg/Kg	4	--	--	0
Tetryl	μg/Kg	4	--	--	0
PAHs					
Acenaphthene	μg/Kg	20	206 J	6270 JD	3
Acenaphthylene	μg/Kg	20	38.2	38.2	1

* Data qualifier included with concentration value

Table 4-7
Exposure Unit 2
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	20	240 J	6660	3
Benzo(a)anthracene	μg/Kg	20	32.9	26900 D	7
Benzo(a)pyrene	μg/Kg	20	21.9 J	36000 D	7
Benzo(b)fluoranthene	μg/Kg	20	26.5	35000 D	8
Benzo(g,h,i)perylene	μg/Kg	20	101	19400 E	5
Benzo(k)fluoranthene	μg/Kg	20	18.9 J	25900 D	7
Chrysene	μg/Kg	20	27.8	26300 D	7
Dibenzo(a,h)anthracene	μg/Kg	20	4010 JD	7850 D	2
Fluoranthene	μg/Kg	20	23.4 J	55800 D	7
Fluorene	μg/Kg	20	103 J	2570	2
Indeno(1,2,3-cd)pyrene	μg/Kg	20	135 J	17500	6
Naphthalene	μg/Kg	20	51.7 J	893 J	2
Phenanthrene	μg/Kg	20	38.6	56300 D	6
Pyrene	μg/Kg	20	64.1	62900 D	7
PCBs					
Aroclor-1016	μg/Kg	6	--	--	0
Aroclor-1221	μg/Kg	6	--	--	0
Aroclor-1232	μg/Kg	6	--	--	0
Aroclor-1242	μg/Kg	6	--	--	0
Aroclor-1248	μg/Kg	6	--	--	0
Aroclor-1254	μg/Kg	6	--	--	0
Aroclor-1260	μg/Kg	6	3.4 J	69.6	5
Pesticides					
4,4'-DDD	μg/Kg	6	0.289 J	2.01	2
4,4'-DDE	μg/Kg	6	2.58	3.78	3
4,4'-DDT	μg/Kg	6	2.06	4.45	2
Aldrin	μg/Kg	6	--	--	0
alpha-BHC	μg/Kg	6	--	--	0
alpha-Chlordane	μg/Kg	6	--	--	0
beta-BHC	μg/Kg	6	--	--	0
delta-BHC	μg/Kg	6	--	--	0
Dieldrin	μg/Kg	6	0.742 J	0.742 J	1
Endosulfan I	μg/Kg	6	--	--	0
Endosulfan II	μg/Kg	6	--	--	0
Endosulfan sulfate	μg/Kg	6	--	--	0
Endrin	μg/Kg	6	--	--	0
Endrin aldehyde	μg/Kg	6	--	--	0
Endrin ketone	μg/Kg	6	--	--	0
gamma-BHC (Lindane)	μg/Kg	6	--	--	0
gamma-Chlordane	μg/Kg	6	--	--	0
Heptachlor	μg/Kg	6	--	--	0
Heptachlor epoxide	μg/Kg	6	--	--	0
Methoxychlor	μg/Kg	6	--	--	0
Toxaphene	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-7
Exposure Unit 2
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	37	0.607	3.77	4
Alpha	pCi/g	12	9.83	92.4	12
Americium-241	pCi/g	37	0.0681	0.0681	1
Beta	pCi/g	12	17.2	35	12
Cesium-137	pCi/g	38	0.0213	0.817	37
Cobalt-60	pCi/g	37	--	--	0
Plutonium-238	pCi/g	1	--	--	0
Plutonium-239/240	pCi/g	1	--	--	0
Potassium-40	pCi/g	15	5.63	24.3	15
Protactinium-231	pCi/g	37	--	--	0
Radium-226	pCi/g	46	0.711	61.5	46
Radium-228	pCi/g	37	0.514	3.18	37
Thorium-228	pCi/g	46	0.558	1.56	46
Thorium-230	pCi/g	46	0.802	40.8	45
Thorium-232	pCi/g	46	0.534 J	1.33	46
Total Uranium	μg/g	46	1.41	33.1	43
Uranium-234	pCi/g	46	0.488	10.1	46
Uranium-235	pCi/g	46	0.0589 J	0.302 J	6
Uranium-238	pCi/g	46	0.451	10.1	45
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	20	--	--	0
1,2-Dichlorobenzene	μg/Kg	20	--	--	0
1,3-Dichlorobenzene	μg/Kg	20	--	--	0
1,4-Dichlorobenzene	μg/Kg	20	--	--	0
2,4,5-Trichlorophenol	μg/Kg	20	--	--	0
2,4,6-Trichlorophenol	μg/Kg	20	--	--	0
2,4-Dichlorophenol	μg/Kg	20	--	--	0
2,4-Dimethylphenol	μg/Kg	20	--	--	0
2,4-Dinitrophenol	μg/Kg	20	--	--	0
2-Chloronaphthalene	μg/Kg	20	--	--	0
2-Chlorophenol	μg/Kg	20	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	20	--	--	0
2-Methylnaphthalene	μg/Kg	20	--	--	0
2-Nitroaniline	μg/Kg	20	--	--	0
2-Nitrophenol	μg/Kg	20	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	20	--	--	0
3-Nitroaniline	μg/Kg	20	--	--	0
4-Bromophenylphenylether	μg/Kg	20	--	--	0
4-Chloro-3-methylphenol	μg/Kg	20	--	--	0
4-Chloroaniline	μg/Kg	20	--	--	0
4-Chlorophenylphenylether	μg/Kg	20	--	--	0
4-Nitroaniline	μg/Kg	20	--	--	0
4-Nitrophenol	μg/Kg	20	--	--	0

* Data qualifier included with concentration value

Table 4-7
Exposure Unit 2
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	20	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	20	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	20	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	20	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	20	114 J	7900	5
Butylbenzylphthalate	μg/Kg	20	--	--	0
Carbazole	μg/Kg	20	210 J	6660 JD	2
Dibenzofuran	μg/Kg	20	--	--	0
Diethylphthalate	μg/Kg	20	--	--	0
Dimethylphthalate	μg/Kg	20	--	--	0
Di-n-butylphthalate	μg/Kg	20	--	--	0
Di-n-octylphthalate	μg/Kg	20	--	--	0
Diphenylamine	μg/Kg	17	--	--	0
Hexachlorobenzene	μg/Kg	20	--	--	0
Hexachlorobutadiene	μg/Kg	20	--	--	0
Hexachlorocyclopentadiene	μg/Kg	20	--	--	0
Hexachloroethane	μg/Kg	20	--	--	0
Isophorone	μg/Kg	20	--	--	0
m,p-Cresols	μg/Kg	20	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	20	--	--	0
N-Nitrosodiphenylamine	μg/Kg	3	--	--	0
o-Cresol	μg/Kg	20	--	--	0
Pentachlorophenol	μg/Kg	20	--	--	0
Phenol	μg/Kg	20	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	10	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	10	--	--	0
1,1,2-Trichloroethane	μg/Kg	10	--	--	0
1,1-Dichloroethane	μg/Kg	10	--	--	0
1,1-Dichloroethene	μg/Kg	10	--	--	0
1,2-Dichloroethane	μg/Kg	10	--	--	0
1,2-Dichloropropane	μg/Kg	10	--	--	0
2-Butanone	μg/Kg	10	6.7	9	2
2-Hexanone	μg/Kg	10	4.4	4.4	1
4-Methyl-2-pentanone	μg/Kg	10	--	--	0
Acetone	μg/Kg	10	8.6	71.3	5
Benzene	μg/Kg	10	1.5	2.6	4
Bromodichloromethane	μg/Kg	10	--	--	0
Bromoform	μg/Kg	10	--	--	0
Bromomethane	μg/Kg	10	--	--	0
Carbon disulfide	μg/Kg	10	1.4 J	9.1	3
Carbon tetrachloride	μg/Kg	10	--	--	0
Chlorobenzene	μg/Kg	10	--	--	0
Chloroethane	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-7
Exposure Unit 2
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroform	μg/Kg	10	--	--	0
Chloromethane	μg/Kg	10	--	--	0
cis-1,3-Dichloropropene	μg/Kg	10	--	--	0
Dibromochloromethane	μg/Kg	10	--	--	0
Ethylbenzene	μg/Kg	10	--	--	0
Methylene chloride	μg/Kg	10	--	--	0
Styrene	μg/Kg	10	--	--	0
Tetrachloroethene	μg/Kg	10	--	--	0
Toluene	μg/Kg	10	0.37 J	3.9	5
trans-1,3-Dichloropropene	μg/Kg	10	--	--	0
Trichloroethene	μg/Kg	10	--	--	0
Vinyl chloride	μg/Kg	10	--	--	0
Xylenes (total)	μg/Kg	10	0.99 J	1.8 J	2

* Data qualifier included with concentration value

Table 4-8
Exposure Unit 3
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	8	9960	15600 *	8
Antimony	mg/Kg	8	0.33 BN	0.834 BN	4
Arsenic	mg/Kg	8	2.9 E	11 *	8
Barium	mg/Kg	8	89.2 N	136	8
Beryllium	mg/Kg	8	0.44 B	0.792	8
Boron	mg/Kg	8	3.7 B	9.85	8
Cadmium	mg/Kg	8	0.07 B	0.25 B	3
Calcium	mg/Kg	8	3580	44300	8
Chromium	mg/Kg	8	11.4 *	36.8 E	8
Cobalt	mg/Kg	8	3.8	10.5 *	8
Copper	mg/Kg	8	19.5	40.5 N	8
Iron	mg/Kg	8	11700	24900 *	8
Lead	mg/Kg	8	6.81 *	70.2	8
Lithium	mg/Kg	8	15.4 EN	23.6	8
Magnesium	mg/Kg	8	2400	10500	8
Manganese	mg/Kg	8	141	957 *	8
Mercury	mg/Kg	8	0.023	0.07	7
Nickel	mg/Kg	8	10.8	24.6	8
Potassium	mg/Kg	8	498	2490 N	8
Selenium	mg/Kg	8	0.354 B	1.3	8
Silver	mg/Kg	8	0.063 B	0.291	8
Sodium	mg/Kg	8	67.8 E	163 *	8
Thallium	mg/Kg	8	0.099 BE	0.13	8
Vanadium	mg/Kg	8	17.2	29.8	8
Zinc	mg/Kg	8	47.6 *	63.9 *N	8
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	2	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	2	--	--	0
2,4-Dinitrotoluene	μg/Kg	10	--	--	0
2,6-Dinitrotoluene	μg/Kg	10	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	2	--	--	0
2-Nitrotoluene	μg/Kg	2	--	--	0
3-Dinitrobenzene	μg/Kg	2	--	--	0
3-Nitrotoluene	μg/Kg	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	2	--	--	0
4-Nitrotoluene	μg/Kg	2	--	--	0
HMX	μg/Kg	2	--	--	0
Nitrobenzene	μg/Kg	10	--	--	0
RDX	μg/Kg	2	--	--	0
Tetryl	μg/Kg	2	--	--	0
PAHs					
Acenaphthene	μg/Kg	10	--	--	0
Acenaphthylene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-8
Exposure Unit 3
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	10	--	--	0
Benzo(a)anthracene	μg/Kg	10	91.3 J	91.3 J	1
Benzo(a)pyrene	μg/Kg	10	200 J	200 J	1
Benzo(b)fluoranthene	μg/Kg	10	21.9 P	297 J	3
Benzo(g,h,i)perylene	μg/Kg	10	216 J	216 J	1
Benzo(k)fluoranthene	μg/Kg	10	196 J	196 J	1
Chrysene	μg/Kg	10	305 J	305 J	1
Dibenzo(a,h)anthracene	μg/Kg	10	--	--	0
Fluoranthene	μg/Kg	10	26.2 J	253 J	3
Fluorene	μg/Kg	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	10	154 J	154 J	1
Naphthalene	μg/Kg	10	--	--	0
Phenanthrene	μg/Kg	10	31.6 J	31.6 J	1
Pyrene	μg/Kg	10	30.8 J	255 J	3
PCBs					
Aroclor-1016	μg/Kg	2	--	--	0
Aroclor-1221	μg/Kg	2	--	--	0
Aroclor-1232	μg/Kg	2	--	--	0
Aroclor-1242	μg/Kg	2	--	--	0
Aroclor-1248	μg/Kg	2	--	--	0
Aroclor-1254	μg/Kg	2	--	--	0
Aroclor-1260	μg/Kg	2	16	16	1
Pesticides					
4,4'-DDD	μg/Kg	2	--	--	0
4,4'-DDE	μg/Kg	2	2.94	2.94	1
4,4'-DDT	μg/Kg	2	2.58	2.58	1
Aldrin	μg/Kg	2	--	--	0
alpha-BHC	μg/Kg	2	--	--	0
alpha-Chlordane	μg/Kg	2	--	--	0
beta-BHC	μg/Kg	2	--	--	0
delta-BHC	μg/Kg	2	--	--	0
Dieldrin	μg/Kg	2	--	--	0
Endosulfan I	μg/Kg	2	--	--	0
Endosulfan II	μg/Kg	2	--	--	0
Endosulfan sulfate	μg/Kg	2	--	--	0
Endrin	μg/Kg	2	--	--	0
Endrin aldehyde	μg/Kg	2	--	--	0
Endrin ketone	μg/Kg	2	--	--	0
gamma-BHC (Lindane)	μg/Kg	2	--	--	0
gamma-Chlordane	μg/Kg	2	--	--	0
Heptachlor	μg/Kg	2	--	--	0
Heptachlor epoxide	μg/Kg	2	--	--	0
Methoxychlor	μg/Kg	2	--	--	0
Toxaphene	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-8
Exposure Unit 3
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	18	0.938	2.26	2
Alpha	pCi/g	5	8.39	15.7	5
Americium-241	pCi/g	18	--	--	0
Beta	pCi/g	5	15.9	26.5	5
Cesium-137	pCi/g	19	0.0317	0.375	16
Cobalt-60	pCi/g	18	--	--	0
Potassium-40	pCi/g	13	5.72	19.1	13
Protactinium-231	pCi/g	18	--	--	0
Radium-226	pCi/g	21	0.802	37.5	21
Radium-228	pCi/g	18	0.427	1.07	18
Thorium-228	pCi/g	21	0.736	1.44	21
Thorium-230	pCi/g	21	0.794	12.1	21
Thorium-232	pCi/g	21	0.61	1.33	21
Total Uranium	μg/g	21	1.61	34.3	21
Uranium-234	pCi/g	21	0.648	11.5	21
Uranium-235	pCi/g	21	0.0552 J	0.309	8
Uranium-238	pCi/g	21	0.547	11	20
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	10	--	--	0
1,2-Dichlorobenzene	μg/Kg	10	--	--	0
1,3-Dichlorobenzene	μg/Kg	10	--	--	0
1,4-Dichlorobenzene	μg/Kg	10	--	--	0
2,4,5-Trichlorophenol	μg/Kg	10	--	--	0
2,4,6-Trichlorophenol	μg/Kg	10	--	--	0
2,4-Dichlorophenol	μg/Kg	10	--	--	0
2,4-Dimethylphenol	μg/Kg	10	--	--	0
2,4-Dinitrophenol	μg/Kg	10	--	--	0
2-Chloronaphthalene	μg/Kg	10	--	--	0
2-Chlorophenol	μg/Kg	10	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	10	--	--	0
2-Methylnaphthalene	μg/Kg	10	--	--	0
2-Nitroaniline	μg/Kg	9	--	--	0
2-Nitrophenol	μg/Kg	10	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	10	--	--	0
3-Nitroaniline	μg/Kg	10	--	--	0
4-Bromophenylphenylether	μg/Kg	10	--	--	0
4-Chloro-3-methylphenol	μg/Kg	10	--	--	0
4-Chloroaniline	μg/Kg	10	--	--	0
4-Chlorophenylphenylether	μg/Kg	10	--	--	0
4-Nitroaniline	μg/Kg	10	--	--	0
4-Nitrophenol	μg/Kg	10	--	--	0
Benzoic Acid	μg/Kg	10	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-8
Exposure Unit 3
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	10	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	10	55.8 J	1170 J	5
Butylbenzylphthalate	μg/Kg	10	--	--	0
Carbazole	μg/Kg	10	--	--	0
Dibenzofuran	μg/Kg	10	--	--	0
Diethylphthalate	μg/Kg	10	--	--	0
Dimethylphthalate	μg/Kg	10	--	--	0
Di-n-butylphthalate	μg/Kg	10	--	--	0
Di-n-octylphthalate	μg/Kg	10	--	--	0
Diphenylamine	μg/Kg	6	--	--	0
Hexachlorobenzene	μg/Kg	10	--	--	0
Hexachlorobutadiene	μg/Kg	10	--	--	0
Hexachlorocyclopentadiene	μg/Kg	10	--	--	0
Hexachloroethane	μg/Kg	10	--	--	0
Isophorone	μg/Kg	10	--	--	0
m,p-Cresols	μg/Kg	10	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	10	--	--	0
N-Nitrosodiphenylamine	μg/Kg	4	--	--	0
o-Cresol	μg/Kg	10	--	--	0
Pentachlorophenol	μg/Kg	10	--	--	0
Phenol	μg/Kg	10	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	2	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	2	--	--	0
1,1,2-Trichloroethane	μg/Kg	2	--	--	0
1,1-Dichloroethane	μg/Kg	2	--	--	0
1,1-Dichloroethene	μg/Kg	2	--	--	0
1,2-Dichloroethane	μg/Kg	2	--	--	0
1,2-Dichloropropane	μg/Kg	2	--	--	0
2-Butanone	μg/Kg	2	--	--	0
2-Hexanone	μg/Kg	2	--	--	0
4-Methyl-2-pentanone	μg/Kg	2	--	--	0
Acetone	μg/Kg	2	--	--	0
Benzene	μg/Kg	2	--	--	0
Bromodichloromethane	μg/Kg	2	--	--	0
Bromoform	μg/Kg	2	--	--	0
Bromomethane	μg/Kg	2	--	--	0
Carbon disulfide	μg/Kg	2	--	--	0
Carbon tetrachloride	μg/Kg	2	--	--	0
Chlorobenzene	μg/Kg	2	--	--	0
Chloroethane	μg/Kg	2	--	--	0
Chloroform	μg/Kg	2	--	--	0
Chloromethane	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-8
Exposure Unit 3
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	2	--	--	0
Dibromochloromethane	μg/Kg	2	--	--	0
Ethylbenzene	μg/Kg	2	--	--	0
Methylene chloride	μg/Kg	2	--	--	0
Styrene	μg/Kg	2	--	--	0
Tetrachloroethene	μg/Kg	2	--	--	0
Toluene	μg/Kg	2	--	--	0
trans-1,3-Dichloropropene	μg/Kg	2	--	--	0
Trichloroethene	μg/Kg	2	--	--	0
Vinyl chloride	μg/Kg	2	--	--	0
Xylenes (total)	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-9
Exposure Unit 4
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	22	7170	21800	22
Antimony	mg/Kg	22	1.54 N	3.57 N	3
Arsenic	mg/Kg	22	2.5 *N	17.2 N	22
Barium	mg/Kg	22	68	2670 N*	22
Beryllium	mg/Kg	22	0.354 B	0.85	22
Boron	mg/Kg	22	5.13 B	313 J	22
Cadmium	mg/Kg	22	0.04 B	0.67	13
Calcium	mg/Kg	22	4750	93600 E	22
Chromium	mg/Kg	22	11.4	196	22
Cobalt	mg/Kg	22	5.62 *	11.4 *	22
Copper	mg/Kg	22	24 *	590 J	22
Iron	mg/Kg	22	13700	154000 J	22
Lead	mg/Kg	22	6.1 *	686	22
Lithium	mg/Kg	22	7.79 N*	29.9	22
Magnesium	mg/Kg	22	3130	17900	22
Manganese	mg/Kg	22	374	1500	22
Mercury	mg/Kg	22	0.01 B	0.11	22
Nickel	mg/Kg	22	16.4	76.1 *	22
Potassium	mg/Kg	22	1110	6330 J	22
Selenium	mg/Kg	22	0.31 B	1.99 N	22
Silver	mg/Kg	22	0.06 B	0.375 B	22
Sodium	mg/Kg	22	50.2	4520 *	22
Thallium	mg/Kg	22	0.08 B	0.242	21
Vanadium	mg/Kg	22	15.4	41.2	22
Zinc	mg/Kg	22	43.5	213	22
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	8	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	8	--	--	0
2,4-Dinitrotoluene	μg/Kg	27	64.1 J	64.1 J	1
2,6-Dinitrotoluene	μg/Kg	27	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	8	--	--	0
2-Nitrotoluene	μg/Kg	8	--	--	0
3-Dinitrobenzene	μg/Kg	8	--	--	0
3-Nitrotoluene	μg/Kg	8	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	8	--	--	0
4-Nitrotoluene	μg/Kg	8	--	--	0
HMX	μg/Kg	8	--	--	0
Nitrobenzene	μg/Kg	27	--	--	0
RDX	μg/Kg	8	--	--	0
Tetryl	μg/Kg	8	--	--	0
PAHs					
Acenaphthene	μg/Kg	26	--	--	0
Acenaphthylene	μg/Kg	26	14.9 J	151 J	3

* Data qualifier included with concentration value

Table 4-9
Exposure Unit 4
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	26	78.5	78.5	1
Benzo(a)anthracene	μg/Kg	26	1.62 J	623	10
Benzo(a)pyrene	μg/Kg	26	23.2 J	1290	7
Benzo(b)fluoranthene	μg/Kg	26	3.32 J	2980	10
Benzo(g,h,i)perylene	μg/Kg	26	49.3 J	2880 J	6
Benzo(k)fluoranthene	μg/Kg	26	16.1	908	6
Chrysene	μg/Kg	26	2.38 J	1090	11
Dibenzo(a,h)anthracene	μg/Kg	26	--	--	0
Fluoranthene	μg/Kg	26	6.34 P	694	11
Fluorene	μg/Kg	26	11.6 J	19.8 J	2
Indeno(1,2,3-cd)pyrene	μg/Kg	26	38.3	875	7
Naphthalene	μg/Kg	26	7 J	76.7	2
Phenanthrene	μg/Kg	26	20.9 J	532	8
Pyrene	μg/Kg	26	3.33 J	795	10
PCBs					
Aroclor-1016	μg/Kg	25	--	--	0
Aroclor-1221	μg/Kg	25	--	--	0
Aroclor-1232	μg/Kg	25	--	--	0
Aroclor-1242	μg/Kg	25	--	--	0
Aroclor-1248	μg/Kg	25	--	--	0
Aroclor-1254	μg/Kg	25	20.9	714 JP	7
Aroclor-1260	μg/Kg	25	4 J	70200	24
Pesticides					
4,4'-DDD	μg/Kg	25	--	--	0
4,4'-DDE	μg/Kg	25	1.1 JP	10.6	9
4,4'-DDT	μg/Kg	25	7.3 P	13.1	2
Aldrin	μg/Kg	25	--	--	0
alpha-BHC	μg/Kg	25	--	--	0
alpha-Chlordane	μg/Kg	25	--	--	0
beta-BHC	μg/Kg	25	--	--	0
delta-BHC	μg/Kg	25	--	--	0
Dieldrin	μg/Kg	25	0.92 JP	0.92 JP	1
Endosulfan I	μg/Kg	25	--	--	0
Endosulfan II	μg/Kg	25	--	--	0
Endosulfan sulfate	μg/Kg	25	0.99 J	0.99 J	1
Endrin	μg/Kg	25	--	--	0
Endrin aldehyde	μg/Kg	25	--	--	0
Endrin ketone	μg/Kg	25	--	--	0
gamma-BHC (Lindane)	μg/Kg	25	--	--	0
gamma-Chlordane	μg/Kg	25	--	--	0
Heptachlor	μg/Kg	25	--	--	0
Heptachlor epoxide	μg/Kg	25	--	--	0
Methoxychlor	μg/Kg	25	--	--	0
Toxaphene	μg/Kg	25	--	--	0

* Data qualifier included with concentration value

Table 4-9
Exposure Unit 4
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	40	--	--	0
Alpha	pCi/g	19	8.79	26.1	19
Americium-241	pCi/g	40	0.035	0.104	2
Beta	pCi/g	19	16.8	35.4	19
Cesium-137	pCi/g	47	0.0331	1.92 J	43
Cobalt-60	pCi/g	40	--	--	0
Plutonium-238	pCi/g	5	--	--	0
Plutonium-239/240	pCi/g	5	--	--	0
Potassium-40	pCi/g	13	2.34	19.5	13
Protactinium-231	pCi/g	40	--	--	0
Radium-226	pCi/g	50	0.555	5.83	48
Radium-228	pCi/g	40	0.292	1.1	38
Thorium-228	pCi/g	50	0.33	1.96	45
Thorium-230	pCi/g	50	0.732	5.21	49
Thorium-232	pCi/g	50	0.102	1.33	49
Total Uranium	μg/g	50	0.411	7.43	50
Uranium-234	pCi/g	50	0.275	2.92	48
Uranium-235	pCi/g	50	0.0726 J	0.221	2
Uranium-238	pCi/g	50	0.424	2.47	48
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	26	--	--	0
1,2-Dichlorobenzene	μg/Kg	26	--	--	0
1,3-Dichlorobenzene	μg/Kg	26	--	--	0
1,4-Dichlorobenzene	μg/Kg	26	--	--	0
2,4,5-Trichlorophenol	μg/Kg	26	--	--	0
2,4,6-Trichlorophenol	μg/Kg	25	--	--	0
2,4-Dichlorophenol	μg/Kg	26	--	--	0
2,4-Dimethylphenol	μg/Kg	26	--	--	0
2,4-Dinitrophenol	μg/Kg	26	--	--	0
2-Chloronaphthalene	μg/Kg	26	--	--	0
2-Chlorophenol	μg/Kg	26	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	26	--	--	0
2-Methylnaphthalene	μg/Kg	26	66.7	66.7	1
2-Nitroaniline	μg/Kg	25	--	--	0
2-Nitrophenol	μg/Kg	26	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	26	--	--	0
3-Nitroaniline	μg/Kg	26	--	--	0
4-Bromophenylphenylether	μg/Kg	26	--	--	0
4-Chloro-3-methylphenol	μg/Kg	26	--	--	0
4-Chloroaniline	μg/Kg	26	--	--	0
4-Chlorophenylphenylether	μg/Kg	26	--	--	0
4-Nitroaniline	μg/Kg	26	--	--	0
4-Nitrophenol	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-9
Exposure Unit 4
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	26	69 J	498 J	2
bis(2-Chloroethoxy)methane	μg/Kg	26	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	26	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	26	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	26	85.5 J	85.5 J	1
Butylbenzylphthalate	μg/Kg	26	62.7 J	62.7 J	1
Carbazole	μg/Kg	26	--	--	0
Dibenzofuran	μg/Kg	26	20.8 J	20.8 J	1
Diethylphthalate	μg/Kg	26	--	--	0
Dimethylphthalate	μg/Kg	26	--	--	0
Di-n-butylphthalate	μg/Kg	26	291 J	291 J	1
Di-n-octylphthalate	μg/Kg	26	--	--	0
Diphenylamine	μg/Kg	18	--	--	0
Hexachlorobenzene	μg/Kg	26	--	--	0
Hexachlorobutadiene	μg/Kg	26	--	--	0
Hexachlorocyclopentadiene	μg/Kg	26	--	--	0
Hexachloroethane	μg/Kg	26	--	--	0
Isophorone	μg/Kg	26	--	--	0
m,p-Cresols	μg/Kg	26	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	26	--	--	0
N-Nitrosodiphenylamine	μg/Kg	8	--	--	0
o-Cresol	μg/Kg	26	--	--	0
Pentachlorophenol	μg/Kg	26	--	--	0
Phenol	μg/Kg	26	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	14	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	14	--	--	0
1,1,2-Trichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethene	μg/Kg	14	1.12 J	1.12 J	1
1,2-Dichloroethane	μg/Kg	14	--	--	0
1,2-Dichloropropane	μg/Kg	14	--	--	0
2-Butanone	μg/Kg	14	--	--	0
2-Hexanone	μg/Kg	14	--	--	0
4-Methyl-2-pentanone	μg/Kg	14	--	--	0
Acetone	μg/Kg	14	2.46 J	6.92	4
Benzene	μg/Kg	14	--	--	0
Bromodichloromethane	μg/Kg	14	--	--	0
Bromoform	μg/Kg	14	--	--	0
Bromomethane	μg/Kg	14	--	--	0
Carbon disulfide	μg/Kg	14	--	--	0
Carbon tetrachloride	μg/Kg	14	--	--	0
Chlorobenzene	μg/Kg	14	--	--	0
Chloroethane	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-9
Exposure Unit 4
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroform	μg/Kg	14	--	--	0
Chloromethane	μg/Kg	14	--	--	0
cis-1,3-Dichloropropene	μg/Kg	14	--	--	0
Dibromochloromethane	μg/Kg	14	--	--	0
Ethylbenzene	μg/Kg	14	--	--	0
m,p-Xylenes	μg/Kg	1	--	--	0
Methylene chloride	μg/Kg	14	--	--	0
o-Xylene	μg/Kg	1	--	--	0
Styrene	μg/Kg	14	--	--	0
Tetrachloroethene	μg/Kg	14	3.92	1410	5
Toluene	μg/Kg	14	0.46 J	0.46 J	1
trans-1,3-Dichloropropene	μg/Kg	14	--	--	0
Trichloroethene	μg/Kg	14	0.571 J	71.4 J	3
Vinyl chloride	μg/Kg	14	--	--	0
Xylenes (total)	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-10
Exposure Unit 5
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	7	7950	32400 E*	7
Antimony	mg/Kg	7	0.27 BN	0.421 BN	2
Arsenic	mg/Kg	7	2.3	5.18 N*	7
Barium	mg/Kg	7	60.3	441 *	7
Beryllium	mg/Kg	7	0.3 B	7.7 E*	7
Boron	mg/Kg	7	1.8 B	88.2 E*N	7
Cadmium	mg/Kg	7	0.34 B	0.91	4
Calcium	mg/Kg	7	1580	179000 *	7
Chromium	mg/Kg	7	9.1	30.1 *N	7
Cobalt	mg/Kg	7	2.3	12.3	7
Copper	mg/Kg	7	9.6	58.1 E*N	7
Iron	mg/Kg	7	7930	24700	7
Lead	mg/Kg	7	9.6	23.5	7
Lithium	mg/Kg	6	12.2	37.2	6
Magnesium	mg/Kg	7	1310	12200 *	7
Manganese	mg/Kg	7	122	5010 *	7
Mercury	mg/Kg	7	0.019 *	0.15	6
Nickel	mg/Kg	7	7.9	25.6 E	7
Potassium	mg/Kg	7	440	4050 *	7
Selenium	mg/Kg	7	0.31 B	2.35	6
Silver	mg/Kg	7	0.06 BN	0.213 B	7
Sodium	mg/Kg	7	33	1210 E*	7
Thallium	mg/Kg	7	0.1 B	0.15	5
Vanadium	mg/Kg	7	14.1	27	7
Zinc	mg/Kg	7	29.9 E*N	92.7	7
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	1	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	1	--	--	0
2,4-Dinitrotoluene	μg/Kg	6	--	--	0
2,6-Dinitrotoluene	μg/Kg	6	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	1	--	--	0
2-Nitrotoluene	μg/Kg	1	--	--	0
3-Dinitrobenzene	μg/Kg	1	--	--	0
3-Nitrotoluene	μg/Kg	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	1	--	--	0
4-Nitrotoluene	μg/Kg	1	--	--	0
HMX	μg/Kg	1	--	--	0
Nitrobenzene	μg/Kg	6	--	--	0
RDX	μg/Kg	1	--	--	0
Tetryl	μg/Kg	1	--	--	0
PAHs					
Acenaphthene	μg/Kg	6	--	--	0
Acenaphthylene	μg/Kg	6	96.2	96.2	1

* Data qualifier included with concentration value

Table 4-10
Exposure Unit 5
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	6	--	--	0
Benzo(a)anthracene	μg/Kg	6	145	145	1
Benzo(a)pyrene	μg/Kg	6	240	240	1
Benzo(b)fluoranthene	μg/Kg	6	561	561	1
Benzo(g,h,i)perylene	μg/Kg	6	176	176	1
Benzo(k)fluoranthene	μg/Kg	6	159	159	1
Chrysene	μg/Kg	6	216	216	1
Dibenzo(a,h)anthracene	μg/Kg	6	--	--	0
Fluoranthene	μg/Kg	6	258	258	1
Fluorene	μg/Kg	6	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	6	283	283	1
Naphthalene	μg/Kg	6	--	--	0
Phenanthrene	μg/Kg	6	24 J	24 J	1
Pyrene	μg/Kg	6	237	237	1
PCBs					
Aroclor-1016	μg/Kg	4	--	--	0
Aroclor-1221	μg/Kg	4	--	--	0
Aroclor-1232	μg/Kg	4	--	--	0
Aroclor-1242	μg/Kg	4	--	--	0
Aroclor-1248	μg/Kg	4	--	--	0
Aroclor-1254	μg/Kg	4	4.2	12 P	3
Aroclor-1260	μg/Kg	4	5.3	24.8 J	3
Pesticides					
4,4'-DDD	μg/Kg	4	--	--	0
4,4'-DDE	μg/Kg	4	2.6 P	2.6 P	1
4,4'-DDT	μg/Kg	4	5.4	5.4	1
Aldrin	μg/Kg	4	--	--	0
alpha-BHC	μg/Kg	4	--	--	0
alpha-Chlordane	μg/Kg	4	--	--	0
beta-BHC	μg/Kg	4	--	--	0
delta-BHC	μg/Kg	4	--	--	0
Dieldrin	μg/Kg	4	--	--	0
Endosulfan I	μg/Kg	4	--	--	0
Endosulfan II	μg/Kg	4	--	--	0
Endosulfan sulfate	μg/Kg	4	--	--	0
Endrin	μg/Kg	4	--	--	0
Endrin aldehyde	μg/Kg	4	--	--	0
Endrin ketone	μg/Kg	4	--	--	0
gamma-BHC (Lindane)	μg/Kg	4	--	--	0
gamma-Chlordane	μg/Kg	4	--	--	0
Heptachlor	μg/Kg	4	--	--	0
Heptachlor epoxide	μg/Kg	4	--	--	0
Methoxychlor	μg/Kg	4	--	--	0
Toxaphene	μg/Kg	4	--	--	0

* Data qualifier included with concentration value

Table 4-10
Exposure Unit 5
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	21	1.33	14.2	2
Alpha	pCi/g	6	11.3	21	6
Americium-241	pCi/g	21	--	--	0
Beta	pCi/g	6	10.2	24.9	6
Cesium-137	pCi/g	25	0.143	0.672	21
Cobalt-60	pCi/g	21	--	--	0
Potassium-40	pCi/g	16	11.3	22.4	16
Protactinium-231	pCi/g	21	--	--	0
Radium-226	pCi/g	26	0.734 J	285	26
Radium-228	pCi/g	21	0.654	1.12	21
Thorium-228	pCi/g	25	0.63 J	1.69	25
Thorium-230	pCi/g	26	0.717	8.73	25
Thorium-232	pCi/g	26	0.485 J	1.22	26
Total Uranium	μg/g	26	1.35	5	25
Uranium-234	pCi/g	26	0.434	2.37	26
Uranium-235	pCi/g	26	0.148 J	0.447	4
Uranium-238	pCi/g	26	0.586 J	2.45	26
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	6	--	--	0
1,2-Dichlorobenzene	μg/Kg	6	--	--	0
1,3-Dichlorobenzene	μg/Kg	6	--	--	0
1,4-Dichlorobenzene	μg/Kg	6	--	--	0
2,4,5-Trichlorophenol	μg/Kg	6	--	--	0
2,4,6-Trichlorophenol	μg/Kg	6	--	--	0
2,4-Dichlorophenol	μg/Kg	6	--	--	0
2,4-Dimethylphenol	μg/Kg	6	--	--	0
2,4-Dinitrophenol	μg/Kg	6	--	--	0
2-Chloronaphthalene	μg/Kg	6	--	--	0
2-Chlorophenol	μg/Kg	6	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	6	--	--	0
2-Methylnaphthalene	μg/Kg	6	--	--	0
2-Nitroaniline	μg/Kg	6	--	--	0
2-Nitrophenol	μg/Kg	6	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	6	--	--	0
3-Nitroaniline	μg/Kg	6	--	--	0
4-Bromophenylphenylether	μg/Kg	6	--	--	0
4-Chloro-3-methylphenol	μg/Kg	6	--	--	0
4-Chloroaniline	μg/Kg	6	--	--	0
4-Chlorophenylphenylether	μg/Kg	6	--	--	0
4-Nitroaniline	μg/Kg	6	--	--	0
4-Nitrophenol	μg/Kg	6	--	--	0
Benzoic Acid	μg/Kg	6	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-10
Exposure Unit 5
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	6	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	6	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	6	--	--	0
Butylbenzylphthalate	μg/Kg	6	--	--	0
Carbazole	μg/Kg	6	--	--	0
Dibenzofuran	μg/Kg	6	--	--	0
Diethylphthalate	μg/Kg	6	--	--	0
Dimethylphthalate	μg/Kg	6	--	--	0
Di-n-butylphthalate	μg/Kg	6	--	--	0
Di-n-octylphthalate	μg/Kg	6	--	--	0
Diphenylamine	μg/Kg	5	--	--	0
Hexachlorobenzene	μg/Kg	6	--	--	0
Hexachlorobutadiene	μg/Kg	6	--	--	0
Hexachlorocyclopentadiene	μg/Kg	6	--	--	0
Hexachloroethane	μg/Kg	6	--	--	0
Isophorone	μg/Kg	6	--	--	0
m,p-Cresols	μg/Kg	6	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	6	--	--	0
N-Nitrosodiphenylamine	μg/Kg	1	--	--	0
o-Cresol	μg/Kg	6	--	--	0
Pentachlorophenol	μg/Kg	6	--	--	0
Phenol	μg/Kg	6	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	4	0.83 J	0.83 J	1
1,1,2,2-Tetrachloroethane	μg/Kg	4	--	--	0
1,1,2-Trichloroethane	μg/Kg	4	--	--	0
1,1-Dichloroethane	μg/Kg	4	--	--	0
1,1-Dichloroethene	μg/Kg	4	0.648 J	0.648 J	1
1,2-Dichloroethane	μg/Kg	4	--	--	0
1,2-Dichloropropane	μg/Kg	4	--	--	0
2-Butanone	μg/Kg	4	5.1 J	5.1 J	1
2-Hexanone	μg/Kg	4	--	--	0
4-Methyl-2-pentanone	μg/Kg	4	--	--	0
Acetone	μg/Kg	4	1.5 J	51.7	2
Benzene	μg/Kg	4	1.2	1.2	1
Bromodichloromethane	μg/Kg	4	--	--	0
Bromoform	μg/Kg	4	--	--	0
Bromomethane	μg/Kg	4	--	--	0
Carbon disulfide	μg/Kg	4	2.4 J	2.4 J	1
Carbon tetrachloride	μg/Kg	4	--	--	0
Chlorobenzene	μg/Kg	4	--	--	0
Chloroethane	μg/Kg	4	--	--	0
Chloroform	μg/Kg	4	--	--	0
Chloromethane	μg/Kg	4	--	--	0

* Data qualifier included with concentration value

Table 4-10
Exposure Unit 5
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	4	--	--	0
Dibromochloromethane	μg/Kg	4	--	--	0
Ethylbenzene	μg/Kg	4	--	--	0
Methylene chloride	μg/Kg	4	--	--	0
Styrene	μg/Kg	4	--	--	0
Tetrachloroethene	μg/Kg	4	1.3	1.3	1
Toluene	μg/Kg	4	0.27 J	2.8	3
trans-1,3-Dichloropropene	μg/Kg	4	--	--	0
Trichloroethene	μg/Kg	4	1 J	1 J	1
Vinyl chloride	μg/Kg	4	--	--	0
Xylenes (total)	μg/Kg	4	0.8 J	1 J	2

* Data qualifier included with concentration value

Table 4-11
Exposure Unit 6
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	12	6790	15100 E*	12
Antimony	mg/Kg	12	0.65 BN	0.882 BN	2
Arsenic	mg/Kg	12	2.3	11.7	12
Barium	mg/Kg	12	71.9	143 E	12
Beryllium	mg/Kg	12	0.337 B	0.94 E	12
Boron	mg/Kg	12	1.3 B	8.4 *	12
Cadmium	mg/Kg	12	0.153 B	0.86	8
Calcium	mg/Kg	12	2060 *	47200 E*	12
Chromium	mg/Kg	12	8.76	21.1	12
Cobalt	mg/Kg	12	3.1	10.6	12
Copper	mg/Kg	12	21	35.6	12
Iron	mg/Kg	12	7370	26000	12
Lead	mg/Kg	12	4.3	47.3	12
Lithium	mg/Kg	12	13.4	28.6 E	12
Magnesium	mg/Kg	12	1790	9470 *	12
Manganese	mg/Kg	12	112	1180 *	12
Mercury	mg/Kg	12	0.02 B	0.35	12
Nickel	mg/Kg	12	11.6	25.6 E	12
Potassium	mg/Kg	12	479 N	1910 E	12
Selenium	mg/Kg	11	0.09 BN	2.3 B	10
Silver	mg/Kg	12	0.04 B	0.15 B	12
Sodium	mg/Kg	12	42 E	209	12
Thallium	mg/Kg	12	0.04 B	0.36	9
Vanadium	mg/Kg	12	14.5	30.8 E*N	12
Zinc	mg/Kg	12	35.2 E	199	12
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	7	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	7	--	--	0
2,4-Dinitrotoluene	μg/Kg	10	--	--	0
2,6-Dinitrotoluene	μg/Kg	10	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	7	--	--	0
2-Nitrotoluene	μg/Kg	7	--	--	0
3-Dinitrobenzene	μg/Kg	7	--	--	0
3-Nitrotoluene	μg/Kg	7	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	7	--	--	0
4-Nitrotoluene	μg/Kg	7	--	--	0
HMX	μg/Kg	7	--	--	0
Nitrobenzene	μg/Kg	10	--	--	0
RDX	μg/Kg	7	--	--	0
Tetryl	μg/Kg	7	--	--	0
PAHs					
Acenaphthene	μg/Kg	10	--	--	0
Acenaphthylene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-11
Exposure Unit 6
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	10	--	--	0
Benzo(a)anthracene	μg/Kg	10	--	--	0
Benzo(a)pyrene	μg/Kg	10	--	--	0
Benzo(b)fluoranthene	μg/Kg	10	--	--	0
Benzo(g,h,i)perylene	μg/Kg	10	--	--	0
Benzo(k)fluoranthene	μg/Kg	10	280 J	280 J	1
Chrysene	μg/Kg	10	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	10	--	--	0
Fluoranthene	μg/Kg	10	--	--	0
Fluorene	μg/Kg	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	10	--	--	0
Naphthalene	μg/Kg	10	--	--	0
Phenanthrene	μg/Kg	10	--	--	0
Pyrene	μg/Kg	10	--	--	0
PCBs					
Aroclor-1016	μg/Kg	7	--	--	0
Aroclor-1221	μg/Kg	7	--	--	0
Aroclor-1232	μg/Kg	7	--	--	0
Aroclor-1242	μg/Kg	7	--	--	0
Aroclor-1248	μg/Kg	7	--	--	0
Aroclor-1254	μg/Kg	7	5.9	11.3 P	3
Aroclor-1260	μg/Kg	7	5.2 J	14.7	4
Pesticides					
4,4'-DDD	μg/Kg	7	--	--	0
4,4'-DDE	μg/Kg	7	1.2 JP	1.2 JP	1
4,4'-DDT	μg/Kg	7	--	--	0
Aldrin	μg/Kg	7	--	--	0
alpha-BHC	μg/Kg	7	--	--	0
alpha-Chlordane	μg/Kg	7	--	--	0
beta-BHC	μg/Kg	7	--	--	0
delta-BHC	μg/Kg	7	0.48 JP	0.48 JP	1
Dieldrin	μg/Kg	7	0.45 JP	0.45 JP	1
Endosulfan I	μg/Kg	7	--	--	0
Endosulfan II	μg/Kg	7	--	--	0
Endosulfan sulfate	μg/Kg	7	--	--	0
Endrin	μg/Kg	7	--	--	0
Endrin aldehyde	μg/Kg	7	--	--	0
Endrin ketone	μg/Kg	7	--	--	0
gamma-BHC (Lindane)	μg/Kg	7	--	--	0
gamma-Chlordane	μg/Kg	7	--	--	0
Heptachlor	μg/Kg	7	--	--	0
Heptachlor epoxide	μg/Kg	7	--	--	0
Methoxychlor	μg/Kg	7	--	--	0
Toxaphene	μg/Kg	7	--	--	0

* Data qualifier included with concentration value

Table 4-11
Exposure Unit 6
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	23	0.579	18.9	4
Alpha	pCi/g	11	7.05	1390	11
Americium-241	pCi/g	23	--	--	0
Beta	pCi/g	11	13	739	11
Cesium-137	pCi/g	27	0.0361	0.848	23
Cobalt-60	pCi/g	23	--	--	0
Potassium-40	pCi/g	16	6.25	19.8	16
Protactinium-231	pCi/g	23	18.9	18.9	1
Radium-226	pCi/g	31	0.683	182	31
Radium-228	pCi/g	23	0.624	1.14	22
Thorium-228	pCi/g	31	0.579	1.41	31
Thorium-230	pCi/g	31	0.642 J	352	30
Thorium-232	pCi/g	31	0.306	1.11	31
Total Uranium	μg/g	31	1.48	287	29
Uranium-234	pCi/g	31	0.33	42.5	31
Uranium-235	pCi/g	31	0.078 J	2.13	5
Uranium-238	pCi/g	31	0.295	41.5	31
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	10	--	--	0
1,2-Dichlorobenzene	μg/Kg	10	--	--	0
1,3-Dichlorobenzene	μg/Kg	10	--	--	0
1,4-Dichlorobenzene	μg/Kg	10	--	--	0
2,4,5-Trichlorophenol	μg/Kg	10	--	--	0
2,4,6-Trichlorophenol	μg/Kg	10	--	--	0
2,4-Dichlorophenol	μg/Kg	10	--	--	0
2,4-Dimethylphenol	μg/Kg	10	--	--	0
2,4-Dinitrophenol	μg/Kg	10	--	--	0
2-Chloronaphthalene	μg/Kg	10	--	--	0
2-Chlorophenol	μg/Kg	10	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	10	--	--	0
2-Methylnaphthalene	μg/Kg	10	--	--	0
2-Nitroaniline	μg/Kg	10	--	--	0
2-Nitrophenol	μg/Kg	10	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	10	--	--	0
3-Nitroaniline	μg/Kg	10	--	--	0
4-Bromophenylphenylether	μg/Kg	10	--	--	0
4-Chloro-3-methylphenol	μg/Kg	10	--	--	0
4-Chloroaniline	μg/Kg	10	--	--	0
4-Chlorophenylphenylether	μg/Kg	10	--	--	0
4-Nitroaniline	μg/Kg	10	--	--	0
4-Nitrophenol	μg/Kg	10	--	--	0
Benzoic Acid	μg/Kg	10	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-11
Exposure Unit 6
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	10	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	10	177 J	319 J	3
Butylbenzylphthalate	μg/Kg	10	--	--	0
Carbazole	μg/Kg	10	--	--	0
Dibenzofuran	μg/Kg	10	--	--	0
Diethylphthalate	μg/Kg	10	--	--	0
Dimethylphthalate	μg/Kg	10	--	--	0
Di-n-butylphthalate	μg/Kg	10	--	--	0
Di-n-octylphthalate	μg/Kg	10	--	--	0
Diphenylamine	μg/Kg	10	--	--	0
Hexachlorobenzene	μg/Kg	10	--	--	0
Hexachlorobutadiene	μg/Kg	10	--	--	0
Hexachlorocyclopentadiene	μg/Kg	10	--	--	0
Hexachloroethane	μg/Kg	10	--	--	0
Isophorone	μg/Kg	10	--	--	0
m,p-Cresols	μg/Kg	10	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	10	--	--	0
o-Cresol	μg/Kg	10	--	--	0
Pentachlorophenol	μg/Kg	10	--	--	0
Phenol	μg/Kg	10	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	8	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	8	--	--	0
1,1,2-Trichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethene	μg/Kg	8	--	--	0
1,2-Dichloroethane	μg/Kg	8	--	--	0
1,2-Dichloropropane	μg/Kg	8	--	--	0
2-Butanone	μg/Kg	8	2.6 J	12	2
2-Hexanone	μg/Kg	8	0.71 J	0.71 J	1
4-Methyl-2-pentanone	μg/Kg	8	--	--	0
Acetone	μg/Kg	8	3.2 J	98.1	3
Benzene	μg/Kg	8	1.3	1.4	2
Bromodichloromethane	μg/Kg	8	--	--	0
Bromoform	μg/Kg	8	--	--	0
Bromomethane	μg/Kg	8	--	--	0
Carbon disulfide	μg/Kg	8	2 J	2.4 J	2
Carbon tetrachloride	μg/Kg	8	--	--	0
Chlorobenzene	μg/Kg	8	--	--	0
Chloroethane	μg/Kg	8	--	--	0
Chloroform	μg/Kg	8	--	--	0
Chloromethane	μg/Kg	8	--	--	0
cis-1,3-Dichloropropene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-11
Exposure Unit 6
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/Kg	8	--	--	0
Ethylbenzene	μg/Kg	8	--	--	0
Methylene chloride	μg/Kg	8	7.1 JB	7.1 JB	1
Styrene	μg/Kg	8	--	--	0
Tetrachloroethene	μg/Kg	8	--	--	0
Toluene	μg/Kg	8	0.25 J	1.3	3
trans-1,3-Dichloropropene	μg/Kg	8	--	--	0
Trichloroethene	μg/Kg	8	--	--	0
Vinyl chloride	μg/Kg	8	--	--	0
Xylenes (total)	μg/Kg	8	0.76 J	0.76 J	1

* Data qualifier included with concentration value

Table 4-12
Exposure Unit 7
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	10	10800 *	16200 *	10
Antimony	mg/Kg	10	0.489 BN	1.52 BN	3
Arsenic	mg/Kg	10	2.8	5.87	10
Barium	mg/Kg	10	94.5 *	143 *	10
Beryllium	mg/Kg	10	0.422 B	0.731 B	10
Boron	mg/Kg	10	2.52 B	12.1 B	10
Cadmium	mg/Kg	10	0.185 B	0.46 B	4
Calcium	mg/Kg	10	5600	48200	10
Chromium	mg/Kg	10	13.3	21.2	10
Cobalt	mg/Kg	10	5.75	17.5 E*	10
Copper	mg/Kg	10	20.2 E*N	35.8 *N	10
Iron	mg/Kg	10	15500	23700	10
Lead	mg/Kg	10	5.45	19.8 E*	10
Lithium	mg/Kg	10	22.1	27.3 E*	10
Magnesium	mg/Kg	10	3270	22800	10
Manganese	mg/Kg	10	293	827 E	10
Mercury	mg/Kg	10	0.01 B	0.054 *	10
Nickel	mg/Kg	10	12.8	31.4	10
Potassium	mg/Kg	10	920 E	2880	10
Selenium	mg/Kg	10	0.371 B	2.46 N	9
Silver	mg/Kg	10	0.055 B	0.11 B	10
Sodium	mg/Kg	10	47.5	173	10
Thallium	mg/Kg	10	0.06 B	0.158	10
Vanadium	mg/Kg	10	19.9	30.7	10
Zinc	mg/Kg	10	35.1 N	96.8 E*N	10
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	1	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	1	--	--	0
2,4-Dinitrotoluene	μg/Kg	8	--	--	0
2,6-Dinitrotoluene	μg/Kg	8	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	1	--	--	0
2-Nitrotoluene	μg/Kg	1	--	--	0
3-Dinitrobenzene	μg/Kg	1	--	--	0
3-Nitrotoluene	μg/Kg	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	1	--	--	0
4-Nitrotoluene	μg/Kg	1	--	--	0
HMX	μg/Kg	1	--	--	0
Nitrobenzene	μg/Kg	8	--	--	0
RDX	μg/Kg	1	--	--	0
Tetryl	μg/Kg	1	--	--	0
PAHs					
Acenaphthene	μg/Kg	8	--	--	0
Acenaphthylene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-12
Exposure Unit 7
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	8	--	--	0
Benzo(a)anthracene	μg/Kg	8	3.75 J	45.7 P	4
Benzo(a)pyrene	μg/Kg	8	3.3	41	5
Benzo(b)fluoranthene	μg/Kg	8	6.76 J	93.6 P	4
Benzo(g,h,i)perylene	μg/Kg	8	10.3 h	36.8	3
Benzo(k)fluoranthene	μg/Kg	8	2.64 J	24.5	4
Chrysene	μg/Kg	8	0.886 Jh	41.8	7
Dibenzo(a,h)anthracene	μg/Kg	8	2.77 h	2.77 h	1
Fluoranthene	μg/Kg	8	0.617 J	83	7
Fluorene	μg/Kg	8	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	8	--	--	0
Naphthalene	μg/Kg	8	2.99 Jh	17.3 J	2
Phenanthrene	μg/Kg	8	3.95 J	45.1	5
Pyrene	μg/Kg	8	4.1	75.2	5
PCBs					
Aroclor-1016	μg/Kg	8	--	--	0
Aroclor-1221	μg/Kg	8	--	--	0
Aroclor-1232	μg/Kg	8	--	--	0
Aroclor-1242	μg/Kg	8	--	--	0
Aroclor-1248	μg/Kg	8	--	--	0
Aroclor-1254	μg/Kg	8	--	--	0
Aroclor-1260	μg/Kg	8	2.2 J	2.2 J	1
Pesticides					
4,4'-DDD	μg/Kg	8	--	--	0
4,4'-DDE	μg/Kg	8	0.387 J	1.33 J	5
4,4'-DDT	μg/Kg	8	0.506 J	1.82	4
Aldrin	μg/Kg	8	--	--	0
alpha-BHC	μg/Kg	8	--	--	0
alpha-Chlordane	μg/Kg	8	--	--	0
beta-BHC	μg/Kg	8	--	--	0
delta-BHC	μg/Kg	8	--	--	0
Dieldrin	μg/Kg	8	--	--	0
Endosulfan I	μg/Kg	8	--	--	0
Endosulfan II	μg/Kg	8	--	--	0
Endosulfan sulfate	μg/Kg	8	--	--	0
Endrin	μg/Kg	8	--	--	0
Endrin aldehyde	μg/Kg	8	--	--	0
Endrin ketone	μg/Kg	8	--	--	0
gamma-BHC (Lindane)	μg/Kg	8	--	--	0
gamma-Chlordane	μg/Kg	8	--	--	0
Heptachlor	μg/Kg	8	--	--	0
Heptachlor epoxide	μg/Kg	8	--	--	0
Methoxychlor	μg/Kg	8	--	--	0
Toxaphene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-12
Exposure Unit 7
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	29	0.341	24	8
Alpha	pCi/g	13	6.54	66.4	13
Americium-241	pCi/g	29	--	--	0
Beta	pCi/g	13	12.8	44.1	13
Cesium-137	pCi/g	30	0.0269	1.07	22
Cobalt-60	pCi/g	29	--	--	0
Potassium-40	pCi/g	17	9.64	20	17
Protactinium-231	pCi/g	29	17.1	17.1	1
Radium-226	pCi/g	32	0.432	446	32
Radium-228	pCi/g	29	0.388	1.2	28
Thorium-228	pCi/g	32	0.547	1.61	30
Thorium-230	pCi/g	32	0.851	536	32
Thorium-232	pCi/g	32	0.496	1.7	32
Total Uranium	μg/g	32	0.57	19	32
Uranium-234	pCi/g	32	0.407	9.68	32
Uranium-235	pCi/g	32	0.0512	0.394	13
Uranium-238	pCi/g	32	0.555	7.1	32
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	8	--	--	0
1,2-Dichlorobenzene	μg/Kg	8	--	--	0
1,3-Dichlorobenzene	μg/Kg	8	--	--	0
1,4-Dichlorobenzene	μg/Kg	8	--	--	0
2,4,5-Trichlorophenol	μg/Kg	8	--	--	0
2,4,6-Trichlorophenol	μg/Kg	8	--	--	0
2,4-Dichlorophenol	μg/Kg	8	--	--	0
2,4-Dimethylphenol	μg/Kg	8	--	--	0
2,4-Dinitrophenol	μg/Kg	8	--	--	0
2-Chloronaphthalene	μg/Kg	8	--	--	0
2-Chlorophenol	μg/Kg	8	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	8	--	--	0
2-Methylnaphthalene	μg/Kg	8	--	--	0
2-Nitroaniline	μg/Kg	8	--	--	0
2-Nitrophenol	μg/Kg	8	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	8	--	--	0
3-Nitroaniline	μg/Kg	8	--	--	0
4-Bromophenylphenylether	μg/Kg	8	--	--	0
4-Chloro-3-methylphenol	μg/Kg	8	--	--	0
4-Chloroaniline	μg/Kg	8	--	--	0
4-Chlorophenylphenylether	μg/Kg	8	--	--	0
4-Nitroaniline	μg/Kg	8	--	--	0
4-Nitrophenol	μg/Kg	8	--	--	0
Benzoic Acid	μg/Kg	8	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-12
Exposure Unit 7
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	8	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	8	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	8	118 J	118 J	1
Butylbenzylphthalate	μg/Kg	8	--	--	0
Carbazole	μg/Kg	8	--	--	0
Dibenzofuran	μg/Kg	8	--	--	0
Diethylphthalate	μg/Kg	8	--	--	0
Dimethylphthalate	μg/Kg	8	--	--	0
Di-n-butylphthalate	μg/Kg	8	--	--	0
Di-n-octylphthalate	μg/Kg	8	--	--	0
Diphenylamine	μg/Kg	1	--	--	0
Hexachlorobenzene	μg/Kg	8	--	--	0
Hexachlorobutadiene	μg/Kg	8	--	--	0
Hexachlorocyclopentadiene	μg/Kg	8	--	--	0
Hexachloroethane	μg/Kg	8	--	--	0
Isophorone	μg/Kg	8	--	--	0
m,p-Cresols	μg/Kg	8	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	8	--	--	0
N-Nitrosodiphenylamine	μg/Kg	7	--	--	0
o-Cresol	μg/Kg	8	--	--	0
Pentachlorophenol	μg/Kg	8	--	--	0
Phenol	μg/Kg	8	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	9	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	9	--	--	0
1,1,2-Trichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethene	μg/Kg	9	0.714 J	1.02	3
1,2-Dichloroethane	μg/Kg	9	--	--	0
1,2-Dichloropropane	μg/Kg	9	--	--	0
2-Butanone	μg/Kg	9	9.19	71.9	2
2-Hexanone	μg/Kg	9	--	--	0
4-Methyl-2-pentanone	μg/Kg	9	--	--	0
Acetone	μg/Kg	9	8.22	69.4	3
Benzene	μg/Kg	9	2	2.6	2
Bromodichloromethane	μg/Kg	9	--	--	0
Bromoform	μg/Kg	9	--	--	0
Bromomethane	μg/Kg	9	--	--	0
Carbon disulfide	μg/Kg	9	1.6 J	1.6 J	1
Carbon tetrachloride	μg/Kg	9	--	--	0
Chlorobenzene	μg/Kg	9	--	--	0
Chloroethane	μg/Kg	9	--	--	0
Chloroform	μg/Kg	9	--	--	0
Chloromethane	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-12
Exposure Unit 7
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	9	--	--	0
Dibromochloromethane	μg/Kg	9	--	--	0
Ethylbenzene	μg/Kg	9	--	--	0
Methylene chloride	μg/Kg	9	--	--	0
Styrene	μg/Kg	9	--	--	0
Tetrachloroethene	μg/Kg	9	--	--	0
Toluene	μg/Kg	9	3.2	3.4	2
trans-1,3-Dichloropropene	μg/Kg	9	--	--	0
Trichloroethene	μg/Kg	9	--	--	0
Vinyl chloride	μg/Kg	9	--	--	0
Xylenes (total)	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-13
Exposure Unit 8
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	15	6460	20600	15
Antimony	mg/Kg	15	0.25 BN	0.434 BN*	2
Arsenic	mg/Kg	15	2.5 B	7.8	15
Barium	mg/Kg	15	76.3 N	146 N*	15
Beryllium	mg/Kg	15	0.4 B	1.6	15
Boron	mg/Kg	15	2.6 B	16.5 E*N	15
Cadmium	mg/Kg	15	0.119 B	1.2	10
Calcium	mg/Kg	15	4730 E*	99000	15
Chromium	mg/Kg	15	10.7 *	42.4	15
Cobalt	mg/Kg	15	3.2 E*	16.7	15
Copper	mg/Kg	15	12.9 *N	129 *	15
Iron	mg/Kg	15	11400	37300	15
Lead	mg/Kg	15	6.4 E*	99.8 N	15
Lithium	mg/Kg	15	12.3 EN	40.5	15
Magnesium	mg/Kg	15	2070 *	54400	15
Manganese	mg/Kg	15	148 E	1000 *	15
Mercury	mg/Kg	15	0.0094 B	0.21	15
Nickel	mg/Kg	15	9.8	42.5	15
Potassium	mg/Kg	15	670	3190	15
Selenium	mg/Kg	15	0.32 B	1.8 B	15
Silver	mg/Kg	15	0.03 B	0.197 B	15
Sodium	mg/Kg	15	42.7 *	356 E	15
Thallium	mg/Kg	15	0.07 B	0.27	13
Vanadium	mg/Kg	15	16 *	43.3	15
Zinc	mg/Kg	15	25.8 E*	227	15
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	5	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	5	--	--	0
2,4-Dinitrotoluene	μg/Kg	36	--	--	0
2,6-Dinitrotoluene	μg/Kg	36	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	5	--	--	0
2-Nitrotoluene	μg/Kg	5	109	109	1
3-Dinitrobenzene	μg/Kg	5	--	--	0
3-Nitrotoluene	μg/Kg	5	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	5	--	--	0
4-Nitrotoluene	μg/Kg	5	--	--	0
HMX	μg/Kg	5	--	--	0
Nitrobenzene	μg/Kg	36	--	--	0
RDX	μg/Kg	5	--	--	0
Tetryl	μg/Kg	5	--	--	0
PAHs					
Acenaphthene	μg/Kg	35	16.5 J	13300 J	4
Acenaphthylene	μg/Kg	36	37.8 J	37.8 J	1

* Data qualifier included with concentration value

Table 4-13
Exposure Unit 8
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	36	216 J	24700	5
Benzo(a)anthracene	μg/Kg	36	21.3	73300	12
Benzo(a)pyrene	μg/Kg	36	28.2	82500	12
Benzo(b)fluoranthene	μg/Kg	36	47.3	42800 D	14
Benzo(g,h,i)perylene	μg/Kg	36	45.7	54100	8
Benzo(k)fluoranthene	μg/Kg	36	38.7	62900	8
Chrysene	μg/Kg	36	23.1	76000	12
Dibenzo(a,h)anthracene	μg/Kg	36	21	22500	5
Fluoranthene	μg/Kg	36	43.9	92400 D	15
Fluorene	μg/Kg	36	226 J	15200 J	9
Indeno(1,2,3-cd)pyrene	μg/Kg	36	48.1	43600	12
Naphthalene	μg/Kg	36	9.37 J	235 J	5
Phenanthrene	μg/Kg	36	24.7 J	71600 D	13
Pyrene	μg/Kg	35	36.9	99700 D	14
PCBs					
Aroclor-1016	μg/Kg	10	--	--	0
Aroclor-1221	μg/Kg	10	--	--	0
Aroclor-1232	μg/Kg	10	--	--	0
Aroclor-1242	μg/Kg	10	--	--	0
Aroclor-1248	μg/Kg	10	--	--	0
Aroclor-1254	μg/Kg	10	--	--	0
Aroclor-1260	μg/Kg	10	4.6	20.8	4
Pesticides					
4,4'-DDD	μg/Kg	10	--	--	0
4,4'-DDE	μg/Kg	10	0.538 J	13.3	4
4,4'-DDT	μg/Kg	10	1.29 J	18.9	3
Aldrin	μg/Kg	10	--	--	0
alpha-BHC	μg/Kg	10	--	--	0
alpha-Chlordane	μg/Kg	10	--	--	0
beta-BHC	μg/Kg	10	--	--	0
delta-BHC	μg/Kg	10	--	--	0
Dieldrin	μg/Kg	10	--	--	0
Endosulfan I	μg/Kg	10	--	--	0
Endosulfan II	μg/Kg	10	--	--	0
Endosulfan sulfate	μg/Kg	10	--	--	0
Endrin	μg/Kg	10	--	--	0
Endrin aldehyde	μg/Kg	10	--	--	0
Endrin ketone	μg/Kg	10	--	--	0
gamma-BHC (Lindane)	μg/Kg	10	--	--	0
gamma-Chlordane	μg/Kg	10	--	--	0
Heptachlor	μg/Kg	10	--	--	0
Heptachlor epoxide	μg/Kg	10	--	--	0
Methoxychlor	μg/Kg	10	--	--	0
Toxaphene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-13
Exposure Unit 8
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	71	0.487	3.07	12
Alpha	pCi/g	19	13.3	172	19
Americium-241	pCi/g	71	0.112	0.636	3
Beta	pCi/g	19	19.9	94.2	19
Cesium-137	pCi/g	80	0.0306	3	68
Cobalt-60	pCi/g	71	--	--	0
Plutonium-238	pCi/g	2	--	--	0
Plutonium-239/240	pCi/g	2	--	--	0
Potassium-40	pCi/g	28	3.18	19.3	28
Protactinium-231	pCi/g	71	--	--	0
Radium-226	pCi/g	86	0.552	82.1	86
Radium-228	pCi/g	71	0.0607	1.2	70
Thorium-228	pCi/g	86	0.425	1.86	85
Thorium-230	pCi/g	86	0.338	87.9	86
Thorium-232	pCi/g	86	0.325	1.48	85
Total Uranium	μg/g	86	1.12	5630	84
Uranium-234	pCi/g	86	0.566 J	1420	86
Uranium-235	pCi/g	86	0.07 J	96.2	26
Uranium-238	pCi/g	86	0.503	1420	86
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	36	--	--	0
1,2-Dichlorobenzene	μg/Kg	36	--	--	0
1,3-Dichlorobenzene	μg/Kg	36	--	--	0
1,4-Dichlorobenzene	μg/Kg	36	--	--	0
2,4,5-Trichlorophenol	μg/Kg	36	--	--	0
2,4,6-Trichlorophenol	μg/Kg	36	--	--	0
2,4-Dichlorophenol	μg/Kg	36	--	--	0
2,4-Dimethylphenol	μg/Kg	36	--	--	0
2,4-Dinitrophenol	μg/Kg	36	--	--	0
2-Chloronaphthalene	μg/Kg	36	--	--	0
2-Chlorophenol	μg/Kg	36	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	36	--	--	0
2-Methylnaphthalene	μg/Kg	36	73.4 J	354 J	3
2-Nitroaniline	μg/Kg	35	--	--	0
2-Nitrophenol	μg/Kg	36	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	36	--	--	0
3-Nitroaniline	μg/Kg	36	--	--	0
4-Bromophenylphenylether	μg/Kg	36	--	--	0
4-Chloro-3-methylphenol	μg/Kg	36	--	--	0
4-Chloroaniline	μg/Kg	36	--	--	0
4-Chlorophenylphenylether	μg/Kg	36	--	--	0
4-Nitroaniline	μg/Kg	36	--	--	0
4-Nitrophenol	μg/Kg	36	--	--	0

* Data qualifier included with concentration value

Table 4-13
Exposure Unit 8
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	36	--	--	0
Benzyl Alcohol	μg/Kg	1	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	36	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	36	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	36	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	36	297 J	297 J	1
Butylbenzylphthalate	μg/Kg	36	--	--	0
Carbazole	μg/Kg	36	1140 J	20000	4
Dibenzofuran	μg/Kg	36	2180	2180	1
Diethylphthalate	μg/Kg	36	--	--	0
Dimethylphthalate	μg/Kg	36	--	--	0
Di-n-butylphthalate	μg/Kg	36	--	--	0
Di-n-octylphthalate	μg/Kg	36	--	--	0
Diphenylamine	μg/Kg	33	--	--	0
Hexachlorobenzene	μg/Kg	36	--	--	0
Hexachlorobutadiene	μg/Kg	36	--	--	0
Hexachlorocyclopentadiene	μg/Kg	36	--	--	0
Hexachloroethane	μg/Kg	36	--	--	0
Isophorone	μg/Kg	36	--	--	0
m,p-Cresols	μg/Kg	36	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	36	--	--	0
N-Nitrosodiphenylamine	μg/Kg	3	--	--	0
o-Cresol	μg/Kg	36	--	--	0
Pentachlorophenol	μg/Kg	36	--	--	0
Phenol	μg/Kg	36	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	15	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	15	--	--	0
1,1,2-Trichloroethane	μg/Kg	15	--	--	0
1,1-Dichloroethane	μg/Kg	15	--	--	0
1,1-Dichloroethene	μg/Kg	15	1.4	1.4	1
1,2-Dichloroethane	μg/Kg	15	--	--	0
1,2-Dichloropropane	μg/Kg	15	--	--	0
2-Butanone	μg/Kg	15	--	--	0
2-Hexanone	μg/Kg	15	--	--	0
4-Methyl-2-pentanone	μg/Kg	15	--	--	0
Acetone	μg/Kg	15	13.7	13.7	1
Benzene	μg/Kg	15	--	--	0
Bromodichloromethane	μg/Kg	15	--	--	0
Bromoform	μg/Kg	15	--	--	0
Bromomethane	μg/Kg	15	--	--	0
Carbon disulfide	μg/Kg	15	--	--	0
Carbon tetrachloride	μg/Kg	15	--	--	0
Chlorobenzene	μg/Kg	15	--	--	0

* Data qualifier included with concentration value

Table 4-13
Exposure Unit 8
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroethane	μg/Kg	15	--	--	0
Chloroform	μg/Kg	15	0.45 J	0.45 J	1
Chloromethane	μg/Kg	15	--	--	0
cis-1,3-Dichloropropene	μg/Kg	15	--	--	0
Dibromochloromethane	μg/Kg	15	--	--	0
Ethylbenzene	μg/Kg	15	--	--	0
Methylene chloride	μg/Kg	15	--	--	0
Styrene	μg/Kg	15	--	--	0
Tetrachloroethene	μg/Kg	15	0.84 J	0.84 J	1
Toluene	μg/Kg	15	0.21 J	5.7	3
trans-1,3-Dichloropropene	μg/Kg	15	--	--	0
Trichloroethene	μg/Kg	15	--	--	0
Vinyl chloride	μg/Kg	15	--	--	0
Xylenes (total)	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-14
Exposure Unit 10
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	29	9600	21900 *	29
Antimony	mg/Kg	29	0.589 BN	3.92 J	15
Arsenic	mg/Kg	29	2.8	5.9	29
Barium	mg/Kg	29	66.4	210	29
Beryllium	mg/Kg	29	0.478 B	1.1	29
Boron	mg/Kg	29	3.4 BN	14.8	29
Cadmium	mg/Kg	29	0.03 B	0.623 J	19
Calcium	mg/Kg	29	5370	110000	29
Chromium	mg/Kg	29	14.4	27.9	29
Cobalt	mg/Kg	29	5.87	16.2 *	29
Copper	mg/Kg	29	14.8 E	40	29
Iron	mg/Kg	29	16300 *	38800	29
Lead	mg/Kg	29	6.09	22.6 N	29
Lithium	mg/Kg	28	19.2 NE	34.4 E	28
Magnesium	mg/Kg	29	4840	56300 *	29
Manganese	mg/Kg	29	372	4570	29
Mercury	mg/Kg	29	0.003 B	0.055	27
Nickel	mg/Kg	29	13.9	36.6	29
Potassium	mg/Kg	29	1130 E	3570	29
Selenium	mg/Kg	29	0.364 B	2.76	22
Silver	mg/Kg	29	0.03 B	0.193 B	28
Sodium	mg/Kg	29	78.4 EN	231	29
Thallium	mg/Kg	29	0.096 B	0.221 B	29
Vanadium	mg/Kg	29	20.1	39.8	29
Zinc	mg/Kg	29	30.8	830	29
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	3	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	3	--	--	0
2,4-Dinitrotoluene	μg/Kg	27	--	--	0
2,6-Dinitrotoluene	μg/Kg	27	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	3	--	--	0
2-Nitrotoluene	μg/Kg	3	--	--	0
3-Dinitrobenzene	μg/Kg	3	--	--	0
3-Nitrotoluene	μg/Kg	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	3	--	--	0
4-Nitrotoluene	μg/Kg	3	--	--	0
HMX	μg/Kg	3	--	--	0
Nitrobenzene	μg/Kg	27	--	--	0
RDX	μg/Kg	3	--	--	0
Tetryl	μg/Kg	3	--	--	0
PAHs					
Acenaphthene	μg/Kg	27	10.9 J	13.7	2
Acenaphthylene	μg/Kg	27	85.8	85.8	1

* Data qualifier included with concentration value

Table 4-14
Exposure Unit 10
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	27	8.46 J	136	3
Benzo(a)anthracene	μg/Kg	27	1.09 Jh	900	18
Benzo(a)pyrene	μg/Kg	27	2.09	691	15
Benzo(b)fluoranthene	μg/Kg	27	0.604	1280	17
Benzo(g,h,i)perylene	μg/Kg	27	1.47 J	300	12
Benzo(k)fluoranthene	μg/Kg	27	0.76	31.5 h	12
Chrysene	μg/Kg	27	1.57 J	1010	22
Dibenzo(a,h)anthracene	μg/Kg	27	1.43 J	6.8	3
Fluoranthene	μg/Kg	27	1.43 JP	1760	23
Fluorene	μg/Kg	27	7.21 J	30.7 J	3
Indeno(1,2,3-cd)pyrene	μg/Kg	27	42.4	387	3
Naphthalene	μg/Kg	27	2.44 JP	2.44 JP	1
Phenanthrene	μg/Kg	27	2 J	624	15
Pyrene	μg/Kg	27	1.77 JP	1420	20
PCBs					
Aroclor-1016	μg/Kg	26	--	--	0
Aroclor-1221	μg/Kg	26	--	--	0
Aroclor-1232	μg/Kg	26	--	--	0
Aroclor-1242	μg/Kg	26	8.8	8.8	1
Aroclor-1248	μg/Kg	26	--	--	0
Aroclor-1254	μg/Kg	26	10.4	10.4	1
Aroclor-1260	μg/Kg	26	2.13 J	4.4	3
Pesticides					
4,4'-DDD	μg/Kg	26	2.18 J	2.18 J	1
4,4'-DDE	μg/Kg	26	0.302 J	5.33 J	10
4,4'-DDT	μg/Kg	26	0.587 J	12.5	11
Aldrin	μg/Kg	26	--	--	0
alpha-BHC	μg/Kg	26	--	--	0
alpha-Chlordane	μg/Kg	26	--	--	0
beta-BHC	μg/Kg	26	--	--	0
delta-BHC	μg/Kg	26	--	--	0
Dieldrin	μg/Kg	26	0.222 J	0.237 J	2
Endosulfan I	μg/Kg	26	--	--	0
Endosulfan II	μg/Kg	26	--	--	0
Endosulfan sulfate	μg/Kg	26	--	--	0
Endrin	μg/Kg	26	--	--	0
Endrin aldehyde	μg/Kg	26	--	--	0
Endrin ketone	μg/Kg	26	--	--	0
gamma-BHC (Lindane)	μg/Kg	26	--	--	0
gamma-Chlordane	μg/Kg	26	0.306 J	0.306 J	1
Heptachlor	μg/Kg	26	--	--	0
Heptachlor epoxide	μg/Kg	26	--	--	0
Methoxychlor	μg/Kg	26	--	--	0
Toxaphene	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-14
Exposure Unit 10
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	34	0.278	0.278	1
Alpha	pCi/g	29	7.19	68.2	28
Americium-241	pCi/g	34	--	--	0
Beta	pCi/g	29	13	43.5	29
Cesium-137	pCi/g	34	0.0372	0.35	12
Cobalt-60	pCi/g	34	--	--	0
Potassium-40	pCi/g	5	14.7	19.7	5
Protactinium-231	pCi/g	34	--	--	0
Radium-226	pCi/g	37	0.652	8.52	37
Radium-228	pCi/g	34	0.767	1.12	34
Thorium-228	pCi/g	37	0.549	1.71	37
Thorium-230	pCi/g	37	0.673	10.1	36
Thorium-232	pCi/g	37	0.605	1.58	37
Total Uranium	μg/g	37	1.08	40.2	37
Uranium-234	pCi/g	37	0.431	18.9	37
Uranium-235	pCi/g	37	0.065	0.935	8
Uranium-238	pCi/g	37	0.61	21	37
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	26	--	--	0
1,2-Dichlorobenzene	μg/Kg	27	--	--	0
1,3-Dichlorobenzene	μg/Kg	27	--	--	0
1,4-Dichlorobenzene	μg/Kg	27	--	--	0
2,4,5-Trichlorophenol	μg/Kg	27	--	--	0
2,4,6-Trichlorophenol	μg/Kg	27	--	--	0
2,4-Dichlorophenol	μg/Kg	27	--	--	0
2,4-Dimethylphenol	μg/Kg	27	--	--	0
2,4-Dinitrophenol	μg/Kg	27	--	--	0
2-Chloronaphthalene	μg/Kg	27	--	--	0
2-Chlorophenol	μg/Kg	27	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	27	--	--	0
2-Methylnaphthalene	μg/Kg	27	--	--	0
2-Nitroaniline	μg/Kg	27	--	--	0
2-Nitrophenol	μg/Kg	27	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	27	--	--	0
3-Nitroaniline	μg/Kg	27	--	--	0
4-Bromophenylphenylether	μg/Kg	27	--	--	0
4-Chloro-3-methylphenol	μg/Kg	27	--	--	0
4-Chloroaniline	μg/Kg	27	--	--	0
4-Chlorophenylphenylether	μg/Kg	27	--	--	0
4-Nitroaniline	μg/Kg	27	--	--	0
4-Nitrophenol	μg/Kg	27	--	--	0
Benzoic Acid	μg/Kg	27	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	27	--	--	0

* Data qualifier included with concentration value

Table 4-14
Exposure Unit 10
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	27	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	27	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	27	106 J	129 J	2
Butylbenzylphthalate	μg/Kg	27	--	--	0
Carbazole	μg/Kg	27	28.7 J	43.5 J	2
Dibenzofuran	μg/Kg	27	--	--	0
Diethylphthalate	μg/Kg	27	--	--	0
Dimethylphthalate	μg/Kg	27	--	--	0
Di-n-butylphthalate	μg/Kg	27	--	--	0
Di-n-octylphthalate	μg/Kg	27	--	--	0
Diphenylamine	μg/Kg	4	--	--	0
Hexachlorobenzene	μg/Kg	27	--	--	0
Hexachlorobutadiene	μg/Kg	27	--	--	0
Hexachlorocyclopentadiene	μg/Kg	27	--	--	0
Hexachloroethane	μg/Kg	27	--	--	0
Isophorone	μg/Kg	27	--	--	0
m,p-Cresols	μg/Kg	27	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	27	--	--	0
N-Nitrosodiphenylamine	μg/Kg	23	--	--	0
o-Cresol	μg/Kg	27	--	--	0
Pentachlorophenol	μg/Kg	27	--	--	0
Phenol	μg/Kg	27	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	26	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	26	--	--	0
1,1,2-Trichloroethane	μg/Kg	26	--	--	0
1,1-Dichloroethane	μg/Kg	26	--	--	0
1,1-Dichloroethene	μg/Kg	26	0.555 J	0.867 J	5
1,2-Dichloroethane	μg/Kg	26	--	--	0
1,2-Dichloropropane	μg/Kg	26	--	--	0
2-Butanone	μg/Kg	26	4.48 J	307	7
2-Hexanone	μg/Kg	26	--	--	0
4-Methyl-2-pentanone	μg/Kg	26	--	--	0
Acetone	μg/Kg	26	7.3	302	7
Benzene	μg/Kg	26	--	--	0
Bromodichloromethane	μg/Kg	26	--	--	0
Bromoform	μg/Kg	26	--	--	0
Bromomethane	μg/Kg	26	--	--	0
Carbon disulfide	μg/Kg	26	--	--	0
Carbon tetrachloride	μg/Kg	26	--	--	0
Chlorobenzene	μg/Kg	26	--	--	0
Chloroethane	μg/Kg	26	--	--	0
Chloroform	μg/Kg	26	--	--	0
Chloromethane	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-14
Exposure Unit 10
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	26	--	--	0
Dibromochloromethane	μg/Kg	26	--	--	0
Ethylbenzene	μg/Kg	26	--	--	0
Methylene chloride	μg/Kg	26	--	--	0
Styrene	μg/Kg	26	--	--	0
Tetrachloroethene	μg/Kg	26	--	--	0
Toluene	μg/Kg	26	0.465 J	0.589 J	3
trans-1,3-Dichloropropene	μg/Kg	26	--	--	0
Trichloroethene	μg/Kg	26	--	--	0
Vinyl chloride	μg/Kg	26	--	--	0
Xylenes (total)	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-15
Exposure Unit 11
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	16	11500	22900	16
Antimony	mg/Kg	16	0.495 B	2.3	5
Arsenic	mg/Kg	16	1.6 E	4.34	16
Barium	mg/Kg	16	126	223 N*	16
Beryllium	mg/Kg	16	0.57 B	1.8 E	16
Boron	mg/Kg	16	3.8 B	20 *	16
Cadmium	mg/Kg	16	0.183 B	0.95	3
Calcium	mg/Kg	16	10000	64500	16
Chromium	mg/Kg	16	15.2	62.1	16
Cobalt	mg/Kg	16	7.2 E	13.7	16
Copper	mg/Kg	16	23.7 N	54 E*	16
Iron	mg/Kg	16	19600	32900	16
Lead	mg/Kg	16	6.2	16.5	16
Lithium	mg/Kg	16	17.5 E	38.9 E	16
Magnesium	mg/Kg	16	5230	13600 *	16
Manganese	mg/Kg	16	256	2020 E*	16
Mercury	mg/Kg	16	0.008 B	1.1	16
Nickel	mg/Kg	16	19 N*	30.6	16
Potassium	mg/Kg	16	1130 N	2880	16
Selenium	mg/Kg	16	0.353 B	2.3	16
Silver	mg/Kg	16	0.033 B	0.1 B	14
Sodium	mg/Kg	16	74.2 E	309 *	16
Thallium	mg/Kg	16	0.07 B	0.165	16
Vanadium	mg/Kg	16	20.9	46.8	16
Zinc	mg/Kg	16	41.9 N	80	16
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	5	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	5	--	--	0
2,4-Dinitrotoluene	μg/Kg	17	--	--	0
2,6-Dinitrotoluene	μg/Kg	17	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	5	--	--	0
2-Nitrotoluene	μg/Kg	5	--	--	0
3-Dinitrobenzene	μg/Kg	5	--	--	0
3-Nitrotoluene	μg/Kg	5	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	5	--	--	0
4-Nitrotoluene	μg/Kg	5	--	--	0
HMX	μg/Kg	5	--	--	0
Nitrobenzene	μg/Kg	17	--	--	0
RDX	μg/Kg	5	--	--	0
Tetryl	μg/Kg	5	--	--	0
PAHs					
Acenaphthene	μg/Kg	17	34.9 J	296	3
Acenaphthylene	μg/Kg	17	7.5 J	7.5 J	1

* Data qualifier included with concentration value

Table 4-15
Exposure Unit 11
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	17	48.2	518	3
Benzo(a)anthracene	μg/Kg	17	1.08 JP	2430	8
Benzo(a)pyrene	μg/Kg	17	2.48	2560	8
Benzo(b)fluoranthene	μg/Kg	17	3.47	2740	10
Benzo(g,h,i)perylene	μg/Kg	17	2.52	1410	7
Benzo(k)fluoranthene	μg/Kg	17	5.87	2940	4
Chrysene	μg/Kg	17	1.49 J	2980	10
Dibenzo(a,h)anthracene	μg/Kg	17	209	209	1
Fluoranthene	μg/Kg	17	2.64	7210 D	10
Fluorene	μg/Kg	17	22.2 J	263	3
Indeno(1,2,3-cd)pyrene	μg/Kg	17	268	1330	3
Naphthalene	μg/Kg	17	3.44 J	336	3
Phenanthrene	μg/Kg	17	1.89 J	4360	10
Pyrene	μg/Kg	17	1.68 J	6280 D	11
PCBs					
Aroclor-1016	μg/Kg	13	--	--	0
Aroclor-1221	μg/Kg	13	--	--	0
Aroclor-1232	μg/Kg	13	--	--	0
Aroclor-1242	μg/Kg	13	4.8	6.7	2
Aroclor-1248	μg/Kg	13	--	--	0
Aroclor-1254	μg/Kg	13	2.6 J	3.8	2
Aroclor-1260	μg/Kg	13	2.2 J	2.2 J	1
Pesticides					
4,4'-DDD	μg/Kg	14	--	--	0
4,4'-DDE	μg/Kg	14	0.335 J	2.9 J	5
4,4'-DDT	μg/Kg	14	1.19 J	2.47	3
Aldrin	μg/Kg	14	--	--	0
alpha-BHC	μg/Kg	14	--	--	0
alpha-Chlordane	μg/Kg	14	--	--	0
beta-BHC	μg/Kg	14	--	--	0
delta-BHC	μg/Kg	14	--	--	0
Dieldrin	μg/Kg	14	--	--	0
Endosulfan I	μg/Kg	14	--	--	0
Endosulfan II	μg/Kg	14	--	--	0
Endosulfan sulfate	μg/Kg	14	--	--	0
Endrin	μg/Kg	14	--	--	0
Endrin aldehyde	μg/Kg	14	--	--	0
Endrin ketone	μg/Kg	14	--	--	0
gamma-BHC (Lindane)	μg/Kg	14	--	--	0
gamma-Chlordane	μg/Kg	14	--	--	0
Heptachlor	μg/Kg	14	1.7	1.7	1
Heptachlor epoxide	μg/Kg	14	--	--	0
Methoxychlor	μg/Kg	14	--	--	0
Toxaphene	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-15
Exposure Unit 11
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	40	0.629	132	6
Alpha	pCi/g	17	8.16	19000	17
Americium-241	pCi/g	40	--	--	0
Beta	pCi/g	17	20.1	15100	17
Cesium-137	pCi/g	41	0.0249	0.688	23
Cobalt-60	pCi/g	40	--	--	0
Plutonium-238	pCi/g	1	--	--	0
Plutonium-239/240	pCi/g	1	0.129	0.129	1
Potassium-40	pCi/g	21	5.23	24.6	20
Protactinium-231	pCi/g	40	127	127	1
Radium-226	pCi/g	44	0.379	386	43
Radium-228	pCi/g	40	0.233	1.49	37
Thorium-228	pCi/g	44	0.287	1.74	41
Thorium-230	pCi/g	44	1.05	304	41
Thorium-232	pCi/g	44	0.14	1.54	41
Total Uranium	μg/g	44	0.846	2860	44
Uranium-234	pCi/g	44	0.396	8340	42
Uranium-235	pCi/g	44	0.0745	886	18
Uranium-238	pCi/g	44	0.622 J	8830	42
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	17	--	--	0
1,2-Dichlorobenzene	μg/Kg	17	--	--	0
1,3-Dichlorobenzene	μg/Kg	17	--	--	0
1,4-Dichlorobenzene	μg/Kg	17	--	--	0
2,4,5-Trichlorophenol	μg/Kg	17	--	--	0
2,4,6-Trichlorophenol	μg/Kg	17	--	--	0
2,4-Dichlorophenol	μg/Kg	17	--	--	0
2,4-Dimethylphenol	μg/Kg	17	--	--	0
2,4-Dinitrophenol	μg/Kg	17	--	--	0
2-Chloronaphthalene	μg/Kg	17	--	--	0
2-Chlorophenol	μg/Kg	17	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	17	--	--	0
2-Methylnaphthalene	μg/Kg	17	53.8	449	2
2-Nitroaniline	μg/Kg	17	--	--	0
2-Nitrophenol	μg/Kg	17	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	17	--	--	0
3-Nitroaniline	μg/Kg	17	--	--	0
4-Bromophenylphenylether	μg/Kg	17	--	--	0
4-Chloro-3-methylphenol	μg/Kg	17	--	--	0
4-Chloroaniline	μg/Kg	17	--	--	0
4-Chlorophenylphenylether	μg/Kg	17	--	--	0
4-Nitroaniline	μg/Kg	17	--	--	0
4-Nitrophenol	μg/Kg	17	--	--	0

* Data qualifier included with concentration value

Table 4-15
Exposure Unit 11
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	15	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	17	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	17	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	17	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	17	62.9	128 J	4
Butylbenzylphthalate	μg/Kg	17	17.7 J	17.7 J	1
Carbazole	μg/Kg	17	45 J	334 J	3
Dibenzofuran	μg/Kg	17	30.3 J	277 J	2
Diethylphthalate	μg/Kg	17	31.6 J	31.6 J	1
Dimethylphthalate	μg/Kg	17	--	--	0
Di-n-butylphthalate	μg/Kg	17	--	--	0
Di-n-octylphthalate	μg/Kg	17	--	--	0
Diphenylamine	μg/Kg	7	--	--	0
Hexachlorobenzene	μg/Kg	17	--	--	0
Hexachlorobutadiene	μg/Kg	17	--	--	0
Hexachlorocyclopentadiene	μg/Kg	17	--	--	0
Hexachloroethane	μg/Kg	17	--	--	0
Isophorone	μg/Kg	17	--	--	0
m,p-Cresols	μg/Kg	17	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	17	--	--	0
N-Nitrosodiphenylamine	μg/Kg	10	--	--	0
o-Cresol	μg/Kg	17	--	--	0
Pentachlorophenol	μg/Kg	17	--	--	0
Phenol	μg/Kg	17	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	13	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	13	--	--	0
1,1,2-Trichloroethane	μg/Kg	13	--	--	0
1,1-Dichloroethane	μg/Kg	13	--	--	0
1,1-Dichloroethene	μg/Kg	13	--	--	0
1,2-Dichloroethane	μg/Kg	13	--	--	0
1,2-Dichloropropane	μg/Kg	13	--	--	0
2-Butanone	μg/Kg	13	6.19	45.9	5
2-Hexanone	μg/Kg	13	--	--	0
4-Methyl-2-pentanone	μg/Kg	13	--	--	0
Acetone	μg/Kg	13	3.93 J	29.6	5
Benzene	μg/Kg	13	2.3	2.6	2
Bromodichloromethane	μg/Kg	13	--	--	0
Bromoform	μg/Kg	13	--	--	0
Bromomethane	μg/Kg	13	--	--	0
Carbon disulfide	μg/Kg	13	--	--	0
Carbon tetrachloride	μg/Kg	13	--	--	0
Chlorobenzene	μg/Kg	13	--	--	0
Chloroethane	μg/Kg	13	--	--	0

* Data qualifier included with concentration value

Table 4-15
Exposure Unit 11
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroform	μg/Kg	13	--	--	0
Chloromethane	μg/Kg	13	--	--	0
cis-1,3-Dichloropropene	μg/Kg	13	--	--	0
Dibromochloromethane	μg/Kg	13	--	--	0
Ethylbenzene	μg/Kg	13	--	--	0
Methylene chloride	μg/Kg	13	--	--	0
Styrene	μg/Kg	13	--	--	0
Tetrachloroethene	μg/Kg	13	--	--	0
Toluene	μg/Kg	13	0.405 J	1.9	4
trans-1,3-Dichloropropene	μg/Kg	13	--	--	0
Trichloroethene	μg/Kg	13	--	--	0
Vinyl chloride	μg/Kg	13	--	--	0
Xylenes (total)	μg/Kg	13	1.1 J	1.1 J	1

* Data qualifier included with concentration value

Table 4-16
Exposure Unit 12
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	8	6510	23200	8
Antimony	mg/Kg	8	0.645 BN	0.645 BN	1
Arsenic	mg/Kg	8	2.08	51.8 N	8
Barium	mg/Kg	8	70.5 *	301 N*	8
Beryllium	mg/Kg	8	0.67 E	1.79	8
Boron	mg/Kg	8	6.9	37.6	8
Cadmium	mg/Kg	8	0.06 B	1.29	6
Calcium	mg/Kg	8	7780	42500 E*	8
Chromium	mg/Kg	8	11.7	28.1	8
Cobalt	mg/Kg	8	7.45	14.3	8
Copper	mg/Kg	8	21	99.8	8
Iron	mg/Kg	8	14300	39000	8
Lead	mg/Kg	8	9.08	25.1	8
Lithium	mg/Kg	8	10.3 EN	32.1 E	8
Magnesium	mg/Kg	8	3160	9960 *	8
Manganese	mg/Kg	8	153	1150	8
Mercury	mg/Kg	8	0.029	0.1	8
Nickel	mg/Kg	8	19.6	33.5	8
Potassium	mg/Kg	8	1110	2740 N	8
Selenium	mg/Kg	8	0.666 B	3.13 B	8
Silver	mg/Kg	8	0.07 B	0.361 BN	7
Sodium	mg/Kg	8	74.8	285 *	8
Thallium	mg/Kg	8	0.09 B	0.39	8
Vanadium	mg/Kg	8	17.7	45.8 N	8
Zinc	mg/Kg	8	46.7	112	8
Nitroaromatics					
2,4-Dinitrotoluene	μg/Kg	9	--	--	0
2,6-Dinitrotoluene	μg/Kg	9	--	--	0
Nitrobenzene	μg/Kg	9	--	--	0
PAHs					
Acenaphthene	μg/Kg	9	--	--	0
Acenaphthylene	μg/Kg	9	--	--	0
Anthracene	μg/Kg	9	43.5 J	43.5 J	1
Benzo(a)anthracene	μg/Kg	9	0.967 JP	945 J	5
Benzo(a)pyrene	μg/Kg	9	36.2	1340 J	4
Benzo(b)fluoranthene	μg/Kg	9	72.5 J	3550	4
Benzo(g,h,i)perylene	μg/Kg	9	18.9	1070 J	3
Benzo(k)fluoranthene	μg/Kg	9	18	1250 J	4
Chrysene	μg/Kg	9	1.51 J	1790	5
Dibenzo(a,h)anthracene	μg/Kg	9	--	--	0
Fluoranthene	μg/Kg	9	2.45	1120 J	5
Fluorene	μg/Kg	9	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	9	965 J	1600 J	2

* Data qualifier included with concentration value

Table 4-16
Exposure Unit 12
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Naphthalene	μg/Kg	9	3.03 JP	2170	3
Phenanthrene	μg/Kg	9	1.67 J	1050 J	5
Pyrene	μg/Kg	9	1.26 J	252 J	5
PCBs					
Aroclor-1016	μg/Kg	2	--	--	0
Aroclor-1221	μg/Kg	2	--	--	0
Aroclor-1232	μg/Kg	2	--	--	0
Aroclor-1242	μg/Kg	2	--	--	0
Aroclor-1248	μg/Kg	2	--	--	0
Aroclor-1254	μg/Kg	2	--	--	0
Aroclor-1260	μg/Kg	2	1.4 J	4.8 J	2
Pesticides					
4,4'-DDD	μg/Kg	2	--	--	0
4,4'-DDE	μg/Kg	2	1.21 J	1.46 J	2
4,4'-DDT	μg/Kg	2	2.28	2.84	2
Aldrin	μg/Kg	2	--	--	0
alpha-BHC	μg/Kg	2	--	--	0
alpha-Chlordane	μg/Kg	2	--	--	0
beta-BHC	μg/Kg	2	--	--	0
delta-BHC	μg/Kg	2	--	--	0
Dieldrin	μg/Kg	2	--	--	0
Endosulfan I	μg/Kg	2	--	--	0
Endosulfan II	μg/Kg	2	--	--	0
Endosulfan sulfate	μg/Kg	2	--	--	0
Endrin	μg/Kg	2	--	--	0
Endrin aldehyde	μg/Kg	2	--	--	0
Endrin ketone	μg/Kg	2	--	--	0
gamma-BHC (Lindane)	μg/Kg	2	--	--	0
gamma-Chlordane	μg/Kg	2	--	--	0
Heptachlor	μg/Kg	2	--	--	0
Heptachlor epoxide	μg/Kg	2	--	--	0
Methoxychlor	μg/Kg	2	--	--	0
Toxaphene	μg/Kg	2	--	--	0
Radionuclides					
Actinium-227	pCi/g	18	2.71	2.72	2
Alpha	pCi/g	10	8.21	284	10
Americium-241	pCi/g	18	--	--	0
Beta	pCi/g	10	18.1	153	10
Cesium-137	pCi/g	20	0.0379	0.739	19
Cobalt-60	pCi/g	18	--	--	0
Potassium-40	pCi/g	6	9.91	21.8	5
Protactinium-231	pCi/g	18	--	--	0
Radium-226	pCi/g	23	0.807	29.6	23
Radium-228	pCi/g	18	0.666	1.27	17

* Data qualifier included with concentration value

Table 4-16
Exposure Unit 12
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Thorium-228	pCi/g	23	0.0481	2.08 J	23
Thorium-230	pCi/g	23	0.0906	69.6	23
Thorium-232	pCi/g	23	0.036	1.46	23
Total Uranium	μg/g	23	0.111	49.4	21
Uranium-234	pCi/g	23	0.0527	12.1	23
Uranium-235	pCi/g	23	0.0487 J	0.409	5
Uranium-238	pCi/g	23	0.0416	12.1	23
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	9	--	--	0
1,2-Dichlorobenzene	μg/Kg	9	--	--	0
1,3-Dichlorobenzene	μg/Kg	9	--	--	0
1,4-Dichlorobenzene	μg/Kg	9	--	--	0
2,4,5-Trichlorophenol	μg/Kg	9	--	--	0
2,4,6-Trichlorophenol	μg/Kg	9	--	--	0
2,4-Dichlorophenol	μg/Kg	9	--	--	0
2,4-Dimethylphenol	μg/Kg	9	--	--	0
2,4-Dinitrophenol	μg/Kg	9	--	--	0
2-Chloronaphthalene	μg/Kg	9	--	--	0
2-Chlorophenol	μg/Kg	9	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	9	--	--	0
2-Methylnaphthalene	μg/Kg	9	2050	2950	2
2-Nitroaniline	μg/Kg	9	--	--	0
2-Nitrophenol	μg/Kg	9	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	9	--	--	0
3-Nitroaniline	μg/Kg	9	--	--	0
4-Bromophenylphenylether	μg/Kg	9	--	--	0
4-Chloro-3-methylphenol	μg/Kg	9	--	--	0
4-Chloroaniline	μg/Kg	9	--	--	0
4-Chlorophenylphenylether	μg/Kg	9	--	--	0
4-Nitroaniline	μg/Kg	9	--	--	0
4-Nitrophenol	μg/Kg	9	--	--	0
Benzoic Acid	μg/Kg	9	602 J	602 J	1
bis(2-Chloroethoxy)methane	μg/Kg	9	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	9	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	9	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	9	203 J	738	2
Butylbenzylphthalate	μg/Kg	9	--	--	0
Carbazole	μg/Kg	9	--	--	0
Dibenzofuran	μg/Kg	9	612	612	1
Diethylphthalate	μg/Kg	9	--	--	0
Dimethylphthalate	μg/Kg	9	--	--	0
Di-n-butylphthalate	μg/Kg	9	--	--	0
Di-n-octylphthalate	μg/Kg	9	--	--	0
Diphenylamine	μg/Kg	7	--	--	0

* Data qualifier included with concentration value

Table 4-16
Exposure Unit 12
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Hexachlorobenzene	μg/Kg	9	--	--	0
Hexachlorobutadiene	μg/Kg	9	--	--	0
Hexachlorocyclopentadiene	μg/Kg	9	--	--	0
Hexachloroethane	μg/Kg	9	--	--	0
Isophorone	μg/Kg	9	--	--	0
m,p-Cresols	μg/Kg	9	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	9	--	--	0
N-Nitrosodiphenylamine	μg/Kg	2	--	--	0
o-Cresol	μg/Kg	9	--	--	0
Pentachlorophenol	μg/Kg	9	--	--	0
Phenol	μg/Kg	9	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	4	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	4	--	--	0
1,1,2-Trichloroethane	μg/Kg	4	--	--	0
1,1-Dichloroethane	μg/Kg	4	--	--	0
1,1-Dichloroethene	μg/Kg	4	--	--	0
1,2-Dichloroethane	μg/Kg	4	--	--	0
1,2-Dichloropropane	μg/Kg	4	--	--	0
2-Butanone	μg/Kg	4	5.4 J	5.4 J	1
2-Hexanone	μg/Kg	4	--	--	0
4-Methyl-2-pentanone	μg/Kg	4	--	--	0
Acetone	μg/Kg	4	6.7	6.7	1
Benzene	μg/Kg	4	--	--	0
Bromodichloromethane	μg/Kg	4	--	--	0
Bromoform	μg/Kg	4	--	--	0
Bromomethane	μg/Kg	4	--	--	0
Carbon disulfide	μg/Kg	4	--	--	0
Carbon tetrachloride	μg/Kg	4	--	--	0
Chlorobenzene	μg/Kg	4	--	--	0
Chloroethane	μg/Kg	4	--	--	0
Chloroform	μg/Kg	4	--	--	0
Chloromethane	μg/Kg	4	--	--	0
cis-1,3-Dichloropropene	μg/Kg	4	--	--	0
Dibromochloromethane	μg/Kg	4	--	--	0
Ethylbenzene	μg/Kg	4	--	--	0
Methylene chloride	μg/Kg	4	18.2	18.5	2
Styrene	μg/Kg	4	--	--	0
Tetrachloroethene	μg/Kg	4	--	--	0
Toluene	μg/Kg	4	--	--	0
trans-1,3-Dichloropropene	μg/Kg	4	--	--	0
Trichloroethene	μg/Kg	4	--	--	0
Vinyl chloride	μg/Kg	4	--	--	0
Xylenes (total)	μg/Kg	4	--	--	0

* Data qualifier included with concentration value

Table 4-17
Exposure Unit 13
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	10	8580	18800	10
Antimony	mg/Kg	10	0.34 BN	2.2 N	4
Arsenic	mg/Kg	10	2.9 EN	11.2	10
Barium	mg/Kg	10	95.1	239 *	10
Beryllium	mg/Kg	10	0.43 B	0.869	10
Boron	mg/Kg	10	5.3 B	57.6	10
Cadmium	mg/Kg	10	0.088 B	2.04 E	8
Calcium	mg/Kg	10	20100	124000	10
Chromium	mg/Kg	10	15.5	69.1	10
Cobalt	mg/Kg	10	5.24	11.2	10
Copper	mg/Kg	10	25.2	1050	10
Iron	mg/Kg	10	12500	33800	10
Lead	mg/Kg	10	6.82	142	10
Lithium	mg/Kg	10	6.8	29	10
Magnesium	mg/Kg	10	6220	43700	10
Manganese	mg/Kg	10	437	1520 *	10
Mercury	mg/Kg	10	0.015	0.4	10
Nickel	mg/Kg	10	18.5 N	348	10
Potassium	mg/Kg	10	1330	6510	10
Selenium	mg/Kg	10	0.497 B	1.13	10
Silver	mg/Kg	10	0.05 B	0.228	9
Sodium	mg/Kg	10	78.7 E	1660	10
Thallium	mg/Kg	10	0.099 B	0.189 E	10
Vanadium	mg/Kg	10	19.4	40.5	10
Zinc	mg/Kg	10	43.4 N	2450	10
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	5	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	5	--	--	0
2,4-Dinitrotoluene	μg/Kg	16	108	108	1
2,6-Dinitrotoluene	μg/Kg	16	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	5	--	--	0
2-Nitrotoluene	μg/Kg	5	--	--	0
3-Dinitrobenzene	μg/Kg	5	--	--	0
3-Nitrotoluene	μg/Kg	5	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	5	--	--	0
4-Nitrotoluene	μg/Kg	5	--	--	0
HMX	μg/Kg	5	--	--	0
Nitrobenzene	μg/Kg	16	--	--	0
RDX	μg/Kg	5	--	--	0
Tetryl	μg/Kg	5	--	--	0
PAHs					
Acenaphthene	μg/Kg	15	40.7 J	40.7 J	1
Acenaphthylene	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-17
Exposure Unit 13
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	16	22.6 J	60.4 J	3
Benzo(a)anthracene	μg/Kg	16	17.6 P	323 J	6
Benzo(a)pyrene	μg/Kg	16	19.6	383 J	6
Benzo(b)fluoranthene	μg/Kg	16	27.1 J	446	7
Benzo(g,h,i)perylene	μg/Kg	16	11.8	215 J	4
Benzo(k)fluoranthene	μg/Kg	16	23.1 J	247 J	5
Chrysene	μg/Kg	16	27.7 J	440	8
Dibenzo(a,h)anthracene	μg/Kg	16	--	--	0
Fluoranthene	μg/Kg	16	22.3 J	892	11
Fluorene	μg/Kg	16	35.6 J	35.6 J	1
Indeno(1,2,3-cd)pyrene	μg/Kg	16	30.6 J	188 J	3
Naphthalene	μg/Kg	16	11.2 J	483	4
Phenanthrene	μg/Kg	16	22.2 J	642	8
Pyrene	μg/Kg	15	24.4 J	925	9
PCBs					
Aroclor-1016	μg/Kg	7	--	--	0
Aroclor-1221	μg/Kg	7	--	--	0
Aroclor-1232	μg/Kg	7	--	--	0
Aroclor-1242	μg/Kg	7	--	--	0
Aroclor-1248	μg/Kg	7	--	--	0
Aroclor-1254	μg/Kg	7	77.7	208	2
Aroclor-1260	μg/Kg	7	14.9	84.5 P	2
Pesticides					
4,4'-DDD	μg/Kg	7	--	--	0
4,4'-DDE	μg/Kg	7	0.43 J	0.43 J	1
4,4'-DDT	μg/Kg	7	2.14	2.14	1
Aldrin	μg/Kg	7	--	--	0
alpha-BHC	μg/Kg	7	--	--	0
alpha-Chlordane	μg/Kg	7	--	--	0
beta-BHC	μg/Kg	7	--	--	0
delta-BHC	μg/Kg	7	--	--	0
Dieldrin	μg/Kg	7	--	--	0
Endosulfan I	μg/Kg	7	--	--	0
Endosulfan II	μg/Kg	7	--	--	0
Endosulfan sulfate	μg/Kg	7	--	--	0
Endrin	μg/Kg	7	--	--	0
Endrin aldehyde	μg/Kg	7	--	--	0
Endrin ketone	μg/Kg	7	--	--	0
gamma-BHC (Lindane)	μg/Kg	7	--	--	0
gamma-Chlordane	μg/Kg	7	--	--	0
Heptachlor	μg/Kg	7	--	--	0
Heptachlor epoxide	μg/Kg	7	--	--	0
Methoxychlor	μg/Kg	7	--	--	0
Toxaphene	μg/Kg	7	--	--	0

* Data qualifier included with concentration value

Table 4-17
Exposure Unit 13
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	7	1.95	9.3	2
Alpha	pCi/g	15	10.9	3030	15
Americium-241	pCi/g	7	--	--	0
Beta	pCi/g	15	19.9	1180	15
Cesium-137	pCi/g	7	0.0467	0.148	3
Cobalt-60	pCi/g	7	--	--	0
Potassium-40	pCi/g	1	20	20	1
Protactinium-231	pCi/g	7	--	--	0
Radium-226	pCi/g	19	0.511	1140	19
Radium-228	pCi/g	7	0.462	0.951	6
Thorium-228	pCi/g	19	0.553 J	1.53	19
Thorium-230	pCi/g	19	1.39	978	19
Thorium-232	pCi/g	19	0.567 J	2.07	19
Total Uranium	μg/g	19	1.2	44.8	18
Uranium-234	pCi/g	19	0.519 J	29.7	19
Uranium-235	pCi/g	19	0.17 J	1.2	3
Uranium-238	pCi/g	19	0.62	26.2	19
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	16	--	--	0
1,2-Dichlorobenzene	μg/Kg	16	--	--	0
1,3-Dichlorobenzene	μg/Kg	16	--	--	0
1,4-Dichlorobenzene	μg/Kg	16	--	--	0
2,4,5-Trichlorophenol	μg/Kg	16	--	--	0
2,4,6-Trichlorophenol	μg/Kg	16	--	--	0
2,4-Dichlorophenol	μg/Kg	16	--	--	0
2,4-Dimethylphenol	μg/Kg	16	--	--	0
2,4-Dinitrophenol	μg/Kg	16	--	--	0
2-Chloronaphthalene	μg/Kg	16	--	--	0
2-Chlorophenol	μg/Kg	16	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	16	--	--	0
2-Methylnaphthalene	μg/Kg	16	25.4 J	819	4
2-Nitroaniline	μg/Kg	16	--	--	0
2-Nitrophenol	μg/Kg	16	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	16	--	--	0
3-Nitroaniline	μg/Kg	16	--	--	0
4-Bromophenylphenylether	μg/Kg	16	--	--	0
4-Chloro-3-methylphenol	μg/Kg	16	--	--	0
4-Chloroaniline	μg/Kg	16	--	--	0
4-Chlorophenylphenylether	μg/Kg	16	--	--	0
4-Nitroaniline	μg/Kg	16	--	--	0
4-Nitrophenol	μg/Kg	16	--	--	0
Benzoic Acid	μg/Kg	16	--	--	0
Benzyl Alcohol	μg/Kg	1	--	--	0

* Data qualifier included with concentration value

Table 4-17
Exposure Unit 13
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	16	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	16	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	16	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	16	43 J	1380	6
Butylbenzylphthalate	μg/Kg	16	--	--	0
Carbazole	μg/Kg	16	--	--	0
Dibenzofuran	μg/Kg	16	--	--	0
Diethylphthalate	μg/Kg	16	--	--	0
Dimethylphthalate	μg/Kg	16	--	--	0
Di-n-butylphthalate	μg/Kg	16	--	--	0
Di-n-octylphthalate	μg/Kg	16	--	--	0
Diphenylamine	μg/Kg	14	--	--	0
Hexachlorobenzene	μg/Kg	16	--	--	0
Hexachlorobutadiene	μg/Kg	16	--	--	0
Hexachlorocyclopentadiene	μg/Kg	16	--	--	0
Hexachloroethane	μg/Kg	16	--	--	0
Isophorone	μg/Kg	16	--	--	0
m,p-Cresols	μg/Kg	16	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	16	--	--	0
N-Nitrosodiphenylamine	μg/Kg	2	--	--	0
o-Cresol	μg/Kg	16	--	--	0
Pentachlorophenol	μg/Kg	16	--	--	0
Phenol	μg/Kg	16	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	14	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	14	--	--	0
1,1,2-Trichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethene	μg/Kg	14	--	--	0
1,2-Dichloroethane	μg/Kg	14	--	--	0
1,2-Dichloropropane	μg/Kg	14	--	--	0
2-Butanone	μg/Kg	14	--	--	0
2-Hexanone	μg/Kg	14	--	--	0
4-Methyl-2-pentanone	μg/Kg	14	--	--	0
Acetone	μg/Kg	14	9.8	9.8	1
Benzene	μg/Kg	14	--	--	0
Bromodichloromethane	μg/Kg	14	--	--	0
Bromoform	μg/Kg	14	--	--	0
Bromomethane	μg/Kg	14	--	--	0
Carbon disulfide	μg/Kg	14	--	--	0
Carbon tetrachloride	μg/Kg	14	--	--	0
Chlorobenzene	μg/Kg	14	--	--	0
Chloroethane	μg/Kg	14	--	--	0
Chloroform	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-17
Exposure Unit 13
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	14	--	--	0
cis-1,3-Dichloropropene	μg/Kg	14	--	--	0
Dibromochloromethane	μg/Kg	14	--	--	0
Ethylbenzene	μg/Kg	14	--	--	0
Methylene chloride	μg/Kg	14	1.3 J	15.2	3
Styrene	μg/Kg	14	--	--	0
Tetrachloroethene	μg/Kg	14	2.7	14.3	2
Toluene	μg/Kg	14	0.39 J	3.7	2
trans-1,3-Dichloropropene	μg/Kg	14	--	--	0
Trichloroethene	μg/Kg	14	1 J	1 J	1
Vinyl chloride	μg/Kg	14	--	--	0
Xylenes (total)	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-18
Exposure Unit 14
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	8	6660	147000	8
Antimony	mg/Kg	8	0.519 BN	1.38 N	2
Arsenic	mg/Kg	8	1.42	9.32 N	8
Barium	mg/Kg	8	74 N	2210	8
Beryllium	mg/Kg	8	0.667	28	8
Boron	mg/Kg	8	4.76 B	361	8
Cadmium	mg/Kg	8	0.126 B	0.588 B	7
Calcium	mg/Kg	8	4040 *	240000	8
Chromium	mg/Kg	8	11.2	37.9	8
Cobalt	mg/Kg	8	4.82	10.7	8
Copper	mg/Kg	8	25.1	58.3	8
Iron	mg/Kg	8	10900	26100	8
Lead	mg/Kg	8	5.8 E	67.8	8
Lithium	mg/Kg	8	11.4 B	31.2	8
Magnesium	mg/Kg	8	3080	232000	8
Manganese	mg/Kg	8	90.4 *	4300	8
Mercury	mg/Kg	8	0.01 B	0.075	8
Nickel	mg/Kg	8	15.5	26.8	8
Potassium	mg/Kg	8	1030 N	12200	8
Selenium	mg/Kg	8	0.64 B	5.25	8
Silver	mg/Kg	8	0.05 B	0.404 BN	8
Sodium	mg/Kg	8	64.3 *	4690	8
Thallium	mg/Kg	8	0.032 B	0.262 B	8
Vanadium	mg/Kg	8	18.5	35.7	8
Zinc	mg/Kg	8	37.4	403	8
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	2	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	2	--	--	0
2,4-Dinitrotoluene	μg/Kg	7	--	--	0
2,6-Dinitrotoluene	μg/Kg	7	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	2	--	--	0
2-Nitrotoluene	μg/Kg	2	--	--	0
3-Dinitrobenzene	μg/Kg	2	--	--	0
3-Nitrotoluene	μg/Kg	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	2	--	--	0
4-Nitrotoluene	μg/Kg	2	--	--	0
HMX	μg/Kg	2	--	--	0
Nitrobenzene	μg/Kg	7	--	--	0
RDX	μg/Kg	2	--	--	0
Tetryl	μg/Kg	2	--	--	0
PAHs					
Acenaphthene	μg/Kg	7	--	--	0
Acenaphthylene	μg/Kg	7	--	--	0

* Data qualifier included with concentration value

Table 4-18
Exposure Unit 14
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	7	--	--	0
Benzo(a)anthracene	μg/Kg	7	--	--	0
Benzo(a)pyrene	μg/Kg	7	--	--	0
Benzo(b)fluoranthene	μg/Kg	7	--	--	0
Benzo(g,h,i)perylene	μg/Kg	7	--	--	0
Benzo(k)fluoranthene	μg/Kg	7	--	--	0
Chrysene	μg/Kg	7	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	7	--	--	0
Fluoranthene	μg/Kg	7	23.3 J	23.3 J	1
Fluorene	μg/Kg	7	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	7	--	--	0
Naphthalene	μg/Kg	7	1410 J	1410 J	1
Phenanthrene	μg/Kg	7	--	--	0
Pyrene	μg/Kg	7	19.8 J	19.8 J	1
PCBs					
Aroclor-1016	μg/Kg	2	--	--	0
Aroclor-1221	μg/Kg	2	--	--	0
Aroclor-1232	μg/Kg	2	--	--	0
Aroclor-1242	μg/Kg	2	--	--	0
Aroclor-1248	μg/Kg	2	--	--	0
Aroclor-1254	μg/Kg	2	--	--	0
Aroclor-1260	μg/Kg	2	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	2	--	--	0
4,4'-DDE	μg/Kg	2	--	--	0
4,4'-DDT	μg/Kg	2	--	--	0
Aldrin	μg/Kg	2	--	--	0
alpha-BHC	μg/Kg	2	--	--	0
alpha-Chlordane	μg/Kg	2	--	--	0
beta-BHC	μg/Kg	2	--	--	0
delta-BHC	μg/Kg	2	--	--	0
Dieldrin	μg/Kg	2	--	--	0
Endosulfan I	μg/Kg	2	--	--	0
Endosulfan II	μg/Kg	2	--	--	0
Endosulfan sulfate	μg/Kg	2	--	--	0
Endrin	μg/Kg	2	--	--	0
Endrin aldehyde	μg/Kg	2	--	--	0
Endrin ketone	μg/Kg	2	--	--	0
gamma-BHC (Lindane)	μg/Kg	2	--	--	0
gamma-Chlordane	μg/Kg	2	--	--	0
Heptachlor	μg/Kg	2	--	--	0
Heptachlor epoxide	μg/Kg	2	--	--	0
Methoxychlor	μg/Kg	2	--	--	0
Toxaphene	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-18
Exposure Unit 14
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	29	1 J	5.11	2
Alpha	pCi/g	4	9.8	22.1	4
Americium-241	pCi/g	29	--	--	0
Beta	pCi/g	4	20.1	25.8	4
Cesium-137	pCi/g	30	0.0291	1.27	17
Cobalt-60	pCi/g	29	--	--	0
Potassium-40	pCi/g	13	11.4 J	22.6	13
Protactinium-231	pCi/g	29	--	--	0
Radium-226	pCi/g	32	0.775	299	32
Radium-228	pCi/g	29	0.51	1.13	27
Thorium-228	pCi/g	32	0.79	1.7	32
Thorium-230	pCi/g	32	0.704 J	4.47	31
Thorium-232	pCi/g	32	0.627	1.29	32
Total Uranium	μg/g	32	1.86	9.96	32
Uranium-234	pCi/g	32	0.726	4.44	31
Uranium-235	pCi/g	32	0.0395	0.321	9
Uranium-238	pCi/g	32	0.754	3.82	31
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	7	--	--	0
1,2-Dichlorobenzene	μg/Kg	7	--	--	0
1,3-Dichlorobenzene	μg/Kg	7	--	--	0
1,4-Dichlorobenzene	μg/Kg	7	--	--	0
2,4,5-Trichlorophenol	μg/Kg	7	--	--	0
2,4,6-Trichlorophenol	μg/Kg	7	--	--	0
2,4-Dichlorophenol	μg/Kg	7	--	--	0
2,4-Dimethylphenol	μg/Kg	7	--	--	0
2,4-Dinitrophenol	μg/Kg	7	--	--	0
2-Chloronaphthalene	μg/Kg	7	--	--	0
2-Chlorophenol	μg/Kg	7	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	7	--	--	0
2-Methylnaphthalene	μg/Kg	7	2080	2080	1
2-Nitroaniline	μg/Kg	7	--	--	0
2-Nitrophenol	μg/Kg	7	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	7	--	--	0
3-Nitroaniline	μg/Kg	7	--	--	0
4-Bromophenylphenylether	μg/Kg	7	--	--	0
4-Chloro-3-methylphenol	μg/Kg	7	--	--	0
4-Chloroaniline	μg/Kg	7	--	--	0
4-Chlorophenylphenylether	μg/Kg	7	--	--	0
4-Nitroaniline	μg/Kg	7	--	--	0
4-Nitrophenol	μg/Kg	7	--	--	0
Benzoic Acid	μg/Kg	7	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	7	--	--	0

* Data qualifier included with concentration value

Table 4-18
Exposure Unit 14
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	7	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	7	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	7	2270	2270	1
Butylbenzylphthalate	μg/Kg	7	--	--	0
Carbazole	μg/Kg	7	--	--	0
Dibenzofuran	μg/Kg	7	--	--	0
Diethylphthalate	μg/Kg	7	--	--	0
Dimethylphthalate	μg/Kg	7	--	--	0
Di-n-butylphthalate	μg/Kg	7	--	--	0
Di-n-octylphthalate	μg/Kg	7	506	506	1
Diphenylamine	μg/Kg	7	--	--	0
Hexachlorobenzene	μg/Kg	7	--	--	0
Hexachlorobutadiene	μg/Kg	7	--	--	0
Hexachlorocyclopentadiene	μg/Kg	7	--	--	0
Hexachloroethane	μg/Kg	7	--	--	0
Isophorone	μg/Kg	7	--	--	0
m,p-Cresols	μg/Kg	7	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	7	--	--	0
o-Cresol	μg/Kg	7	--	--	0
Pentachlorophenol	μg/Kg	7	--	--	0
Phenol	μg/Kg	7	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	2	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	2	--	--	0
1,1,2-Trichloroethane	μg/Kg	2	--	--	0
1,1-Dichloroethane	μg/Kg	2	--	--	0
1,1-Dichloroethene	μg/Kg	2	--	--	0
1,2-Dichloroethane	μg/Kg	2	--	--	0
1,2-Dichloropropane	μg/Kg	2	--	--	0
2-Butanone	μg/Kg	2	--	--	0
2-Hexanone	μg/Kg	2	--	--	0
4-Methyl-2-pentanone	μg/Kg	2	--	--	0
Acetone	μg/Kg	2	--	--	0
Benzene	μg/Kg	2	--	--	0
Bromodichloromethane	μg/Kg	2	--	--	0
Bromoform	μg/Kg	2	--	--	0
Bromomethane	μg/Kg	2	--	--	0
Carbon disulfide	μg/Kg	2	--	--	0
Carbon tetrachloride	μg/Kg	2	--	--	0
Chlorobenzene	μg/Kg	2	--	--	0
Chloroethane	μg/Kg	2	--	--	0
Chloroform	μg/Kg	2	--	--	0
Chloromethane	μg/Kg	2	--	--	0
cis-1,3-Dichloropropene	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-18
Exposure Unit 14
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/Kg	2	--	--	0
Ethylbenzene	μg/Kg	2	--	--	0
Methylene chloride	μg/Kg	2	--	--	0
Styrene	μg/Kg	2	--	--	0
Tetrachloroethene	μg/Kg	2	--	--	0
Toluene	μg/Kg	2	--	--	0
trans-1,3-Dichloropropene	μg/Kg	2	--	--	0
Trichloroethene	μg/Kg	2	--	--	0
Vinyl chloride	μg/Kg	2	--	--	0
Xylenes (total)	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-19
Exposure Unit 17
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	185	4700 *	147000	185
Antimony	mg/Kg	185	0.25 BN	3.92 J	55
Arsenic	mg/Kg	185	1.2	51.8 N	185
Barium	mg/Kg	185	53.1 *	2670 N*	185
Beryllium	mg/Kg	185	0.26 BE	28	185
Boron	mg/Kg	185	0.91 B	361	185
Cadmium	mg/Kg	185	0.03 B	2.04 E	103
Calcium	mg/Kg	185	1580	240000	185
Chromium	mg/Kg	185	2.9	196	185
Cobalt	mg/Kg	185	0.24 BE	19.7	185
Copper	mg/Kg	185	3.1	1050	185
Iron	mg/Kg	185	2260	154000 J	185
Lead	mg/Kg	185	3.5	686	185
Lithium	mg/Kg	183	6.8	103	183
Magnesium	mg/Kg	185	1310	232000	185
Manganese	mg/Kg	185	90.4 *	5010 *	185
Mercury	mg/Kg	185	0.003 B	1.5 N	180
Nickel	mg/Kg	185	0.65	348	185
Potassium	mg/Kg	185	440	12200	185
Selenium	mg/Kg	184	0.09 BN	5.8 B	171
Silver	mg/Kg	185	0.03 B	0.75 N	176
Sodium	mg/Kg	185	33	4690	185
Thallium	mg/Kg	185	0.032 B	0.39	173
Vanadium	mg/Kg	185	5	52	185
Zinc	mg/Kg	185	6.7 E	2450	185
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	54	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	54	--	--	0
2,4-Dinitrotoluene	μg/Kg	210	64.1 J	108	2
2,6-Dinitrotoluene	μg/Kg	210	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	54	--	--	0
2-Nitrotoluene	μg/Kg	54	109	109	1
3-Dinitrobenzene	μg/Kg	54	--	--	0
3-Nitrotoluene	μg/Kg	54	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	54	--	--	0
4-Nitrotoluene	μg/Kg	54	--	--	0
HMX	μg/Kg	54	--	--	0
Nitrobenzene	μg/Kg	210	--	--	0
RDX	μg/Kg	54	--	--	0
Tetryl	μg/Kg	54	--	--	0
PAHs					
Acenaphthene	μg/Kg	206	10.9 J	13300 J	13
Acenaphthylene	μg/Kg	208	7.5 J	151 J	8

* Data qualifier included with concentration value

Table 4-19
Exposure Unit 17
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	206	8.46 J	24700	19
Benzo(a)anthracene	μg/Kg	206	0.571 J	73300	73
Benzo(a)pyrene	μg/Kg	206	2.09	82500	66
Benzo(b)fluoranthene	μg/Kg	206	0.604	42800 D	79
Benzo(g,h,i)perylene	μg/Kg	206	1.47 J	54100	51
Benzo(k)fluoranthene	μg/Kg	206	0.76	62900	53
Chrysene	μg/Kg	206	0.886 Jh	76000	85
Dibenzo(a,h)anthracene	μg/Kg	206	1.43 J	22500	12
Fluoranthene	μg/Kg	206	0.617 J	92400 D	96
Fluorene	μg/Kg	208	7.21 J	15200 J	20
Indeno(1,2,3-cd)pyrene	μg/Kg	206	30.6 J	43600	38
Naphthalene	μg/Kg	208	2.44 JP	2170	24
Phenanthrene	μg/Kg	206	1.67 J	71600 D	75
Pyrene	μg/Kg	204	1.26 J	99700 D	88
PCBs					
Aroclor-1016	μg/Kg	134	--	--	0
Aroclor-1221	μg/Kg	134	--	--	0
Aroclor-1232	μg/Kg	134	--	--	0
Aroclor-1242	μg/Kg	134	4.8	8.8	3
Aroclor-1248	μg/Kg	134	--	--	0
Aroclor-1254	μg/Kg	134	2.6 J	714 JP	19
Aroclor-1260	μg/Kg	134	1.4 J	70200	52
Pesticides					
4,4'-DDD	μg/Kg	125	0.289 J	2.18 J	4
4,4'-DDE	μg/Kg	125	0.302 J	13.3	44
4,4'-DDT	μg/Kg	125	0.506 J	18.9	32
Aldrin	μg/Kg	125	--	--	0
alpha-BHC	μg/Kg	125	--	--	0
alpha-Chlordane	μg/Kg	125	--	--	0
beta-BHC	μg/Kg	125	--	--	0
delta-BHC	μg/Kg	125	0.48 JP	0.48 JP	1
Dieldrin	μg/Kg	125	0.222 J	0.92 JP	5
Endosulfan I	μg/Kg	125	--	--	0
Endosulfan II	μg/Kg	125	--	--	0
Endosulfan sulfate	μg/Kg	125	0.99 J	0.99 J	1
Endrin	μg/Kg	125	--	--	0
Endrin aldehyde	μg/Kg	125	--	--	0
Endrin ketone	μg/Kg	125	--	--	0
gamma-BHC (Lindane)	μg/Kg	125	--	--	0
gamma-Chlordane	μg/Kg	125	0.306 J	0.306 J	1
Heptachlor	μg/Kg	125	1.7	1.7	1
Heptachlor epoxide	μg/Kg	125	--	--	0
Methoxychlor	μg/Kg	125	--	--	0
Toxaphene	μg/Kg	125	--	--	0

* Data qualifier included with concentration value

Table 4-19
Exposure Unit 17
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	413	0.278	132	49
Alpha	pCi/g	189	5.41	19000	188
Americium-241	pCi/g	413	0.035	0.636	7
Beta	pCi/g	189	10.2	15100	189
Cesium-137	pCi/g	447	0.0213	3	338
Cobalt-60	pCi/g	413	--	--	0
Plutonium-238	pCi/g	10	--	--	0
Plutonium-239/240	pCi/g	10	0.129	0.129	1
Potassium-40	pCi/g	190	2.34	28.4	188
Protactinium-231	pCi/g	413	9.43	127	4
Radium-226	pCi/g	499	0.378	1140	488
Radium-228	pCi/g	413	0.0607	3.18	400
Thorium-228	pCi/g	498	0.0481	2.38	486
Thorium-230	pCi/g	499	0.0906	978	481
Thorium-232	pCi/g	499	0.036	2.07	494
Total Uranium	μg/g	499	0.111	5630	488
Uranium-234	pCi/g	499	0.0527	8340	494
Uranium-235	pCi/g	499	0.0395	886	122
Uranium-238	pCi/g	499	0.0416	8830	492
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	207	--	--	0
1,2-Dichlorobenzene	μg/Kg	208	--	--	0
1,3-Dichlorobenzene	μg/Kg	208	--	--	0
1,4-Dichlorobenzene	μg/Kg	208	--	--	0
2,4,5-Trichlorophenol	μg/Kg	208	--	--	0
2,4,6-Trichlorophenol	μg/Kg	207	--	--	0
2,4-Dichlorophenol	μg/Kg	208	--	--	0
2,4-Dimethylphenol	μg/Kg	208	--	--	0
2,4-Dinitrophenol	μg/Kg	208	--	--	0
2-Chloronaphthalene	μg/Kg	208	--	--	0
2-Chlorophenol	μg/Kg	208	21.7 J	21.7 J	1
2-Methyl-4,6-dinitrophenol	μg/Kg	206	--	--	0
2-Methylnaphthalene	μg/Kg	207	25.4 J	2950	14
2-Nitroaniline	μg/Kg	205	--	--	0
2-Nitrophenol	μg/Kg	208	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	206	--	--	0
3-Nitroaniline	μg/Kg	208	--	--	0
4-Bromophenylphenylether	μg/Kg	206	--	--	0
4-Chloro-3-methylphenol	μg/Kg	208	--	--	0
4-Chloroaniline	μg/Kg	208	--	--	0
4-Chlorophenylphenylether	μg/Kg	206	--	--	0
4-Nitroaniline	μg/Kg	206	--	--	0
4-Nitrophenol	μg/Kg	208	--	--	0

* Data qualifier included with concentration value

Table 4-19
Exposure Unit 17
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	202	69 J	602 J	3
Benzyl Alcohol	μg/Kg	2	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	208	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	208	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	208	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	206	43 J	7900	33
Butylbenzylphthalate	μg/Kg	206	17.7 J	62.7 J	2
Carbazole	μg/Kg	206	28.7 J	20000	11
Dibenzofuran	μg/Kg	208	20.8 J	2180	5
Diethylphthalate	μg/Kg	208	31.6 J	31.6 J	1
Dimethylphthalate	μg/Kg	208	--	--	0
Di-n-butylphthalate	μg/Kg	206	291 J	291 J	1
Di-n-octylphthalate	μg/Kg	206	150 J	506	2
Diphenylamine	μg/Kg	138	--	--	0
Hexachlorobenzene	μg/Kg	206	--	--	0
Hexachlorobutadiene	μg/Kg	208	--	--	0
Hexachlorocyclopentadiene	μg/Kg	208	--	--	0
Hexachloroethane	μg/Kg	208	--	--	0
Isophorone	μg/Kg	208	--	--	0
m,p-Cresols	μg/Kg	207	19.7 J	19.7 J	1
N-Nitroso-di-n-propylamine	μg/Kg	208	--	--	0
N-Nitrosodiphenylamine	μg/Kg	68	--	--	0
o-Cresol	μg/Kg	208	--	--	0
p-Cresol	μg/Kg	1	--	--	0
Pentachlorophenol	μg/Kg	206	--	--	0
Phenol	μg/Kg	208	28.1 J	28.1 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	143	0.83 J	0.83 J	1
1,1,2,2-Tetrachloroethane	μg/Kg	143	--	--	0
1,1,2-Trichloroethane	μg/Kg	143	--	--	0
1,1-Dichloroethane	μg/Kg	143	--	--	0
1,1-Dichloroethene	μg/Kg	143	0.555 J	8.4	13
1,2-Dichloroethane	μg/Kg	143	--	--	0
1,2-Dichloroethene	μg/Kg	1	--	--	0
1,2-Dichloropropane	μg/Kg	143	--	--	0
2-Butanone	μg/Kg	143	2.6 J	307	23
2-Hexanone	μg/Kg	143	0.71 J	4.4	2
4-Methyl-2-pentanone	μg/Kg	143	--	--	0
Acetone	μg/Kg	143	1.5 J	302	36
Benzene	μg/Kg	143	0.15 J	2.6	14
Bromodichloromethane	μg/Kg	143	--	--	0
Bromoform	μg/Kg	143	--	--	0
Bromomethane	μg/Kg	143	--	--	0
Carbon disulfide	μg/Kg	143	1.2 J	9.1	9

* Data qualifier included with concentration value

Table 4-19
Exposure Unit 17
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon tetrachloride	μg/Kg	143	--	--	0
Chlorobenzene	μg/Kg	143	--	--	0
Chloroethane	μg/Kg	143	--	--	0
Chloroform	μg/Kg	143	0.45 J	0.45 J	1
Chloromethane	μg/Kg	143	--	--	0
cis-1,3-Dichloropropene	μg/Kg	143	--	--	0
Dibromochloromethane	μg/Kg	143	--	--	0
Ethylbenzene	μg/Kg	143	0.58 J	0.58 J	1
m,p-Xylenes	μg/Kg	1	--	--	0
Methylene chloride	μg/Kg	143	1.3 J	18.5	6
o-Xylene	μg/Kg	1	--	--	0
Styrene	μg/Kg	143	--	--	0
Tetrachloroethene	μg/Kg	143	0.84 J	1410	9
Toluene	μg/Kg	143	0.21 J	5.7	29
trans-1,3-Dichloropropene	μg/Kg	143	--	--	0
Trichloroethene	μg/Kg	143	0.571 J	71.4 J	5
Vinyl chloride	μg/Kg	143	--	--	0
Xylenes (total)	μg/Kg	142	0.39 J	1.8 J	8

* Data qualifier included with concentration value

Table 4-20
Exposure Unit 1
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Boron	mg/Kg	10.1	SD713-324	10.5 *
			SS504-692	10.9
Cadmium	mg/Kg	0.53	SD712-319	0.68
			SD713-324	1.1
Copper	mg/Kg	34.7	C5-VS-SO-B300-1	37.5
			SD712-319	36.9
			SS502-060	36.5
			SS504-692	41.7 E*
			SS505-694	36.2 *N
Lithium	mg/Kg	27.9	C5-VS-SO-B300-1	30.7
			SD712-319	32.9 E
Magnesium	mg/Kg	10200	SD713-324	12900 *
Mercury	mg/Kg	0.27	SD712-319	0.55
			SD713-324	1.1
Nickel	mg/Kg	37.5	C5-VS-SO-B300-1	46
Potassium	mg/Kg	1820	SD713-324	2710 E
			SS-EU011-3327	2350 N
Selenium	mg/Kg	0.37	SD712-319	1.7 N
			SD713-324	0.91 BN
			SD714-326	0.84 BN
			SS501-059	1.1
			SS503-064	1.3
			SS504-692	1.05 B
			SS505-694	1.47 B
			SS-EU011-3327	0.725 B
Silver	mg/Kg	0.27	SS503-064	0.75 N
			SS505-694	0.341 B
Thallium	mg/Kg	--	SD712-319	0.27
			SD713-324	0.14
			SD714-326	0.16 B
			SS501-059	0.1 B
			SS502-060	0.07 B
			SS503-064	0.09 B
			SS504-692	0.285 B
			SS-EU011-3327	0.11 BE
PAHs				
Benzo(g,h,i)perylene	µg/Kg	--	C5-VS-SO-B300-1	1.7
Naphthalene	µg/Kg	--	SS504-692	292 J
PCBs				
Aroclor-1260	µg/Kg	--	SD714-326	8.9 J
Pesticides				
4,4'-DDD	µg/Kg	--	SS-EU011-3327	0.357 J

* Data qualifier included with concentration value

Table 4-20
Exposure Unit 1
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	μg/Kg	--	SS505-694	0.69 J
			SS-EU011-3327	2.67
4,4'-DDT	μg/Kg	--	SS-EU011-3327	2.24
Radionuclides				
Actinium-227	pCi/g	0.08	SD746-2150	8
			SD747-2152	2.22
			SS5A016-2170	1.51
Alpha	pCi/g	--	SD712-319	13.3
			SD713-324	10.6
			SD714-326	15.5
			SD-WD1-3406-0.5	10.8
			SS501-059	10.3
			SS502-060	23.2
			SS503-064	230
			SS-EU011-3327	11.8
Beta	pCi/g	--	SD712-319	20.9
			SD713-324	22.9
			SD714-326	23.8
			SD-WD1-3406-0.5	19.5
			SS501-059	22.3
			SS502-060	34.3
			SS503-064	219
			SS-EU011-3327	21.1
Cesium-137	pCi/g	0.343	SD714-326	0.399 J
			SD746-2150	0.49
			SS504-692	0.864
			SS5A001-637	1.13
			SS5A004-640	1.07
			SS5A010-2164	0.417
			SS5A011-2165	0.402
			SS5A012-2166	0.423
			SS5A013-2167	0.391

* Data qualifier included with concentration value

Table 4-20
Exposure Unit 1
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SD712-319	0.923 J
			SD746-2150	184
			SD747-2152	37.1
			SS501-059	0.993
			SS504-692	6.07
			SS5A010-2164	5.36
			SS5A011-2165	1.92
			SS5A012-2166	4.57
			SS5A013-2167	3.72
			SS5A014-2168	4.79
			SS5A016-2170	13.4
			SS5A021-2214	6.39
			SS-EU011-3327	1.49
Radium-228	pCi/g	1.26	SS5A006-642	1.44
			SS5A010-2164	1.61
			SS5A012-2166	1.5
			SS5A013-2167	1.41
			SS5A014-2168	2.08
			SS5A021-2214	2.43
Thorium-228	pCi/g	1.64	SS5A006-642	2.38
			SS5A010-2164	1.79
			SS5A021-2214	2.01
Thorium-230	pCi/g	1.6	SD746-2150	230
			SD747-2152	48.1
			SD-WD1-3406-0.5	1.66
			SS505-694	1.97
			SS5A010-2164	4.56
			SS5A011-2165	1.88
			SS5A012-2166	3.37
			SS5A013-2167	3.42
			SS5A014-2168	2.21
			SS5A016-2170	31.3
			SS5A021-2214	4.53
			SS-EU011-3327	2.14
Thorium-232	pCi/g	1.24	SS504-692	1.36
			SS5A006-642	1.73
			SS5A010-2164	1.31

* Data qualifier included with concentration value

Table 4-20
Exposure Unit 1
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SD746-2150	6.35
			SS502-060	27.1
			SS503-064	366
			SS504-692	27.7
			SS5A001-637	8.97
			SS5A002-638	8.01
			SS5A006-642	7.6
			SS5A010-2164	7.63
			SS5A012-2166	6
			SS5A013-2167	6.73
			SS5A014-2168	6.81
			SS5A016-2170	4.43
			SS5A021-2214	10
Uranium-234	pCi/g	1.68	SD746-2150	4.14
			SS502-060	7.09
			SS503-064	119
			SS504-692	7.66
			SS505-694	1.79
			SS5A001-637	2.51
			SS5A002-638	4.07
			SS5A006-642	2.26
			SS5A010-2164	2.37
			SS5A012-2166	3.4
			SS5A013-2167	3.79
			SS5A016-2170	2.11
			SS5A021-2214	3.4
Uranium-235	pCi/g	0.0847	SD712-319	0.109 J
			SD746-2150	0.257
			SD-WD1-3406-0.5	0.404
			SS502-060	0.264 J
			SS503-064	6.15
			SS504-692	0.338
			SS5A006-642	0.262
			SS5A011-2165	0.177
			SS5A012-2166	0.507
			SS5A013-2167	0.367
			SS5A014-2168	0.129
			SS5A021-2214	0.221

* Data qualifier included with concentration value

Table 4-20
Exposure Unit 1
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SD746-2150	3.01
			SS502-060	6.5
			SS503-064	120
			SS504-692	7.52
			SS505-694	2.17
			SS5A001-637	2.73
			SS5A002-638	4.13
			SS5A004-640	1.42
			SS5A006-642	2.69
			SS5A010-2164	2.5
			SS5A012-2166	2.55
			SS5A013-2167	2.72
			SS5A014-2168	1.82
			SS5A016-2170	1.81
			SS5A021-2214	3.72
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS504-692	440
Di-n-octylphthalate	μg/Kg	--	C5-VS-SO-B300-1	150 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS505-694	1.5
2-Butanone	μg/Kg	--	SS501-059	6
			SS502-060	6.5
			SS503-064	5.1
Acetone	μg/Kg	--	SD714-326	8 J
			SS501-059	50.2
			SS502-060	65.6
			SS503-064	56.8
Benzene	μg/Kg	--	SS502-060	0.54 J
Carbon disulfide	μg/Kg	--	SS501-059	1.2 J
			SS503-064	1.8 J
Ethylbenzene	μg/Kg	--	SS503-064	0.58 J
Toluene	μg/Kg	--	SS501-059	0.74
			SS503-064	1.5
Xylenes (total)	μg/Kg	--	SS503-064	0.39 J
			SS505-694	1.3 J

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS402-039	40100
			SS4A012-611	24400
			SS-DRUM01-3369	38400 *
Antimony	mg/Kg	0.94	SS-DRUM01-3369	1.83 N
			SS-EU021-3328	1.15 N
			SS-EU022-3329	1.13 BN
Barium	mg/Kg	279	SS402-039	481
Beryllium	mg/Kg	1	SS402-039	5.2
			SS4A012-611	2.38
			SS-DRUM01-3369	3.42
Boron	mg/Kg	10.1	SS402-039	147
			SS4A012-611	10.2
			SS-DRUM01-3369	85.8
Cadmium	mg/Kg	0.53	SS4A012-611	0.964
Calcium	mg/Kg	45200	SS402-039	238000 *
			SS406-043	51500
			SS4A012-611	88100
			SS-DRUM01-3369	47800 *
Chromium	mg/Kg	24.3	SS401-037	26.1
			SS4A012-611	67
			SS-DRUM01-3369	29.4 *
			SS-EU021-3328	30.9 *
Copper	mg/Kg	34.7	SS403-040	40.4
			SS404-041	55 N
			SS4A012-611	57.6
			SS4B003-614	36.7
			SS-DRUM01-3369	35.2 *N
Lead	mg/Kg	55.2	SS403-040	588
			SS4A010-608	96.6
			SS4A012-611	67.8
Lithium	mg/Kg	27.9	SS402-039	36
			SS808-077	103
			SS-DRUM01-3369	32.2 N*
Magnesium	mg/Kg	10200	SS402-039	11800
			SS406-043	29500
			SS4A012-611	44400
Mercury	mg/Kg	0.27	SS404-041	1.5 N
Nickel	mg/Kg	37.5	SS404-041	46.8 *E
			SS-DRUM01-3369	43.5 *
Potassium	mg/Kg	1820	SS-DRUM01-3369	9150 N
			SS-EU022-3329	1910 N

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS402-039	5.4 B
			SS403-040	0.87 B
			SS404-041	1.5
			SS405-042	1
			SS406-043	0.69 BN
			SS4A008-606	1.16 B
			SS4A010-608	1.06 B
			SS4A012-611	2.28
			SS4B003-614	0.983 B
			SS808-077	5.8 B
			SS810-079	0.84 B
			SS822-710	0.685 B
			SS-DRUM01-3369	1.61
			SS-EU021-3328	0.794 B
			SS-EU022-3329	0.995 B
Silver	mg/Kg	0.27	SS403-040	0.34
Sodium	mg/Kg	286	SS402-039	780 E
			SS-DRUM01-3369	2410 *
Thallium	mg/Kg	--	SS401-037	0.07 B
			SS403-040	0.15
			SS404-041	0.09 B
			SS405-042	0.12
			SS406-043	0.1 B
			SS4A008-606	0.128
			SS4A010-608	0.145
			SS4A012-611	0.135
			SS4B003-614	0.151
			SS808-077	0.08 B
			SS809-078	0.06 B
			SS810-079	0.13
			SS822-710	0.153 B
			SS-DRUM01-3369	0.249 E
			SS-EU021-3328	0.138 E
			SS-EU022-3329	0.12 BE
Vanadium	mg/Kg	34	SS-DRUM01-3369	52
Zinc	mg/Kg	78	SS403-040	85.6 E
			SS404-041	148 *E
			SS405-042	140 *E
			SS406-043	79.4 *
			SS4A010-608	97.8
			SS4A012-611	475
			SS-DRUM01-3369	102 *
PAHs				

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acenaphthene	$\mu\text{g/Kg}$	--	SS405-042	206 J
			SS4A003-601	2460 JD
			SS4A007-605	6270 JD
Acenaphthylene	$\mu\text{g/Kg}$	--	SS-DRUM01-3369	38.2
Anthracene	$\mu\text{g/Kg}$	--	SS405-042	240 J
			SS4A003-601	1530 J
			SS4A007-605	6660
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	SS405-042	1170
			SS4A003-601	17900 D
			SS4A007-605	26900 D
			SS4B001-612	887 J
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	SS405-042	1830
			SS4A003-601	36000 D
			SS4A007-605	27500 D
			SS4B001-612	2560
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SS405-042	1740
			SS4A003-601	29700 E
			SS4A007-605	35000 D
			SS4B001-612	4480
			SS-DRUM01-3369	413
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	--	SS405-042	1030
			SS4A003-601	19400 E
			SS4A007-605	9820
			SS4B001-612	1460 J
			SS-DRUM01-3369	101
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS405-042	1410
			SS4A003-601	25900 D
			SS4A007-605	6420
			SS4B001-612	1650
Chrysene	$\mu\text{g/Kg}$	378	SS405-042	1210
			SS4A003-601	19800 D
			SS4A007-605	26300 D
			SS4B001-612	2380
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	--	SS4A003-601	7850 D
			SS4A007-605	4010 JD
Fluoranthene	$\mu\text{g/Kg}$	889	SS405-042	1920
			SS4A003-601	12700 D
			SS4A007-605	55800 D
Fluorene	$\mu\text{g/Kg}$	--	SS405-042	103 J
			SS4A007-605	2570

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS404-041	135 J
			SS405-042	980
			SS4A003-601	17500
			SS4A007-605	8990
			SS4B001-612	1420 J
			SS-DRUM01-3369	332
Naphthalene	μg/Kg	--	SS405-042	51.7 J
			SS4A007-605	893 J
Phenanthrene	μg/Kg	538	SS405-042	1320
			SS4A003-601	6040 D
			SS4A007-605	56300 D
Pyrene	μg/Kg	716	SS405-042	1900
			SS4A003-601	17300 D
			SS4A007-605	62900 D
			SS4B001-612	897 J
PCBs				
Aroclor-1260	μg/Kg	--	SS403-040	9.8 JP
			SS406-043	69.6
			SS-DRUM01-3369	6.3
			SS-EU021-3328	14.7 J
			SS-EU022-3329	3.4 J
Pesticides				
4,4'-DDD	μg/Kg	--	SS-DRUM01-3369	2.01
			SS-EU022-3329	0.289 J
4,4'-DDE	μg/Kg	--	SS-DRUM01-3369	3.78
			SS-EU021-3328	3.07 J
			SS-EU022-3329	2.58
4,4'-DDT	μg/Kg	--	SS-DRUM01-3369	4.45
			SS-EU022-3329	2.06
Dieldrin	μg/Kg	--	SS-DRUM01-3369	0.742 J
Radionuclides				
Actinium-227	pCi/g	0.08	SS4A014-2271	0.607
			SS8F001-2201	3.77
			SS8F003-2203	1.51
			SS8F005-2206	1.26

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS401-037	14.5
			SS402-039	92.4
			SS403-040	20.7
			SS404-041	46.5
			SS405-042	19
			SS406-043	31.8
			SS808-077	19.6
			SS809-078	12
			SS810-079	15.1
			SS-DRUM01-3369	19.9
			SS-EU021-3328	12.3
			SS-EU022-3329	9.83
Beta	pCi/g	--	SS401-037	21.4
			SS402-039	35
			SS403-040	25
			SS404-041	31.8
			SS405-042	26.8
			SS406-043	29.9
			SS808-077	23.3
			SS809-078	19.4
			SS810-079	25.1
			SS-DRUM01-3369	17.3
			SS-EU021-3328	17.5
			SS-EU022-3329	17.2
Cesium-137	pCi/g	0.343	SS4A002-600	0.429
			SS4A003-601	0.56
			SS4A004-602	0.408
			SS4A007-605	0.817
			SS4A013-2270	0.385
			SS4A016-2275	0.402
			SS4A019-2425	0.533
			SS4B003-614	0.384
			SS8D001-2188	0.449
			SS8E002-2199	0.473 J
			SS8F001-2201	0.585
			SS8F005-2206	0.381
			SS-DRUM01-3369	0.669
			SS-EU021-3328	0.399

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS401-037	1.39
			SS402-039	9.49
			SS403-040	1.58
			SS404-041	4.5
			SS405-042	1.62
			SS406-043	2.15
			SS4A001-598	1.64
			SS4A002-600	1.41
			SS4A003-601	5.35
			SS4A004-602	1.87
			SS4A005-603	1.83
			SS4A006-604	1.69
			SS4A007-605	3.27
			SS4A008-606	1.3
			SS4A010-608	1.34
			SS4A011-610	1.92
			SS4A012-611	1.11
			SS4A013-2270	6
			SS4A014-2271	8.48
			SS4A015-2274	7.17
			SS4A016-2275	1.07
			SS4A017-2276	1.17
			SS4A018-2277	1.04
			SS4A019-2425	4.49
			SS4A020-2426	0.994
			SS4B001-612	3.09
			SS4B002-613	2.66
			SS4B003-614	2.14
			SS8D001-2188	3.78
			SS8E002-2199	1.98 J
			SS8F001-2201	61.5
			SS8F003-2203	45.9
			SS8F005-2206	18.9
			SS8F006-2207	7.32
			SS8F007-2208	1.12
			SS-DRUM01-3369	2.38
			SS-EU021-3328	1.31
			SS-EU022-3329	1.04
Radium-228	pCi/g	1.26	SS4A015-2274	1.32
			SS8F003-2203	1.27
			SS8F006-2207	3.18

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS401-037	1.62
			SS402-039	10.8
			SS403-040	2.15
			SS404-041	9.54
			SS406-043	2.27
			SS4A001-598	2.67
			SS4A002-600	1.88
			SS4A003-601	3.62
			SS4A004-602	2.25
			SS4A005-603	2.18
			SS4A006-604	2.05
			SS4A007-605	6.29
			SS4A011-610	3.38
			SS4A012-611	2.72
			SS4A013-2270	11.2
			SS4A014-2271	6.3
			SS4A015-2274	5.36
			SS4A016-2275	1.66
			SS4A019-2425	2.46
			SS4B001-612	4.47
			SS4B002-613	3.7
			SS4B003-614	2.37
			SS8D001-2188	3.73
			SS8E002-2199	2.12 J
			SS8F001-2201	6.76
			SS8F003-2203	39.4
			SS8F005-2206	40.8
			SS8F006-2207	2.99
			SS-DRUM01-3369	2.69
			SS-EU021-3328	1.73
Total Uranium	µg/g	3.94	SS402-039	33.1
			SS4A007-605	6.11
			SS4A012-611	8.69
			SS4A013-2270	4.05
			SS4A014-2271	11.4
			SS4A015-2274	10.5
			SS4B001-612	8.97
			SS4B002-613	5.07
			SS8F001-2201	4.32
			SS8F003-2203	4.83
			SS8F005-2206	4.33
			SS8F006-2207	6.63

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*			
Uranium-234	pCi/g	1.68	SS402-039	10.1			
			SS4A011-610	1.76			
			SS4A012-611	2.82			
			SS4A013-2270	1.94			
			SS4A014-2271	5.31			
			SS4A015-2274	4.64			
			SS4B001-612	3.63			
			SS8F001-2201	2.79			
			SS8F003-2203	1.86			
			SS8F005-2206	1.74			
Uranium-235	pCi/g	0.0847	SS8F006-2207	2.4			
			SS402-039	0.302 J			
			SS4A014-2271	0.252			
			SS4A015-2274	0.184			
			SS8F003-2203	0.0978			
Uranium-238	pCi/g	1.36	SS8F006-2207	0.167			
			SS402-039	10.1			
			SS4A007-605	1.84			
			SS4A009-607	1.72			
			SS4A012-611	3.02			
			SS4A013-2270	1.87			
			SS4A014-2271	4.56			
			SS4A015-2274	4.63			
			SS4B001-612	2.72			
			SS8F001-2201	1.9			
			SS8F003-2203	1.65			
			SS8F005-2206	1.51			
			SS8F006-2207	1.73			
			Semivolatile Organics				
			bis(2-Ethylhexyl)phthalate	μg/Kg	5130	SS4A004-602	7900
Carbazole	μg/Kg	--	SS405-042	210 J			
			SS4A007-605	6660 JD			
Volatile Organics							
2-Butanone	μg/Kg	--	SS401-037	6.7			
			SS809-078	9			
2-Hexanone	μg/Kg	--	SS405-042	4.4			
Acetone	μg/Kg	--	SS401-037	63.1 B			
			SS404-041	23.9			
			SS809-078	71.3			
			SS-DRUM01-3369	8.6			
			SS-EU022-3329	8.84			

* Data qualifier included with concentration value

Table 4-21
Exposure Unit 2
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzene	$\mu\text{g/Kg}$	--	SS401-037	2.6
			SS403-040	1.6
			SS404-041	1.5
			SS405-042	1.8
Carbon disulfide	$\mu\text{g/Kg}$	--	SS402-039	9.1
			SS403-040	1.4 J
			SS404-041	4
Toluene	$\mu\text{g/Kg}$	--	SS401-037	3.9
			SS402-039	0.37 J
			SS403-040	1.1
			SS404-041	2.3
			SS405-042	1.6
Xylenes (total)	$\mu\text{g/Kg}$	--	SS401-037	1.8 J
			SS404-041	0.99 J

* Data qualifier included with concentration value

Table 4-22
Exposure Unit 3
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Chromium	mg/Kg	24.3	SS407-044	36.8 E
Copper	mg/Kg	34.7	SS407-044	40.5 N
			SS408-045	37.5
			SS-EU034-3333	35.3 *
Lead	mg/Kg	55.2	SS409-046	70.2
Magnesium	mg/Kg	10200	SS408-045	10500
Potassium	mg/Kg	1820	SS-EU031-3330	2180 E*
			SS-EU032-3331	2490 N
			SS-EU033-3332	2290 E*
			SS-EU034-3333	2400 E*
Selenium	mg/Kg	0.37	SS407-044	1.3
			SS408-045	1.2
			SS409-046	0.73 B
			SS4B005-616	0.981 B
			SS-EU031-3330	0.409 B
			SS-EU032-3331	0.577 B
Silver	mg/Kg	0.27	SS-EU031-3330	0.291
Thallium	mg/Kg	--	SS407-044	0.11 B
			SS408-045	0.1 B
			SS409-046	0.13
			SS4B005-616	0.118
			SS-EU031-3330	0.099 BE
			SS-EU032-3331	0.125 E
			SS-EU033-3332	0.11 BE
			SS-EU034-3333	0.102 BE
PAHs				
Benzo(g,h,i)perylene	μg/Kg	--	SS408-045	216 J
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS408-045	154 J
PCBs				
Aroclor-1260	μg/Kg	--	SS409-046	16
Pesticides				
4,4'-DDE	μg/Kg	--	SS-EU031-3330	2.94
4,4'-DDT	μg/Kg	--	SS-EU031-3330	2.58
Radionuclides				
Actinium-227	pCi/g	0.08	SS4B009-2280	2.26
			SS4B021-2295	0.938
Alpha	pCi/g	--	SS407-044	13.2
			SS408-045	8.91
			SS409-046	14.9
			SS-EU031-3330	15.7
			SS-EU032-3331	8.39

* Data qualifier included with concentration value

Table 4-22
Exposure Unit 3
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS407-044	19.3
			SS408-045	16.2
			SS409-046	26.5
			SS-EU031-3330	25.7
			SS-EU032-3331	15.9
Radium-226	pCi/g	0.921	SS407-044	1.98
			SS408-045	1.17
			SS409-046	1.28
			SS4B004-615	1.1
			SS4B005-616	1.41
			SS4B006-617	1.72
			SS4B007-2278	1.4
			SS4B008-2279	1.71
			SS4B009-2280	37.5
			SS4B010-2282	7.31
			SS4B012-2284	1.12
			SS4B014-2288	15.2
			SS4B015-2289	2.05
			SS4B016-2290	2.36
			SS4B017-2291	7.14
			SS4B019-2293	1.44
			SS4B020-2294	0.944
			SS4B021-2295	17.6
			SS-EU031-3330	0.988
Thorium-230	pCi/g	1.6	SS4B006-617	1.94
			SS4B007-2278	2.37
			SS4B008-2279	2.14
			SS4B009-2280	8.46
			SS4B010-2282	12.1
			SS4B013-2285	2.22
			SS4B014-2288	2.96
			SS4B015-2289	2.56
			SS4B016-2290	3.32
			SS4B019-2293	1.65
			SS4B021-2295	3.76
Total Uranium	μg/g	3.94	SS4B009-2280	34.3
			SS4B010-2282	6.6
			SS4B014-2288	4.28
			SS4B016-2290	7.76
Uranium-234	pCi/g	1.68	SS4B009-2280	11.5
			SS4B010-2282	3.03
			SS4B015-2289	2.09
			SS4B016-2290	3.39
			SS4B021-2295	2.08

* Data qualifier included with concentration value

Table 4-22
Exposure Unit 3
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS408-045	0.163 J
			SS4B009-2280	0.309
			SS4B010-2282	0.158
			SS4B014-2288	0.15
			SS4B016-2290	0.229
			SS4B019-2293	0.119
			SS-EU032-3331	0.167
Uranium-238	pCi/g	1.36	SS407-044	1.62
			SS4B009-2280	11
			SS4B010-2282	3.46
			SS4B012-2284	1.47
			SS4B014-2288	1.69
			SS4B015-2289	1.91
			SS4B016-2290	3
			SS4B021-2295	1.89

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS418-055	21800
			SS-DRUM05-3381	20100 J
			SS-MW424-3620	18600
Antimony	mg/Kg	0.94	SS-DRUM02-3372	3.57 N
			SS-DRUM04-3378	1.54 N
			SS-DRUM05-3381	2 J
Arsenic	mg/Kg	11.3	SS-DRUM02-3372	17.2 N
			SS-DRUM04-3378	13.8 N
Barium	mg/Kg	279	SS-DRUM04-3378	2670 N*
Boron	mg/Kg	10.1	SS410-047	15.5
			SS415-052	10.5
			SS418-055	97.1
			SS419-056	17.1 *
			SS-DRUM02-3372	280
			SS-DRUM04-3378	12
			SS-DRUM05-3381	313 J
			SS-DRUM06-3395	23.4 N
			SS-DRUM07-3398	23.5 N
			SS-MW422-3608	11.8 N
			SS-MW423-3611	12.6 N
Cadmium	mg/Kg	0.53	SS414-051	0.58 B
			SS416-053	0.61
			SS419-056	0.67
			SS4C001-618	0.534 B
			SS-DRUM02-3372	0.624 B
Calcium	mg/Kg	45200	SS-DRUM05-3381	0.559 J
			SS411-048	46900
			SS412-049	93600 E
			SS4D007-621	57800
Chromium	mg/Kg	24.3	SS-DRUM02-3372	47800 *
			SS417-054	196
			SS418-055	26.7 *
			SS-DRUM02-3372	37.9 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM05-3381	49.4 J

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	mg/Kg	34.7	SS410-047	51
			SS412-049	37.9
			SS413-050	75.4
			SS415-052	35.4
			SS418-055	50.1
			SS4D005-619	46.2 *
			SS4D007-621	50.3
			SS4D008-623	35.4
			SS-DRUM02-3372	159 *N
			SS-DRUM04-3378	76.2 *N
			SS-DRUM05-3381	590 J
			SS-DRUM06-3395	270
			SS-MW422-3608	41 *
Iron	mg/Kg	36400	SS-DRUM02-3372	105000 *
			SS-DRUM04-3378	50400 *
			SS-DRUM05-3381	154000 J
Lead	mg/Kg	55.2	SS413-050	686
			SS4C001-618	140
			SS-DRUM02-3372	391 *
			SS-DRUM04-3378	149 *
			SS-DRUM07-3398	64.8
Magnesium	mg/Kg	10200	SS411-048	10700
			SS412-049	17900
			SS418-055	14200
			SS-MW424-3620	10300 *
Nickel	mg/Kg	37.5	SS-DRUM02-3372	76.1 *
			SS-DRUM05-3381	65.1
Potassium	mg/Kg	1820	SS418-055	5850
			SS-DRUM02-3372	2860 N
			SS-DRUM04-3378	2030 N
			SS-DRUM05-3381	6330 J
			SS-DRUM06-3395	2270 E
			SS-MW422-3608	2460 *
			SS-MW423-3611	2460 *
			SS-MW424-3620	2670

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS410-047	1
			SS411-048	1.3
			SS412-049	0.53 B
			SS413-050	1.1
			SS415-052	0.97 B
			SS416-053	0.65 B
			SS417-054	1.2
			SS418-055	0.99 B
			SS419-056	0.73 BN
			SS4C001-618	0.581 B
			SS4D005-619	1.08 B
			SS4D007-621	1.34
			SS4D008-623	1.14 B
			SS-DRUM02-3372	0.65 B
			SS-DRUM04-3378	0.626 B
			SS-DRUM05-3381	1.22
			SS-DRUM06-3395	0.71 B
			SS-DRUM07-3398	0.954 B
			SS-MW422-3608	0.82 B
			SS-MW423-3611	0.456 B
			SS-MW424-3620	1.99 N
Silver	mg/Kg	0.27	SS4C001-618	0.375 B
			SS4D005-619	0.293 E
			SS-DRUM02-3372	0.273
Sodium	mg/Kg	286	SS418-055	766 E
			SS-DRUM02-3372	4520 *
			SS-DRUM05-3381	328 J

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS410-047	0.14
			SS411-048	0.11 B
			SS412-049	0.08 B
			SS413-050	0.16
			SS414-051	0.13 B
			SS415-052	0.15
			SS416-053	0.089 B
			SS417-054	0.2
			SS418-055	0.24
			SS419-056	0.11 B
			SS4D005-619	0.202
			SS4D007-621	0.094 B
			SS4D008-623	0.108 B
			SS-DRUM02-3372	0.115 BE
			SS-DRUM04-3378	0.11 BE
			SS-DRUM05-3381	0.163 E
			SS-DRUM06-3395	0.151
			SS-DRUM07-3398	0.242
			SS-MW422-3608	0.175 E
			SS-MW423-3611	0.19 E
			SS-MW424-3620	0.116
Vanadium	mg/Kg	34	SS418-055	41.2
			SS-DRUM05-3381	38.2 J
			SS-MW424-3620	34.2 *N
Zinc	mg/Kg	78	SS410-047	213
			SS413-050	157
			SS415-052	114
			SS418-055	159
			SS4C001-618	86.2
			SS4D005-619	83.2 *
			SS-DRUM02-3372	109 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM06-3395	113
PAHs				
Acenaphthylene	µg/Kg	--	SS-DRUM04-3378	51.5
			SS-DRUM07-3398	14.9 J
			SS-MW423-3611	151 J
Benzo(a)anthracene	µg/Kg	284	SS417-054	446
			SS4D007-621	623
			SS-DRUM04-3378	578
Benzo(a)pyrene	µg/Kg	313	SS417-054	508
			SS4D007-621	670
			SS-DRUM04-3378	1290

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SS417-054	647
			SS4D007-621	949
			SS-DRUM04-3378	2980
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	--	SS412-049	2880 J
			SS413-050	49.3 J
			SS417-054	231 J
			SS4D007-621	376
			SS-DRUM04-3378	792
			SS-DRUM07-3398	62.5 P
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS417-054	595
			SS4D007-621	908
			SS-DRUM04-3378	601
Chrysene	$\mu\text{g/Kg}$	378	SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090
Fluorene	$\mu\text{g/Kg}$	--	SS-DRUM04-3378	11.6 J
			SS-DRUM07-3398	19.8 J
Indeno(1,2,3-cd)pyrene	$\mu\text{g/Kg}$	--	SS413-050	38.6 J
			SS417-054	240 J
			SS4D007-621	387
			SS-DRUM02-3372	39.5
			SS-DRUM04-3378	875
			SS-DRUM05-3381	38.3
			SS-DRUM07-3398	306
Naphthalene	$\mu\text{g/Kg}$	--	SS-DRUM06-3395	7 J
			SS-DRUM07-3398	76.7
Pyrene	$\mu\text{g/Kg}$	716	SS-DRUM04-3378	795
PCBs				
Aroclor-1254	$\mu\text{g/Kg}$	--	SS4C001-618	714 JP
			SS4D007-621	226
			SS4D008-623	100
			SS4F001-633	28.5 J
			SS4F002-634	28 J
			SS4F004-636	32.7 JP
			SS-DRUM06-3395	20.9

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SS313-687	4 J
			SS413-050	2030
			SS414-051	154
			SS415-052	110
			SS417-054	1120
			SS418-055	392
			SS4C001-618	14500
			SS4D005-619	320
			SS4D007-621	511
			SS4D008-623	361
			SS4D010-626	2580
			SS4D013-629	162
			SS4D015-631	354
			SS4F001-633	65.3
			SS4F002-634	94.4
			SS4F004-636	19.4 JP
			SS-DRUM02-3372	249
			SS-DRUM04-3378	5740
			SS-DRUM05-3381	309
			SS-DRUM06-3395	120
			SS-DRUM07-3398	70200
			SS-MW422-3608	1230 B
			SS-MW423-3611	7.1 B
			SS-MW424-3620	6
Pesticides				
4,4'-DDE	μg/Kg	--	SS313-687	1.1 JP
			SS4C001-618	6 P
			SS4D008-623	3.9
			SS4D013-629	2.7 P
			SS4D015-631	3.4 P
			SS4F004-636	3 P
			SS-DRUM02-3372	2.58
			SS-DRUM05-3381	4.33
			SS-DRUM06-3395	10.6
4,4'-DDT	μg/Kg	--	SS4F004-636	7.3 P
			SS-DRUM06-3395	13.1
Radionuclides				

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS410-047	14
			SS411-048	23.4
			SS412-049	15.6
			SS413-050	21
			SS414-051	9.27
			SS415-052	19.7
			SS416-053	10.8
			SS417-054	20.2
			SS418-055	11.9
			SS419-056	19.8
			SS4C003-2299	18.9
			SS-DRUM02-3372	26.1
			SS-DRUM04-3378	12
			SS-DRUM05-3381	11.8 J
			SS-DRUM06-3395	11.2
			SS-DRUM07-3398	12.6
			SS-MW422-3608	12.8
			SS-MW423-3611	11.4
			SS-MW424-3620	8.79
Americium-241	pCi/g	--	SS422-688	0.104
			SS-DRUM02-3372	0.035
Beta	pCi/g	--	SS410-047	21.5
			SS411-048	35.4
			SS412-049	20
			SS413-050	20.6
			SS414-051	19.2
			SS415-052	27.3
			SS416-053	16.8
			SS417-054	26.6
			SS418-055	22.2
			SS419-056	21.9
			SS4C003-2299	24.4
			SS-DRUM02-3372	20.4
			SS-DRUM04-3378	21.8
			SS-DRUM05-3381	17.9 J
			SS-DRUM06-3395	21.3
			SS-DRUM07-3398	19.5
			SS-MW422-3608	22.7
			SS-MW423-3611	20.3
			SS-MW424-3620	17.3

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS313-687	0.456
			SS414-051	1.92 J
			SS417-054	0.351 J
			SS418-055	0.493 J
			SS422-688	1.29
			SS4C001-618	0.379
			SS4C006-2303	0.383
			SS4D005-619	0.403
			SS4D006-620	0.379
			SS4D008-623	0.413
			SS4D009-625	0.38
			SS4D010-626	0.431
			SS4D011-627	0.585
			SS4D012-628	0.35
			SS4D013-629	0.439
			SS4D015-631	0.431
			SS4D019-2308	0.347
			SS4D020-2309	0.396
			SS4F001-633	0.374
			SS4F002-634	0.389
			SS-DRUM02-3372	1.02
			SS-DRUM04-3378	0.377
			SS-DRUM05-3381	0.522 J
			SS-DRUM06-3395	0.506
			SS-DRUM07-3398	0.42

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS313-687	1.52
			SS410-047	1.27
			SS413-050	2.01
			SS414-051	1.64
			SS415-052	1.67
			SS417-054	4.45
			SS418-055	1.35
			SS419-056	1.05
			SS422-688	2.33
			SS4C002-2298	5.83
			SS4C003-2299	1.78
			SS4C004-2300	3.72
			SS4C006-2303	1.33
			SS4D005-619	1.73
			SS4D006-620	1.21
			SS4D008-623	1.48
			SS4D009-625	1.15
			SS4D010-626	1.95
			SS4D011-627	2.34
			SS4D012-628	2.69
			SS4D013-629	1.86
			SS4D014-630	1.51
			SS4D015-631	2.32
			SS4D017-2306	4.66
			SS4D018-2307	1.01
			SS4D019-2308	2.95
			SS4D020-2309	1.43
			SS4F001-633	1.18
			SS4F002-634	1.14
			SS4F004-636	1.26
			SS4F009-2315	1.18
			SS4G001-2316	1.2
			SS-DRUM02-3372	2.54
			SS-DRUM04-3378	1.41
			SS-DRUM06-3395	1.14
			SS-DRUM07-3398	1.78
			SS-MW422-3608	1.05 J
Thorium-228	pCi/g	1.64	SS313-687	1.72
			SS4C003-2299	1.7
			SS4D005-619	1.68
			SS-MW424-3620	1.96

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS313-687	1.87
			SS412-049	2.05
			SS413-050	2.83
			SS414-051	2.09 J
			SS415-052	2.1 J
			SS417-054	2.63 J
			SS422-688	1.79
			SS4C002-2298	4.21
			SS4C003-2299	1.62
			SS4C004-2300	3.52
			SS4C005-2302	2.55
			SS4C006-2303	1.66
			SS4D005-619	3.25
			SS4D006-620	2.34
			SS4D009-625	2.04
			SS4D010-626	2
			SS4D011-627	2.67
			SS4D012-628	1.87
			SS4D013-629	2.4
			SS4D014-630	2.11
			SS4D015-631	2.97
			SS4D017-2306	3.47
			SS4D019-2308	2.4
			SS4D020-2309	2.24
			SS4F009-2315	1.77
			SS4G001-2316	1.92
			SS-DRUM02-3372	5.21
			SS-DRUM04-3378	2.26
			SS-DRUM05-3381	1.86 J
			SS-DRUM06-3395	1.73
			SS-DRUM07-3398	2.59
			SS-MW422-3608	1.8 J
			SS-MW423-3611	1.92
Total Uranium	µg/g	3.94	SS4C002-2298	7.43
			SS4C003-2299	5.19
			SS4C004-2300	4.15
			SS4D017-2306	3.97
			SS-DRUM07-3398	4.18
Uranium-234	pCi/g	1.68	SS4C002-2298	2.46
			SS4C003-2299	2.92
			SS4D012-628	1.69
			SS4D017-2306	1.85

* Data qualifier included with concentration value

Table 4-23
Exposure Unit 4
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS313-687	1.4
			SS422-688	1.7
			SS4C002-2298	2.47
			SS4C003-2299	2.2
			SS4C004-2300	1.74
			SS4D011-627	1.37
Semivolatile Organics				
Benzoic Acid	µg/Kg	--	SS4D008-623	498 J
			SS-DRUM04-3378	69 J
Volatile Organics				
1,1-Dichloroethene	µg/Kg	--	SS-DRUM07-3398	1.12 J
Acetone	µg/Kg	--	SS-DRUM06-3395	2.46 J
			SS-DRUM07-3398	6.56
			SS-MW422-3608	6.92
			SS-MW424-3620	4.21 J
Tetrachloroethene	µg/Kg	--	SS415-052	39.1
			SS418-055	10.8
			SS-DRUM02-3372	10
			SS-DRUM05-3381	1410
			SS-MW424-3620	3.92
Toluene	µg/Kg	--	SS-MW424-3620	0.46 J
Trichloroethene	µg/Kg	--	SS415-052	11.4
			SS-DRUM05-3381	71.4 J
			SS-MW424-3620	0.571 J

* Data qualifier included with concentration value

Table 4-24
Exposure Unit 5
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS-EU051-3334	32400 E*
Barium	mg/Kg	279	SS-EU051-3334	441 *
Beryllium	mg/Kg	1	SS-EU051-3334	7.7 E*
Boron	mg/Kg	10.1	SS-EU051-3334	88.2 E*N
Cadmium	mg/Kg	0.53	SS421-058	0.91
			SS605-697	0.751
Calcium	mg/Kg	45200	SS-EU051-3334	179000 *
Chromium	mg/Kg	24.3	SS-EU051-3334	30.1 *N
Copper	mg/Kg	34.7	SS605-697	35.3
			SS-EU051-3334	58.1 E*N
Lithium	mg/Kg	27.9	SS-EU051-3334	37.2
Magnesium	mg/Kg	10200	SS421-058	11800 *
			SS-EU051-3334	12200 *
Potassium	mg/Kg	1820	SS421-058	2130 E
			SS-EU051-3334	4050 *
Selenium	mg/Kg	0.37	SS421-058	0.62 BN
			SS423-689	0.944 B
			SS601-065	0.56 B
			SS605-697	0.701 B
			SS-EU051-3334	2.35
Sodium	mg/Kg	286	SS-EU051-3334	1210 E*
Thallium	mg/Kg	--	SS420-057	0.1 B
			SS421-058	0.14
			SS601-065	0.15
			SS811-080	0.13
			SS-EU051-3334	0.105 BE
Zinc	mg/Kg	78	SS811-080	92.7
PAHs				
Acenaphthylene	µg/Kg	--	SS-EU051-3334	96.2
Benzo(b)fluoranthene	µg/Kg	396	SS-EU051-3334	561
Benzo(g,h,i)perylene	µg/Kg	--	SS-EU051-3334	176
Indeno(1,2,3-cd)pyrene	µg/Kg	--	SS-EU051-3334	283
PCBs				
Aroclor-1254	µg/Kg	--	SS4F003-635	7.8 JP
			SS811-080	12 P
			SS-EU051-3334	4.2
Aroclor-1260	µg/Kg	--	SS4F003-635	24.8 J
			SS811-080	17.6
			SS-EU051-3334	5.3
Pesticides				
4,4'-DDE	µg/Kg	--	SS4F003-635	2.6 P
4,4'-DDT	µg/Kg	--	SS4F003-635	5.4

* Data qualifier included with concentration value

Table 4-24
Exposure Unit 5
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides				
Actinium-227	pCi/g	0.08	SS4G002-2365	1.33
			SS6A001-2317	14.2
Alpha	pCi/g	--	SD737-381	16
			SS420-057	15.6
			SS421-058	21
			SS601-065	11.3
			SS811-080	11.7
			SS-EU051-3334	14.6
Beta	pCi/g	--	SD737-381	24.6
			SS420-057	20.4
			SS421-058	24.9
			SS601-065	15.8
			SS811-080	18.3
			SS-EU051-3334	10.2
Cesium-137	pCi/g	0.343	SD737-381	0.607 J
			SS4F003-635	0.395
			SS4F005-2311	0.364
			SS4F007-2313	0.359
			SS601-065	0.406 J
			SS6A003-2320	0.375
			SS811-080	0.377 J
			SS8G005-2347	0.672
Radium-226	pCi/g	0.921	SD737-381	1.3
			SS420-057	2.35
			SS423-689	1.92
			SS4F003-635	1.23
			SS4F005-2311	1.13
			SS4F007-2313	1.1
			SS4G002-2365	43.9
			SS6A001-2317	285
			SS6A002-2319	1.04 J
			SS6A003-2320	2.24
			SS6A004-2321	1.07
			SS6A006-2325	1.34
			SS6A008-2328	1.02
			SS6A009-2329	0.95
			SS6A010-2364	3.39
			SS6B006-2336	1.05
			SS8G005-2347	1.1
			SS-EU051-3334	3.56

* Data qualifier included with concentration value

Table 4-24
Exposure Unit 5
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS4F005-2311	1.7
			SS4F006-2312	1.89
			SS4G002-2365	8.51
			SS6A001-2317	8.73
			SS6A010-2364	2.69 J
			SS-EU051-3334	2.48
Total Uranium	μg/g	3.94	SS4G002-2365	4.09
			SS-EU051-3334	5
Uranium-234	pCi/g	1.68	SS-EU051-3334	2.37
Uranium-235	pCi/g	0.0847	SS6A001-2317	0.203
			SS6A009-2329	0.189
			SS6A010-2364	0.148 J
			SS-EU051-3334	0.447
Uranium-238	pCi/g	1.36	SS4G002-2365	1.77
			SS6A001-2317	1.38
			SS6A009-2329	1.83
			SS-EU051-3334	2.45
Volatile Organics				
1,1,1-Trichloroethane	μg/Kg	--	SS811-080	0.83 J
1,1-Dichloroethene	μg/Kg	--	SS-EU051-3334	0.648 J
2-Butanone	μg/Kg	--	SS420-057	5.1 J
Acetone	μg/Kg	--	SD737-381	1.5 J
			SS420-057	51.7
Benzene	μg/Kg	--	SS420-057	1.2
Carbon disulfide	μg/Kg	--	SS420-057	2.4 J
Tetrachloroethene	μg/Kg	--	SS811-080	1.3
Toluene	μg/Kg	--	SD737-381	0.27 J
			SS420-057	2.8
			SS811-080	2.1
Trichloroethene	μg/Kg	--	SS811-080	1 J
Xylenes (total)	μg/Kg	--	SS420-057	1 J
			SS811-080	0.8 J

* Data qualifier included with concentration value

Table 4-25
Exposure Unit 6
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Cadmium	mg/Kg	0.53	SD731-368	0.73
			SD732-370	0.86
			SD733-373	0.69 B
			SS825-713	0.744
Calcium	mg/Kg	45200	SD732-370	47200 E*
Copper	mg/Kg	34.7	SD732-370	35.6
Mercury	mg/Kg	0.27	SD732-370	0.35
Selenium	mg/Kg	0.37	SD732-370	2.2 N
			SD733-373	1.7 N
			SS604-069	2.3 B
			SS607-699	0.79 B
			SS825-713	0.558 B
			SS-EU061-3335	0.83 B
			SS-EU062-3336	0.767 B
			Thallium	mg/Kg
SD733-373	0.36			
SD734-375	0.23			
SS602-066	0.04 B			
SS603-068	0.07 B			
SS604-069	0.06 B			
SS812-084	0.1 B			
SS-EU061-3335	0.114 B			
SS-EU062-3336	0.129 E			
Zinc	mg/Kg	78	SD734-375	199
PCBs				
Aroclor-1254	μg/Kg	--	SD731-368	5.9
			SD734-375	11.3 P
			SS825-713	6
Aroclor-1260	μg/Kg	--	SD732-370	10.5 J
			SD733-373	5.2 J
			SD734-375	12.2
			SS825-713	14.7
Pesticides				
4,4'-DDE	μg/Kg	--	SS825-713	1.2 JP
delta-BHC	μg/Kg	--	SS825-713	0.48 JP
Dieldrin	μg/Kg	--	SS825-713	0.45 JP
Radionuclides				
Actinium-227	pCi/g	0.08	SS606-698	18.9
			SS6B005-2335	1.6
			SS829-409	7.34
			SS-EU061-3335	0.579

* Data qualifier included with concentration value

Table 4-25
Exposure Unit 6
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SD731-368	11.3
			SD732-370	11.5
			SD733-373	13.6
			SD734-375	7.05
			SS602-066	12.6
			SS603-068	15.8
			SS604-069	14.2
			SS812-084	12.2
			SS829-409	1390
			SS-EU061-3335	26.4
			SS-EU062-3336	12.1
Beta	pCi/g	--	SD731-368	32.4
			SD732-370	22.8
			SD733-373	17.3
			SD734-375	13
			SS602-066	18.7
			SS603-068	16.9
			SS604-069	20.2
			SS812-084	15.8
			SS829-409	739
			SS-EU061-3335	20.8
			SS-EU062-3336	19
Cesium-137	pCi/g	0.343	SD734-375	0.808 J
			SS6C001-2337	0.357
			SS6C003-2339	0.345
			SS829-409	0.848
			SS8G002-2344	0.435

* Data qualifier included with concentration value

Table 4-25
Exposure Unit 6
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SD732-370	1.21
			SD734-375	1.1
			SS606-698	103
			SS607-699	1.3
			SS6A005-2323	2.54
			SS6B001-2330	2.78
			SS6B003-2332	1.08
			SS6B004-2333	1.12
			SS6B005-2335	29.3
			SS6C001-2337	1.17
			SS6C005-2341	1.14
			SS6C006-2342	1.25
			SS812-084	0.942
			SS824-712	1.08
			SS825-713	1.07
			SS829-409	182
			SS8G001-2343	1.5
			SS8G002-2344	1.35
			SS-EU061-3335	4.1
Thorium-230	pCi/g	1.6	SS606-698	352
			SS6B005-2335	8.25
			SS829-409	5.29
			SS-EU061-3335	8.02
Total Uranium	μg/g	3.94	SS606-698	287
			SS6B005-2335	6.55
Uranium-234	pCi/g	1.68	SS606-698	42.5
			SS6B005-2335	2.42
Uranium-235	pCi/g	0.0847	SS604-069	0.13 J
			SS606-698	2.13
			SS6B001-2330	0.139
			SS6B005-2335	0.252
Uranium-238	pCi/g	1.36	SS606-698	41.5
			SS6B005-2335	2.62
			SS6C006-2342	1.61
Volatile Organics				
2-Butanone	μg/Kg	--	SS602-066	2.6 J
			SS603-068	12
2-Hexanone	μg/Kg	--	SS603-068	0.71 J
Acetone	μg/Kg	--	SD731-368	3.2 J
			SS602-066	27.2
			SS603-068	98.1
Benzene	μg/Kg	--	SS602-066	1.3
			SS603-068	1.4

* Data qualifier included with concentration value

Table 4-25
Exposure Unit 6
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Carbon disulfide	$\mu\text{g/Kg}$	--	SS602-066	2 J
			SS603-068	2.4 J
Methylene chloride	$\mu\text{g/Kg}$	--	SD731-368	7.1 JB
Toluene	$\mu\text{g/Kg}$	--	SD731-368	0.25 J
			SS602-066	1.2
			SS603-068	1.3
Xylenes (total)	$\mu\text{g/Kg}$	--	SS602-066	0.76 J

* Data qualifier included with concentration value

Table 4-26
Exposure Unit 7
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SS-EU071-3337	1.1 BN
			SS-TWP837-3521	1.52 BN
Boron	mg/Kg	10.1	SS-TWP838-3524	12.1 B
			SS-TWP840-3530	10.5
Calcium	mg/Kg	45200	SS-TWP836-3518	48200
			SS-TWP838-3524	46500
Copper	mg/Kg	34.7	SD711-317	35.8 *N
Magnesium	mg/Kg	10200	SS-EU072-3338	15400 *
			SS-TWP836-3518	22800
			SS-TWP838-3524	11700
Potassium	mg/Kg	1820	SS-TWP836-3518	1840 *
			SS-TWP837-3521	2490 *
			SS-TWP838-3524	2880
			SS-TWP840-3530	2470 E
Selenium	mg/Kg	0.37	SD711-317	1.1
			SS806-075	1.3 B
			SS-EU071-3337	0.58 B
			SS-EU072-3338	0.594 B
			SS-TWP835-3515	2.46 N
			SS-TWP836-3518	2.38 N
			SS-TWP837-3521	2.46 N
			SS-TWP838-3524	0.371 B
			SS-TWP840-3530	1.42 N
Thallium	mg/Kg	--	SD711-317	0.093 B
			SS806-075	0.08 B
			SS807-076	0.06 B
			SS-EU071-3337	0.141 E
			SS-EU072-3338	0.11 BE
			SS-TWP835-3515	0.098 B
			SS-TWP836-3518	0.132
			SS-TWP837-3521	0.158
			SS-TWP838-3524	0.11 B
Zinc	mg/Kg	78	SS-EU071-3337	96.8 E*N
			SS-EU072-3338	78.9 E*N
PAHs				
Benzo(g,h,i)perylene	µg/Kg	--	SS-EU071-3337	36.8
			SS-EU072-3338	17.4
			SS-TWP835-3515	10.3 h
Dibenzo(a,h)anthracene	µg/Kg	--	SS-TWP835-3515	2.77 h
Naphthalene	µg/Kg	--	SS-EU071-3337	17.3 J
			SS-TWP835-3515	2.99 Jh

* Data qualifier included with concentration value

Table 4-26
Exposure Unit 7
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
PCBs				
Aroclor-1260	μg/Kg	--	SS-EU071-3337	2.2 J
Pesticides				
4,4'-DDE	μg/Kg	--	SS-EU072-3338	0.387 J
			SS-TWP835-3515	1.33 J
			SS-TWP837-3521	0.655 J
			SS-TWP838-3524	0.681 J
			SS-TWP840-3530	0.438 J
4,4'-DDT	μg/Kg	--	SS-TWP835-3515	1.82
			SS-TWP836-3518	1.18 J
			SS-TWP837-3521	1.24 J
			SS-TWP838-3524	0.506 J
Radionuclides				
Actinium-227	pCi/g	0.08	SD748-2153	3.6
			SD750-2155	4.29
			SS821-709	0.341
			SS8D003-2190	3.3
			SS8D004-2191	3.5 J
			SS8D006-2193	0.782
			SS8D007-2195	1.32
			SS8D009-2197	24
Alpha	pCi/g	--	SD711-317	66.4
			SD743-675	26.5
			SD744-676	13.9
			SD745-677	48.4
			SS806-075	21.1
			SS807-076	19.8
			SS-EU071-3337	6.54
			SS-EU072-3338	13.8
			SS-TWP835-3515	8.35
			SS-TWP836-3518	13.3
			SS-TWP837-3521	8.93
			SS-TWP838-3524	7.39
			SS-TWP840-3530	9.28

* Data qualifier included with concentration value

Table 4-26
Exposure Unit 7
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD711-317	38.3
			SD743-675	30.4
			SD744-676	29.1
			SD745-677	44.1
			SS806-075	28.8
			SS807-076	23.9
			SS-EU071-3337	12.8
			SS-EU072-3338	16.1
			SS-TWP835-3515	14.4
			SS-TWP836-3518	19.8
			SS-TWP837-3521	19.7
			SS-TWP838-3524	26.4
Cesium-137	pCi/g	0.343	SD748-2153	0.428
			SS8D003-2190	1.07
Radium-226	pCi/g	0.921	SD711-317	16
			SD744-676	2.4
			SD745-677	1.52
			SD748-2153	58.6
			SD749-2154	1.05
			SD750-2155	75.7
			SS806-075	1.27
			SS807-076	1.7
			SS820-708	2.19
			SS821-709	1.13
			SS8C001-2184	1.86
			SS8C002-2185	1.12
			SS8C004-2187	0.939
			SS8D003-2190	45.5
			SS8D004-2191	42.2 J
			SS8D005-2192	0.942
			SS8D006-2193	13.4
			SS8D007-2195	14.9
			SS8D008-2196	0.998
			SS8D009-2197	446
			SS8E001-2198	1.27
			SS-EU072-3338	1.46
			SS-TWP836-3518	1.03
			SS-TWP840-3530	0.952

* Data qualifier included with concentration value

Table 4-26
Exposure Unit 7
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SD711-317	11.4
			SD743-675	2.12
			SD745-677	8.96
			SD748-2153	71.4
			SD750-2155	109
			SS806-075	1.92
			SS820-708	3.13
			SS8C001-2184	1.98
			SS8D003-2190	8.94
			SS8D004-2191	58.8 J
			SS8D006-2193	14.1
			SS8D007-2195	9.04
			SS8D009-2197	536
			SS8E001-2198	1.66
			SS-EU071-3337	1.74
			SS-EU072-3338	2.52
			SS-TWP835-3515	1.69
			SS-TWP836-3518	2.01
			SS-TWP837-3521	1.62
Thorium-232	pCi/g	1.24	SS8D009-2197	1.7
			SS-TWP835-3515	1.3
Total Uranium	µg/g	3.94	SD748-2153	5.11
			SD750-2155	8.04
			SS8D002-2189	5.61
			SS8D003-2190	5.71
			SS8D004-2191	5.42
			SS8D007-2195	10.9
			SS8D009-2197	19
Uranium-234	pCi/g	1.68	SD748-2153	2.73
			SD750-2155	4.01
			SS806-075	1.77
			SS820-708	1.95
			SS8D003-2190	1.75
			SS8D004-2191	2.31 J
			SS8D007-2195	2.34
			SS8D009-2197	9.68
Uranium-235	pCi/g	0.0847	SD749-2154	0.17
			SD750-2155	0.152
			SS8C002-2185	0.106
			SS8D003-2190	0.15
			SS8D007-2195	0.142
			SS8D009-2197	0.394

* Data qualifier included with concentration value

Table 4-26
Exposure Unit 7
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SD743-675	1.49
			SD748-2153	1.9
			SD750-2155	2.58
			SS820-708	1.65
			SS821-709	1.38
			SS8D003-2190	1.63
			SS8D004-2191	1.85 J
			SS8D007-2195	2.11
			SS8D009-2197	7.1
			SS-EU071-3337	1.66
Volatile Organics				
1,1-Dichloroethene	µg/Kg	--	SS-TWP835-3515	0.714 J
			SS-TWP837-3521	0.9 J
			SS-TWP840-3530	1.02
2-Butanone	µg/Kg	--	SS-TWP838-3524	71.9
			SS-TWP840-3530	9.19
Acetone	µg/Kg	--	SS806-075	69.4
			SS-TWP838-3524	8.22
			SS-TWP840-3530	16.2
Benzene	µg/Kg	--	SS806-075	2
			SS807-076	2.6
Carbon disulfide	µg/Kg	--	SS806-075	1.6 J
Toluene	µg/Kg	--	SS806-075	3.2
			SS807-076	3.4

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SD725-353	20600
Beryllium	mg/Kg	1	SD725-353	1.1 B
			SS308-032	1.6
Boron	mg/Kg	10.1	SD725-353	16
			SS311-035	10.8
			SS-EU081-3339	16.5 E*N
			SS-MW313-3590	14.4 N
Cadmium	mg/Kg	0.53	SD723-349	1.2
			SS304-028	0.87
			SS306-030	0.68
			SS308-032	0.56 B
			SS311-035	0.65 B
Calcium	mg/Kg	45200	SS308-032	99000
			SS309-033	50600
			SS311-035	90600
			SS-MW313-3590	70600 *
Chromium	mg/Kg	24.3	SD723-349	26.6 E
			SD725-353	42.4
Copper	mg/Kg	34.7	SD723-349	38.9 E
			SD725-353	59.2
			SS302-026	36.3
			SS303-027	36.2
			SS308-032	52.3
			SS309-033	36.6
			SS-MW313-3590	129 *
Lead	mg/Kg	55.2	SS308-032	99.8 N
			SS311-035	72 *
Lithium	mg/Kg	27.9	SD725-353	40.5
			SS-MW314-3593	29.5
Magnesium	mg/Kg	10200	SD725-353	14400
			SS303-027	11000
			SS304-028	11800 *
			SS308-032	49300
			SS309-033	12900
			SS311-035	54400
Nickel	mg/Kg	37.5	SS-MW313-3590	38200 *
			SD725-353	42.5

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	1820	SD725-353	3190
			SS303-027	2350
			SS304-028	2330 E
			SS309-033	3060 E
			SS-EU081-3339	2430 *
			SS-MW313-3590	1930 *
			SS-MW314-3593	1830 *
Selenium	mg/Kg	0.37	SD723-349	1.3 B
			SD724-351	1.4 B
			SD725-353	1.8 B
			SS302-026	1.1
			SS303-027	0.85 B
			SS304-028	1 BN
			SS306-030	0.52 B
			SS308-032	1.1 N
			SS309-033	0.81 BN
			SS310-034	0.99
			SS311-035	1.6
			SS-EU081-3339	0.378 B
			SS-MW313-3590	0.545 B
			SS-MW314-3593	0.702 B
Sodium	mg/Kg	286	SD725-353	292
			SS308-032	356 E
Thallium	mg/Kg	--	SD725-353	0.27
			SS302-026	0.07 B
			SS303-027	0.13
			SS304-028	0.11 B
			SS306-030	0.13 B
			SS307-031	0.09 B
			SS308-032	0.16
			SS309-033	0.08 B
			SS310-034	0.099 B
			SS311-035	0.15
			SS-EU081-3339	0.129 E
			SS-MW313-3590	0.188 E
			SS-MW314-3593	0.191 E
Vanadium	mg/Kg	34	SD725-353	43.3
Zinc	mg/Kg	78	SD723-349	212 E
			SD725-353	227
			SS308-032	208
			SS311-035	186
			SS-MW313-3590	92.6 N*
Nitroaromatics				
2-Nitrotoluene	µg/Kg	--	SS308-032	109

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
PAHs				
Acenaphthene	$\mu\text{g/Kg}$	--	SS308-032	5290
			SS3C007-590	3750 J
			SS3C008-591	13300 J
			SS-EU081-3339	16.5 J
Anthracene	$\mu\text{g/Kg}$	--	SS308-032	9140
			SS309-033	1590 J
			SS3C003-586	216 J
			SS3C007-590	7280
			SS3C008-591	24700
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	SS308-032	28900 D
			SS309-033	3190
			SS3C002-585	353 J
			SS3C006-589	4750 J
			SS3C007-590	33300 D
			SS3C008-591	73300
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	SS3C011-594	16800 J
			SS308-032	33600 D
			SS309-033	3080
			SS311-035	540 J
			SS3C002-585	408 J
			SS3C006-589	4100 J
			SS3C007-590	34000 D
			SS3C008-591	82500
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SS3C011-594	14900 J
			SS308-032	31500 D
			SS309-033	3430
			SS3C002-585	469
			SS3C006-589	5960 J
			SS3C007-590	37700 D
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	--	SS3C008-591	42800 D
			SS3C011-594	20200 J
			SS308-032	22500 D
			SS309-033	1860
			SS3C002-585	253 J
			SS3C007-590	22400 D
			SS3C008-591	54100
			SS3C011-594	12600 J
			SS-EU081-3339	45.7
			SS-MW313-3590	55.6

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS308-032	25900 D
			SS309-033	2280
			SS3C002-585	351 J
			SS3C007-590	31000 D
			SS3C008-591	62900
Chrysene	$\mu\text{g/Kg}$	378	SS308-032	29400 D
			SS309-033	3100
			SS3C002-585	379 J
			SS3C006-589	4620 J
			SS3C007-590	35700 D
			SS3C008-591	76000
			SS3C011-594	16300 J
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	--	SS308-032	4780
			SS309-033	830 J
			SS3C007-590	9640 JD
			SS3C008-591	22500
			SS-MW313-3590	21
Fluoranthene	$\mu\text{g/Kg}$	889	SS308-032	81500 D
			SS309-033	9650
			SS3C002-585	919
			SS3C006-589	11400
			SS3C007-590	80000 D
			SS3C008-591	92400 D
			SS3C011-594	39200
Fluorene	$\mu\text{g/Kg}$	--	SS308-032	4020
			SS309-033	711 J
			SS3C001-584	950 J
			SS3C006-589	4830 J
			SS3C007-590	2630 J
			SS3C008-591	8830 J
			SS3C011-594	15200 J
			SS3C012-596	244 J
			SS3C013-597	226 J

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS308-032	13800
			SS309-033	1740
			SS3B001-573	2280 J
			SS3C001-584	992 J
			SS3C002-585	220 J
			SS3C006-589	5990 J
			SS3C007-590	19400 D
			SS3C008-591	43600
			SS3C011-594	21200 J
			SS3C012-596	328 J
			SS3C013-597	205 J
			SS-EU081-3339	48.1
Naphthalene	μg/Kg	--	SS311-035	181 J
			SS312-036	56.8 J
			SS3A006-561	235 J
			SS-EU081-3339	9.37 J
			SS-MW313-3590	12.6 JP
Phenanthrene	μg/Kg	538	SS308-032	61800 D
			SS309-033	8550
			SS3C002-585	733
			SS3C006-589	8230
			SS3C007-590	57800 D
			SS3C008-591	71600 D
			SS3C011-594	26500
Pyrene	μg/Kg	716	SS308-032	53600 E
			SS3C002-585	940
			SS3C006-589	9810
			SS3C007-590	88000 D
			SS3C008-591	99700 D
			SS3C011-594	33600
PCBs				
Aroclor-1260	μg/Kg	--	SS303-027	17.2
			SS309-033	5.5
			SS311-035	20.8
			SS-MW314-3593	4.6 h
Pesticides				
4,4'-DDE	μg/Kg	--	SD723-349	1.8 J
			SS311-035	13.3
			SS-EU081-3339	0.538 J
			SS-MW314-3593	3.08
4,4'-DDT	μg/Kg	--	SS311-035	18.9
			SS-EU081-3339	1.29 J
			SS-MW314-3593	1.88
Radionuclides				

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Actinium-227	pCi/g	0.08	SS314-404	2.28
			SS3A016-572	0.487
			SS3A021-2392	1.43
			SS3A023-2394	1.29
			SS3A024-2395	0.98
			SS3B011-2398	0.758
			SS3C014-2411	1.44
			SS3C015-2412	1.89
			SS3D001-2414	1.24
			SS3D004-2418	2.98
			SS3D006-2420	3.07
			SS-MW313-3590	0.507
Alpha	pCi/g	--	SD723-349	18.1
			SD724-351	20.2
			SD725-353	21.9
			SS301-025	20.6
			SS302-026	15.4
			SS303-027	15.3
			SS304-028	20.9
			SS305-029	16.8
			SS306-030	20.8
			SS307-031	14.3
			SS308-032	84.8
			SS309-033	32.9
			SS310-034	15.2
			SS311-035	56.3
			SS312-036	55.8
			SS314-404	172
			SS-EU081-3339	13.3
			SS-MW313-3590	35.3
			SS-MW314-3593	14

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD723-349	26
			SD724-351	23.8
			SD725-353	31.1
			SS301-025	33.9
			SS302-026	19.9
			SS303-027	24.8
			SS304-028	20.4
			SS305-029	21.1
			SS306-030	22.4
			SS307-031	21.3
			SS308-032	47.6
			SS309-033	34.2
			SS310-034	23.1
			SS311-035	37.6
			SS312-036	43.5
			SS314-404	94.2
			SS-EU081-3339	23
			SS-MW313-3590	36.1
			SS-MW314-3593	21.6

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS306-030	0.619 J
			SS314-404	1.22
			SS3A001-555	0.602
			SS3A002-556	0.611
			SS3A003-557	0.52
			SS3A004-559	0.399
			SS3A005-560	0.474
			SS3A006-561	0.773
			SS3A007-562	0.852
			SS3A013-569	0.579
			SS3A016-572	0.565
			SS3A017-2162	0.719
			SS3A020-2389	0.612
			SS3A021-2392	0.842
			SS3A023-2394	0.806
			SS3B002-575	0.458
			SS3B003-576	0.894
			SS3B004-577	0.557
			SS3B005-578	0.352
			SS3B007-580	0.414
			SS3B010-583	0.515
			SS3B011-2398	1.08
			SS3C001-584	0.466
			SS3C002-585	0.586
			SS3C003-586	0.4
			SS3C004-587	0.448
			SS3C005-588	0.47
			SS3C006-589	0.484
			SS3C007-590	0.903
			SS3C008-591	0.574
			SS3C014-2411	0.468
			SS3C015-2412	0.548
			SS3C016-2413	0.393
			SS3D001-2414	2.23
			SS3D002-2415	3
			SS3D009-2423	0.366
			SS-MW313-3590	0.443
			SS-MW314-3593	0.363

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SD723-349	1.55
			SD725-353	1.16
			SEDC06-08-2146	5.95
			SS303-027	3.84
			SS304-028	1.61
			SS305-029	1.27
			SS306-030	1.17
			SS308-032	3.56
			SS309-033	2.58
			SS310-034	1.56
			SS311-035	6.58
			SS312-036	7.49
			SS314-404	55.4
			SS3A001-555	2.57
			SS3A002-556	4.06
			SS3A003-557	3.2
			SS3A004-559	2.67
			SS3A005-560	3.87
			SS3A006-561	6.31
			SS3A007-562	5.5
			SS3A008-563	2.26
			SS3A009-565	2.86
			SS3A010-566	2.35
			SS3A011-567	1.77
			SS3A012-568	1.97
			SS3A013-569	5.51
			SS3A014-570	1.06
			SS3A015-571	1.13
			SS3A016-572	4.21
			SS3A017-2162	15.1
			SS3A020-2389	8.54
			SS3A021-2392	21
			SS3A022-2393	1.48
			SS3A023-2394	17.6
			SS3A024-2395	10.7
			SS3A025-2397	2.6
			SS3B001-573	1.07
			SS3B002-575	2.05
			SS3B003-576	7.91
			SS3B004-577	4.16
			SS3B005-578	2.94
			SS3B007-580	2.96
			SS3B008-581	0.971
			SS3B010-583	2.84

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS3B011-2398	12.5
			SS3B012-2401	1.79
			SS3B013-2402	5.7
			SS3B014-2404	1.7
			SS3B015-2405	12.4
			SS3B016-2406	2.32
			SS3B017-2407	2.61
			SS3B018-2409	1.4
			SS3B019-2410	1.24
			SS3C001-584	1.95
			SS3C002-585	2.31
			SS3C003-586	1.51
			SS3C004-587	1.86
			SS3C005-588	1.98
			SS3C006-589	2.65
			SS3C007-590	2.5
			SS3C008-591	1.8
			SS3C011-594	1.36
			SS3C012-596	2.19
			SS3C013-597	1.58
			SS3C014-2411	13.4
			SS3C015-2412	19.6
			SS3C016-2413	1.94
			SS3D001-2414	19.3
			SS3D002-2415	2.03
			SS3D004-2418	50.2
			SS3D006-2420	82.1
			SS3D007-2421	7.3
			SS3D008-2422	1.43 J
			SS3D009-2423	1.77
			SS-MW313-3590	4.51
			SS-MW314-3593	1.42
Thorium-228	pCi/g	1.64	SS3A002-556	1.86
			SS-MW313-3590	1.66

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SD723-349	2.1 J
			SEDC06-08-2146	4.86
			SS303-027	3.48 J
			SS304-028	1.8 J
			SS306-030	1.87 J
			SS308-032	14.2
			SS309-033	5.64
			SS310-034	1.92 J
			SS311-035	15.6
			SS312-036	10.3
			SS314-404	15.8
			SS3A001-555	2.45
			SS3A002-556	7.36
			SS3A003-557	4.18
			SS3A004-559	5.17
			SS3A005-560	7.79
			SS3A006-561	9.35
			SS3A007-562	8.82
			SS3A008-563	2.33
			SS3A009-565	3.21
			SS3A010-566	3.69
			SS3A011-567	2.61
			SS3A012-568	2.25
			SS3A013-569	7.3
			SS3A016-572	5.79
			SS3A017-2162	7.59
			SS3A021-2392	21.8
			SS3A023-2394	11.5
			SS3A024-2395	8.85
			SS3A025-2397	3.87
			SS3B001-573	2.15
			SS3B002-575	3.32
			SS3B003-576	8.65
			SS3B004-577	6.88
			SS3B005-578	3.24
			SS3B007-580	3.09
			SS3B010-583	5.68
			SS3B011-2398	16.9
			SS3B012-2401	2.75
			SS3B013-2402	12.5
			SS3B014-2404	2.71
			SS3B015-2405	9.85
			SS3B016-2406	3.47
			SS3B017-2407	3.09

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS3B018-2409	1.94
			SS3B019-2410	2.42
			SS3C001-584	3.61
			SS3C002-585	4.23
			SS3C003-586	2.94
			SS3C004-587	2.72
			SS3C005-588	5.23
			SS3C006-589	10.7
			SS3C007-590	10.8
			SS3C008-591	1.83
			SS3C009-592	1.71
			SS3C011-594	1.86
			SS3C012-596	2.44
			SS3C013-597	2.9
			SS3C014-2411	10.1
			SS3C015-2412	87.9
			SS3C016-2413	3.12
			SS3D001-2414	11.2
			SS3D002-2415	2.24
			SS3D004-2418	7.87
			SS3D006-2420	32.9
			SS3D007-2421	7.54
			SS3D008-2422	2.05 J
			SS3D009-2423	2.25
			SS-MW313-3590	3.07
			SS-MW314-3593	2.89
Thorium-232	pCi/g	1.24	SS3B010-583	1.25
			SS-MW314-3593	1.48

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	μg/g	3.94	SD725-353	5.06
			SS303-027	4.81 J
			SS306-030	4.2 J
			SS308-032	10.4
			SS311-035	5.33
			SS314-404	5.77
			SS3A003-557	4.24
			SS3A004-559	12.1
			SS3A005-560	9.12
			SS3A007-562	4.26
			SS3A012-568	4.26
			SS3A013-569	3.95
			SS3A015-571	4.6
			SS3A016-572	5.36
			SS3A021-2392	4.8
			SS3A024-2395	4.63
			SS3B001-573	4.77
			SS3B003-576	6.25
			SS3B004-577	5.39
			SS3B005-578	5.44
			SS3B007-580	7.17
			SS3B010-583	5.62
			SS3B011-2398	5.51
			SS3B014-2404	4.4
			SS3B015-2405	16.9
			SS3B016-2406	4.07
			SS3C002-585	4.19
			SS3C005-588	12.4
			SS3C006-589	5.71
			SS3C007-590	9.41
			SS3C010-593	20.9
			SS3C011-594	6.46
			SS3C014-2411	15.4
			SS3C015-2412	330
			SS3D001-2414	6.02
			SS3D004-2418	4.31
			SS3D005-2419	6.72
			SS3D006-2420	1270
			SS3D007-2421	5630
			SS3D008-2422	15
			SS3D009-2423	20.2

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.68	SEDC06-08-2146	2.04
			SS303-027	2.72
			SS308-032	3.66
			SS311-035	1.9
			SS312-036	2.25
			SS314-404	2.98
			SS3A002-556	2.34
			SS3A004-559	2.93
			SS3A005-560	9.03
			SS3A006-561	1.78
			SS3A013-569	2.36
			SS3A016-572	2.01
			SS3B001-573	2.39
			SS3B003-576	2.23
			SS3B004-577	2.59
			SS3B005-578	2.15
			SS3B007-580	2.9
			SS3B010-583	3.42
			SS3B011-2398	2.16
			SS3B013-2402	2.35
			SS3B014-2404	3.67
			SS3B015-2405	7.19
			SS3C002-585	2.09
			SS3C005-588	1.83
			SS3C006-589	2.25
			SS3C007-590	3.89
			SS3C014-2411	8.5
			SS3C015-2412	64.6
			SS3C016-2413	1.98
			SS3D001-2414	2.4
			SS3D002-2415	2.14
			SS3D005-2419	3.45
			SS3D006-2420	371
			SS3D007-2421	1420
			SS3D008-2422	5.02 J
			SS3D009-2423	7.83
			SS-MW313-3590	2.59
			SS-MW314-3593	2.02

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS303-027	0.214 J
			SS306-030	0.124 J
			SS308-032	0.102 J
			SS311-035	0.0862 J
			SS3A005-560	0.329
			SS3A006-561	0.186
			SS3A007-562	0.206
			SS3A021-2392	0.209
			SS3A022-2393	0.168
			SS3B012-2401	0.152
			SS3B015-2405	0.403
			SS3B019-2410	0.26
			SS3C013-597	0.363
			SS3C014-2411	0.433
			SS3C015-2412	2.94
			SS3D001-2414	0.233
			SS3D002-2415	0.283
			SS3D004-2418	0.25
			SS3D005-2419	0.237
			SS3D006-2420	21.1
			SS3D007-2421	96.2
			SS3D008-2422	0.697 J
			SS3D009-2423	0.44
			SS-MW314-3593	0.39

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SD725-353	1.49
			SEDC06-08-2146	3.52
			SS303-027	2.42
			SS306-030	1.48
			SS308-032	3.42
			SS311-035	1.75
			SS312-036	2.09
			SS314-404	2.37
			SS3A002-556	1.62
			SS3A004-559	4
			SS3A005-560	9.23
			SS3A006-561	1.85
			SS3A007-562	1.52
			SS3A013-569	1.42
			SS3A015-571	1.41
			SS3A020-2389	1.89
			SS3A021-2392	1.47
			SS3A022-2393	1.37
			SS3A024-2395	1.92
			SS3B001-573	2.46
			SS3B003-576	2.49
			SS3B004-577	2.17
			SS3B005-578	1.78
			SS3B007-580	2.49
			SS3B008-581	1.51
			SS3B010-583	2.46
			SS3B011-2398	1.81
			SS3B012-2401	1.65
			SS3B013-2402	2.33
			SS3B014-2404	3.34
			SS3B015-2405	7.86
			SS3B016-2406	1.98
			SS3C002-585	1.56
			SS3C005-588	1.96
			SS3C006-589	2.44
			SS3C007-590	4.03
			SS3C008-591	1.94
			SS3C011-594	1.5
			SS3C014-2411	7.69
			SS3C015-2412	65.9
			SS3C016-2413	1.71
			SS3D001-2414	2.37
			SS3D005-2419	3.77
			SS3D006-2420	373

* Data qualifier included with concentration value

Table 4-27
Exposure Unit 8
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS3D007-2421	1420
			SS3D008-2422	4.7 J
			SS3D009-2423	7.52
			SS-EU081-3339	1.73
			SS-MW313-3590	2.3
			SS-MW314-3593	1.52
Semivolatile Organics				
2-Methylnaphthalene	µg/Kg	--	SS311-035	269 J
			SS312-036	73.4 J
			SS3A006-561	354 J
Carbazole	µg/Kg	--	SS308-032	6580
			SS309-033	1140 J
			SS3C007-590	9940 JD
			SS3C008-591	20000
Volatile Organics				
1,1-Dichloroethene	µg/Kg	--	SS-MW314-3593	1.4
Acetone	µg/Kg	--	SS-MW314-3593	13.7
Chloroform	µg/Kg	--	SEDC05-06-2470	0.45 J
Tetrachloroethene	µg/Kg	--	SS303-027	0.84 J
Toluene	µg/Kg	--	SD723-349	0.21 J
			SS310-034	5.7
			SS311-035	0.33 J

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SD701-293	20600
			SS-MW863-3605	18700 J
			SS-TWP844-3542	20600
			SS-TWP851-3563	21900 *
			SS-TWP852-3566	19500
			SS-TWP854-3572	19900
			SS-TWP855-3575	18500
			SS-TWP856-3578	18800
			SS-TWP857-3581	18500
Antimony	mg/Kg	0.94	SS-MW861-3599	0.951 BN
			SS-MW862-3602	2.59 BN*
			SS-MW863-3605	3.92 J
			SS-TWP834-3512	1.34 N
			SS-TWP839-3527	1.01 BN
			SS-TWP844-3542	2.09 BN*
			SS-TWP850-3560	2.35 BN
			SS-TWP851-3563	1.39 BN
			SS-TWP857-3581	1.87 BN
Beryllium	mg/Kg	1	SD701-293	1.1
			SS-TWP852-3566	1.04 B
Boron	mg/Kg	10.1	SS-EU101-3343	11.7 N
			SS-EU102-3344	12.5 N
			SS-EU113-3348	14.8
			SS-TWP831-3503	12.1 B
			SS-TWP832-3506	11.4 N*
			SS-TWP833-3509	12.8
			SS-TWP834-3512	12.9
			SS-TWP850-3560	11.3 B
			SS-TWP852-3566	14.4 B
			SS-TWP854-3572	13.6 B
			SS-TWP855-3575	11.8 B
			SS-TWP858-3584	13.6
			SS-TWP859-3587	12.8
Cadmium	mg/Kg	0.53	SS-MW863-3605	0.623 J

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Calcium	mg/Kg	45200	SD702-295	54300
			SS-EU113-3348	51700 *
			SS-TWP830-3500	104000 *
			SS-TWP831-3503	46000
			SS-TWP834-3512	47200
			SS-TWP852-3566	45500
			SS-TWP853-3569	110000
			SS-TWP854-3572	47200
			SS-TWP855-3575	46300
			SS-TWP858-3584	49700
			SS-TWP859-3587	86900
Chromium	mg/Kg	24.3	SD701-293	26.8
			SS-MW861-3599	25.4
			SS-MW863-3605	24.9 J
			SS-TWP833-3509	25.1
			SS-TWP851-3563	26.4
			SS-TWP852-3566	27.9
			SS-TWP854-3572	26.8
			SS-TWP855-3575	25.2
Copper	mg/Kg	34.7	SD701-293	37
			SS-EU103-3345	40
			SS-MW862-3602	35.6
Iron	mg/Kg	36400	SD701-293	38800
Lithium	mg/Kg	27.9	SD702-295	28.7
			SS-TWP831-3503	29.5 N
			SS-TWP833-3509	31.6
			SS-TWP844-3542	29.8 E
			SS-TWP851-3563	31.6 E
			SS-TWP852-3566	34.4 E
			SS-TWP853-3569	30.2 E
			SS-TWP856-3578	30.6 N
			SS-TWP857-3581	33.4 N
			SS-TWP858-3584	28.2

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Magnesium	mg/Kg	10200	SD702-295	22100
			SS-EU102-3344	14000
			SS-EU113-3348	10400
			SS-TWP830-3500	56300 *
			SS-TWP831-3503	11300
			SS-TWP832-3506	13900 *
			SS-TWP834-3512	15100
			SS-TWP850-3560	11400
			SS-TWP852-3566	12600
			SS-TWP853-3569	46700
			SS-TWP854-3572	16700
			SS-TWP855-3575	11300
			SS-TWP858-3584	11300
			SS-TWP859-3587	45800
Potassium	mg/Kg	1820	SD701-293	2200 E
			SS-EU101-3343	2940 E
			SS-EU102-3344	3120 E
			SS-EU103-3345	2440 E
			SS-EU113-3348	3010 N
			SS-MW861-3599	2050
			SS-MW862-3602	2530
			SS-MW863-3605	2180 J
			SS-TWP831-3503	2980
			SS-TWP832-3506	3500 *
			SS-TWP833-3509	3180
			SS-TWP834-3512	3210
			SS-TWP844-3542	1980
			SS-TWP850-3560	3160 *
			SS-TWP851-3563	2750 *
			SS-TWP852-3566	2890
			SS-TWP854-3572	3190
			SS-TWP855-3575	2660
			SS-TWP856-3578	2230
			SS-TWP857-3581	2360
			SS-TWP858-3584	3570
			SS-TWP859-3587	2800

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SD701-293	0.76 BN
			SD702-295	1.2 B
			SD703-297	1.1
			SS102-685	0.99 B
			SS103-686	0.834 B
			SS-EU103-3345	0.551 B
			SS-EU113-3348	0.643 B
			SS-MW861-3599	2.16 N
			SS-MW862-3602	2.02
			SS-MW863-3605	2.58 J
			SS-TWP831-3503	0.375 B
			SS-TWP833-3509	0.447 B
			SS-TWP839-3527	0.402 B
			SS-TWP844-3542	1.92
			SS-TWP850-3560	2.13 N
			SS-TWP851-3563	2.76 N
			SS-TWP854-3572	0.405 B
			SS-TWP856-3578	0.477 B
			SS-TWP858-3584	0.579 B
			SS-TWP859-3587	0.438 B

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SD701-293	0.1 B
			SD702-295	0.15 B
			SD703-297	0.12 B
			SS102-685	0.221 B
			SS103-686	0.147 B
			SS-EU101-3343	0.109 B
			SS-EU102-3344	0.109 B
			SS-EU103-3345	0.103 B
			SS-EU113-3348	0.125 B
			SS-MW861-3599	0.153
			SS-MW862-3602	0.124 E
			SS-MW863-3605	0.199
			SS-TWP830-3500	0.14
			SS-TWP831-3503	0.131
			SS-TWP832-3506	0.13
			SS-TWP833-3509	0.142 E
			SS-TWP834-3512	0.13 E
			SS-TWP839-3527	0.14
			SS-TWP844-3542	0.149 E
			SS-TWP850-3560	0.139
			SS-TWP851-3563	0.148
			SS-TWP852-3566	0.129
			SS-TWP853-3569	0.141
			SS-TWP854-3572	0.096 B
			SS-TWP855-3575	0.163
			SS-TWP856-3578	0.13
			SS-TWP857-3581	0.129
			SS-TWP858-3584	0.135 E
			SS-TWP859-3587	0.148 E
Vanadium	mg/Kg	34	SD701-293	39.8
			SS-EU103-3345	34.9 N
			SS-TWP831-3503	35.2
			SS-TWP832-3506	34.3 *N
			SS-TWP833-3509	36.7
			SS-TWP834-3512	34.4
			SS-TWP844-3542	34.5 N
			SS-TWP851-3563	39
			SS-TWP852-3566	37.9
			SS-TWP854-3572	39
			SS-TWP855-3575	37.3
			SS-TWP856-3578	36.7
			SS-TWP857-3581	35.5
			SS-TWP858-3584	36.4

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	mg/Kg	78	SD701-293	81
			SD702-295	830
			SD703-297	158
			SS-EU102-3344	81.9
			SS-MW861-3599	341 E
			SS-MW863-3605	348 J
			SS-TWP854-3572	80.6
PAHs				
Acenaphthene	μg/Kg	--	SS-MW861-3599	10.9 J
			SS-MW863-3605	13.7 J
Anthracene	μg/Kg	--	SS-MW861-3599	136
			SS-MW863-3605	40.2
			SS-TWP831-3503	8.46 J
Benzo(a)anthracene	μg/Kg	284	SS-MW861-3599	900
Benzo(a)pyrene	μg/Kg	313	SS-MW861-3599	691
Benzo(b)fluoranthene	μg/Kg	396	SS-MW861-3599	1280
Benzo(g,h,i)perylene	μg/Kg	--	SS-MW861-3599	300
			SS-MW863-3605	115
			SS-TWP830-3500	8.44
			SS-TWP831-3503	14.4
			SS-TWP832-3506	1.47 J
			SS-TWP833-3509	6.03
			SS-TWP834-3512	3.88
			SS-TWP850-3560	3.75
			SS-TWP851-3563	1.93 Ph
			SS-TWP856-3578	2.99
			SS-TWP858-3584	2.77
			SS-TWP859-3587	2.88
Chrysene	μg/Kg	378	SS-MW861-3599	1010
Dibenzo(a,h)anthracene	μg/Kg	--	SS-MW861-3599	6.8
			SS-TWP831-3503	2.87
			SS-TWP858-3584	1.43 J
Fluoranthene	μg/Kg	889	SS-MW861-3599	1760
Fluorene	μg/Kg	--	SS-MW861-3599	30.7 J
			SS-MW862-3602	7.21 J
			SS-MW863-3605	19.1 J
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS-MW861-3599	387
			SS-MW862-3602	42.4
			SS-MW863-3605	70.9
Phenanthrene	μg/Kg	538	SS-MW861-3599	624
Pyrene	μg/Kg	716	SS-MW861-3599	1420
PCBs				

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SS-EU102-3344	2.13 J
			SS-MW863-3605	3.3 J
			SS-TWP833-3509	4.4
Pesticides				
4,4'-DDE	μg/Kg	--	SS-EU103-3345	0.47 J
			SS-MW862-3602	0.942 J
			SS-MW863-3605	5.33 J
			SS-TWP833-3509	0.302 J
			SS-TWP834-3512	0.636 J
			SS-TWP844-3542	0.305 J
			SS-TWP854-3572	0.423 J
			SS-TWP855-3575	0.303 J
			SS-TWP856-3578	1.95
SS-TWP859-3587	2.44			
4,4'-DDT	μg/Kg	--	SS-EU103-3345	2.16
			SS-MW861-3599	2.22
			SS-MW862-3602	1.93
			SS-MW863-3605	12.5
			SS-TWP833-3509	0.8 J
			SS-TWP834-3512	1.96
			SS-TWP839-3527	1.18 J
			SS-TWP851-3563	1.31 J
			SS-TWP853-3569	0.587 J
SS-TWP856-3578	2.56			
SS-TWP859-3587	2.02			
Dieldrin	μg/Kg	--	SS-TWP834-3512	0.237 J
			SS-TWP853-3569	0.222 J
Radionuclides				

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SD701-293	21.4
			SD702-295	8.97
			SD703-297	68.2
			SD741-672	16.6
			SD742-674	9.84
			SS-EU101-3343	19.3
			SS-EU102-3344	9.91
			SS-EU103-3345	7.19
			SS-EU113-3348	8.42
			SS-MW861-3599	9.75
			SS-MW862-3602	8.83
			SS-TWP830-3500	9.9
			SS-TWP831-3503	9.93
			SS-TWP832-3506	18.8
			SS-TWP833-3509	34.6
			SS-TWP834-3512	11
			SS-TWP839-3527	9.06
			SS-TWP844-3542	16.2
			SS-TWP850-3560	10.7
			SS-TWP851-3563	11.6
			SS-TWP852-3566	12.9
			SS-TWP853-3569	11.8
			SS-TWP854-3572	13.5
			SS-TWP855-3575	7.36
			SS-TWP856-3578	9.19
			SS-TWP857-3581	27.1
			SS-TWP858-3584	11.8
			SS-TWP859-3587	11.7

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD701-293	25.5
			SD702-295	19.4
			SD703-297	39.9
			SD741-672	23.5
			SD742-674	17
			SS-EU101-3343	24.1
			SS-EU102-3344	19.3
			SS-EU103-3345	13
			SS-EU113-3348	24.3
			SS-MW861-3599	21.6
			SS-MW862-3602	20.7
			SS-MW863-3605	16.7
			SS-TWP830-3500	16.7
			SS-TWP831-3503	24.8
			SS-TWP832-3506	29.1
			SS-TWP833-3509	43.5
			SS-TWP834-3512	20.3
			SS-TWP839-3527	19.9
			SS-TWP844-3542	27.7
			SS-TWP850-3560	20.6
			SS-TWP851-3563	22.5
			SS-TWP852-3566	28.5
			SS-TWP853-3569	25.4
			SS-TWP854-3572	31.1
			SS-TWP855-3575	20.4
			SS-TWP856-3578	20.7
			SS-TWP857-3581	38.5
			SS-TWP858-3584	25.3
			SS-TWP859-3587	20.8
Cesium-137	pCi/g	0.343	SS1A002-2158	0.35
Radium-226	pCi/g	0.921	SD703-297	8.52
			SD741-672	1.64
			SS101-684	1.64
			SS102-685	1.07
			SS1A001-2157	0.937
			SS1A002-2158	2.04
			SS1B001-2159	1.02
			SS1B002-2160	1.02
			SS8C003-2186	0.991
			SS-EU101-3343	2.69
			SS-EU103-3345	0.956
			SS-TWP844-3542	1.3
			SS-TWP852-3566	1
			SS-TWP856-3578	0.984 J

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SD703-297	10.1
			SS101-684	1.94
			SS1A002-2158	1.88
			SS-EU101-3343	6.86
			SS-MW861-3599	1.67
			SS-TWP844-3542	2.58
			SS-TWP852-3566	2.53
			SS-TWP855-3575	2.7
			SS-TWP856-3578	2.04 J
Thorium-232	pCi/g	1.24	SS-TWP852-3566	1.36
			SS-TWP853-3569	1.58
			SS-TWP856-3578	1.36 J
Total Uranium	μg/g	3.94	SD703-297	5.6
			SD741-672	4.89
			SS-TWP833-3509	40.2
			SS-TWP857-3581	24.3
Uranium-234	pCi/g	1.68	SD703-297	1.94
			SD741-672	2.05
			SS-TWP833-3509	18.9
			SS-TWP852-3566	1.92
			SS-TWP855-3575	2.75
			SS-TWP857-3581	11
Uranium-235	pCi/g	0.0847	SD703-297	0.124 J
			SS1A001-2157	0.15
			SS1B002-2160	0.229
			SS-MW861-3599	0.101
			SS-TWP833-3509	0.935
			SS-TWP857-3581	0.842
Uranium-238	pCi/g	1.36	SD703-297	1.72
			SS103-686	1.44
			SS-TWP833-3509	21
			SS-TWP834-3512	1.41
			SS-TWP852-3566	1.67
			SS-TWP854-3572	1.65
			SS-TWP855-3575	2.75
			SS-TWP857-3581	12.2
			SS-TWP858-3584	1.55
Semivolatile Organics				
Carbazole	μg/Kg	--	SS-MW861-3599	43.5 J
			SS-MW863-3605	28.7 J
Volatile Organics				

* Data qualifier included with concentration value

Table 4-28
Exposure Unit 10
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
1,1-Dichloroethene	$\mu\text{g/Kg}$	--	SS-MW861-3599	0.82 J
			SS-MW862-3602	0.666 J
			SS-TWP844-3542	0.555 J
			SS-TWP850-3560	0.669 J
			SS-TWP851-3563	0.867 J
2-Butanone	$\mu\text{g/Kg}$	--	SS-TWP830-3500	63.2
			SS-TWP831-3503	86.4
			SS-TWP832-3506	307
			SS-TWP834-3512	6.27
			SS-TWP839-3527	8.02
			SS-TWP854-3572	11.7
			SS-TWP856-3578	4.48 J
Acetone	$\mu\text{g/Kg}$	--	SS-TWP830-3500	35.5
			SS-TWP831-3503	19.6
			SS-TWP832-3506	21.3
			SS-TWP834-3512	7.3
			SS-TWP854-3572	14
			SS-TWP856-3578	9.03
			SS-TWP857-3581	302
Toluene	$\mu\text{g/Kg}$	--	SS-TWP831-3503	0.589 J
			SS-TWP832-3506	0.465 J
			SS-TWP850-3560	0.485 J

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS-EU111-3346	19800
			SS-EU112-3347	22900
			SS-TWP845-3545	19900
			SS-TWP847-3551	21100
			SS-TWP848-3554	22700
			SS-TWP849-3557	19700
Antimony	mg/Kg	0.94	SS-TWP845-3545	1.79 BN*
			SS-TWP846-3548	1.08 BN*
			SS-TWP848-3554	2.3 BN
			SS-TWP849-3557	1.81 BN
Beryllium	mg/Kg	1	SD704-302	1.8 E
			SS-EU112-3347	1.2
			SS-TWP848-3554	1.24 B
Boron	mg/Kg	10.1	SD704-302	20 *
			SS-EU112-3347	12.4 N
			SS-TWP841-3533	10.2 N
			SS-TWP842-3536	12.3
			SS-TWP847-3551	10.3 BN
			SS-TWP848-3554	12.8 B
Cadmium	mg/Kg	0.53	SD704-302	0.95
Calcium	mg/Kg	45200	SD704-302	50000 E*
			SS819-706	53400 *E
			SS-TWP843-3539	64500
Chromium	mg/Kg	24.3	SS-EU112-3347	28.7
			SS-TWP847-3551	30.4
			SS-TWP848-3554	62.1
			SS-TWP849-3557	26.5
Copper	mg/Kg	34.7	SS813-700	54 E*
			SS-EU112-3347	41.5
			SS-TWP847-3551	35.9
			SS-TWP849-3557	48.2 *N
Lithium	mg/Kg	27.9	SS-EU111-3346	31.1
			SS-EU112-3347	33.3 E
			SS-TWP841-3533	30.8
			SS-TWP845-3545	35.8 E
			SS-TWP847-3551	30.1 E
			SS-TWP848-3554	38.9 E
Magnesium	mg/Kg	10200	SS-TWP849-3557	13600 *
Mercury	mg/Kg	0.27	SD704-302	1.1

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	1820	SS-EU111-3346	2590
			SS-EU112-3347	2660 E
			SS-TWP841-3533	2410 *
			SS-TWP842-3536	2700 E
			SS-TWP843-3539	2240 E
			SS-TWP845-3545	2340
			SS-TWP846-3548	2120
			SS-TWP847-3551	2640
			SS-TWP848-3554	2880
			SS-TWP849-3557	2690
Selenium	mg/Kg	0.37	SD704-302	0.99 BN
			SS801-070	0.49 B
			SS802-071	0.67 B
			SS805-074	1.8 B
			SS813-700	0.902 B
			SS819-706	0.845 B
			SS-EU111-3346	0.509 B
			SS-EU112-3347	0.857 B
			SS-TWP842-3536	1.19 N
			SS-TWP843-3539	1.06 BN
			SS-TWP845-3545	2.18
			SS-TWP846-3548	2.13
			SS-TWP847-3551	2.26
			SS-TWP848-3554	2.3 N
			SS-TWP849-3557	1.44 N
Thallium	mg/Kg	--	SD704-302	0.13 B
			SS801-070	0.1 B
			SS802-071	0.09 B
			SS805-074	0.07 B
			SS813-700	0.16 B
			SS819-706	0.16 B
			SS-EU111-3346	0.121
			SS-EU112-3347	0.165
			SS-TWP841-3533	0.14 E
			SS-TWP842-3536	0.119
			SS-TWP843-3539	0.126
			SS-TWP845-3545	0.131 E
			SS-TWP846-3548	0.1 BE
			SS-TWP847-3551	0.13 E
			SS-TWP848-3554	0.117
			SS-TWP849-3557	0.144

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	34	SS-EU112-3347	39.3 N
			SS-TWP847-3551	36.9 N
			SS-TWP848-3554	34.4 *N
			SS-TWP849-3557	46.8 *N
PAHs				
Acenaphthene	µg/Kg	--	SS2A002-530	34.9 J
			SS2A003-531	296
			SS-TWP848-3554	64.3
Acenaphthylene	µg/Kg	--	SS2A002-530	7.5 J
Anthracene	µg/Kg	--	SS2A002-530	48.2
			SS2A003-531	518
			SS-TWP848-3554	77.7
Benzo(a)anthracene	µg/Kg	284	SS2A003-531	2430
			SS-TWP848-3554	416
Benzo(a)pyrene	µg/Kg	313	SS2A002-530	349
			SS2A003-531	2560
			SS-TWP848-3554	536
Benzo(b)fluoranthene	µg/Kg	396	SS2A003-531	2740
			SS-TWP848-3554	801
Benzo(g,h,i)perylene	µg/Kg	--	SS2A002-530	234
			SS2A003-531	1410
			SS-EU112-3347	8.39 P
			SS-TWP846-3548	7.63
			SS-TWP847-3551	13.3
			SS-TWP848-3554	281
			SS-TWP849-3557	2.52
Benzo(k)fluoranthene	µg/Kg	322	SS2A002-530	404
			SS2A003-531	2940
Chrysene	µg/Kg	378	SS2A002-530	409
			SS2A003-531	2980
			SS-TWP848-3554	436
Dibenzo(a,h)anthracene	µg/Kg	--	SS2A002-530	209
Fluoranthene	µg/Kg	889	SS2A003-531	7210 D
Fluorene	µg/Kg	--	SS2A002-530	27.9 J
			SS2A003-531	263
			SS-TWP848-3554	22.2 J
Indeno(1,2,3-cd)pyrene	µg/Kg	--	SS2A002-530	268
			SS2A003-531	1330
			SS-TWP848-3554	280
Naphthalene	µg/Kg	--	SS2A002-530	46.6
			SS2A003-531	336
			SS-TWP841-3533	3.44 J
Phenanthrene	µg/Kg	538	SS2A003-531	4360

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Pyrene	μg/Kg	716	SS2A002-530	748
			SS2A003-531	6280 D
PCBs				
Aroclor-1242	μg/Kg	--	SS-TWP843-3539	4.8
			SS-TWP846-3548	6.7
Aroclor-1254	μg/Kg	--	SS-TWP846-3548	2.6 J
			SS-TWP847-3551	3.8 J
Aroclor-1260	μg/Kg	--	SS-TWP847-3551	2.2 J
Pesticides				
4,4'-DDE	μg/Kg	--	SS-TWP842-3536	0.361 J
			SS-TWP845-3545	0.335 J
			SS-TWP846-3548	0.594 J
			SS-TWP847-3551	0.892 J
			TS809-2904-001	2.9 J
4,4'-DDT	μg/Kg	--	SS-TWP843-3539	2.47
			SS-TWP846-3548	1.19 J
			SS-TWP847-3551	1.28 J
Heptachlor	μg/Kg	--	SD704-302	1.7
Radionuclides				
Actinium-227	pCi/g	0.08	SD752-2241	0.906
			SS826-405	0.97
			SS827-406	9.22
			SS830-1036	132
			SS8A014-2181	3.6
			SS8H001-2443	0.629
Alpha	pCi/g	--	SD704-302	17.8
			SS801-070	17.7
			SS802-071	16.9
			SS805-074	21.8
			SS826-405	42.8
			SS827-406	536
			SS830-1036	3840
			SS-EU111-3346	11.6
			SS-TWP841-3533	8.37
			SS-TWP842-3536	8.16
			SS-TWP843-3539	13.8
			SS-TWP845-3545	12.8
			SS-TWP846-3548	9.95
			SS-TWP847-3551	13.2
			SS-TWP848-3554	17.2
			SS-TWP849-3557	11.3
			TS812-2928-062	19000

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD704-302	27.1
			SS801-070	38.6
			SS802-071	20.8
			SS805-074	28.5
			SS826-405	39.3
			SS827-406	301
			SS830-1036	1830
			SS-EU111-3346	21.7
			SS-TWP841-3533	23.2
			SS-TWP842-3536	23.5
			SS-TWP843-3539	27.2
			SS-TWP845-3545	24.3
			SS-TWP846-3548	20.1
			SS-TWP847-3551	24.2
			SS-TWP848-3554	24.9
			SS-TWP849-3557	21.3
Cesium-137	pCi/g	0.343	TS812-2928-062	15100
			SD752-2241	0.472
			SS2A006-2369	0.447
			SS8H001-2443	0.688
			SS8H002-2444	0.388

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SB2A005-2240	3.41
			SD704-302	1.37
			SD752-2241	25.7
			SS2A002-530	0.956
			SS2A004-2173	4.18
			SS2A006-2369	5.46
			SS2A007-2370	1.04
			SS2A009-2373	1.34
			SS801-070	1.81
			SS802-071	1.25
			SS805-074	1.5
			SS813-700	1.37
			SS814-701	2.71
			SS819-706	1.05
			SS826-405	13.2
			SS827-406	185
			SS830-1036	386
			SS8A002-2174	3.01
			SS8A003-2175	47.9
			SS8A004-2176	6.2
			SS8A005-2177	2.12
			SS8A006-2178	1.05
			SS8A007-2179	1.03
			SS8A008-2180	1.08
			SS8A010-2182	1.24
			SS8A014-2181	67.9
			SS8B009-2441	1.19
			SS8B010-2442	1.83
			SS8H001-2443	7.49
			SS8H002-2444	15.1 J
			SS-EU111-3346	0.977
			SS-TWP841-3533	0.959
			SS-TWP845-3545	1.17
			SS-TWP847-3551	1.16
			SS-TWP848-3554	1.76
			TS809-2904-001	3.09
			TS809-2905-007	3.39
			TS812-2928-062	9.64
Radium-228	pCi/g	1.26	SS827-406	1.35
			SS8A014-2181	1.49

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SB2A005-2240	4.88
			SD704-302	1.82 J
			SD752-2241	18.2
			SS2A004-2173	6.31
			SS2A006-2369	8.04
			SS2A009-2373	2.93
			SS805-074	2.79
			SS813-700	2.02
			SS814-701	2.62
			SS826-405	11.9
			SS827-406	33.3
			SS830-1036	304
			SS8A002-2174	3.68
			SS8A003-2175	87.6
			SS8A004-2176	9.79
			SS8A005-2177	3.03
			SS8A014-2181	68.5
			SS8B009-2441	2.83
			SS8B010-2442	2.33
			SS8H001-2443	10
			SS8H002-2444	22.5 J
			SS-TWP841-3533	2.01
			SS-TWP842-3536	1.75
			SS-TWP845-3545	2.57
			SS-TWP847-3551	2
			SS-TWP848-3554	2.7
			SS-TWP849-3557	2.06 J
			TS809-2904-001	4.58
			TS809-2905-007	5.95
			TS812-2928-062	14.3
Thorium-232	pCi/g	1.24	SS-TWP841-3533	1.39
			SS-TWP842-3536	1.52
			SS-TWP843-3539	1.25
			SS-TWP848-3554	1.54
			SS-TWP849-3557	1.32 J
			TS809-2905-007	1.34

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SS814-701	9.52
			SS819-706	55.8
			SS826-405	9.87
			SS827-406	8.35
			SS830-1036	884
			SS8A003-2175	5.86
			SS8A014-2181	4.98
			SS8B008-2438	15.5
			SS8B010-2442	8.09
			SS8H001-2443	10.4
			SS8H002-2444	11.3
			SS-EU111-3346	4.14
Uranium-234	pCi/g	1.68	TS812-2928-062	2860
			SS2A006-2369	1.96
			SS814-701	3.77
			SS819-706	15.6
			SS826-405	4.05
			SS827-406	3.34
			SS830-1036	89.9
			SS8A003-2175	4.19
			SS8A014-2181	2.38
			SS8B010-2442	2.94
			SS8H001-2443	2.89
			SS8H002-2444	3.8 J
			SS-TWP841-3533	1.85
			SS-TWP845-3545	1.73
			SS-TWP848-3554	2.1
Uranium-235	pCi/g	0.0847	TS812-2928-062	8340
			SS819-706	0.625
			SS827-406	0.381
			SS830-1036	3.43
			SS8A003-2175	0.285
			SS8A004-2176	0.154
			SS8A014-2181	0.115
			SS8B010-2442	0.239
			SS8H001-2443	0.197
			SS8H002-2444	0.404 J
			SS-TWP841-3533	0.293
			SS-TWP845-3545	0.236
			SS-TWP846-3548	0.226
			SS-TWP847-3551	0.473
			SS-TWP848-3554	0.094
			TS809-2904-001	0.0981
			TS812-2928-062	886

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS2A004-2173	1.74
			SS2A006-2369	1.95
			SS801-070	1.58
			SS813-700	1.61
			SS814-701	3.31
			SS819-706	14.7
			SS826-405	3.76
			SS827-406	2.36
			SS830-1036	88.6
			SS8A003-2175	3.18
			SS8A004-2176	1.38
			SS8A014-2181	1.75
			SS8B010-2442	2.92
			SS8H001-2443	2.83
			SS8H002-2444	4.04 J
			SS-TWP841-3533	1.82
			SS-TWP845-3545	1.66
			SS-TWP848-3554	1.93
			SS-TWP849-3557	1.43
			TS812-2928-062	8830
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS2A002-530	53.8
			SS2A003-531	449
Butylbenzylphthalate	μg/Kg	--	SS2A002-530	17.7 J
Carbazole	μg/Kg	--	SS2A002-530	49.2 J
			SS2A003-531	334 J
			SS-TWP848-3554	45 J
Dibenzofuran	μg/Kg	--	SS2A002-530	30.3 J
			SS2A003-531	277 J
Diethylphthalate	μg/Kg	--	SS-EU111-3346	31.6 J
Volatile Organics				
2-Butanone	μg/Kg	--	SS801-070	36.5
			SS805-074	45.9
			SS-TWP842-3536	6.19
			SS-TWP845-3545	13.9
			SS-TWP848-3554	8.22
Acetone	μg/Kg	--	SS805-074	29.6
			SS-EU112-3347	6.08 J
			SS-TWP845-3545	4.19 J
			SS-TWP847-3551	3.93 J
			SS-TWP848-3554	4.21 J
Benzene	μg/Kg	--	SS801-070	2.3
			SS805-074	2.6

* Data qualifier included with concentration value

Table 4-29
Exposure Unit 11
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SS801-070	1.8
			SS805-074	1.9
			SS-TWP848-3554	0.799 J
			SS-TWP849-3557	0.405 J
Xylenes (total)	$\mu\text{g/Kg}$	--	SS801-070	1.1 J

* Data qualifier included with concentration value

Table 4-30
Exposure Unit 12
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS-EU121-3349	23200
			SS-EU122-3350	19900
Arsenic	mg/Kg	11.3	SS204-004	22.5
			SS2B002-534	51.8 N
Beryllium	mg/Kg	1	SS2B001-532	1.03
			SS2B002-534	1.79
			SS-EU121-3349	1.49
			SS-EU122-3350	1.1
Boron	mg/Kg	10.1	SS204-004	21
			SS215-019	27.7 *
			SS2B001-532	23.6
			SS2B002-534	37.6
			SS-EU121-3349	12.8 N
Cadmium	mg/Kg	0.53	SS215-019	0.7
			SS-EU121-3349	1.29
Chromium	mg/Kg	24.3	SS-EU121-3349	28.1
			SS-EU122-3350	27.6
Copper	mg/Kg	34.7	SS206-009	48.4
			SS-EU121-3349	99.8
			SS-EU122-3350	35.6
Lithium	mg/Kg	27.9	SS-EU122-3350	32.1 E
Potassium	mg/Kg	1820	SS2B001-532	2740 N
			SS-EU121-3349	2280 E
			SS-EU122-3350	2620 E
Selenium	mg/Kg	0.37	SS204-004	1.7 B
			SS206-009	1.5 N
			SS215-019	0.7 BN
			SS2B001-532	1.38 B
			SS2B002-534	3.13 B
			SS-EU121-3349	1.89
			SS-EU122-3350	0.666 B
			SS-EU123-3351	0.989 B
Silver	mg/Kg	0.27	SS2B001-532	0.352 BN
			SS2B002-534	0.361 BN
Thallium	mg/Kg	--	SS204-004	0.39
			SS206-009	0.09 B
			SS215-019	0.09 B
			SS2B001-532	0.121 B
			SS2B002-534	0.18 B
			SS-EU121-3349	0.215
			SS-EU122-3350	0.114 B
			SS-EU123-3351	0.153

* Data qualifier included with concentration value

Table 4-30
Exposure Unit 12
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	34	SS-EU121-3349	45.8 N
			SS-EU122-3350	41 N
Zinc	mg/Kg	78	SS2B001-532	106
			SS2B002-534	80.9
			SS-EU121-3349	112
PAHs				
Anthracene	μg/Kg	--	SS204-004	43.5 J
Benzo(a)anthracene	μg/Kg	284	SS2B002-534	945 J
Benzo(a)pyrene	μg/Kg	313	SS2B002-534	1340 J
Benzo(b)fluoranthene	μg/Kg	396	SS2B002-534	3550
Benzo(g,h,i)perylene	μg/Kg	--	SS206-009	63.4 J
			SS2B002-534	1070 J
			SS-EU121-3349	18.9
Benzo(k)fluoranthene	μg/Kg	322	SS2B002-534	1250 J
Chrysene	μg/Kg	378	SS2B002-534	1790
Fluoranthene	μg/Kg	889	SS2B002-534	1120 J
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS2B001-532	965 J
			SS2B002-534	1600 J
Naphthalene	μg/Kg	--	SS204-004	1330
			SS2B002-534	2170
			SS-EU121-3349	3.03 JP
Phenanthrene	μg/Kg	538	SS204-004	988
			SS2B002-534	1050 J
PCBs				
Aroclor-1260	μg/Kg	--	SS-EU121-3349	4.8 J
			SS-EU122-3350	1.4 J
Pesticides				
4,4'-DDE	μg/Kg	--	SS-EU121-3349	1.46 J
			SS-EU122-3350	1.21 J
4,4'-DDT	μg/Kg	--	SS-EU121-3349	2.84
			SS-EU122-3350	2.28
Radionuclides				
Actinium-227	pCi/g	0.08	SS218-400	2.71
			SS219-401	2.72

* Data qualifier included with concentration value

Table 4-30
Exposure Unit 12
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SD719-341	19.6
			SS204-004	8.21
			SS205-008	38.9
			SS206-009	14.5
			SS215-019	19.2
			SS218-400	284
			SS219-401	99.2
			SS-EU121-3349	22.3
			SS-EU122-3350	10.2
			SS-EU123-3351	17.1 J
Beta	pCi/g	--	SD719-341	26.2
			SS204-004	18.1
			SS205-008	25.1
			SS206-009	26.3
			SS215-019	22
			SS218-400	153
			SS219-401	72
			SS-EU121-3349	27.6
			SS-EU122-3350	23.1
			SS-EU123-3351	25 J
Cesium-137	pCi/g	0.343	SS219-401	0.679
			SS2A008-2371	0.47
			SS2B002-534	0.438
			SS2D001-547	0.572
			SS2D002-548	0.508
			SS2D003-549	0.484
			SS2D004-550	0.542
			SS2D005-551	0.424
			SS2D012-2384	0.739

* Data qualifier included with concentration value

Table 4-30
Exposure Unit 12
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SD719-341	1.02
			SS205-008	7.87
			SS206-009	1.72
			SS215-019	1.41
			SS218-400	29.6
			SS219-401	24.1
			SS2A008-2371	8.65
			SS2B001-532	1.41
			SS2B002-534	3.43
			SS2C002-2380	1.65
			SS2D001-547	1.47
			SS2D002-548	1.59
			SS2D003-549	2.13
			SS2D005-551	1.77
			SS2D009-2381	0.994
			SS2D011-2383	1.37
			SS2D012-2384	10.7
			SS2D013-2385	5.92
			SS-EU121-3349	1.46
			SS-EU123-3351	1.39
Thorium-228	pCi/g	1.64	SS219-401	1.96
			SS-EU123-3351	2.08 J
Thorium-230	pCi/g	1.6	SD719-341	2.08 J
			SS204-004	2.17
			SS205-008	3.47
			SS206-009	1.65
			SS218-400	69.6
			SS219-401	39.2
			SS2A008-2371	14
			SS2B002-534	2.54
			SS2C002-2380	2.32
			SS2D001-547	2.75
			SS2D002-548	2.97
			SS2D003-549	3.26
			SS2D005-551	2.39
			SS2D009-2381	1.73
			SS2D011-2383	2.29
			SS2D012-2384	4.2
			SS2D013-2385	3.36
			SS-EU121-3349	2.51
			SS-EU122-3350	1.72
			SS-EU123-3351	2.59 J

* Data qualifier included with concentration value

Table 4-30
Exposure Unit 12
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/g	1.24	SS2D003-549	1.46
			SS2D005-551	1.39
			SS2D011-2383	1.33
			SS-EU123-3351	1.3 J
Total Uranium	μg/g	3.94	SD719-341	4.13 J
			SS218-400	49.4
			SS219-401	20.9
			SS2D009-2381	5.57
			SS2D011-2383	7.71
			SS-EU121-3349	15.4
Uranium-234	pCi/g	1.68	SD719-341	1.75
			SS218-400	12.1
			SS219-401	7.71
			SS2A008-2371	1.77
			SS2B002-534	1.81
			SS2D009-2381	2.23
			SS2D011-2383	3.08
			SS-EU121-3349	6
			SS-EU123-3351	1.96 J
			Uranium-235	pCi/g
SS2D011-2383	0.179			
SS2D013-2385	0.269			
SS-EU121-3349	0.251			
Uranium-238	pCi/g	1.36	SD719-341	1.49
			SS218-400	12.1
			SS219-401	7.51
			SS2A008-2371	1.64
			SS2B002-534	1.78
			SS2D009-2381	2.5
			SS2D011-2383	3.05
			SS-EU121-3349	5.66
			SS-EU123-3351	1.52 J
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS204-004	2050
			SS2B002-534	2950
Benzoic Acid	μg/Kg	--	SS204-004	602 J
Dibenzofuran	μg/Kg	--	SS204-004	612
Volatile Organics				
2-Butanone	μg/Kg	--	SS215-019	5.4 J
Acetone	μg/Kg	--	SS215-019	6.7
Methylene chloride	μg/Kg	--	SS205-008	18.2
			SS206-009	18.5

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SS208-011	2.2 N
			SS-EU133-3354	1.3 N
Boron	mg/Kg	10.1	SS208-011	33.2
			SS213-017	15.4 N
			SS-EU131-3352	10.5 N
			SS-EU132-3353	21.4
			SS-EU133-3354	10.2
			SS-MW229-3617	57.6
			TS203-2808-020	14.5
Cadmium	mg/Kg	0.53	SS208-011	2
			SS-EU132-3353	0.869
			TS203-2808-020	2.04 E
Calcium	mg/Kg	45200	SS208-011	124000
			SS-EU132-3353	74000 *
Chromium	mg/Kg	24.3	SS208-011	63.5
			SS217-021	29.4 *
			SS-EU132-3353	69.1
			TS203-2808-020	26.8
Copper	mg/Kg	34.7	SS207-010	47.9
			SS208-011	1050
			SS213-017	35.4
			SS-EU131-3352	40.6
			SS-EU132-3353	84.1
			TS203-2808-020	76 N
Lead	mg/Kg	55.2	SS208-011	142
			SS217-021	58.8 *
			SS-EU132-3353	88.7
			TS203-2808-020	96.1 *E
Magnesium	mg/Kg	10200	SS208-011	43700
			SS-EU132-3353	36800
Mercury	mg/Kg	0.27	SS208-011	0.4
Nickel	mg/Kg	37.5	SS208-011	348
Potassium	mg/Kg	1820	SS208-011	6510
			SS213-017	2660 E
			SS-EU131-3352	3040 E
			SS-EU132-3353	2070 N
			SS-EU133-3354	2170 N
			SS-MW229-3617	2470 E
			TS203-2808-020	2660 E

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS207-010	1.1 B
			SS208-011	0.65 B
			SS209-012	1
			SS213-017	0.91 BN
			SS217-021	1.1
			SS-EU131-3352	0.497 B
			SS-EU132-3353	0.869 B
			SS-EU133-3354	0.542 B
			SS-MW229-3617	1.13 N
			TS203-2808-020	0.88 B
Sodium	mg/Kg	286	SS208-011	1660
Thallium	mg/Kg	--	SS207-010	0.12 B
			SS208-011	0.16
			SS209-012	0.1 B
			SS213-017	0.17
			SS217-021	0.14
			SS-EU131-3352	0.114 B
			SS-EU132-3353	0.145
			SS-EU133-3354	0.099 B
			SS-MW229-3617	0.136
			TS203-2808-020	0.189 E
Vanadium	mg/Kg	34	SS208-011	40.5
			TS203-2808-020	34.9 N
Zinc	mg/Kg	78	SS207-010	87.8
			SS208-011	495
			SS217-021	270
			SS-EU131-3352	98
			SS-EU132-3353	215
			TS203-2808-020	2450
Nitroaromatics				
2,4-Dinitrotoluene	µg/Kg	--	SS208-011	108
PAHs				
Acenaphthene	µg/Kg	--	SS201-001	40.7 J
Anthracene	µg/Kg	--	SS201-001	60.4 J
			SS203-003	55.6 J
			TS203-2808-020	22.6 J
Benzo(a)anthracene	µg/Kg	284	SS201-001	323 J
Benzo(a)pyrene	µg/Kg	313	SS201-001	383 J
Benzo(b)fluoranthene	µg/Kg	396	SS201-001	446
Benzo(g,h,i)perylene	µg/Kg	--	SS201-001	215 J
			SS203-003	191 J
			SS208-011	40.4 J
			SS-EU131-3352	11.8

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chrysene	μg/Kg	378	SS201-001	440
Fluoranthene	μg/Kg	889	SS201-001	892
Fluorene	μg/Kg	--	SS201-001	35.6 J
Indeno(1,2,3-cd)pyrene	μg/Kg	--	SS201-001	182 J
			SS203-003	188 J
			SS208-011	30.6 J
Naphthalene	μg/Kg	--	SS201-001	343 J
			SS203-003	483
			SS208-011	23.2 J
			SS-EU131-3352	11.2 J
Phenanthrene	μg/Kg	538	SS201-001	642
Pyrene	μg/Kg	716	SS201-001	925
PCBs				
Aroclor-1254	μg/Kg	--	SS208-011	208
			SS217-021	77.7
Aroclor-1260	μg/Kg	--	SS216-020	14.9
			SS217-021	84.5 P
Pesticides				
4,4'-DDE	μg/Kg	--	SS-MW229-3617	0.43 J
4,4'-DDT	μg/Kg	--	SS-MW229-3617	2.14
Radionuclides				
Actinium-227	pCi/g	0.08	SS220-402	1.95
			SS221-403	9.3
Alpha	pCi/g	--	SS201-001	29.8
			SS203-003	121
			SS207-010	16.9
			SS208-011	19.1
			SS209-012	16.1
			SS210-014	14.9
			SS211-015	34.1
			SS212-016	19.6
			SS213-017	16
			SS214-018	21.7
			SS216-020	22.8
			SS217-021	13.4
			SS220-402	60.3
			SS221-403	3030
			SS-MW229-3617	10.9

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS201-001	29.5
			SS203-003	70.1
			SS207-010	27.7
			SS208-011	23.5
			SS209-012	21.4
			SS210-014	21.5
			SS211-015	30.6
			SS212-016	32.9
			SS213-017	25.1
			SS214-018	23.1
			SS216-020	32
			SS217-021	21.5
			SS220-402	50.4
			SS221-403	1180
			SS-MW229-3617	19.9
Radium-226	pCi/g	0.921	SS201-001	1.66
			SS203-003	1140
			SS207-010	1.53
			SS209-012	1.42
			SS210-014	1.66
			SS211-015	3.92
			SS212-016	1.71
			SS213-017	1.36
			SS214-018	1.06
			SS216-020	1.52
			SS217-021	1.45
			SS220-402	33.4
			SS221-403	127
			SS2B004-536	1.47
			SS2B006-539	0.997
			SS2B007-540	1.56
			SS-MW229-3617	0.933
			TS203-2808-020	1.64

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS201-001	3.48
			SS203-003	6.48
			SS207-010	2.32
			SS208-011	1.79
			SS209-012	2.01
			SS210-014	2.01
			SS211-015	7.39
			SS212-016	2.88
			SS213-017	1.69
			SS216-020	3.13
			SS217-021	2.17
			SS220-402	8.24
			SS221-403	978
			SS2B007-540	2.81
			SS-MW229-3617	1.61
			TS203-2808-020	3.68
Thorium-232	pCi/g	1.24	SS221-403	2.07
Total Uranium	μg/g	3.94	SS203-003	5.06
			SS207-010	3.96
			SS220-402	21.1
			SS221-403	44.8
			SS2B004-536	9.69
			SS2B006-539	6.21
			SS2B007-540	4.44
Uranium-234	pCi/g	1.68	SS220-402	8.43
			SS221-403	29.7
			SS2B004-536	2.08
			SS2B006-539	2.02
			SS2B007-540	2.41
Uranium-235	pCi/g	0.0847	SS208-011	0.17 J
			SS220-402	0.452
			SS221-403	1.2
Uranium-238	pCi/g	1.36	SS201-001	1.37
			SS203-003	1.8
			SS207-010	2.15
			SS220-402	6.8
			SS221-403	26.2
			SS2B004-536	2.25
			SS2B006-539	2.26
			SS2B007-540	1.61
Semivolatile Organics				

* Data qualifier included with concentration value

Table 4-31
Exposure Unit 13
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
2-Methylnaphthalene	$\mu\text{g/Kg}$	--	SS201-001	490
			SS203-003	819
			SS208-011	29 J
			SS216-020	25.4 J
Volatile Organics				
Acetone	$\mu\text{g/Kg}$	--	TS203-2808-020	9.8
Methylene chloride	$\mu\text{g/Kg}$	--	SS208-011	6.2
			SS210-014	15.2
			TS203-2808-020	1.3 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	SS216-020	2.7
			TS203-2808-020	14.3
Toluene	$\mu\text{g/Kg}$	--	SS201-001	3.7
			TS203-2808-020	0.39 J
Trichloroethene	$\mu\text{g/Kg}$	--	SS201-001	1 J

* Data qualifier included with concentration value

Table 4-32
Exposure Unit 14
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS816-703	147000
Antimony	mg/Kg	0.94	SS-EU143-3357	1.38 N
Barium	mg/Kg	279	SS816-703	2210
Beryllium	mg/Kg	1	SS816-703	28
Boron	mg/Kg	10.1	SS202-002	283
			SS2B003-535	24.2
			SS816-703	361
Cadmium	mg/Kg	0.53	SS804-073	0.58 B
			SS816-703	0.588 B
Calcium	mg/Kg	45200	SS202-002	45300 E
			SS816-703	240000
Chromium	mg/Kg	24.3	SS816-703	37.9
Copper	mg/Kg	34.7	SS2B003-535	45.6
			SS804-073	35.1 *N
			SS816-703	58.3
			SS-EU142-3356	47.2
Lead	mg/Kg	55.2	SS2B003-535	67.8
Lithium	mg/Kg	27.9	SS816-703	31.2
Magnesium	mg/Kg	10200	SS202-002	11100
			SS816-703	232000
Potassium	mg/Kg	1820	SS202-002	2130
			SS816-703	12200
			SS-EU143-3357	1980 N
Selenium	mg/Kg	0.37	SS202-002	0.64 B
			SS2B003-535	1.44 B
			SS803-072	1.3
			SS804-073	1.3
			SS816-703	5.25
			SS-EU141-3355	0.744 B
			SS-EU142-3356	0.934 B
			SS-EU143-3357	0.791 B
Silver	mg/Kg	0.27	SS2B003-535	0.404 BN
Sodium	mg/Kg	286	SS202-002	678
			SS816-703	4690
Thallium	mg/Kg	--	SS202-002	0.11 B
			SS2B003-535	0.262 B
			SS803-072	0.12 B
			SS804-073	0.15
			SS816-703	0.032 B
			SS-EU141-3355	0.11
			SS-EU142-3356	0.123
			SS-EU143-3357	0.133

* Data qualifier included with concentration value

Table 4-32
Exposure Unit 14
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	mg/Kg	78	SS816-703	403
PAHs				
Naphthalene	µg/Kg	--	SS2B003-535	1410 J
Radionuclides				
Actinium-227	pCi/g	0.08	SS816-703	5.11
			SS8B001-2430	1 J
Alpha	pCi/g	--	SS202-002	14.1
			SS803-072	9.8
			SS804-073	22.1
			SS-EU141-3355	12.8
Beta	pCi/g	--	SS202-002	23.8
			SS803-072	20.1
			SS804-073	25.8
			SS-EU141-3355	20.4
Cesium-137	pCi/g	0.343	SS2B003-535	0.542
			SS2D006-552	0.646
			SS2D008-554	0.433
			SS817-704	1.27
			SS818-705	0.469
			SS8B003-2433	0.357
			SS8B006-2436	0.452

* Data qualifier included with concentration value

Table 4-32
Exposure Unit 14
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS202-002	0.988
			SS2B003-535	1.81
			SS2B005-537	1.02
			SS2B008-541	1.47
			SS2B009-542	1.08
			SS2B014-2374	126
			SS2B016-2377	1.08
			SS2B018-2379	0.922
			SS2D006-552	1.57
			SS2D007-553	1.83
			SS2D008-554	1.46
			SS2D010-2382	1.1
			SS803-072	0.957
			SS815-702	3.07
			SS816-703	299
			SS817-704	2.72
			SS818-705	1.66
			SS8B001-2430	16.8 J
			SS8B002-2431	1.03
			SS8B003-2433	1.21
			SS8B004-2434	1.09
			SS8B005-2435	1.08
			SS8B006-2436	1.33
			SS8B007-2437	1.15
			SS-EU141-3355	1.06
Thorium-230	pCi/g	1.6	SS2B003-535	3.94
			SS2B008-541	2.76
			SS2B009-542	1.99
			SS2B014-2374	4.3
			SS2D006-552	1.91
			SS2D007-553	1.64
			SS2D008-554	2.84
			SS815-702	4.47
			SS816-703	3.39
			SS818-705	1.8
			SS8B001-2430	4.11 J
			SS8B005-2435	1.78
			SS8B006-2436	2.71
			SS8B007-2437	2.01

* Data qualifier included with concentration value

Table 4-32
Exposure Unit 14
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SS202-002	6.34
			SS2B003-535	9.59
			SS2B008-541	5.62
			SS2B014-2374	9.96
			SS2B016-2377	4.01
			SS2D010-2382	4.6
			SS804-073	4.41 J
			SS815-702	9.23
			SS816-703	8.94
			SS817-704	4.79
			SS818-705	5.52
			SS8B005-2435	4.07
			SS8B007-2437	9.69
			SS-EU141-3355	5.73
Uranium-234	pCi/g	1.68	SS202-002	1.93
			SS2B003-535	4.44
			SS2B010-543	1.9
			SS2B014-2374	3.68
			SS2D006-552	1.76
			SS804-073	2.11
			SS815-702	3.71
			SS816-703	2.28
			SS817-704	2.07
			SS818-705	2.63
			SS8B007-2437	4.02
			SS-EU141-3355	2.38
Uranium-235	pCi/g	0.0847	SS202-002	0.14 J
			SS2B014-2374	0.321
			SS815-702	0.243
			SS817-704	0.132
			SS8B001-2430	0.107 J
			SS8B007-2437	0.234
			SS-EU141-3355	0.224

* Data qualifier included with concentration value

Table 4-32
Exposure Unit 14
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS202-002	1.91
			SS2B003-535	2.23
			SS2B008-541	1.42
			SS2B014-2374	3.82
			SS2B016-2377	1.52
			SS804-073	1.79
			SS815-702	3.13
			SS816-703	2.78
			SS817-704	1.77
			SS818-705	1.84
			SS8B007-2437	3.7
			SS-EU141-3355	1.75
Semivolatile Organics				
2-Methylnaphthalene	µg/Kg	--	SS2B003-535	2080
Di-n-octylphthalate	µg/Kg	--	SS2B008-541	506

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SD701-293	20600
			SD725-353	20600
			SS402-039	40100
			SS418-055	21800
			SS4A012-611	24400
			SS816-703	147000
			SS903-2083	24300
			SS-DRUM01-3369	38400 *
			SS-DRUM05-3381	20100 J
			SS-EU051-3334	32400 E*
			SS-EU111-3346	19800
			SS-EU112-3347	22900
			SS-EU121-3349	23200
			SS-EU122-3350	19900
			SS-MW424-3620	18600
			SS-MW863-3605	18700 J
			SS-TWP844-3542	20600
			SS-TWP845-3545	19900
			SS-TWP847-3551	21100
			SS-TWP848-3554	22700
			SS-TWP849-3557	19700
			SS-TWP851-3563	21900 *
			SS-TWP852-3566	19500
			SS-TWP854-3572	19900
			SS-TWP855-3575	18500
			SS-TWP856-3578	18800
			SS-TWP857-3581	18500
			TS203-2808-020	18800

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Antimony	mg/Kg	0.94	SS208-011	2.2 N
			SS-DRUM01-3369	1.83 N
			SS-DRUM02-3372	3.57 N
			SS-DRUM04-3378	1.54 N
			SS-DRUM05-3381	2 J
			SS-EU021-3328	1.15 N
			SS-EU022-3329	1.13 BN
			SS-EU071-3337	1.1 BN
			SS-EU133-3354	1.3 N
			SS-EU143-3357	1.38 N
			SS-MW861-3599	0.951 BN
			SS-MW862-3602	2.59 BN*
			SS-MW863-3605	3.92 J
			SS-TWP834-3512	1.34 N
			SS-TWP837-3521	1.52 BN
			SS-TWP839-3527	1.01 BN
			SS-TWP844-3542	2.09 BN*
			SS-TWP845-3545	1.79 BN*
			SS-TWP846-3548	1.08 BN*
			SS-TWP848-3554	2.3 BN
			SS-TWP849-3557	1.81 BN
			SS-TWP850-3560	2.35 BN
			SS-TWP851-3563	1.39 BN
			SS-TWP857-3581	1.87 BN
Arsenic	mg/Kg	11.3	SD732-370	11.7
			SS204-004	22.5
			SS2B002-534	51.8 N
			SS-DRUM02-3372	17.2 N
			SS-DRUM04-3378	13.8 N
Barium	mg/Kg	279	SS402-039	481
			SS816-703	2210
			SS-DRUM04-3378	2670 N*
			SS-EU051-3334	441 *
			SS-EU121-3349	301 N*

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	mg/Kg	1	SD701-293	1.1
			SD704-302	1.8 E
			SD725-353	1.1 B
			SS2B001-532	1.03
			SS2B002-534	1.79
			SS308-032	1.6
			SS402-039	5.2
			SS4A012-611	2.38
			SS816-703	28
			SS903-2083	1.15
			SS-DRUM01-3369	3.42
			SS-EU051-3334	7.7 E*
			SS-EU112-3347	1.2
			SS-EU121-3349	1.49
			SS-EU122-3350	1.1
			SS-TWP848-3554	1.24 B
			SS-TWP852-3566	1.04 B

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SD704-302	20 *
			SD713-324	10.5 *
			SD725-353	16
			SS202-002	283
			SS204-004	21
			SS208-011	33.2
			SS213-017	15.4 N
			SS215-019	27.7 *
			SS2B001-532	23.6
			SS2B002-534	37.6
			SS2B003-535	24.2
			SS311-035	10.8
			SS402-039	147
			SS410-047	15.5
			SS415-052	10.5
			SS418-055	97.1
			SS419-056	17.1 *
			SS4A012-611	10.2
			SS504-692	10.9
			SS816-703	361
			SS904-2087	14.9
			SS905-2089	10.9
			SS906-2091	11.2
			SS907-2093	10.2
			SS908-2095	12.1
			SS909-2097	10.4 *
			SS910-2099	12.6 *
			SS-DRUM01-3369	85.8
			SS-DRUM02-3372	280
			SS-DRUM04-3378	12
			SS-DRUM05-3381	313 J
			SS-DRUM06-3395	23.4 N
			SS-DRUM07-3398	23.5 N
			SS-EU051-3334	88.2 E*N
			SS-EU081-3339	16.5 E*N
			SS-EU101-3343	11.7 N
			SS-EU102-3344	12.5 N
			SS-EU112-3347	12.4 N
			SS-EU113-3348	14.8
			SS-EU121-3349	12.8 N
			SS-EU131-3352	10.5 N
			SS-EU132-3353	21.4
			SS-EU133-3354	10.2
			SS-MW229-3617	57.6

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SS-MW313-3590	14.4 N
			SS-MW422-3608	11.8 N
			SS-MW423-3611	12.6 N
			SS-TWP831-3503	12.1 B
			SS-TWP832-3506	11.4 N*
			SS-TWP833-3509	12.8
			SS-TWP834-3512	12.9
			SS-TWP838-3524	12.1 B
			SS-TWP840-3530	10.5
			SS-TWP841-3533	10.2 N
			SS-TWP842-3536	12.3
			SS-TWP847-3551	10.3 BN
			SS-TWP848-3554	12.8 B
			SS-TWP850-3560	11.3 B
			SS-TWP852-3566	14.4 B
			SS-TWP854-3572	13.6 B
			SS-TWP855-3575	11.8 B
			SS-TWP858-3584	13.6
			SS-TWP859-3587	12.8
			TS203-2808-020	14.5

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SD704-302	0.95
			SD712-319	0.68
			SD713-324	1.1
			SD723-349	1.2
			SD731-368	0.73
			SD732-370	0.86
			SD733-373	0.69 B
			SS208-011	2
			SS215-019	0.7
			SS304-028	0.87
			SS306-030	0.68
			SS308-032	0.56 B
			SS311-035	0.65 B
			SS414-051	0.58 B
			SS416-053	0.61
			SS419-056	0.67
			SS421-058	0.91
			SS4A012-611	0.964
			SS4C001-618	0.534 B
			SS605-697	0.751
			SS804-073	0.58 B
			SS816-703	0.588 B
			SS825-713	0.744
			SS-DRUM02-3372	0.624 B
			SS-DRUM05-3381	0.559 J
			SS-EU121-3349	1.29
			SS-EU132-3353	0.869
			SS-MW863-3605	0.623 J
			TS203-2808-020	2.04 E

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Calcium	mg/Kg	45200	SD702-295	54300
			SD704-302	50000 E*
			SD732-370	47200 E*
			SS202-002	45300 E
			SS208-011	124000
			SS308-032	99000
			SS309-033	50600
			SS311-035	90600
			SS402-039	238000 *
			SS406-043	51500
			SS411-048	46900
			SS412-049	93600 E
			SS4A012-611	88100
			SS4D007-621	57800
			SS816-703	240000
			SS819-706	53400 *E
			SS910-2099	62100 *
			SS-DRUM01-3369	47800 *
			SS-DRUM02-3372	47800 *
			SS-EU051-3334	179000 *
			SS-EU113-3348	51700 *
			SS-EU132-3353	74000 *
			SS-MW313-3590	70600 *
			SS-TWP830-3500	104000 *
			SS-TWP831-3503	46000
			SS-TWP834-3512	47200
			SS-TWP836-3518	48200
			SS-TWP838-3524	46500
			SS-TWP843-3539	64500
			SS-TWP852-3566	45500
			SS-TWP853-3569	110000
			SS-TWP854-3572	47200
			SS-TWP855-3575	46300
			SS-TWP858-3584	49700
			SS-TWP859-3587	86900

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	mg/Kg	24.3	SD701-293	26.8
			SD713-324	25.4
			SD723-349	26.6 E
			SD725-353	42.4
			SS208-011	63.5
			SS217-021	29.4 *
			SS401-037	26.1
			SS407-044	36.8 E
			SS417-054	196
			SS418-055	26.7 *
			SS4A012-611	67
			SS816-703	37.9
			SS903-2083	28.9
			SS-DRUM01-3369	29.4 *
			SS-DRUM02-3372	37.9 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM05-3381	49.4 J
			SS-EU021-3328	30.9 *
			SS-EU051-3334	30.1 *N
			SS-EU112-3347	28.7
			SS-EU121-3349	28.1
			SS-EU122-3350	27.6
			SS-EU132-3353	69.1
			SS-MW861-3599	25.4
			SS-MW863-3605	24.9 J
			SS-TWP833-3509	25.1
			SS-TWP847-3551	30.4
			SS-TWP848-3554	62.1
			SS-TWP849-3557	26.5
			SS-TWP851-3563	26.4
			SS-TWP852-3566	27.9
			SS-TWP854-3572	26.8
			SS-TWP855-3575	25.2
			TS203-2808-020	26.8

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	mg/Kg	34.7	C5-VS-SO-B300-1	37.5
			SD701-293	37
			SD711-317	35.8 *N
			SD712-319	36.9
			SD723-349	38.9 E
			SD725-353	59.2
			SD732-370	35.6
			SS206-009	48.4
			SS207-010	47.9
			SS208-011	1050
			SS213-017	35.4
			SS2B003-535	45.6
			SS302-026	36.3
			SS303-027	36.2
			SS308-032	52.3
			SS309-033	36.6
			SS403-040	40.4
			SS404-041	55 N
			SS407-044	40.5 N
			SS408-045	37.5
			SS410-047	51
			SS412-049	37.9
			SS413-050	75.4
			SS415-052	35.4
			SS418-055	50.1
			SS4A012-611	57.6
			SS4B003-614	36.7
			SS4D005-619	46.2 *
			SS4D007-621	50.3
			SS4D008-623	35.4
			SS502-060	36.5
			SS504-692	41.7 E*
			SS505-694	36.2 *N
			SS605-697	35.3
			SS804-073	35.1 *N
			SS813-700	54 E*
			SS816-703	58.3
			SS903-2083	34.8
			SS-DRUM01-3369	35.2 *N
			SS-DRUM02-3372	159 *N
			SS-DRUM04-3378	76.2 *N
			SS-DRUM05-3381	590 J
			SS-DRUM06-3395	270
			SS-EU034-3333	35.3 *

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	mg/Kg	34.7	SS-EU051-3334	58.1 E*N
			SS-EU103-3345	40
			SS-EU112-3347	41.5
			SS-EU121-3349	99.8
			SS-EU122-3350	35.6
			SS-EU131-3352	40.6
			SS-EU132-3353	84.1
			SS-EU142-3356	47.2
			SS-MW313-3590	129 *
			SS-MW314-3593	36.8 *
			SS-MW422-3608	41 *
			SS-MW862-3602	35.6
			SS-TWP847-3551	35.9
			SS-TWP849-3557	48.2 *N
			TS203-2808-020	76 N
Iron	mg/Kg	36400	SD701-293	38800
			SD725-353	37300
			SS2B002-534	39000
			SS403-040	39500
			SS-DRUM02-3372	105000 *
			SS-DRUM04-3378	50400 *
			SS-DRUM05-3381	154000 J
Lead	mg/Kg	55.2	SS208-011	142
			SS217-021	58.8 *
			SS2B003-535	67.8
			SS308-032	99.8 N
			SS311-035	72 *
			SS403-040	588
			SS409-046	70.2
			SS413-050	686
			SS4A010-608	96.6
			SS4A012-611	67.8
			SS4C001-618	140
			SS-DRUM02-3372	391 *
			SS-DRUM04-3378	149 *
			SS-DRUM07-3398	64.8
			SS-EU132-3353	88.7
			TS203-2808-020	96.1 *E

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lithium	mg/Kg	27.9	C5-VS-SO-B300-1	30.7
			SD702-295	28.7
			SD712-319	32.9 E
			SD725-353	40.5
			SD732-370	28.6 E
			SS402-039	36
			SS418-055	29.9
			SS808-077	103
			SS816-703	31.2
			SS903-2083	28.9
			SS907-2093	28.1 N
			SS-DRUM01-3369	32.2 N*
			SS-EU051-3334	37.2
			SS-EU111-3346	31.1
			SS-EU112-3347	33.3 E
			SS-EU122-3350	32.1 E
			SS-MW314-3593	29.5
			SS-MW422-3608	28.2
			SS-MW424-3620	29.3 E
			SS-TWP831-3503	29.5 N
			SS-TWP833-3509	31.6
			SS-TWP841-3533	30.8
			SS-TWP844-3542	29.8 E
			SS-TWP845-3545	35.8 E
			SS-TWP847-3551	30.1 E
			SS-TWP848-3554	38.9 E
			SS-TWP849-3557	29 E
			SS-TWP851-3563	31.6 E
			SS-TWP852-3566	34.4 E
			SS-TWP853-3569	30.2 E
			SS-TWP856-3578	30.6 N
			SS-TWP857-3581	33.4 N
			SS-TWP858-3584	28.2
			TS203-2808-020	29

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Magnesium	mg/Kg	10200	SD702-295	22100
			SD713-324	12900 *
			SD725-353	14400
			SS202-002	11100
			SS208-011	43700
			SS303-027	11000
			SS304-028	11800 *
			SS308-032	49300
			SS309-033	12900
			SS311-035	54400
			SS402-039	11800
			SS406-043	29500
			SS408-045	10500
			SS411-048	10700
			SS412-049	17900
			SS418-055	14200
			SS421-058	11800 *
			SS4A012-611	44400
			SS816-703	232000
			SS910-2099	25900 *
			SS-EU051-3334	12200 *
			SS-EU072-3338	15400 *
			SS-EU093-3342	11000 *
			SS-EU102-3344	14000
			SS-EU113-3348	10400
			SS-EU132-3353	36800
			SS-MW313-3590	38200 *
			SS-MW424-3620	10300 *
			SS-TWP830-3500	56300 *
			SS-TWP831-3503	11300
			SS-TWP832-3506	13900 *
			SS-TWP834-3512	15100
			SS-TWP836-3518	22800
			SS-TWP838-3524	11700
			SS-TWP849-3557	13600 *
			SS-TWP850-3560	11400
			SS-TWP852-3566	12600
			SS-TWP853-3569	46700
			SS-TWP854-3572	16700
			SS-TWP855-3575	11300
			SS-TWP858-3584	11300
			SS-TWP859-3587	45800

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Mercury	mg/Kg	0.27	SD704-302	1.1
			SD712-319	0.55
			SD713-324	1.1
			SD732-370	0.35
			SS208-011	0.4
			SS404-041	1.5 N
Nickel	mg/Kg	37.5	C5-VS-SO-B300-1	46
			SD725-353	42.5
			SS208-011	348
			SS404-041	46.8 *E
			SS-DRUM01-3369	43.5 *
			SS-DRUM02-3372	76.1 *
			SS-DRUM05-3381	65.1

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	1820	SD701-293	2200 E
			SD713-324	2710 E
			SD725-353	3190
			SD732-370	1910 E
			SS202-002	2130
			SS208-011	6510
			SS213-017	2660 E
			SS2B001-532	2740 N
			SS303-027	2350
			SS304-028	2330 E
			SS309-033	3060 E
			SS418-055	5850
			SS421-058	2130 E
			SS816-703	12200
			SS903-2083	2790 N
			SS904-2087	3350 N
			SS905-2089	2320 N
			SS906-2091	2730 N
			SS907-2093	2550 N
			SS908-2095	2920 N
			SS909-2097	2590 *
			SS910-2099	2710 *
			SS-DRUM01-3369	9150 N
			SS-DRUM02-3372	2860 N
			SS-DRUM04-3378	2030 N
			SS-DRUM05-3381	6330 J
			SS-DRUM06-3395	2270 E
			SS-EU011-3327	2350 N
			SS-EU022-3329	1910 N
			SS-EU031-3330	2180 E*
			SS-EU032-3331	2490 N
			SS-EU033-3332	2290 E*
			SS-EU034-3333	2400 E*
			SS-EU051-3334	4050 *
			SS-EU081-3339	2430 *
			SS-EU092-3341	2310 *
			SS-EU093-3342	2470 *
			SS-EU101-3343	2940 E
			SS-EU102-3344	3120 E
			SS-EU103-3345	2440 E
			SS-EU111-3346	2590
			SS-EU112-3347	2660 E
			SS-EU113-3348	3010 N
			SS-EU121-3349	2280 E

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	1820	SS-EU122-3350	2620 E
			SS-EU131-3352	3040 E
			SS-EU132-3353	2070 N
			SS-EU133-3354	2170 N
			SS-EU143-3357	1980 N
			SS-MW229-3617	2470 E
			SS-MW313-3590	1930 *
			SS-MW314-3593	1830 *
			SS-MW422-3608	2460 *
			SS-MW423-3611	2460 *
			SS-MW424-3620	2670
			SS-MW861-3599	2050
			SS-MW862-3602	2530
			SS-MW863-3605	2180 J
			SS-TWP831-3503	2980
			SS-TWP832-3506	3500 *
			SS-TWP833-3509	3180
			SS-TWP834-3512	3210
			SS-TWP836-3518	1840 *
			SS-TWP837-3521	2490 *
			SS-TWP838-3524	2880
			SS-TWP840-3530	2470 E
			SS-TWP841-3533	2410 *
			SS-TWP842-3536	2700 E
			SS-TWP843-3539	2240 E
			SS-TWP844-3542	1980
			SS-TWP845-3545	2340
			SS-TWP846-3548	2120
			SS-TWP847-3551	2640
			SS-TWP848-3554	2880
			SS-TWP849-3557	2690
			SS-TWP850-3560	3160 *
			SS-TWP851-3563	2750 *
			SS-TWP852-3566	2890
			SS-TWP854-3572	3190
			SS-TWP855-3575	2660
			SS-TWP856-3578	2230
			SS-TWP857-3581	2360
			SS-TWP858-3584	3570
			SS-TWP859-3587	2800
			TS203-2808-020	2660 E

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SD701-293	0.76 BN
			SD702-295	1.2 B
			SD703-297	1.1
			SD704-302	0.99 BN
			SD711-317	1.1
			SD712-319	1.7 N
			SD713-324	0.91 BN
			SD714-326	0.84 BN
			SD723-349	1.3 B
			SD724-351	1.4 B
			SD725-353	1.8 B
			SD732-370	2.2 N
			SD733-373	1.7 N
			SS102-685	0.99 B
			SS103-686	0.834 B
			SS202-002	0.64 B
			SS204-004	1.7 B
			SS206-009	1.5 N
			SS207-010	1.1 B
			SS208-011	0.65 B
			SS209-012	1
			SS213-017	0.91 BN
			SS215-019	0.7 BN
			SS217-021	1.1
			SS2B001-532	1.38 B
			SS2B002-534	3.13 B
			SS2B003-535	1.44 B
			SS302-026	1.1
			SS303-027	0.85 B
			SS304-028	1 BN
			SS306-030	0.52 B
			SS308-032	1.1 N
			SS309-033	0.81 BN
			SS310-034	0.99
			SS311-035	1.6
			SS402-039	5.4 B
			SS403-040	0.87 B
			SS404-041	1.5
			SS405-042	1
			SS406-043	0.69 BN
			SS407-044	1.3
			SS408-045	1.2
			SS409-046	0.73 B
			SS410-047	1

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS411-048	1.3
			SS412-049	0.53 B
			SS413-050	1.1
			SS415-052	0.97 B
			SS416-053	0.65 B
			SS417-054	1.2
			SS418-055	0.99 B
			SS419-056	0.73 BN
			SS421-058	0.62 BN
			SS423-689	0.944 B
			SS4A008-606	1.16 B
			SS4A010-608	1.06 B
			SS4A012-611	2.28
			SS4B003-614	0.983 B
			SS4B005-616	0.981 B
			SS4C001-618	0.581 B
			SS4D005-619	1.08 B
			SS4D007-621	1.34
			SS4D008-623	1.14 B
			SS501-059	1.1
			SS503-064	1.3
			SS504-692	1.05 B
			SS505-694	1.47 B
			SS601-065	0.56 B
			SS604-069	2.3 B
			SS605-697	0.701 B
			SS607-699	0.79 B
			SS801-070	0.49 B
			SS802-071	0.67 B
			SS803-072	1.3
			SS804-073	1.3
			SS805-074	1.8 B
			SS806-075	1.3 B
			SS808-077	5.8 B
			SS810-079	0.84 B
			SS813-700	0.902 B
			SS816-703	5.25
			SS819-706	0.845 B
			SS822-710	0.685 B
			SS825-713	0.558 B
			SS901-2079	0.515 BN
			SS902-2081	0.468 BN
			SS903-2083	1.12
			SS905-2089	1.76

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS906-2091	1.01
			SS907-2093	0.534 BN
			SS908-2095	1.21
			SS909-2097	0.454 B
			SS910-2099	0.591 B
			SS-DRUM01-3369	1.61
			SS-DRUM02-3372	0.65 B
			SS-DRUM04-3378	0.626 B
			SS-DRUM05-3381	1.22
			SS-DRUM06-3395	0.71 B
			SS-DRUM07-3398	0.954 B
			SS-EU011-3327	0.725 B
			SS-EU021-3328	0.794 B
			SS-EU022-3329	0.995 B
			SS-EU031-3330	0.409 B
			SS-EU032-3331	0.577 B
			SS-EU051-3334	2.35
			SS-EU061-3335	0.83 B
			SS-EU062-3336	0.767 B
			SS-EU071-3337	0.58 B
			SS-EU072-3338	0.594 B
			SS-EU081-3339	0.378 B
			SS-EU092-3341	0.572 B
			SS-EU093-3342	0.56 B
			SS-EU103-3345	0.551 B
			SS-EU111-3346	0.509 B
			SS-EU112-3347	0.857 B
			SS-EU113-3348	0.643 B
			SS-EU121-3349	1.89
			SS-EU122-3350	0.666 B
			SS-EU123-3351	0.989 B
			SS-EU131-3352	0.497 B
			SS-EU132-3353	0.869 B
			SS-EU133-3354	0.542 B
			SS-EU141-3355	0.744 B
			SS-EU142-3356	0.934 B
			SS-EU143-3357	0.791 B
			SS-MW229-3617	1.13 N
			SS-MW313-3590	0.545 B
			SS-MW314-3593	0.702 B
			SS-MW422-3608	0.82 B
			SS-MW423-3611	0.456 B
			SS-MW424-3620	1.99 N
			SS-MW861-3599	2.16 N

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS-MW862-3602	2.02
			SS-MW863-3605	2.58 J
			SS-TWP831-3503	0.375 B
			SS-TWP833-3509	0.447 B
			SS-TWP835-3515	2.46 N
			SS-TWP836-3518	2.38 N
			SS-TWP837-3521	2.46 N
			SS-TWP838-3524	0.371 B
			SS-TWP839-3527	0.402 B
			SS-TWP840-3530	1.42 N
			SS-TWP842-3536	1.19 N
			SS-TWP843-3539	1.06 BN
			SS-TWP844-3542	1.92
			SS-TWP845-3545	2.18
			SS-TWP846-3548	2.13
			SS-TWP847-3551	2.26
			SS-TWP848-3554	2.3 N
			SS-TWP849-3557	1.44 N
			SS-TWP850-3560	2.13 N
			SS-TWP851-3563	2.76 N
			SS-TWP854-3572	0.405 B
			SS-TWP856-3578	0.477 B
			SS-TWP858-3584	0.579 B
			SS-TWP859-3587	0.438 B
			TS203-2808-020	0.88 B
Silver	mg/Kg	0.27	SS2B001-532	0.352 BN
			SS2B002-534	0.361 BN
			SS2B003-535	0.404 BN
			SS403-040	0.34
			SS4C001-618	0.375 B
			SS4D005-619	0.293 E
			SS503-064	0.75 N
			SS505-694	0.341 B
			SS905-2089	0.716 E
			SS-DRUM02-3372	0.273
			SS-EU031-3330	0.291

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Sodium	mg/Kg	286	SD704-302	309 *
			SD725-353	292
			SS202-002	678
			SS208-011	1660
			SS308-032	356 E
			SS402-039	780 E
			SS418-055	766 E
			SS816-703	4690
			SS-DRUM01-3369	2410 *
			SS-DRUM02-3372	4520 *
			SS-DRUM05-3381	328 J
			SS-EU051-3334	1210 E*

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SD701-293	0.1 B
			SD702-295	0.15 B
			SD703-297	0.12 B
			SD704-302	0.13 B
			SD711-317	0.093 B
			SD712-319	0.27
			SD713-324	0.14
			SD714-326	0.16 B
			SD725-353	0.27
			SD732-370	0.31
			SD733-373	0.36
			SD734-375	0.23
			SS102-685	0.221 B
			SS103-686	0.147 B
			SS202-002	0.11 B
			SS204-004	0.39
			SS206-009	0.09 B
			SS207-010	0.12 B
			SS208-011	0.16
			SS209-012	0.1 B
			SS213-017	0.17
			SS215-019	0.09 B
			SS217-021	0.14
			SS2B001-532	0.121 B
			SS2B002-534	0.18 B
			SS2B003-535	0.262 B
			SS302-026	0.07 B
			SS303-027	0.13
			SS304-028	0.11 B
			SS306-030	0.13 B
			SS307-031	0.09 B
			SS308-032	0.16
			SS309-033	0.08 B
			SS310-034	0.099 B
			SS311-035	0.15
			SS401-037	0.07 B
			SS403-040	0.15
			SS404-041	0.09 B
			SS405-042	0.12
			SS406-043	0.1 B
			SS407-044	0.11 B
			SS408-045	0.1 B
			SS409-046	0.13
			SS410-047	0.14

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS411-048	0.11 B
			SS412-049	0.08 B
			SS413-050	0.16
			SS414-051	0.13 B
			SS415-052	0.15
			SS416-053	0.089 B
			SS417-054	0.2
			SS418-055	0.24
			SS419-056	0.11 B
			SS420-057	0.1 B
			SS421-058	0.14
			SS4A008-606	0.128
			SS4A010-608	0.145
			SS4A012-611	0.135
			SS4B003-614	0.151
			SS4B005-616	0.118
			SS4D005-619	0.202
			SS4D007-621	0.094 B
			SS4D008-623	0.108 B
			SS501-059	0.1 B
			SS502-060	0.07 B
			SS503-064	0.09 B
			SS504-692	0.285 B
			SS601-065	0.15
			SS602-066	0.04 B
			SS603-068	0.07 B
			SS604-069	0.06 B
			SS801-070	0.1 B
			SS802-071	0.09 B
			SS803-072	0.12 B
			SS804-073	0.15
			SS805-074	0.07 B
			SS806-075	0.08 B
			SS807-076	0.06 B
			SS808-077	0.08 B
			SS809-078	0.06 B
			SS810-079	0.13
			SS811-080	0.13
			SS812-084	0.1 B
			SS813-700	0.16 B
			SS816-703	0.032 B
			SS819-706	0.16 B
			SS822-710	0.153 B
			SS901-2079	0.056 B

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS902-2081	0.124
			SS903-2083	0.106 B
			SS905-2089	0.108 B
			SS906-2091	0.098 B
			SS907-2093	0.138
			SS908-2095	0.131
			SS909-2097	0.123
			SS910-2099	0.128
			SS-DRUM01-3369	0.249 E
			SS-DRUM02-3372	0.115 BE
			SS-DRUM04-3378	0.11 BE
			SS-DRUM05-3381	0.163 E
			SS-DRUM06-3395	0.151
			SS-DRUM07-3398	0.242
			SS-EU011-3327	0.11 BE
			SS-EU021-3328	0.138 E
			SS-EU022-3329	0.12 BE
			SS-EU031-3330	0.099 BE
			SS-EU032-3331	0.125 E
			SS-EU033-3332	0.11 BE
			SS-EU034-3333	0.102 BE
			SS-EU051-3334	0.105 BE
			SS-EU061-3335	0.114 B
			SS-EU062-3336	0.129 E
			SS-EU071-3337	0.141 E
			SS-EU072-3338	0.11 BE
			SS-EU081-3339	0.129 E
			SS-EU091-3340	0.061 BE
			SS-EU092-3341	0.095 BE
			SS-EU093-3342	0.122 E
			SS-EU101-3343	0.109 B
			SS-EU102-3344	0.109 B
			SS-EU103-3345	0.103 B
			SS-EU111-3346	0.121
			SS-EU112-3347	0.165
			SS-EU113-3348	0.125 B
			SS-EU121-3349	0.215
			SS-EU122-3350	0.114 B
			SS-EU123-3351	0.153
			SS-EU131-3352	0.114 B
			SS-EU132-3353	0.145
			SS-EU133-3354	0.099 B
			SS-EU141-3355	0.11
			SS-EU142-3356	0.123

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS-EU143-3357	0.133
			SS-MW229-3617	0.136
			SS-MW313-3590	0.188 E
			SS-MW314-3593	0.191 E
			SS-MW422-3608	0.175 E
			SS-MW423-3611	0.19 E
			SS-MW424-3620	0.116
			SS-MW861-3599	0.153
			SS-MW862-3602	0.124 E
			SS-MW863-3605	0.199
			SS-TWP830-3500	0.14
			SS-TWP831-3503	0.131
			SS-TWP832-3506	0.13
			SS-TWP833-3509	0.142 E
			SS-TWP834-3512	0.13 E
			SS-TWP835-3515	0.098 B
			SS-TWP836-3518	0.132
			SS-TWP837-3521	0.158
			SS-TWP838-3524	0.11 B
			SS-TWP839-3527	0.14
			SS-TWP840-3530	0.114
			SS-TWP841-3533	0.14 E
			SS-TWP842-3536	0.119
			SS-TWP843-3539	0.126
			SS-TWP844-3542	0.149 E
			SS-TWP845-3545	0.131 E
			SS-TWP846-3548	0.1 BE
			SS-TWP847-3551	0.13 E
			SS-TWP848-3554	0.117
			SS-TWP849-3557	0.144
			SS-TWP850-3560	0.139
			SS-TWP851-3563	0.148
			SS-TWP852-3566	0.129
			SS-TWP853-3569	0.141
			SS-TWP854-3572	0.096 B
			SS-TWP855-3575	0.163
			SS-TWP856-3578	0.13
			SS-TWP857-3581	0.129
			SS-TWP858-3584	0.135 E
			SS-TWP859-3587	0.148 E
			TS203-2808-020	0.189 E

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	34	SD701-293	39.8
			SD725-353	43.3
			SS208-011	40.5
			SS418-055	41.2
			SS502-060	36.7 *
			SS816-703	35.7
			SS903-2083	46.8
			SS907-2093	35.4
			SS-DRUM01-3369	52
			SS-DRUM05-3381	38.2 J
			SS-EU103-3345	34.9 N
			SS-EU112-3347	39.3 N
			SS-EU121-3349	45.8 N
			SS-EU122-3350	41 N
			SS-MW424-3620	34.2 *N
			SS-TWP831-3503	35.2
			SS-TWP832-3506	34.3 *N
			SS-TWP833-3509	36.7
			SS-TWP834-3512	34.4
			SS-TWP844-3542	34.5 N
			SS-TWP847-3551	36.9 N
			SS-TWP848-3554	34.4 *N
			SS-TWP849-3557	46.8 *N
			SS-TWP851-3563	39
			SS-TWP852-3566	37.9
			SS-TWP854-3572	39
			SS-TWP855-3575	37.3
			SS-TWP856-3578	36.7
			SS-TWP857-3581	35.5
			SS-TWP858-3584	36.4
			TS203-2808-020	34.9 N

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	mg/Kg	78	SD701-293	81
			SD702-295	830
			SD703-297	158
			SD723-349	212 E
			SD725-353	227
			SD734-375	199
			SS207-010	87.8
			SS208-011	495
			SS217-021	270
			SS2B001-532	106
			SS2B002-534	80.9
			SS308-032	208
			SS311-035	186
			SS403-040	85.6 E
			SS404-041	148 *E
			SS405-042	140 *E
			SS406-043	79.4 *
			SS410-047	213
			SS413-050	157
			SS415-052	114
			SS418-055	159
			SS4A010-608	97.8
			SS4A012-611	475
			SS4C001-618	86.2
			SS4D005-619	83.2 *
			SS505-694	84 N
			SS811-080	92.7
			SS816-703	403
			SS906-2091	81.8
			SS-DRUM01-3369	102 *
			SS-DRUM02-3372	109 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM06-3395	113
			SS-EU071-3337	96.8 E*N
			SS-EU072-3338	78.9 E*N
			SS-EU102-3344	81.9
			SS-EU121-3349	112
			SS-EU131-3352	98
			SS-EU132-3353	215
			SS-MW313-3590	92.6 N*
			SS-MW861-3599	341 E
			SS-MW863-3605	348 J
			SS-TWP845-3545	80
			SS-TWP854-3572	80.6

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	mg/Kg	78	TS203-2808-020	2450
PAHs				
Acenaphthene	$\mu\text{g/Kg}$	--	SS201-001	40.7 J
			SS2A002-530	34.9 J
			SS2A003-531	296
			SS308-032	5290
			SS3C007-590	3750 J
			SS3C008-591	13300 J
			SS405-042	206 J
			SS4A003-601	2460 JD
			SS4A007-605	6270 JD
			SS-EU081-3339	16.5 J
			SS-MW861-3599	10.9 J
			SS-MW863-3605	13.7 J
			SS-TWP848-3554	64.3
Anthracene	$\mu\text{g/Kg}$	--	SS201-001	60.4 J
			SS203-003	55.6 J
			SS204-004	43.5 J
			SS2A002-530	48.2
			SS2A003-531	518
			SS308-032	9140
			SS309-033	1590 J
			SS3C003-586	216 J
			SS3C007-590	7280
			SS3C008-591	24700
			SS405-042	240 J
			SS4A003-601	1530 J
			SS4A007-605	6660
			SS-DRUM04-3378	78.5
			SS-MW861-3599	136
			SS-MW863-3605	40.2
			SS-TWP831-3503	8.46 J
			SS-TWP848-3554	77.7
			TS203-2808-020	22.6 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	SS201-001	323 J
			SS2A003-531	2430
			SS2B002-534	945 J
			SS308-032	28900 D
			SS309-033	3190
			SS3C002-585	353 J
			SS3C006-589	4750 J
			SS3C007-590	33300 D
			SS3C008-591	73300
			SS3C011-594	16800 J
			SS405-042	1170
			SS417-054	446
			SS4A003-601	17900 D
			SS4A007-605	26900 D
			SS4B001-612	887 J
			SS4D007-621	623
			SS-DRUM04-3378	578
			SS-MW861-3599	900
			SS-TWP848-3554	416
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	SS201-001	383 J
			SS2A002-530	349
			SS2A003-531	2560
			SS2B002-534	1340 J
			SS308-032	33600 D
			SS309-033	3080
			SS311-035	540 J
			SS3C002-585	408 J
			SS3C006-589	4100 J
			SS3C007-590	34000 D
			SS3C008-591	82500
			SS3C011-594	14900 J
			SS405-042	1830
			SS417-054	508
			SS4A003-601	36000 D
			SS4A007-605	27500 D
			SS4B001-612	2560
			SS4D007-621	670
			SS-DRUM04-3378	1290
			SS-MW861-3599	691
			SS-TWP848-3554	536

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SS201-001	446
			SS2A003-531	2740
			SS2B002-534	3550
			SS308-032	31500 D
			SS309-033	3430
			SS3C002-585	469
			SS3C006-589	5960 J
			SS3C007-590	37700 D
			SS3C008-591	42800 D
			SS3C011-594	20200 J
			SS405-042	1740
			SS417-054	647
			SS4A003-601	29700 E
			SS4A007-605	35000 D
			SS4B001-612	4480
			SS4D007-621	949
			SS-DRUM01-3369	413
			SS-DRUM04-3378	2980
			SS-EU051-3334	561
			SS-MW861-3599	1280
			SS-TWP848-3554	801

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	--	C5-VS-SO-B300-1	1.7
			SS201-001	215 J
			SS203-003	191 J
			SS206-009	63.4 J
			SS208-011	40.4 J
			SS2A002-530	234
			SS2A003-531	1410
			SS2B002-534	1070 J
			SS308-032	22500 D
			SS309-033	1860
			SS3C002-585	253 J
			SS3C007-590	22400 D
			SS3C008-591	54100
			SS3C011-594	12600 J
			SS405-042	1030
			SS408-045	216 J
			SS412-049	2880 J
			SS413-050	49.3 J
			SS417-054	231 J
			SS4A003-601	19400 E
			SS4A007-605	9820
			SS4B001-612	1460 J
			SS4D007-621	376
			SS-DRUM01-3369	101
			SS-DRUM04-3378	792
			SS-DRUM07-3398	62.5 P
			SS-EU051-3334	176
			SS-EU071-3337	36.8
			SS-EU072-3338	17.4
			SS-EU081-3339	45.7
			SS-EU112-3347	8.39 P
			SS-EU121-3349	18.9
			SS-EU131-3352	11.8
			SS-MW313-3590	55.6
			SS-MW861-3599	300
			SS-MW863-3605	115
			SS-TWP830-3500	8.44
			SS-TWP831-3503	14.4
			SS-TWP832-3506	1.47 J
			SS-TWP833-3509	6.03
			SS-TWP834-3512	3.88
			SS-TWP835-3515	10.3 h
			SS-TWP846-3548	7.63
			SS-TWP847-3551	13.3

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	--	SS-TWP848-3554	281
			SS-TWP849-3557	2.52
			SS-TWP850-3560	3.75
			SS-TWP851-3563	1.93 Ph
			SS-TWP856-3578	2.99
			SS-TWP858-3584	2.77
			SS-TWP859-3587	2.88
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS2A002-530	404
			SS2A003-531	2940
			SS2B002-534	1250 J
			SS308-032	25900 D
			SS309-033	2280
			SS3C002-585	351 J
			SS3C007-590	31000 D
			SS3C008-591	62900
			SS405-042	1410
			SS417-054	595
			SS4A003-601	25900 D
			SS4A007-605	6420
			SS4B001-612	1650
			SS4D007-621	908
			SS-DRUM04-3378	601
Chrysene	$\mu\text{g/Kg}$	378	SS201-001	440
			SS2A002-530	409
			SS2A003-531	2980
			SS2B002-534	1790
			SS308-032	29400 D
			SS309-033	3100
			SS3C002-585	379 J
			SS3C006-589	4620 J
			SS3C007-590	35700 D
			SS3C008-591	76000
			SS3C011-594	16300 J
			SS405-042	1210
			SS417-054	562
			SS4A003-601	19800 D
			SS4A007-605	26300 D
			SS4B001-612	2380
			SS4D007-621	992
			SS-DRUM04-3378	1090
			SS-MW861-3599	1010
			SS-TWP848-3554	436

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	--	SS2A002-530	209
			SS308-032	4780
			SS309-033	830 J
			SS3C007-590	9640 JD
			SS3C008-591	22500
			SS4A003-601	7850 D
			SS4A007-605	4010 JD
			SS-MW313-3590	21
			SS-MW861-3599	6.8
			SS-TWP831-3503	2.87
			SS-TWP835-3515	2.77 h
			SS-TWP858-3584	1.43 J
Fluoranthene	$\mu\text{g/Kg}$	889	SS201-001	892
			SS2A003-531	7210 D
			SS2B002-534	1120 J
			SS308-032	81500 D
			SS309-033	9650
			SS3C002-585	919
			SS3C006-589	11400
			SS3C007-590	80000 D
			SS3C008-591	92400 D
			SS3C011-594	39200
			SS405-042	1920
			SS4A003-601	12700 D
			SS4A007-605	55800 D
			SS-MW861-3599	1760

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Fluorene	$\mu\text{g/Kg}$	--	SS201-001	35.6 J
			SS2A002-530	27.9 J
			SS2A003-531	263
			SS308-032	4020
			SS309-033	711 J
			SS3C001-584	950 J
			SS3C006-589	4830 J
			SS3C007-590	2630 J
			SS3C008-591	8830 J
			SS3C011-594	15200 J
			SS3C012-596	244 J
			SS3C013-597	226 J
			SS405-042	103 J
			SS4A007-605	2570
			SS-DRUM04-3378	11.6 J
			SS-DRUM07-3398	19.8 J
			SS-MW861-3599	30.7 J
			SS-MW862-3602	7.21 J
			SS-MW863-3605	19.1 J
			SS-TWP848-3554	22.2 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	$\mu\text{g/Kg}$	--	SS201-001	182 J
			SS203-003	188 J
			SS208-011	30.6 J
			SS2A002-530	268
			SS2A003-531	1330
			SS2B001-532	965 J
			SS2B002-534	1600 J
			SS308-032	13800
			SS309-033	1740
			SS3B001-573	2280 J
			SS3C001-584	992 J
			SS3C002-585	220 J
			SS3C006-589	5990 J
			SS3C007-590	19400 D
			SS3C008-591	43600
			SS3C011-594	21200 J
			SS3C012-596	328 J
			SS3C013-597	205 J
			SS404-041	135 J
			SS405-042	980
			SS408-045	154 J
			SS413-050	38.6 J
			SS417-054	240 J
			SS4A003-601	17500
			SS4A007-605	8990
			SS4B001-612	1420 J
			SS4D007-621	387
			SS-DRUM01-3369	332
			SS-DRUM02-3372	39.5
			SS-DRUM04-3378	875
			SS-DRUM05-3381	38.3
			SS-DRUM07-3398	306
			SS-EU051-3334	283
			SS-EU081-3339	48.1
			SS-MW861-3599	387
			SS-MW862-3602	42.4
			SS-MW863-3605	70.9
			SS-TWP848-3554	280

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Naphthalene	$\mu\text{g/Kg}$	--	SS201-001	343 J
			SS203-003	483
			SS204-004	1330
			SS208-011	23.2 J
			SS2A002-530	46.6
			SS2A003-531	336
			SS2B002-534	2170
			SS2B003-535	1410 J
			SS311-035	181 J
			SS312-036	56.8 J
			SS3A006-561	235 J
			SS405-042	51.7 J
			SS4A007-605	893 J
			SS504-692	292 J
			SS-DRUM06-3395	7 J
			SS-DRUM07-3398	76.7
			SS-EU071-3337	17.3 J
			SS-EU081-3339	9.37 J
			SS-EU102-3344	2.44 JP
			SS-EU121-3349	3.03 JP
			SS-EU131-3352	11.2 J
			SS-MW313-3590	12.6 JP
			SS-TWP835-3515	2.99 Jh
			SS-TWP841-3533	3.44 J
Phenanthrene	$\mu\text{g/Kg}$	538	SS201-001	642
			SS204-004	988
			SS2A003-531	4360
			SS2B002-534	1050 J
			SS308-032	61800 D
			SS309-033	8550
			SS3C002-585	733
			SS3C006-589	8230
			SS3C007-590	57800 D
			SS3C008-591	71600 D
			SS3C011-594	26500
			SS405-042	1320
			SS4A003-601	6040 D
			SS4A007-605	56300 D
			SS-MW861-3599	624

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Pyrene	μg/Kg	716	SS201-001	925
			SS2A002-530	748
			SS2A003-531	6280 D
			SS308-032	53600 E
			SS3C002-585	940
			SS3C006-589	9810
			SS3C007-590	88000 D
			SS3C008-591	99700 D
			SS3C011-594	33600
			SS405-042	1900
			SS4A003-601	17300 D
			SS4A007-605	62900 D
			SS4B001-612	897 J
			SS-DRUM04-3378	795
			SS-MW861-3599	1420
PCBs				
Aroclor-1254	μg/Kg	--	SD731-368	5.9
			SD734-375	11.3 P
			SS208-011	208
			SS217-021	77.7
			SS4C001-618	714 JP
			SS4D007-621	226
			SS4D008-623	100
			SS4F001-633	28.5 J
			SS4F002-634	28 J
			SS4F003-635	7.8 JP
			SS4F004-636	32.7 JP
			SS811-080	12 P
			SS825-713	6
			SS-DRUM06-3395	20.9
			SS-EU051-3334	4.2
			SS-EU093-3342	2.9 J
			SS-EU102-3344	10.4
			SS-TWP846-3548	2.6 J
			SS-TWP847-3551	3.8 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	$\mu\text{g/Kg}$	--	SD714-326	8.9 J
			SD732-370	10.5 J
			SD733-373	5.2 J
			SD734-375	12.2
			SS216-020	14.9
			SS217-021	84.5 P
			SS303-027	17.2
			SS309-033	5.5
			SS311-035	20.8
			SS313-687	4 J
			SS403-040	9.8 JP
			SS406-043	69.6
			SS409-046	16
			SS413-050	2030
			SS414-051	154
			SS415-052	110
			SS417-054	1120
			SS418-055	392
			SS4C001-618	14500
			SS4D005-619	320
			SS4D007-621	511
			SS4D008-623	361
			SS4D010-626	2580
			SS4D013-629	162
			SS4D015-631	354
			SS4F001-633	65.3
			SS4F002-634	94.4
			SS4F003-635	24.8 J
			SS4F004-636	19.4 JP
			SS811-080	17.6
			SS825-713	14.7
			SS908-2095	12.7 P
			SS-DRUM01-3369	6.3
			SS-DRUM02-3372	249
			SS-DRUM04-3378	5740
			SS-DRUM05-3381	309
			SS-DRUM06-3395	120
			SS-DRUM07-3398	70200
			SS-EU021-3328	14.7 J
			SS-EU022-3329	3.4 J
			SS-EU051-3334	5.3
			SS-EU071-3337	2.2 J
			SS-EU102-3344	2.13 J
			SS-EU121-3349	4.8 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SS-EU122-3350	1.4 J
			SS-MW314-3593	4.6 h
			SS-MW422-3608	1230 B
			SS-MW423-3611	7.1 B
			SS-MW424-3620	6
			SS-MW863-3605	3.3 J
			SS-TWP833-3509	4.4
			SS-TWP847-3551	2.2 J
Pesticides				

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	$\mu\text{g/Kg}$	--	SD723-349	1.8 J
			SS311-035	13.3
			SS313-687	1.1 JP
			SS4C001-618	6 P
			SS4D008-623	3.9
			SS4D013-629	2.7 P
			SS4D015-631	3.4 P
			SS4F003-635	2.6 P
			SS4F004-636	3 P
			SS505-694	0.69 J
			SS825-713	1.2 JP
			SS-DRUM01-3369	3.78
			SS-DRUM02-3372	2.58
			SS-DRUM05-3381	4.33
			SS-DRUM06-3395	10.6
			SS-EU011-3327	2.67
			SS-EU021-3328	3.07 J
			SS-EU022-3329	2.58
			SS-EU031-3330	2.94
			SS-EU072-3338	0.387 J
			SS-EU081-3339	0.538 J
			SS-EU103-3345	0.47 J
			SS-EU121-3349	1.46 J
			SS-EU122-3350	1.21 J
			SS-MW229-3617	0.43 J
			SS-MW314-3593	3.08
			SS-MW862-3602	0.942 J
			SS-MW863-3605	5.33 J
			SS-TWP833-3509	0.302 J
			SS-TWP834-3512	0.636 J
			SS-TWP835-3515	1.33 J
			SS-TWP837-3521	0.655 J
			SS-TWP838-3524	0.681 J
			SS-TWP840-3530	0.438 J
			SS-TWP842-3536	0.361 J
			SS-TWP844-3542	0.305 J
			SS-TWP845-3545	0.335 J
			SS-TWP846-3548	0.594 J
			SS-TWP847-3551	0.892 J
			SS-TWP854-3572	0.423 J
			SS-TWP855-3575	0.303 J
			SS-TWP856-3578	1.95
			SS-TWP859-3587	2.44
			TS809-2904-001	2.9 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDT	μ g/Kg	--	SS311-035	18.9
			SS4F003-635	5.4
			SS4F004-636	7.3 P
			SS-DRUM01-3369	4.45
			SS-DRUM06-3395	13.1
			SS-EU011-3327	2.24
			SS-EU022-3329	2.06
			SS-EU031-3330	2.58
			SS-EU081-3339	1.29 J
			SS-EU093-3342	0.739 J
			SS-EU103-3345	2.16
			SS-EU121-3349	2.84
			SS-EU122-3350	2.28
			SS-MW229-3617	2.14
			SS-MW314-3593	1.88
			SS-MW861-3599	2.22
			SS-MW862-3602	1.93
			SS-MW863-3605	12.5
			SS-TWP833-3509	0.8 J
			SS-TWP834-3512	1.96
			SS-TWP835-3515	1.82
			SS-TWP836-3518	1.18 J
			SS-TWP837-3521	1.24 J
			SS-TWP838-3524	0.506 J
			SS-TWP839-3527	1.18 J
			SS-TWP843-3539	2.47
			SS-TWP846-3548	1.19 J
			SS-TWP847-3551	1.28 J
			SS-TWP851-3563	1.31 J
			SS-TWP853-3569	0.587 J
			SS-TWP856-3578	2.56
			SS-TWP859-3587	2.02
Radionuclides				

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Actinium-227	pCi/g	0.08	SD746-2150	8
			SD747-2152	2.22
			SD748-2153	3.6
			SD750-2155	4.29
			SD752-2241	0.906
			SS102-685	0.278
			SS218-400	2.71
			SS219-401	2.72
			SS220-402	1.95
			SS221-403	9.3
			SS314-404	2.28
			SS3A016-572	0.487
			SS3A021-2392	1.43
			SS3A023-2394	1.29
			SS3A024-2395	0.98
			SS3B011-2398	0.758
			SS3C014-2411	1.44
			SS3C015-2412	1.89
			SS3D001-2414	1.24
			SS3D004-2418	2.98
			SS3D006-2420	3.07
			SS4A014-2271	0.607
			SS4B009-2280	2.26
			SS4B021-2295	0.938
			SS4G002-2365	1.33
			SS5A016-2170	1.51
			SS606-698	18.9
			SS6A001-2317	14.2
			SS6B005-2335	1.6
			SS816-703	5.11
			SS821-709	0.341
			SS826-405	0.97
			SS827-406	9.22
			SS829-409	7.34
			SS830-1036	132
			SS8A014-2181	3.6
			SS8B001-2430	1 J
			SS8D003-2190	3.3
			SS8D004-2191	3.5 J
			SS8D006-2193	0.782
			SS8D007-2195	1.32
			SS8D009-2197	24
			SS8F001-2201	3.77
			SS8F003-2203	1.51

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Actinium-227	pCi/g	0.08	SS8F005-2206	1.26
			SS8H001-2443	0.629
			SS913-2105	1.08
			SS-EU061-3335	0.579
			SS-MW313-3590	0.507

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SD701-293	21.4
			SD702-295	8.97
			SD703-297	68.2
			SD704-302	17.8
			SD711-317	66.4
			SD712-319	13.3
			SD713-324	10.6
			SD714-326	15.5
			SD719-341	19.6
			SD723-349	18.1
			SD724-351	20.2
			SD725-353	21.9
			SD731-368	11.3
			SD732-370	11.5
			SD733-373	13.6
			SD734-375	7.05
			SD737-381	16
			SD741-672	16.6
			SD742-674	9.84
			SD743-675	26.5
			SD744-676	13.9
			SD745-677	48.4
			SD911-2101	18.5
			SD912-2103	18.7
			SD914-2108	24.5
			SD915-2109	14.4
			SD916-2113	11.1
			SD917-2115	10.4
			SD918-2117	7.61
			SD-WD1-3406-0.5	10.8
			SS201-001	29.8
			SS202-002	14.1
			SS203-003	121
			SS204-004	8.21
			SS205-008	38.9
			SS206-009	14.5
			SS207-010	16.9
			SS208-011	19.1
			SS209-012	16.1
			SS210-014	14.9
			SS211-015	34.1
			SS212-016	19.6
			SS213-017	16
			SS214-018	21.7

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS215-019	19.2
			SS216-020	22.8
			SS217-021	13.4
			SS218-400	284
			SS219-401	99.2
			SS220-402	60.3
			SS221-403	3030
			SS301-025	20.6
			SS302-026	15.4
			SS303-027	15.3
			SS304-028	20.9
			SS305-029	16.8
			SS306-030	20.8
			SS307-031	14.3
			SS308-032	84.8
			SS309-033	32.9
			SS310-034	15.2
			SS311-035	56.3
			SS312-036	55.8
			SS314-404	172
			SS401-037	14.5
			SS402-039	92.4
			SS403-040	20.7
			SS404-041	46.5
			SS405-042	19
			SS406-043	31.8
			SS407-044	13.2
			SS408-045	8.91
			SS409-046	14.9
			SS410-047	14
			SS411-048	23.4
			SS412-049	15.6
			SS413-050	21
			SS414-051	9.27
			SS415-052	19.7
			SS416-053	10.8
			SS417-054	20.2
			SS418-055	11.9
			SS419-056	19.8
			SS420-057	15.6
			SS421-058	21
			SS4C003-2299	18.9
			SS501-059	10.3
			SS502-060	23.2

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS503-064	230
			SS601-065	11.3
			SS602-066	12.6
			SS603-068	15.8
			SS604-069	14.2
			SS801-070	17.7
			SS802-071	16.9
			SS803-072	9.8
			SS804-073	22.1
			SS805-074	21.8
			SS806-075	21.1
			SS807-076	19.8
			SS808-077	19.6
			SS809-078	12
			SS810-079	15.1
			SS811-080	11.7
			SS812-084	12.2
			SS826-405	42.8
			SS827-406	536
			SS829-409	1390
			SS830-1036	3840
			SS901-2079	8.57
			SS902-2081	11.8
			SS903-2083	13.8
			SS904-2087	13.3 J
			SS905-2089	17
			SS906-2091	15.7
			SS907-2093	17.9
			SS908-2095	12.5
			SS909-2097	16
			SS910-2099	12.4
			SS913-2105	83.3
			SS-DRUM01-3369	19.9
			SS-DRUM02-3372	26.1
			SS-DRUM04-3378	12
			SS-DRUM05-3381	11.8 J
			SS-DRUM06-3395	11.2
			SS-DRUM07-3398	12.6
			SS-EU011-3327	11.8
			SS-EU021-3328	12.3
			SS-EU022-3329	9.83
			SS-EU031-3330	15.7
			SS-EU032-3331	8.39
			SS-EU051-3334	14.6

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS-EU061-3335	26.4
			SS-EU062-3336	12.1
			SS-EU071-3337	6.54
			SS-EU072-3338	13.8
			SS-EU081-3339	13.3
			SS-EU091-3340	7.86
			SS-EU092-3341	5.41
			SS-EU093-3342	7.4
			SS-EU101-3343	19.3
			SS-EU102-3344	9.91
			SS-EU103-3345	7.19
			SS-EU111-3346	11.6
			SS-EU113-3348	8.42
			SS-EU121-3349	22.3
			SS-EU122-3350	10.2
			SS-EU123-3351	17.1 J
			SS-EU141-3355	12.8
			SS-MW229-3617	10.9
			SS-MW313-3590	35.3
			SS-MW314-3593	14
			SS-MW422-3608	12.8
			SS-MW423-3611	11.4
			SS-MW424-3620	8.79
			SS-MW861-3599	9.75
			SS-MW862-3602	8.83
			SS-TWP830-3500	9.9
			SS-TWP831-3503	9.93
			SS-TWP832-3506	18.8
			SS-TWP833-3509	34.6
			SS-TWP834-3512	11
			SS-TWP835-3515	8.35
			SS-TWP836-3518	13.3
			SS-TWP837-3521	8.93
			SS-TWP838-3524	7.39
			SS-TWP839-3527	9.06
			SS-TWP840-3530	9.28
			SS-TWP841-3533	8.37
			SS-TWP842-3536	8.16
			SS-TWP843-3539	13.8
			SS-TWP844-3542	16.2
			SS-TWP845-3545	12.8
			SS-TWP846-3548	9.95
			SS-TWP847-3551	13.2
			SS-TWP848-3554	17.2

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	--	SS-TWP849-3557	11.3
			SS-TWP850-3560	10.7
			SS-TWP851-3563	11.6
			SS-TWP852-3566	12.9
			SS-TWP853-3569	11.8
			SS-TWP854-3572	13.5
			SS-TWP855-3575	7.36
			SS-TWP856-3578	9.19
			SS-TWP857-3581	27.1
			SS-TWP858-3584	11.8
			SS-TWP859-3587	11.7
			TS812-2928-062	19000

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD701-293	25.5
			SD702-295	19.4
			SD703-297	39.9
			SD704-302	27.1
			SD711-317	38.3
			SD712-319	20.9
			SD713-324	22.9
			SD714-326	23.8
			SD719-341	26.2
			SD723-349	26
			SD724-351	23.8
			SD725-353	31.1
			SD731-368	32.4
			SD732-370	22.8
			SD733-373	17.3
			SD734-375	13
			SD737-381	24.6
			SD741-672	23.5
			SD742-674	17
			SD743-675	30.4
			SD744-676	29.1
			SD745-677	44.1
			SD911-2101	32.8
			SD912-2103	28.9
			SD914-2108	43.4
			SD915-2109	28.9
			SD916-2113	28.2
			SD917-2115	23.3
			SD918-2117	21.1
			SD-WD1-3406-0.5	19.5
			SS201-001	29.5
			SS202-002	23.8
			SS203-003	70.1
			SS204-004	18.1
			SS205-008	25.1
			SS206-009	26.3
			SS207-010	27.7
			SS208-011	23.5
			SS209-012	21.4
			SS210-014	21.5
			SS211-015	30.6
			SS212-016	32.9
			SS213-017	25.1
			SS214-018	23.1

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS215-019	22
			SS216-020	32
			SS217-021	21.5
			SS218-400	153
			SS219-401	72
			SS220-402	50.4
			SS221-403	1180
			SS301-025	33.9
			SS302-026	19.9
			SS303-027	24.8
			SS304-028	20.4
			SS305-029	21.1
			SS306-030	22.4
			SS307-031	21.3
			SS308-032	47.6
			SS309-033	34.2
			SS310-034	23.1
			SS311-035	37.6
			SS312-036	43.5
			SS314-404	94.2
			SS401-037	21.4
			SS402-039	35
			SS403-040	25
			SS404-041	31.8
			SS405-042	26.8
			SS406-043	29.9
			SS407-044	19.3
			SS408-045	16.2
			SS409-046	26.5
			SS410-047	21.5
			SS411-048	35.4
			SS412-049	20
			SS413-050	20.6
			SS414-051	19.2
			SS415-052	27.3
			SS416-053	16.8
			SS417-054	26.6
			SS418-055	22.2
			SS419-056	21.9
			SS420-057	20.4
			SS421-058	24.9
			SS4C003-2299	24.4
			SS501-059	22.3
			SS502-060	34.3

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS503-064	219
			SS601-065	15.8
			SS602-066	18.7
			SS603-068	16.9
			SS604-069	20.2
			SS801-070	38.6
			SS802-071	20.8
			SS803-072	20.1
			SS804-073	25.8
			SS805-074	28.5
			SS806-075	28.8
			SS807-076	23.9
			SS808-077	23.3
			SS809-078	19.4
			SS810-079	25.1
			SS811-080	18.3
			SS812-084	15.8
			SS826-405	39.3
			SS827-406	301
			SS829-409	739
			SS830-1036	1830
			SS901-2079	16.6
			SS902-2081	20.8
			SS903-2083	28
			SS904-2087	23.8 J
			SS905-2089	31.4
			SS906-2091	23.3
			SS907-2093	33.2
			SS908-2095	28.4
			SS909-2097	31.3
			SS910-2099	24.1
			SS913-2105	49.7
			SS-DRUM01-3369	17.3
			SS-DRUM02-3372	20.4
			SS-DRUM04-3378	21.8
			SS-DRUM05-3381	17.9 J
			SS-DRUM06-3395	21.3
			SS-DRUM07-3398	19.5
			SS-EU011-3327	21.1
			SS-EU021-3328	17.5
			SS-EU022-3329	17.2
			SS-EU031-3330	25.7
			SS-EU032-3331	15.9
			SS-EU051-3334	10.2

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS-EU061-3335	20.8
			SS-EU062-3336	19
			SS-EU071-3337	12.8
			SS-EU072-3338	16.1
			SS-EU081-3339	23
			SS-EU091-3340	13.3
			SS-EU092-3341	12.9
			SS-EU093-3342	17.7
			SS-EU101-3343	24.1
			SS-EU102-3344	19.3
			SS-EU103-3345	13
			SS-EU111-3346	21.7
			SS-EU113-3348	24.3
			SS-EU121-3349	27.6
			SS-EU122-3350	23.1
			SS-EU123-3351	25 J
			SS-EU141-3355	20.4
			SS-MW229-3617	19.9
			SS-MW313-3590	36.1
			SS-MW314-3593	21.6
			SS-MW422-3608	22.7
			SS-MW423-3611	20.3
			SS-MW424-3620	17.3
			SS-MW861-3599	21.6
			SS-MW862-3602	20.7
			SS-MW863-3605	16.7
			SS-TWP830-3500	16.7
			SS-TWP831-3503	24.8
			SS-TWP832-3506	29.1
			SS-TWP833-3509	43.5
			SS-TWP834-3512	20.3
			SS-TWP835-3515	14.4
			SS-TWP836-3518	19.8
			SS-TWP837-3521	19.7
			SS-TWP838-3524	26.4
			SS-TWP839-3527	19.9
			SS-TWP840-3530	22.3
			SS-TWP841-3533	23.2
			SS-TWP842-3536	23.5
			SS-TWP843-3539	27.2
			SS-TWP844-3542	27.7
			SS-TWP845-3545	24.3
			SS-TWP846-3548	20.1
			SS-TWP847-3551	24.2

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SS-TWP848-3554	24.9
			SS-TWP849-3557	21.3
			SS-TWP850-3560	20.6
			SS-TWP851-3563	22.5
			SS-TWP852-3566	28.5
			SS-TWP853-3569	25.4
			SS-TWP854-3572	31.1
			SS-TWP855-3575	20.4
			SS-TWP856-3578	20.7
			SS-TWP857-3581	38.5
			SS-TWP858-3584	25.3
			SS-TWP859-3587	20.8
			TS812-2928-062	15100

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SD714-326	0.399 J
			SD734-375	0.808 J
			SD737-381	0.607 J
			SD746-2150	0.49
			SD748-2153	0.428
			SD752-2241	0.472
			SS1A002-2158	0.35
			SS219-401	0.679
			SS2A006-2369	0.447
			SS2A008-2371	0.47
			SS2B002-534	0.438
			SS2B003-535	0.542
			SS2D001-547	0.572
			SS2D002-548	0.508
			SS2D003-549	0.484
			SS2D004-550	0.542
			SS2D005-551	0.424
			SS2D006-552	0.646
			SS2D008-554	0.433
			SS2D012-2384	0.739
			SS306-030	0.619 J
			SS313-687	0.456
			SS314-404	1.22
			SS3A001-555	0.602
			SS3A002-556	0.611
			SS3A003-557	0.52
			SS3A004-559	0.399
			SS3A005-560	0.474
			SS3A006-561	0.773
			SS3A007-562	0.852
			SS3A013-569	0.579
			SS3A016-572	0.565
			SS3A017-2162	0.719
			SS3A020-2389	0.612
			SS3A021-2392	0.842
			SS3A023-2394	0.806
			SS3B002-575	0.458
			SS3B003-576	0.894
			SS3B004-577	0.557
			SS3B005-578	0.352
			SS3B007-580	0.414
			SS3B010-583	0.515
			SS3B011-2398	1.08
			SS3C001-584	0.466

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS3C002-585	0.586
			SS3C003-586	0.4
			SS3C004-587	0.448
			SS3C005-588	0.47
			SS3C006-589	0.484
			SS3C007-590	0.903
			SS3C008-591	0.574
			SS3C014-2411	0.468
			SS3C015-2412	0.548
			SS3C016-2413	0.393
			SS3D001-2414	2.23
			SS3D002-2415	3
			SS3D009-2423	0.366
			SS414-051	1.92 J
			SS417-054	0.351 J
			SS418-055	0.493 J
			SS422-688	1.29
			SS4A002-600	0.429
			SS4A003-601	0.56
			SS4A004-602	0.408
			SS4A007-605	0.817
			SS4A013-2270	0.385
			SS4A016-2275	0.402
			SS4A019-2425	0.533
			SS4B003-614	0.384
			SS4B006-617	0.359
			SS4B008-2279	0.375
			SS4C001-618	0.379
			SS4C006-2303	0.383
			SS4D005-619	0.403
			SS4D006-620	0.379
			SS4D008-623	0.413
			SS4D009-625	0.38
			SS4D010-626	0.431
			SS4D011-627	0.585
			SS4D012-628	0.35
			SS4D013-629	0.439
			SS4D015-631	0.431
			SS4D019-2308	0.347
			SS4D020-2309	0.396
			SS4F001-633	0.374
			SS4F002-634	0.389
			SS4F003-635	0.395
			SS4F005-2311	0.364

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS4F007-2313	0.359
			SS504-692	0.864
			SS5A001-637	1.13
			SS5A004-640	1.07
			SS5A010-2164	0.417
			SS5A011-2165	0.402
			SS5A012-2166	0.423
			SS5A013-2167	0.391
			SS601-065	0.406 J
			SS6A003-2320	0.375
			SS6C001-2337	0.357
			SS6C003-2339	0.345
			SS811-080	0.377 J
			SS817-704	1.27
			SS818-705	0.469
			SS829-409	0.848
			SS8B003-2433	0.357
			SS8B006-2436	0.452
			SS8D001-2188	0.449
			SS8D003-2190	1.07
			SS8E002-2199	0.473 J
			SS8F001-2201	0.585
			SS8F005-2206	0.381
			SS8G002-2344	0.435
			SS8G005-2347	0.672
			SS8H001-2443	0.688
			SS8H002-2444	0.388
			SS-DRUM01-3369	0.669
			SS-DRUM02-3372	1.02
			SS-DRUM04-3378	0.377
			SS-DRUM05-3381	0.522 J
			SS-DRUM06-3395	0.506
			SS-DRUM07-3398	0.42
			SS-EU021-3328	0.399
			SS-MW313-3590	0.443
			SS-MW314-3593	0.363

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SB2A005-2240	3.41
			SD703-297	8.52
			SD704-302	1.37
			SD711-317	16
			SD712-319	0.923 J
			SD719-341	1.02
			SD723-349	1.55
			SD725-353	1.16
			SD732-370	1.21
			SD734-375	1.1
			SD737-381	1.3
			SD741-672	1.64
			SD744-676	2.4
			SD745-677	1.52
			SD746-2150	184
			SD747-2152	37.1
			SD748-2153	58.6
			SD749-2154	1.05
			SD750-2155	75.7
			SD752-2241	25.7
			SD911-2101	0.968
			SD914-2108	0.985
			SD915-2109	0.944
			SEDC06-08-2146	5.95
			SS101-684	1.64
			SS102-685	1.07
			SS1A001-2157	0.937
			SS1A002-2158	2.04
			SS1B001-2159	1.02
			SS1B002-2160	1.02
			SS201-001	1.66
			SS202-002	0.988
			SS203-003	1140
			SS205-008	7.87
			SS206-009	1.72
			SS207-010	1.53
			SS209-012	1.42
			SS210-014	1.66
			SS211-015	3.92
			SS212-016	1.71
			SS213-017	1.36
			SS214-018	1.06
			SS215-019	1.41
			SS216-020	1.52

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS217-021	1.45
			SS218-400	29.6
			SS219-401	24.1
			SS220-402	33.4
			SS221-403	127
			SS2A002-530	0.956
			SS2A004-2173	4.18
			SS2A006-2369	5.46
			SS2A007-2370	1.04
			SS2A008-2371	8.65
			SS2A009-2373	1.34
			SS2B001-532	1.41
			SS2B002-534	3.43
			SS2B003-535	1.81
			SS2B004-536	1.47
			SS2B005-537	1.02
			SS2B006-539	0.997
			SS2B007-540	1.56
			SS2B008-541	1.47
			SS2B009-542	1.08
			SS2B014-2374	126
			SS2B016-2377	1.08
			SS2B018-2379	0.922
			SS2C002-2380	1.65
			SS2D001-547	1.47
			SS2D002-548	1.59
			SS2D003-549	2.13
			SS2D005-551	1.77
			SS2D006-552	1.57
			SS2D007-553	1.83
			SS2D008-554	1.46
			SS2D009-2381	0.994
			SS2D010-2382	1.1
			SS2D011-2383	1.37
			SS2D012-2384	10.7
			SS2D013-2385	5.92
			SS303-027	3.84
			SS304-028	1.61
			SS305-029	1.27
			SS306-030	1.17
			SS308-032	3.56
			SS309-033	2.58
			SS310-034	1.56
			SS311-035	6.58

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS312-036	7.49
			SS313-687	1.52
			SS314-404	55.4
			SS3A001-555	2.57
			SS3A002-556	4.06
			SS3A003-557	3.2
			SS3A004-559	2.67
			SS3A005-560	3.87
			SS3A006-561	6.31
			SS3A007-562	5.5
			SS3A008-563	2.26
			SS3A009-565	2.86
			SS3A010-566	2.35
			SS3A011-567	1.77
			SS3A012-568	1.97
			SS3A013-569	5.51
			SS3A014-570	1.06
			SS3A015-571	1.13
			SS3A016-572	4.21
			SS3A017-2162	15.1
			SS3A020-2389	8.54
			SS3A021-2392	21
			SS3A022-2393	1.48
			SS3A023-2394	17.6
			SS3A024-2395	10.7
			SS3A025-2397	2.6
			SS3B001-573	1.07
			SS3B002-575	2.05
			SS3B003-576	7.91
			SS3B004-577	4.16
			SS3B005-578	2.94
			SS3B007-580	2.96
			SS3B008-581	0.971
			SS3B010-583	2.84
			SS3B011-2398	12.5
			SS3B012-2401	1.79
			SS3B013-2402	5.7
			SS3B014-2404	1.7
			SS3B015-2405	12.4
			SS3B016-2406	2.32
			SS3B017-2407	2.61
			SS3B018-2409	1.4
			SS3B019-2410	1.24
			SS3C001-584	1.95

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS3C002-585	2.31
			SS3C003-586	1.51
			SS3C004-587	1.86
			SS3C005-588	1.98
			SS3C006-589	2.65
			SS3C007-590	2.5
			SS3C008-591	1.8
			SS3C011-594	1.36
			SS3C012-596	2.19
			SS3C013-597	1.58
			SS3C014-2411	13.4
			SS3C015-2412	19.6
			SS3C016-2413	1.94
			SS3D001-2414	19.3
			SS3D002-2415	2.03
			SS3D004-2418	50.2
			SS3D006-2420	82.1
			SS3D007-2421	7.3
			SS3D008-2422	1.43 J
			SS3D009-2423	1.77
			SS401-037	1.39
			SS402-039	9.49
			SS403-040	1.58
			SS404-041	4.5
			SS405-042	1.62
			SS406-043	2.15
			SS407-044	1.98
			SS408-045	1.17
			SS409-046	1.28
			SS410-047	1.27
			SS413-050	2.01
			SS414-051	1.64
			SS415-052	1.67
			SS417-054	4.45
			SS418-055	1.35
			SS419-056	1.05
			SS420-057	2.35
			SS422-688	2.33
			SS423-689	1.92
			SS4A001-598	1.64
			SS4A002-600	1.41
			SS4A003-601	5.35
			SS4A004-602	1.87
			SS4A005-603	1.83

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS4A006-604	1.69
			SS4A007-605	3.27
			SS4A008-606	1.3
			SS4A010-608	1.34
			SS4A011-610	1.92
			SS4A012-611	1.11
			SS4A013-2270	6
			SS4A014-2271	8.48
			SS4A015-2274	7.17
			SS4A016-2275	1.07
			SS4A017-2276	1.17
			SS4A018-2277	1.04
			SS4A019-2425	4.49
			SS4A020-2426	0.994
			SS4B001-612	3.09
			SS4B002-613	2.66
			SS4B003-614	2.14
			SS4B004-615	1.1
			SS4B005-616	1.41
			SS4B006-617	1.72
			SS4B007-2278	1.4
			SS4B008-2279	1.71
			SS4B009-2280	37.5
			SS4B010-2282	7.31
			SS4B012-2284	1.12
			SS4B014-2288	15.2
			SS4B015-2289	2.05
			SS4B016-2290	2.36
			SS4B017-2291	7.14
			SS4B019-2293	1.44
			SS4B020-2294	0.944
			SS4B021-2295	17.6
			SS4C002-2298	5.83
			SS4C003-2299	1.78
			SS4C004-2300	3.72
			SS4C006-2303	1.33
			SS4D005-619	1.73
			SS4D006-620	1.21
			SS4D008-623	1.48
			SS4D009-625	1.15
			SS4D010-626	1.95
			SS4D011-627	2.34
			SS4D012-628	2.69
			SS4D013-629	1.86

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS4D014-630	1.51
			SS4D015-631	2.32
			SS4D017-2306	4.66
			SS4D018-2307	1.01
			SS4D019-2308	2.95
			SS4D020-2309	1.43
			SS4F001-633	1.18
			SS4F002-634	1.14
			SS4F003-635	1.23
			SS4F004-636	1.26
			SS4F005-2311	1.13
			SS4F007-2313	1.1
			SS4F009-2315	1.18
			SS4G001-2316	1.2
			SS4G002-2365	43.9
			SS501-059	0.993
			SS504-692	6.07
			SS5A010-2164	5.36
			SS5A011-2165	1.92
			SS5A012-2166	4.57
			SS5A013-2167	3.72
			SS5A014-2168	4.79
			SS5A016-2170	13.4
			SS5A021-2214	6.39
			SS606-698	103
			SS607-699	1.3
			SS6A001-2317	285
			SS6A002-2319	1.04 J
			SS6A003-2320	2.24
			SS6A004-2321	1.07
			SS6A005-2323	2.54
			SS6A006-2325	1.34
			SS6A008-2328	1.02
			SS6A009-2329	0.95
			SS6A010-2364	3.39
			SS6B001-2330	2.78
			SS6B003-2332	1.08
			SS6B004-2333	1.12
			SS6B005-2335	29.3
			SS6B006-2336	1.05
			SS6C001-2337	1.17
			SS6C005-2341	1.14
			SS6C006-2342	1.25
			SS801-070	1.81

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS802-071	1.25
			SS803-072	0.957
			SS805-074	1.5
			SS806-075	1.27
			SS807-076	1.7
			SS812-084	0.942
			SS813-700	1.37
			SS814-701	2.71
			SS815-702	3.07
			SS816-703	299
			SS817-704	2.72
			SS818-705	1.66
			SS819-706	1.05
			SS820-708	2.19
			SS821-709	1.13
			SS824-712	1.08
			SS825-713	1.07
			SS826-405	13.2
			SS827-406	185
			SS829-409	182
			SS830-1036	386
			SS8A002-2174	3.01
			SS8A003-2175	47.9
			SS8A004-2176	6.2
			SS8A005-2177	2.12
			SS8A006-2178	1.05
			SS8A007-2179	1.03
			SS8A008-2180	1.08
			SS8A010-2182	1.24
			SS8A014-2181	67.9
			SS8B001-2430	16.8 J
			SS8B002-2431	1.03
			SS8B003-2433	1.21
			SS8B004-2434	1.09
			SS8B005-2435	1.08
			SS8B006-2436	1.33
			SS8B007-2437	1.15
			SS8B009-2441	1.19
			SS8B010-2442	1.83
			SS8C001-2184	1.86
			SS8C002-2185	1.12
			SS8C003-2186	0.991
			SS8C004-2187	0.939
			SS8D001-2188	3.78

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS8D003-2190	45.5
			SS8D004-2191	42.2 J
			SS8D005-2192	0.942
			SS8D006-2193	13.4
			SS8D007-2195	14.9
			SS8D008-2196	0.998
			SS8D009-2197	446
			SS8E001-2198	1.27
			SS8E002-2199	1.98 J
			SS8F001-2201	61.5
			SS8F003-2203	45.9
			SS8F005-2206	18.9
			SS8F006-2207	7.32
			SS8F007-2208	1.12
			SS8G001-2343	1.5
			SS8G002-2344	1.35
			SS8G005-2347	1.1
			SS8H001-2443	7.49
			SS8H002-2444	15.1 J
			SS904-2087	0.981
			SS905-2089	2.07
			SS906-2091	1.84
			SS913-2105	17.8
			SS-DRUM01-3369	2.38
			SS-DRUM02-3372	2.54
			SS-DRUM04-3378	1.41
			SS-DRUM06-3395	1.14
			SS-DRUM07-3398	1.78
			SS-EU011-3327	1.49
			SS-EU021-3328	1.31
			SS-EU022-3329	1.04
			SS-EU031-3330	0.988
			SS-EU051-3334	3.56
			SS-EU061-3335	4.1
			SS-EU072-3338	1.46
			SS-EU101-3343	2.69
			SS-EU103-3345	0.956
			SS-EU111-3346	0.977
			SS-EU121-3349	1.46
			SS-EU123-3351	1.39
			SS-EU141-3355	1.06
			SS-MW229-3617	0.933
			SS-MW313-3590	4.51
			SS-MW314-3593	1.42

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	0.921	SS-MW422-3608	1.05 J
			SS-TWP836-3518	1.03
			SS-TWP840-3530	0.952
			SS-TWP841-3533	0.959
			SS-TWP844-3542	1.3
			SS-TWP845-3545	1.17
			SS-TWP847-3551	1.16
			SS-TWP848-3554	1.76
			SS-TWP852-3566	1
			SS-TWP856-3578	0.984 J
			TS203-2808-020	1.64
			TS809-2904-001	3.09
			TS809-2905-007	3.39
			TS812-2928-062	9.64
Radium-228	pCi/g	1.26	SD911-2101	1.5
			SS2D011-2383	1.27
			SS4A015-2274	1.32
			SS5A006-642	1.44
			SS5A010-2164	1.61
			SS5A012-2166	1.5
			SS5A013-2167	1.41
			SS5A014-2168	2.08
			SS5A021-2214	2.43
			SS827-406	1.35
			SS8A014-2181	1.49
			SS8F003-2203	1.27
			SS8F006-2207	3.18
			SS903-2083	1.33

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SD742-674	1.66
			SD915-2109	1.76
			SS219-401	1.96
			SS313-687	1.72
			SS3A002-556	1.86
			SS4C003-2299	1.7
			SS4D005-619	1.68
			SS5A006-642	2.38
			SS5A010-2164	1.79
			SS5A021-2214	2.01
			SS605-697	1.69
			SS815-702	1.7
			SS827-406	1.74
			SS-EU113-3348	1.71
			SS-EU123-3351	2.08 J
			SS-MW313-3590	1.66
			SS-MW424-3620	1.96
			SS-TWP851-3563	1.69
			SS-TWP852-3566	1.65

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SB2A005-2240	4.88
			SD703-297	10.1
			SD704-302	1.82 J
			SD711-317	11.4
			SD719-341	2.08 J
			SD723-349	2.1 J
			SD743-675	2.12
			SD745-677	8.96
			SD746-2150	230
			SD747-2152	48.1
			SD748-2153	71.4
			SD750-2155	109
			SD752-2241	18.2
			SD915-2109	1.65
			SD-WD1-3406-0.5	1.66
			SEDC06-08-2146	4.86
			SS101-684	1.94
			SS1A002-2158	1.88
			SS201-001	3.48
			SS203-003	6.48
			SS204-004	2.17
			SS205-008	3.47
			SS206-009	1.65
			SS207-010	2.32
			SS208-011	1.79
			SS209-012	2.01
			SS210-014	2.01
			SS211-015	7.39
			SS212-016	2.88
			SS213-017	1.69
			SS216-020	3.13
			SS217-021	2.17
			SS218-400	69.6
			SS219-401	39.2
			SS220-402	8.24
			SS221-403	978
			SS2A004-2173	6.31
			SS2A006-2369	8.04
			SS2A008-2371	14
			SS2A009-2373	2.93
			SS2B002-534	2.54
			SS2B003-535	3.94
			SS2B007-540	2.81
			SS2B008-541	2.76

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS2B009-542	1.99
			SS2B014-2374	4.3
			SS2C002-2380	2.32
			SS2D001-547	2.75
			SS2D002-548	2.97
			SS2D003-549	3.26
			SS2D005-551	2.39
			SS2D006-552	1.91
			SS2D007-553	1.64
			SS2D008-554	2.84
			SS2D009-2381	1.73
			SS2D011-2383	2.29
			SS2D012-2384	4.2
			SS2D013-2385	3.36
			SS303-027	3.48 J
			SS304-028	1.8 J
			SS306-030	1.87 J
			SS308-032	14.2
			SS309-033	5.64
			SS310-034	1.92 J
			SS311-035	15.6
			SS312-036	10.3
			SS313-687	1.87
			SS314-404	15.8
			SS3A001-555	2.45
			SS3A002-556	7.36
			SS3A003-557	4.18
			SS3A004-559	5.17
			SS3A005-560	7.79
			SS3A006-561	9.35
			SS3A007-562	8.82
			SS3A008-563	2.33
			SS3A009-565	3.21
			SS3A010-566	3.69
			SS3A011-567	2.61
			SS3A012-568	2.25
			SS3A013-569	7.3
			SS3A016-572	5.79
			SS3A017-2162	7.59
			SS3A021-2392	21.8
			SS3A023-2394	11.5
			SS3A024-2395	8.85
			SS3A025-2397	3.87
			SS3B001-573	2.15

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS3B002-575	3.32
			SS3B003-576	8.65
			SS3B004-577	6.88
			SS3B005-578	3.24
			SS3B007-580	3.09
			SS3B010-583	5.68
			SS3B011-2398	16.9
			SS3B012-2401	2.75
			SS3B013-2402	12.5
			SS3B014-2404	2.71
			SS3B015-2405	9.85
			SS3B016-2406	3.47
			SS3B017-2407	3.09
			SS3B018-2409	1.94
			SS3B019-2410	2.42
			SS3C001-584	3.61
			SS3C002-585	4.23
			SS3C003-586	2.94
			SS3C004-587	2.72
			SS3C005-588	5.23
			SS3C006-589	10.7
			SS3C007-590	10.8
			SS3C008-591	1.83
			SS3C009-592	1.71
			SS3C011-594	1.86
			SS3C012-596	2.44
			SS3C013-597	2.9
			SS3C014-2411	10.1
			SS3C015-2412	87.9
			SS3C016-2413	3.12
			SS3D001-2414	11.2
			SS3D002-2415	2.24
			SS3D004-2418	7.87
			SS3D006-2420	32.9
			SS3D007-2421	7.54
			SS3D008-2422	2.05 J
			SS3D009-2423	2.25
			SS401-037	1.62
			SS402-039	10.8
			SS403-040	2.15
			SS404-041	9.54
			SS406-043	2.27
			SS412-049	2.05
			SS413-050	2.83

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS414-051	2.09 J
			SS415-052	2.1 J
			SS417-054	2.63 J
			SS422-688	1.79
			SS4A001-598	2.67
			SS4A002-600	1.88
			SS4A003-601	3.62
			SS4A004-602	2.25
			SS4A005-603	2.18
			SS4A006-604	2.05
			SS4A007-605	6.29
			SS4A011-610	3.38
			SS4A012-611	2.72
			SS4A013-2270	11.2
			SS4A014-2271	6.3
			SS4A015-2274	5.36
			SS4A016-2275	1.66
			SS4A019-2425	2.46
			SS4B001-612	4.47
			SS4B002-613	3.7
			SS4B003-614	2.37
			SS4B006-617	1.94
			SS4B007-2278	2.37
			SS4B008-2279	2.14
			SS4B009-2280	8.46
			SS4B010-2282	12.1
			SS4B013-2285	2.22
			SS4B014-2288	2.96
			SS4B015-2289	2.56
			SS4B016-2290	3.32
			SS4B019-2293	1.65
			SS4B021-2295	3.76
			SS4C002-2298	4.21
			SS4C003-2299	1.62
			SS4C004-2300	3.52
			SS4C005-2302	2.55
			SS4C006-2303	1.66
			SS4D005-619	3.25
			SS4D006-620	2.34
			SS4D009-625	2.04
			SS4D010-626	2
			SS4D011-627	2.67
			SS4D012-628	1.87
			SS4D013-629	2.4

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS4D014-630	2.11
			SS4D015-631	2.97
			SS4D017-2306	3.47
			SS4D019-2308	2.4
			SS4D020-2309	2.24
			SS4F005-2311	1.7
			SS4F006-2312	1.89
			SS4F009-2315	1.77
			SS4G001-2316	1.92
			SS4G002-2365	8.51
			SS505-694	1.97
			SS5A010-2164	4.56
			SS5A011-2165	1.88
			SS5A012-2166	3.37
			SS5A013-2167	3.42
			SS5A014-2168	2.21
			SS5A016-2170	31.3
			SS5A021-2214	4.53
			SS606-698	352
			SS6A001-2317	8.73
			SS6A010-2364	2.69 J
			SS6B005-2335	8.25
			SS805-074	2.79
			SS806-075	1.92
			SS813-700	2.02
			SS814-701	2.62
			SS815-702	4.47
			SS816-703	3.39
			SS818-705	1.8
			SS820-708	3.13
			SS826-405	11.9
			SS827-406	33.3
			SS829-409	5.29
			SS830-1036	304
			SS8A002-2174	3.68
			SS8A003-2175	87.6
			SS8A004-2176	9.79
			SS8A005-2177	3.03
			SS8A014-2181	68.5
			SS8B001-2430	4.11 J
			SS8B005-2435	1.78
			SS8B006-2436	2.71
			SS8B007-2437	2.01
			SS8B009-2441	2.83

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS8B010-2442	2.33
			SS8C001-2184	1.98
			SS8D001-2188	3.73
			SS8D003-2190	8.94
			SS8D004-2191	58.8 J
			SS8D006-2193	14.1
			SS8D007-2195	9.04
			SS8D009-2197	536
			SS8E001-2198	1.66
			SS8E002-2199	2.12 J
			SS8F001-2201	6.76
			SS8F003-2203	39.4
			SS8F005-2206	40.8
			SS8F006-2207	2.99
			SS8H001-2443	10
			SS8H002-2444	22.5 J
			SS904-2087	1.61 J
			SS905-2089	2.14
			SS906-2091	3.1
			SS913-2105	30.5
			SS-DRUM01-3369	2.69
			SS-DRUM02-3372	5.21
			SS-DRUM04-3378	2.26
			SS-DRUM05-3381	1.86 J
			SS-DRUM06-3395	1.73
			SS-DRUM07-3398	2.59
			SS-EU011-3327	2.14
			SS-EU021-3328	1.73
			SS-EU051-3334	2.48
			SS-EU061-3335	8.02
			SS-EU071-3337	1.74
			SS-EU072-3338	2.52
			SS-EU101-3343	6.86
			SS-EU121-3349	2.51
			SS-EU122-3350	1.72
			SS-EU123-3351	2.59 J
			SS-MW229-3617	1.61
			SS-MW313-3590	3.07
			SS-MW314-3593	2.89
			SS-MW422-3608	1.8 J
			SS-MW423-3611	1.92
			SS-MW861-3599	1.67
			SS-TWP835-3515	1.69
			SS-TWP836-3518	2.01

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.6	SS-TWP837-3521	1.62
			SS-TWP841-3533	2.01
			SS-TWP842-3536	1.75
			SS-TWP844-3542	2.58
			SS-TWP845-3545	2.57
			SS-TWP847-3551	2
			SS-TWP848-3554	2.7
			SS-TWP849-3557	2.06 J
			SS-TWP852-3566	2.53
			SS-TWP855-3575	2.7
			SS-TWP856-3578	2.04 J
			TS203-2808-020	3.68
			TS809-2904-001	4.58
			TS809-2905-007	5.95
			TS812-2928-062	14.3

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/g	1.24	SD914-2108	1.46
			SS221-403	2.07
			SS2D003-549	1.46
			SS2D005-551	1.39
			SS2D008-554	1.29
			SS2D011-2383	1.33
			SS3B010-583	1.25
			SS402-039	1.25
			SS417-054	1.25 J
			SS4B016-2290	1.33
			SS4D017-2306	1.32
			SS504-692	1.36
			SS5A006-642	1.73
			SS5A010-2164	1.31
			SS8D009-2197	1.7
			SS8F006-2207	1.33
			SS905-2089	1.52
			SS-DRUM06-3395	1.3
			SS-EU032-3331	1.27
			SS-EU123-3351	1.3 J
			SS-MW314-3593	1.48
			SS-MW424-3620	1.33
			SS-TWP835-3515	1.3
			SS-TWP841-3533	1.39
			SS-TWP842-3536	1.52
			SS-TWP843-3539	1.25
			SS-TWP848-3554	1.54
			SS-TWP849-3557	1.32 J
			SS-TWP852-3566	1.36
			SS-TWP853-3569	1.58
			SS-TWP856-3578	1.36 J
			TS809-2905-007	1.34

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SD703-297	5.6
			SD719-341	4.13 J
			SD725-353	5.06
			SD741-672	4.89
			SD746-2150	6.35
			SD748-2153	5.11
			SD750-2155	8.04
			SD911-2101	4.45
			SD912-2103	4.36
			SS202-002	6.34
			SS203-003	5.06
			SS207-010	3.96
			SS218-400	49.4
			SS219-401	20.9
			SS220-402	21.1
			SS221-403	44.8
			SS2B003-535	9.59
			SS2B004-536	9.69
			SS2B006-539	6.21
			SS2B007-540	4.44
			SS2B008-541	5.62
			SS2B014-2374	9.96
			SS2B016-2377	4.01
			SS2D009-2381	5.57
			SS2D010-2382	4.6
			SS2D011-2383	7.71
			SS303-027	4.81 J
			SS306-030	4.2 J
			SS308-032	10.4
			SS311-035	5.33
			SS314-404	5.77
			SS3A003-557	4.24
			SS3A004-559	12.1
			SS3A005-560	9.12
			SS3A007-562	4.26
			SS3A012-568	4.26
			SS3A013-569	3.95
			SS3A015-571	4.6
			SS3A016-572	5.36
			SS3A021-2392	4.8
			SS3A024-2395	4.63
			SS3B001-573	4.77
			SS3B003-576	6.25
			SS3B004-577	5.39

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SS3B005-578	5.44
			SS3B007-580	7.17
			SS3B010-583	5.62
			SS3B011-2398	5.51
			SS3B014-2404	4.4
			SS3B015-2405	16.9
			SS3B016-2406	4.07
			SS3C002-585	4.19
			SS3C005-588	12.4
			SS3C006-589	5.71
			SS3C007-590	9.41
			SS3C010-593	20.9
			SS3C011-594	6.46
			SS3C014-2411	15.4
			SS3C015-2412	330
			SS3D001-2414	6.02
			SS3D004-2418	4.31
			SS3D005-2419	6.72
			SS3D006-2420	1270
			SS3D007-2421	5630
			SS3D008-2422	15
			SS3D009-2423	20.2
			SS402-039	33.1
			SS4A007-605	6.11
			SS4A012-611	8.69
			SS4A013-2270	4.05
			SS4A014-2271	11.4
			SS4A015-2274	10.5
			SS4B001-612	8.97
			SS4B002-613	5.07
			SS4B009-2280	34.3
			SS4B010-2282	6.6
			SS4B014-2288	4.28
			SS4B016-2290	7.76
			SS4C002-2298	7.43
			SS4C003-2299	5.19
			SS4C004-2300	4.15
			SS4D017-2306	3.97
			SS4G002-2365	4.09
			SS502-060	27.1
			SS503-064	366
			SS504-692	27.7
			SS5A001-637	8.97
			SS5A002-638	8.01

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.94	SS5A006-642	7.6
			SS5A010-2164	7.63
			SS5A012-2166	6
			SS5A013-2167	6.73
			SS5A014-2168	6.81
			SS5A016-2170	4.43
			SS5A021-2214	10
			SS606-698	287
			SS6B005-2335	6.55
			SS804-073	4.41 J
			SS814-701	9.52
			SS815-702	9.23
			SS816-703	8.94
			SS817-704	4.79
			SS818-705	5.52
			SS819-706	55.8
			SS826-405	9.87
			SS827-406	8.35
			SS830-1036	884
			SS8A003-2175	5.86
			SS8A014-2181	4.98
			SS8B005-2435	4.07
			SS8B007-2437	9.69
			SS8B008-2438	15.5
			SS8B010-2442	8.09
			SS8D002-2189	5.61
			SS8D003-2190	5.71
			SS8D004-2191	5.42
			SS8D007-2195	10.9
			SS8D009-2197	19
			SS8F001-2201	4.32
			SS8F003-2203	4.83
			SS8F005-2206	4.33
			SS8F006-2207	6.63
			SS8H001-2443	10.4
			SS8H002-2444	11.3
			SS903-2083	4.01
			SS905-2089	13.5
			SS913-2105	4.07
			SS-DRUM07-3398	4.18
			SS-EU051-3334	5
			SS-EU111-3346	4.14
			SS-EU121-3349	15.4
			SS-EU141-3355	5.73

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	μg/g	3.94	SS-TWP833-3509	40.2
			SS-TWP857-3581	24.3
			TS812-2928-062	2860

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.68	SD703-297	1.94
			SD719-341	1.75
			SD741-672	2.05
			SD746-2150	4.14
			SD748-2153	2.73
			SD750-2155	4.01
			SEDC06-08-2146	2.04
			SS202-002	1.93
			SS218-400	12.1
			SS219-401	7.71
			SS220-402	8.43
			SS221-403	29.7
			SS2A006-2369	1.96
			SS2A008-2371	1.77
			SS2B002-534	1.81
			SS2B003-535	4.44
			SS2B004-536	2.08
			SS2B006-539	2.02
			SS2B007-540	2.41
			SS2B010-543	1.9
			SS2B014-2374	3.68
			SS2D006-552	1.76
			SS2D009-2381	2.23
			SS2D011-2383	3.08
			SS303-027	2.72
			SS308-032	3.66
			SS311-035	1.9
			SS312-036	2.25
			SS314-404	2.98
			SS3A002-556	2.34
			SS3A004-559	2.93
			SS3A005-560	9.03
			SS3A006-561	1.78
			SS3A013-569	2.36
			SS3A016-572	2.01
			SS3B001-573	2.39
			SS3B003-576	2.23
			SS3B004-577	2.59
			SS3B005-578	2.15
			SS3B007-580	2.9
			SS3B010-583	3.42
			SS3B011-2398	2.16
			SS3B013-2402	2.35
			SS3B014-2404	3.67

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.68	SS3B015-2405	7.19
			SS3C002-585	2.09
			SS3C005-588	1.83
			SS3C006-589	2.25
			SS3C007-590	3.89
			SS3C014-2411	8.5
			SS3C015-2412	64.6
			SS3C016-2413	1.98
			SS3D001-2414	2.4
			SS3D002-2415	2.14
			SS3D005-2419	3.45
			SS3D006-2420	371
			SS3D007-2421	1420
			SS3D008-2422	5.02 J
			SS3D009-2423	7.83
			SS402-039	10.1
			SS4A011-610	1.76
			SS4A012-611	2.82
			SS4A013-2270	1.94
			SS4A014-2271	5.31
			SS4A015-2274	4.64
			SS4B001-612	3.63
			SS4B009-2280	11.5
			SS4B010-2282	3.03
			SS4B015-2289	2.09
			SS4B016-2290	3.39
			SS4B021-2295	2.08
			SS4C002-2298	2.46
			SS4C003-2299	2.92
			SS4D012-628	1.69
			SS4D017-2306	1.85
			SS502-060	7.09
			SS503-064	119
			SS504-692	7.66
			SS505-694	1.79
			SS5A001-637	2.51
			SS5A002-638	4.07
			SS5A006-642	2.26
			SS5A010-2164	2.37
			SS5A012-2166	3.4
			SS5A013-2167	3.79
			SS5A016-2170	2.11
			SS5A021-2214	3.4
			SS606-698	42.5

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.68	SS6B005-2335	2.42
			SS804-073	2.11
			SS806-075	1.77
			SS814-701	3.77
			SS815-702	3.71
			SS816-703	2.28
			SS817-704	2.07
			SS818-705	2.63
			SS819-706	15.6
			SS820-708	1.95
			SS826-405	4.05
			SS827-406	3.34
			SS830-1036	89.9
			SS8A003-2175	4.19
			SS8A014-2181	2.38
			SS8B007-2437	4.02
			SS8B010-2442	2.94
			SS8D003-2190	1.75
			SS8D004-2191	2.31 J
			SS8D007-2195	2.34
			SS8D009-2197	9.68
			SS8F001-2201	2.79
			SS8F003-2203	1.86
			SS8F005-2206	1.74
			SS8F006-2207	2.4
			SS8H001-2443	2.89
			SS8H002-2444	3.8 J
			SS905-2089	2.95
			SS-EU051-3334	2.37
			SS-EU121-3349	6
			SS-EU123-3351	1.96 J
			SS-EU141-3355	2.38
			SS-MW313-3590	2.59
			SS-MW314-3593	2.02
			SS-TWP833-3509	18.9
			SS-TWP841-3533	1.85
			SS-TWP845-3545	1.73
			SS-TWP848-3554	2.1
			SS-TWP852-3566	1.92
			SS-TWP855-3575	2.75
			SS-TWP857-3581	11
			TS812-2928-062	8340

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SD703-297	0.124 J
			SD712-319	0.109 J
			SD746-2150	0.257
			SD749-2154	0.17
			SD750-2155	0.152
			SD917-2115	0.154
			SD-WD1-3406-0.5	0.404
			SS1A001-2157	0.15
			SS1B002-2160	0.229
			SS202-002	0.14 J
			SS208-011	0.17 J
			SS218-400	0.409
			SS220-402	0.452
			SS221-403	1.2
			SS2B014-2374	0.321
			SS2D011-2383	0.179
			SS2D013-2385	0.269
			SS303-027	0.214 J
			SS306-030	0.124 J
			SS308-032	0.102 J
			SS311-035	0.0862 J
			SS3A005-560	0.329
			SS3A006-561	0.186
			SS3A007-562	0.206
			SS3A021-2392	0.209
			SS3A022-2393	0.168
			SS3B012-2401	0.152
			SS3B015-2405	0.403
			SS3B019-2410	0.26
			SS3C013-597	0.363
			SS3C014-2411	0.433
			SS3C015-2412	2.94
			SS3D001-2414	0.233
			SS3D002-2415	0.283
			SS3D004-2418	0.25
			SS3D005-2419	0.237
			SS3D006-2420	21.1
			SS3D007-2421	96.2
			SS3D008-2422	0.697 J
			SS3D009-2423	0.44
			SS402-039	0.302 J
			SS408-045	0.163 J
			SS4A014-2271	0.252
			SS4A015-2274	0.184

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS4B009-2280	0.309
			SS4B010-2282	0.158
			SS4B014-2288	0.15
			SS4B016-2290	0.229
			SS4B019-2293	0.119
			SS502-060	0.264 J
			SS503-064	6.15
			SS504-692	0.338
			SS5A006-642	0.262
			SS5A011-2165	0.177
			SS5A012-2166	0.507
			SS5A013-2167	0.367
			SS5A014-2168	0.129
			SS5A021-2214	0.221
			SS604-069	0.13 J
			SS606-698	2.13
			SS6A001-2317	0.203
			SS6A009-2329	0.189
			SS6A010-2364	0.148 J
			SS6B001-2330	0.139
			SS6B005-2335	0.252
			SS815-702	0.243
			SS817-704	0.132
			SS819-706	0.625
			SS827-406	0.381
			SS830-1036	3.43
			SS8A003-2175	0.285
			SS8A004-2176	0.154
			SS8A014-2181	0.115
			SS8B001-2430	0.107 J
			SS8B007-2437	0.234
			SS8B010-2442	0.239
			SS8C002-2185	0.106
			SS8D003-2190	0.15
			SS8D007-2195	0.142
			SS8D009-2197	0.394
			SS8F003-2203	0.0978
			SS8F006-2207	0.167
			SS8H001-2443	0.197
			SS8H002-2444	0.404 J
			SS905-2089	0.214
			SS-EU032-3331	0.167
			SS-EU051-3334	0.447
			SS-EU121-3349	0.251

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS-EU141-3355	0.224
			SS-MW314-3593	0.39
			SS-MW424-3620	0.221
			SS-MW861-3599	0.101
			SS-TWP833-3509	0.935
			SS-TWP841-3533	0.293
			SS-TWP845-3545	0.236
			SS-TWP846-3548	0.226
			SS-TWP847-3551	0.473
			SS-TWP848-3554	0.094
			SS-TWP857-3581	0.842
			TS809-2904-001	0.0981
			TS812-2928-062	886

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SD703-297	1.72
			SD719-341	1.49
			SD725-353	1.49
			SD743-675	1.49
			SD746-2150	3.01
			SD748-2153	1.9
			SD750-2155	2.58
			SD912-2103	1.39
			SD914-2108	1.5
			SEDC06-08-2146	3.52
			SS103-686	1.44
			SS201-001	1.37
			SS202-002	1.91
			SS203-003	1.8
			SS207-010	2.15
			SS218-400	12.1
			SS219-401	7.51
			SS220-402	6.8
			SS221-403	26.2
			SS2A004-2173	1.74
			SS2A006-2369	1.95
			SS2A008-2371	1.64
			SS2B002-534	1.78
			SS2B003-535	2.23
			SS2B004-536	2.25
			SS2B006-539	2.26
			SS2B007-540	1.61
			SS2B008-541	1.42
			SS2B014-2374	3.82
			SS2B016-2377	1.52
			SS2D009-2381	2.5
			SS2D011-2383	3.05
			SS303-027	2.42
			SS306-030	1.48
			SS308-032	3.42
			SS311-035	1.75
			SS312-036	2.09
			SS313-687	1.4
			SS314-404	2.37
			SS3A002-556	1.62
			SS3A004-559	4
			SS3A005-560	9.23
			SS3A006-561	1.85
			SS3A007-562	1.52

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS3A013-569	1.42
			SS3A015-571	1.41
			SS3A020-2389	1.89
			SS3A021-2392	1.47
			SS3A022-2393	1.37
			SS3A024-2395	1.92
			SS3B001-573	2.46
			SS3B003-576	2.49
			SS3B004-577	2.17
			SS3B005-578	1.78
			SS3B007-580	2.49
			SS3B008-581	1.51
			SS3B010-583	2.46
			SS3B011-2398	1.81
			SS3B012-2401	1.65
			SS3B013-2402	2.33
			SS3B014-2404	3.34
			SS3B015-2405	7.86
			SS3B016-2406	1.98
			SS3C002-585	1.56
			SS3C005-588	1.96
			SS3C006-589	2.44
			SS3C007-590	4.03
			SS3C008-591	1.94
			SS3C011-594	1.5
			SS3C014-2411	7.69
			SS3C015-2412	65.9
			SS3C016-2413	1.71
			SS3D001-2414	2.37
			SS3D005-2419	3.77
			SS3D006-2420	373
			SS3D007-2421	1420
			SS3D008-2422	4.7 J
			SS3D009-2423	7.52
			SS402-039	10.1
			SS407-044	1.62
			SS422-688	1.7
			SS4A007-605	1.84
			SS4A009-607	1.72
			SS4A012-611	3.02
			SS4A013-2270	1.87
			SS4A014-2271	4.56
			SS4A015-2274	4.63
			SS4B001-612	2.72

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS4B009-2280	11
			SS4B010-2282	3.46
			SS4B012-2284	1.47
			SS4B014-2288	1.69
			SS4B015-2289	1.91
			SS4B016-2290	3
			SS4B021-2295	1.89
			SS4C002-2298	2.47
			SS4C003-2299	2.2
			SS4C004-2300	1.74
			SS4D011-627	1.37
			SS4G002-2365	1.77
			SS502-060	6.5
			SS503-064	120
			SS504-692	7.52
			SS505-694	2.17
			SS5A001-637	2.73
			SS5A002-638	4.13
			SS5A004-640	1.42
			SS5A006-642	2.69
			SS5A010-2164	2.5
			SS5A012-2166	2.55
			SS5A013-2167	2.72
			SS5A014-2168	1.82
			SS5A016-2170	1.81
			SS5A021-2214	3.72
			SS606-698	41.5
			SS6A001-2317	1.38
			SS6A009-2329	1.83
			SS6B005-2335	2.62
			SS6C006-2342	1.61
			SS801-070	1.58
			SS804-073	1.79
			SS813-700	1.61
			SS814-701	3.31
			SS815-702	3.13
			SS816-703	2.78
			SS817-704	1.77
			SS818-705	1.84
			SS819-706	14.7
			SS820-708	1.65
			SS821-709	1.38
			SS826-405	3.76
			SS827-406	2.36

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.36	SS830-1036	88.6
			SS8A003-2175	3.18
			SS8A004-2176	1.38
			SS8A014-2181	1.75
			SS8B007-2437	3.7
			SS8B010-2442	2.92
			SS8D003-2190	1.63
			SS8D004-2191	1.85 J
			SS8D007-2195	2.11
			SS8D009-2197	7.1
			SS8F001-2201	1.9
			SS8F003-2203	1.65
			SS8F005-2206	1.51
			SS8F006-2207	1.73
			SS8H001-2443	2.83
			SS8H002-2444	4.04 J
			SS905-2089	2.95
			SS913-2105	1.66
			SS-EU051-3334	2.45
			SS-EU071-3337	1.66
			SS-EU081-3339	1.73
			SS-EU121-3349	5.66
			SS-EU123-3351	1.52 J
			SS-EU141-3355	1.75
			SS-MW313-3590	2.3
			SS-MW314-3593	1.52
			SS-TWP833-3509	21
			SS-TWP834-3512	1.41
			SS-TWP841-3533	1.82
			SS-TWP845-3545	1.66
			SS-TWP848-3554	1.93
			SS-TWP849-3557	1.43
			SS-TWP852-3566	1.67
			SS-TWP854-3572	1.65
			SS-TWP855-3575	2.75
			SS-TWP857-3581	12.2
			SS-TWP858-3584	1.55
			TS812-2928-062	8830
Semivolatile Organics				

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
2-Methylnaphthalene	μg/Kg	--	SS201-001	490
			SS203-003	819
			SS204-004	2050
			SS208-011	29 J
			SS216-020	25.4 J
			SS2A002-530	53.8
			SS2A003-531	449
			SS2B002-534	2950
			SS2B003-535	2080
			SS311-035	269 J
			SS312-036	73.4 J
			SS3A006-561	354 J
			SS504-692	440
			SS-DRUM07-3398	66.7
bis(2-Ethylhexyl)phthalate	μg/Kg	5130	SS4A004-602	7900
Carbazole	μg/Kg	--	SS2A002-530	49.2 J
			SS2A003-531	334 J
			SS308-032	6580
			SS309-033	1140 J
			SS3C007-590	9940 JD
			SS3C008-591	20000
			SS405-042	210 J
			SS4A007-605	6660 JD
			SS-MW861-3599	43.5 J
			SS-MW863-3605	28.7 J
			SS-TWP848-3554	45 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS505-694	1.5
			SS910-2099	8.4
			SS-DRUM07-3398	1.12 J
			SS-EU051-3334	0.648 J
			SS-MW314-3593	1.4
			SS-MW861-3599	0.82 J
			SS-MW862-3602	0.666 J
			SS-TWP835-3515	0.714 J
			SS-TWP837-3521	0.9 J
			SS-TWP840-3530	1.02
			SS-TWP844-3542	0.555 J
			SS-TWP850-3560	0.669 J
			SS-TWP851-3563	0.867 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
2-Butanone	$\mu\text{g/Kg}$	--	SS215-019	5.4 J
			SS401-037	6.7
			SS420-057	5.1 J
			SS501-059	6
			SS502-060	6.5
			SS503-064	5.1
			SS602-066	2.6 J
			SS603-068	12
			SS801-070	36.5
			SS805-074	45.9
			SS809-078	9
			SS-TWP830-3500	63.2
			SS-TWP831-3503	86.4
			SS-TWP832-3506	307
			SS-TWP834-3512	6.27
			SS-TWP838-3524	71.9
			SS-TWP839-3527	8.02
			SS-TWP840-3530	9.19
			SS-TWP842-3536	6.19
			SS-TWP845-3545	13.9
			SS-TWP848-3554	8.22
			SS-TWP854-3572	11.7
			SS-TWP856-3578	4.48 J

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SD714-326	8 J
			SD731-368	3.2 J
			SD737-381	1.5 J
			SS215-019	6.7
			SS401-037	63.1 B
			SS404-041	23.9
			SS420-057	51.7
			SS501-059	50.2
			SS502-060	65.6
			SS503-064	56.8
			SS602-066	27.2
			SS603-068	98.1
			SS805-074	29.6
			SS806-075	69.4
			SS809-078	71.3
			SS-DRUM01-3369	8.6
			SS-DRUM06-3395	2.46 J
			SS-DRUM07-3398	6.56
			SS-EU022-3329	8.84
			SS-EU112-3347	6.08 J
			SS-MW314-3593	13.7
			SS-MW422-3608	6.92
			SS-MW424-3620	4.21 J
			SS-TWP830-3500	35.5
			SS-TWP831-3503	19.6
			SS-TWP832-3506	21.3
			SS-TWP834-3512	7.3
			SS-TWP838-3524	8.22
			SS-TWP840-3530	16.2
			SS-TWP845-3545	4.19 J
			SS-TWP847-3551	3.93 J
			SS-TWP848-3554	4.21 J
			SS-TWP854-3572	14
			SS-TWP856-3578	9.03
			SS-TWP857-3581	302
			TS203-2808-020	9.8

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzene	$\mu\text{g/Kg}$	--	SS401-037	2.6
			SS403-040	1.6
			SS404-041	1.5
			SS405-042	1.8
			SS420-057	1.2
			SS502-060	0.54 J
			SS602-066	1.3
			SS603-068	1.4
			SS801-070	2.3
			SS805-074	2.6
			SS806-075	2
			SS807-076	2.6
			SS901-2079	0.15 J
			SS905-2089	0.52 J
Carbon disulfide	$\mu\text{g/Kg}$	--	SS402-039	9.1
			SS403-040	1.4 J
			SS404-041	4
			SS420-057	2.4 J
			SS501-059	1.2 J
			SS503-064	1.8 J
			SS602-066	2 J
			SS603-068	2.4 J
			SS806-075	1.6 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	SS216-020	2.7
			SS303-027	0.84 J
			SS415-052	39.1
			SS418-055	10.8
			SS811-080	1.3
			SS-DRUM02-3372	10
			SS-DRUM05-3381	1410
			SS-MW424-3620	3.92
			TS203-2808-020	14.3

* Data qualifier included with concentration value

Table 4-33
Exposure Unit 17
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SD723-349	0.21 J
			SD731-368	0.25 J
			SD737-381	0.27 J
			SS201-001	3.7
			SS310-034	5.7
			SS311-035	0.33 J
			SS401-037	3.9
			SS402-039	0.37 J
			SS403-040	1.1
			SS404-041	2.3
			SS405-042	1.6
			SS420-057	2.8
			SS501-059	0.74
			SS503-064	1.5
			SS602-066	1.2
			SS603-068	1.3
			SS801-070	1.8
			SS805-074	1.9
			SS806-075	3.2
			SS807-076	3.4
			SS811-080	2.1
			SS905-2089	0.38 J
			SS-MW424-3620	0.46 J
			SS-TWP831-3503	0.589 J
			SS-TWP832-3506	0.465 J
			SS-TWP848-3554	0.799 J
			SS-TWP849-3557	0.405 J
			SS-TWP850-3560	0.485 J
			TS203-2808-020	0.39 J
Xylenes (total)	$\mu\text{g/Kg}$	--	SS401-037	1.8 J
			SS404-041	0.99 J
			SS420-057	1 J
			SS503-064	0.39 J
			SS505-694	1.3 J
			SS602-066	0.76 J
			SS801-070	1.1 J
			SS811-080	0.8 J

* Data qualifier included with concentration value

Table 4-34
Background Subsurface Soil (0-10') Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
General Chemistry							
Moisture, Percent	%	4/ 4	14.6	17.2	17.2		D
Percent Solids	%	8/ 8	76.9	84.3	89.6	84.3	N
Total Organic Carbon	mg/Kg	30/ 30	2250	47300	47300	47300	X
Nitroaromatics							
1,3,5-Trinitrobenzene	µg/Kg	0/ 4					O
2,4,6-Trinitrotoluene	µg/Kg	0/ 4					O
2,4-Dinitrotoluene	µg/Kg	0/ 19					O
2,6-Dinitrotoluene	µg/Kg	0/ 19					O
2-Amino-4,6-dinitrotoluene	µg/Kg	0/ 4					O
2-Nitrotoluene	µg/Kg	0/ 4					O
3-Nitrotoluene	µg/Kg	0/ 4					O
4-Amino-2,6-dinitrotoluene	µg/Kg	0/ 4					O
4-Nitrotoluene	µg/Kg	0/ 4					O
HMX	µg/Kg	0/ 4					O
m-Dinitrobenzene	µg/Kg	0/ 4					O
Nitrobenzene	µg/Kg	0/ 19					O
RDX	µg/Kg	0/ 4					O
Tetryl	µg/Kg	0/ 4					O
Metals							
Aluminum	mg/Kg	34/ 34	4380	19100	20600	19100	N
Antimony	mg/Kg	13/ 34	0.26	0.94	0.94	0.94	D
Arsenic	mg/Kg	33/ 33	1.7	11.4	8.73	8.73	G
Barium	mg/Kg	34/ 34	45.2	279	263	263	L
Beryllium	mg/Kg	34/ 34	0.12	1	1.11	1	N
Boron	mg/Kg	29/ 34	1.4	10.1	10.1	10.1	X
Cadmium	mg/Kg	13/ 34	0.04	0.53	0.53	0.53	D
Calcium	mg/Kg	34/ 34	994	58900	58900	58900	X
Chromium	mg/Kg	34/ 34	5.3	25.8	29	25.8	N
Cobalt	mg/Kg	34/ 34	2.2	57.4	36.7	36.7	G
Copper	mg/Kg	34/ 34	4.1	49.3	53.5	49.3	N
Cyanide	mg/Kg	0/ 4					O
Iron	mg/Kg	34/ 34	6240	36400	38600	36400	N
Lead	mg/Kg	33/ 33	2.8	55.2	37.6	37.6	G
Lithium	mg/Kg	34/ 34	4.6	36.8	39.2	36.8	N
Magnesium	mg/Kg	34/ 34	931	14800	15800	14800	N
Manganese	mg/Kg	34/ 34	70	6650	6650	6650	X
Mercury	mg/Kg	13/ 34	0.01	0.27	0.27	0.27	D
Nickel	mg/Kg	34/ 34	5.8	38	38.9	38	N
Potassium	mg/Kg	34/ 34	138	3200	2860	2860	N
Selenium	mg/Kg	8/ 33	0.21	0.37	0.37	0.37	D
Silver	mg/Kg	2/ 34	0.27	0.27	0.27	0.27	D
Sodium	mg/Kg	34/ 34	51.7	331	388	331	G
Thallium	mg/Kg	0/ 34					O
Vanadium	mg/Kg	34/ 34	9.9	35.2	38.7	35.2	N
Zinc	mg/Kg	34/ 34	23.1	266	266	266	X

Table 4-34
Background Subsurface Soil (0-10') Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
PAHs							
Acenaphthene	µg/Kg	1/ 34	79	79	225	79	D
Acenaphthylene	µg/Kg	0/ 34					O
Anthracene	µg/Kg	1/ 34	8	8	225	8	D
Benzo(a)anthracene	µg/Kg	4/ 34	3.7	284	284	284	D
Benzo(a)pyrene	µg/Kg	3/ 34	3.5	313	313	313	D
Benzo(b)fluoranthene	µg/Kg	8/ 34	1.6	396	396	396	D
Benzo(g,h,i)perylene	µg/Kg	2/ 34	4.1	16	225	16	D
Benzo(k)fluoranthene	µg/Kg	5/ 34	0.53	322	322	322	D
Chrysene	µg/Kg	4/ 19	1.6	378	378	378	D
Dibenzo(a,h)anthracene	µg/Kg	1/ 34	2.7	2.7	225	2.7	D
Fluoranthene	µg/Kg	6/ 34	1.3	889	889	889	D
Fluorene	µg/Kg	1/ 34	2.9	2.9	225	2.9	D
Indeno(1,2,3-cd)pyrene	µg/Kg	1/ 34	8.8	8.8	225	8.8	D
Naphthalene	µg/Kg	0/ 34					O
Phenanthrene	µg/Kg	6/ 34	3.5	538	538	538	D
Pyrene	µg/Kg	7/ 34	1.5	716	716	716	D
PCBs							
Aroclor-1016	µg/Kg	0/ 4					O
Aroclor-1221	µg/Kg	0/ 4					O
Aroclor-1232	µg/Kg	0/ 4					O
Aroclor-1242	µg/Kg	0/ 4					O
Aroclor-1248	µg/Kg	0/ 4					O
Aroclor-1254	µg/Kg	0/ 4					O
Aroclor-1260	µg/Kg	0/ 4					O
Pesticides							
4,4'-DDD	µg/Kg	0/ 4					O
4,4'-DDE	µg/Kg	1/ 4	1.4	1.4	1.4		D
4,4'-DDT	µg/Kg	1/ 4	0.65	0.65	0.65		D
Aldrin	µg/Kg	0/ 4					O
alpha-BHC	µg/Kg	0/ 4					O
alpha-Chlordane	µg/Kg	0/ 4					O
beta-BHC	µg/Kg	0/ 4					O
delta-BHC	µg/Kg	0/ 4					O
Dieldrin	µg/Kg	0/ 4					O
Endosulfan I	µg/Kg	0/ 4					O
Endosulfan II	µg/Kg	0/ 4					O
Endosulfan sulfate	µg/Kg	0/ 4					O
Endrin	µg/Kg	0/ 4					O
Endrin aldehyde	µg/Kg	0/ 4					O
Endrin ketone	µg/Kg	0/ 4					O
gamma-BHC (Lindane)	µg/Kg	0/ 4					O
gamma-Chlordane	µg/Kg	0/ 4					O
Heptachlor	µg/Kg	0/ 4					O
Heptachlor epoxide	µg/Kg	1/ 4	0.37	0.37	0.37		D
Methoxychlor	µg/Kg	0/ 4					O
Toxaphene	µg/Kg	0/ 4					O

Table 4-34
Background Subsurface Soil (0-10') Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Radionuclides							
Actinium-227	pCi/g	0/ 30				0.08*	O
Alpha	pCi/g	8/ 8	9.69	15.1	17.7	15.1	N
Americium-241	pCi/g	0/ 30					O
Beta	pCi/g	8/ 8	21.4	28.9	33.6	28.9	N
Cesium-137	pCi/g	14/ 30	0.03	0.34	0.343	0.34	D
Cobalt-60	pCi/g	0/ 30					O
Potassium-40	pCi/g	22/ 22	10	32.9	33	32.9	N
Protactinium-231	pCi/g	0/ 30				0.08*	O
Radium-226	pCi/g	30/ 30	0.39	1.3	1.2	1.2	N
Radium-228	pCi/g	30/ 30	0.37	1.26	1.39	1.26	N
Thorium-228	pCi/g	30/ 30	0.60	1.64	1.69	1.64	N
Thorium-230	pCi/g	30/ 30	0.44	1.62	1.39	1.39	N
Thorium-232	pCi/g	30/ 30	0.37	1.24	1.4	1.24	N
Total Uranium	µg/g	30/ 30	1.22	3.94	3.58	3.58	G
Uranium-234	pCi/g	30/ 30	0.28	1.68	1.66	1.66	G
Uranium-235	pCi/g	1/ 30	0.08	0.08	0.10	0.08	D
Uranium-238	pCi/g	30/ 30	0.37	1.36	1.34	1.34	N
Semivolatile Organics							
1,2,4-Trichlorobenzene	µg/Kg	0/ 19					O
1,2-Dichlorobenzene	µg/Kg	0/ 19					O
1,3-Dichlorobenzene	µg/Kg	0/ 19					O
1,4-Dichlorobenzene	µg/Kg	0/ 19					O
2,4,5-Trichlorophenol	µg/Kg	0/ 19					O
2,4,6-Trichlorophenol	µg/Kg	0/ 19					O
2,4-Dichlorophenol	µg/Kg	0/ 19					O
2,4-Dimethylphenol	µg/Kg	0/ 19					O
2,4-Dinitrophenol	µg/Kg	0/ 19					O
2-Chloronaphthalene	µg/Kg	0/ 19					O
2-Chlorophenol	µg/Kg	0/ 19					O
2-Methyl-4,6-dinitrophenol	µg/Kg	0/ 19					O
2-Methylnaphthalene	µg/Kg	0/ 15					O
2-Nitroaniline	µg/Kg	0/ 19					O
2-Nitrophenol	µg/Kg	0/ 19					O
3,3'-Dichlorobenzidine	µg/Kg	0/ 19					O
3-Nitroaniline	µg/Kg	0/ 19					O
4-Bromophenylphenylether	µg/Kg	0/ 19					O
4-Chloro-3-methylphenol	µg/Kg	0/ 19					O
4-Chloroaniline	µg/Kg	0/ 19					O
4-Chlorophenylphenylether	µg/Kg	0/ 19					O
4-Nitroaniline	µg/Kg	0/ 19					O
4-Nitrophenol	µg/Kg	0/ 19					O
Benzoic acid	µg/Kg	0/ 15					O
bis(2-Chloroethoxy)methane	µg/Kg	0/ 19					O
bis(2-Chloroethyl)ether	µg/Kg	0/ 19					O
bis(2-Chloroisopropyl)ether	µg/Kg	0/ 19					O
bis(2-Ethylhexyl)phthalate	µg/Kg	4/ 19	260	5130	5130	5130	D

Table 4-34
Background Subsurface Soil (0-10') Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Semivolatile Organics (continued)							
Butylbenzylphthalate	µg/Kg	0/ 19					O
Carbazole	µg/Kg	0/ 19					O
Dibenzofuran	µg/Kg	0/ 19					O
Diethylphthalate	µg/Kg	0/ 19					O
Dimethylphthalate	µg/Kg	0/ 19					O
Di-n-butylphthalate	µg/Kg	0/ 19					O
Di-n-octylphthalate	µg/Kg	0/ 19					O
Hexachlorobenzene	µg/Kg	0/ 19					O
Hexachlorobutadiene	µg/Kg	0/ 19					O
Hexachlorocyclopentadiene	µg/Kg	0/ 19					O
Hexachloroethane	µg/Kg	0/ 19					O
Isophorone	µg/Kg	0/ 19					O
m,p-Cresols	µg/Kg	0/ 19					O
N-Nitroso-di-n-propylamine	µg/Kg	0/ 19					O
N-Nitrosodiphenylamine	µg/Kg	0/ 19					O
o-Cresol	µg/Kg	0/ 19					O
Pentachlorophenol	µg/Kg	1/ 19	110	110	225	110	D
Phenol	µg/Kg	0/ 19					O
Volatile Organics							
1,1,1-Trichloroethane	µg/Kg	0/ 4					O
1,1,2,2-Tetrachloroethane	µg/Kg	0/ 4					O
1,1,2-Trichloroethane	µg/Kg	0/ 4					O
1,1-Dichloroethane	µg/Kg	0/ 4					O
1,1-Dichloroethene	µg/Kg	0/ 4					O
1,2-Dichloroethane	µg/Kg	0/ 4					O
1,2-Dichloroethene	µg/Kg	0/ 4					O
1,2-Dichloropropane	µg/Kg	0/ 4					O
2-Butanone	µg/Kg	0/ 4					O
2-Hexanone	µg/Kg	0/ 4					O
4-Methyl-2-pentanone	µg/Kg	0/ 4					O
Acetone	µg/Kg	0/ 4					O
Benzene	µg/Kg	0/ 4					O
Bromodichloromethane	µg/Kg	0/ 4					O
Bromoform	µg/Kg	0/ 4					O
Bromomethane	µg/Kg	0/ 4					O
Carbon disulfide	µg/Kg	0/ 4					O
Carbon tetrachloride	µg/Kg	0/ 4					O
Chlorobenzene	µg/Kg	0/ 4					O
Chloroethane	µg/Kg	0/ 4					O
Chloroform	µg/Kg	0/ 4					O
Chloromethane	µg/Kg	0/ 4					O
cis-1,3-Dichloropropene	µg/Kg	0/ 4					O
Dibromochloromethane	µg/Kg	0/ 4					O
Ethylbenzene	µg/Kg	0/ 4					O
Methylene chloride	µg/Kg	0/ 4					O
Styrene	µg/Kg	0/ 4					O

Table 4-34
Background Subsurface Soil (0-10') Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific	Dist
		>Detection Limit				UTL Criteria	
Volatile Organics (continued)							
Tetrachloroethene	µg/Kg	0/ 4					O
Toluene	µg/Kg	0/ 4					O
trans-1,3-Dichloropropene	µg/Kg	0/ 4					O
Trichloroethene	µg/Kg	0/ 4					O
Vinyl chloride	µg/Kg	0/ 4					O
Xylenes (total)	µg/Kg	0/ 4					O

Substitutions:

*0.08 Uranium-235 SB UTL substituted for Actinium-227 and Protactinium-231 in SB

Dist Codes:

L - Distribution most similar to lognormal

N - Distribution most similar to normal

G - Distribution most similar to gamma

O - No detects, no UTL calculated

X - Distribution significantly different from normal and lognormal

D - Distribution not determined because less than 50% detects or less than 8 detects

Z - Distribution with negative results and therefore treated as normal

Table 4-35
Exposure Unit 1
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	17	4700 *	19600	17
Antimony	mg/Kg	17	0.32 BN	1.04 BN	7
Arsenic	mg/Kg	17	1.68 N	8.81 N	17
Barium	mg/Kg	17	55.1	279 J	17
Beryllium	mg/Kg	17	0.26 BE	0.948	17
Boron	mg/Kg	17	0.91 B	10.9	17
Cadmium	mg/Kg	17	0.076 B	1.1	7
Calcium	mg/Kg	17	3230	58500 *	17
Chromium	mg/Kg	17	6.4	25.4	17
Cobalt	mg/Kg	17	4.2	19.7	17
Copper	mg/Kg	17	16.6 N	146 *N	17
Iron	mg/Kg	17	10500	36900	17
Lead	mg/Kg	17	6.4	37.7 *E	17
Lithium	mg/Kg	17	14.4 E	32.9 E	17
Magnesium	mg/Kg	17	2550 E	12900 *	17
Manganese	mg/Kg	17	280	3670	17
Mercury	mg/Kg	17	0.019	1.1	16
Nickel	mg/Kg	17	8.8 E	46	17
Potassium	mg/Kg	17	697 E	2710 E	17
Selenium	mg/Kg	17	0.27 BN	1.7 N	16
Silver	mg/Kg	17	0.05 BN	0.75 N	12
Sodium	mg/Kg	17	39.1	255 *	17
Thallium	mg/Kg	17	0.07 B	0.285 B	15
Vanadium	mg/Kg	17	10.2	42.5 N	17
Zinc	mg/Kg	17	26.2	84 N	17
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	8	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	8	--	--	0
2,4-Dinitrotoluene	μg/Kg	17	--	--	0
2,6-Dinitrotoluene	μg/Kg	17	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	8	--	--	0
2-Nitrotoluene	μg/Kg	8	--	--	0
3-Dinitrobenzene	μg/Kg	8	--	--	0
3-Nitrotoluene	μg/Kg	8	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	8	--	--	0
4-Nitrotoluene	μg/Kg	8	--	--	0
HMX	μg/Kg	8	--	--	0
Nitrobenzene	μg/Kg	17	--	--	0
RDX	μg/Kg	8	--	--	0
Tetryl	μg/Kg	8	--	--	0
PAHs					
Acenaphthene	μg/Kg	17	--	--	0
Acenaphthylene	μg/Kg	17	--	--	0

* Data qualifier included with concentration value

Table 4-35
Exposure Unit 1
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	17	--	--	0
Benzo(a)anthracene	μg/Kg	17	--	--	0
Benzo(a)pyrene	μg/Kg	17	--	--	0
Benzo(b)fluoranthene	μg/Kg	17	2.5	24.7	2
Benzo(g,h,i)perylene	μg/Kg	17	1.7	1.7	1
Benzo(k)fluoranthene	μg/Kg	17	--	--	0
Chrysene	μg/Kg	17	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	17	--	--	0
Fluoranthene	μg/Kg	17	21.9 J	21.9 J	1
Fluorene	μg/Kg	17	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	17	--	--	0
Naphthalene	μg/Kg	17	292 J	292 J	1
Phenanthrene	μg/Kg	17	2.5	252 J	3
Pyrene	μg/Kg	17	1.6	1.6	1
PCBs					
Aroclor-1016	μg/Kg	13	--	--	0
Aroclor-1221	μg/Kg	13	--	--	0
Aroclor-1232	μg/Kg	13	--	--	0
Aroclor-1242	μg/Kg	13	--	--	0
Aroclor-1248	μg/Kg	13	--	--	0
Aroclor-1254	μg/Kg	13	--	--	0
Aroclor-1260	μg/Kg	13	8.9 J	8.9 J	1
Pesticides					
4,4'-DDD	μg/Kg	13	0.357 J	0.357 J	1
4,4'-DDE	μg/Kg	13	0.69 J	2.67	4
4,4'-DDT	μg/Kg	13	0.711 J	3.47 J	4
Aldrin	μg/Kg	13	--	--	0
alpha-BHC	μg/Kg	13	--	--	0
alpha-Chlordane	μg/Kg	13	--	--	0
beta-BHC	μg/Kg	13	--	--	0
delta-BHC	μg/Kg	13	--	--	0
Dieldrin	μg/Kg	13	0.622 J	0.622 J	1
Endosulfan I	μg/Kg	13	--	--	0
Endosulfan II	μg/Kg	13	--	--	0
Endosulfan sulfate	μg/Kg	13	--	--	0
Endrin	μg/Kg	13	--	--	0
Endrin aldehyde	μg/Kg	13	--	--	0
Endrin ketone	μg/Kg	13	--	--	0
gamma-BHC (Lindane)	μg/Kg	13	--	--	0
gamma-Chlordane	μg/Kg	13	--	--	0
Heptachlor	μg/Kg	13	--	--	0
Heptachlor epoxide	μg/Kg	13	--	--	0
Methoxychlor	μg/Kg	13	--	--	0
Toxaphene	μg/Kg	13	--	--	0

* Data qualifier included with concentration value

Table 4-35
Exposure Unit 1
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	49	1.51	9.39	6
Alpha	pCi/g	12	6.26	230	12
Americium-241	pCi/g	49	0.0301	0.32	2
Beta	pCi/g	12	10.2	219	12
Cesium-137	pCi/g	52	0.0401	1.13	32
Cobalt-60	pCi/g	49	--	--	0
Plutonium-238	pCi/g	1	--	--	0
Plutonium-239/240	pCi/g	1	--	--	0
Potassium-40	pCi/g	20	9.15	48.7	20
Protactinium-231	pCi/g	49	9.43	9.43	1
Radium-226	pCi/g	55	0.67	184	47
Radium-228	pCi/g	49	0.54	2.53	47
Thorium-228	pCi/g	55	0.654	2.38	53
Thorium-230	pCi/g	55	0.698	354	46
Thorium-232	pCi/g	55	0.515	1.73	54
Total Activity	pCi/g	11	--	--	0
Total Uranium	μg/g	55	0.411	366	55
Uranium-234	pCi/g	55	0.532	119	55
Uranium-235	pCi/g	55	0.0701 J	6.15	19
Uranium-238	pCi/g	55	0.534	120	55
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	17	--	--	0
1,2-Dichlorobenzene	μg/Kg	17	--	--	0
1,3-Dichlorobenzene	μg/Kg	17	--	--	0
1,4-Dichlorobenzene	μg/Kg	17	--	--	0
2,4,5-Trichlorophenol	μg/Kg	17	--	--	0
2,4,6-Trichlorophenol	μg/Kg	17	--	--	0
2,4-Dichlorophenol	μg/Kg	17	--	--	0
2,4-Dimethylphenol	μg/Kg	17	--	--	0
2,4-Dinitrophenol	μg/Kg	17	--	--	0
2-Chloronaphthalene	μg/Kg	17	--	--	0
2-Chlorophenol	μg/Kg	17	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	17	--	--	0
2-Methylnaphthalene	μg/Kg	16	440	440	1
2-Nitroaniline	μg/Kg	17	--	--	0
2-Nitrophenol	μg/Kg	17	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	17	--	--	0
3-Nitroaniline	μg/Kg	17	--	--	0
4-Bromophenylphenylether	μg/Kg	17	--	--	0
4-Chloro-3-methylphenol	μg/Kg	17	--	--	0
4-Chloroaniline	μg/Kg	17	--	--	0
4-Chlorophenylphenylether	μg/Kg	17	--	--	0
4-Nitroaniline	μg/Kg	17	--	--	0

* Data qualifier included with concentration value

Table 4-35
Exposure Unit 1
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitrophenol	μg/Kg	17	--	--	0
Benzoic Acid	μg/Kg	16	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	17	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	17	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	17	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	17	241 J	332 J	2
Butylbenzylphthalate	μg/Kg	17	--	--	0
Carbazole	μg/Kg	17	--	--	0
Dibenzofuran	μg/Kg	17	--	--	0
Diethylphthalate	μg/Kg	17	--	--	0
Dimethylphthalate	μg/Kg	17	--	--	0
Di-n-butylphthalate	μg/Kg	17	--	--	0
Di-n-octylphthalate	μg/Kg	17	150 J	150 J	1
Diphenylamine	μg/Kg	11	--	--	0
Hexachlorobenzene	μg/Kg	17	--	--	0
Hexachlorobutadiene	μg/Kg	17	--	--	0
Hexachlorocyclopentadiene	μg/Kg	17	--	--	0
Hexachloroethane	μg/Kg	17	--	--	0
Isophorone	μg/Kg	17	--	--	0
m,p-Cresols	μg/Kg	16	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	17	--	--	0
N-Nitrosodiphenylamine	μg/Kg	6	--	--	0
o-Cresol	μg/Kg	17	--	--	0
p-Cresol	μg/Kg	1	--	--	0
Pentachlorophenol	μg/Kg	17	--	--	0
Phenol	μg/Kg	17	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	14	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	14	--	--	0
1,1,2-Trichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethane	μg/Kg	14	--	--	0
1,1-Dichloroethene	μg/Kg	14	1.5	1.5	1
1,2-Dichloroethane	μg/Kg	14	--	--	0
1,2-Dichloroethene	μg/Kg	1	--	--	0
1,2-Dichloropropane	μg/Kg	14	--	--	0
2-Butanone	μg/Kg	14	5.1	6.5	3
2-Hexanone	μg/Kg	14	--	--	0
4-Methyl-2-pentanone	μg/Kg	14	--	--	0
Acetone	μg/Kg	14	4.22 J	65.6	5
Benzene	μg/Kg	14	0.54 J	0.54 J	1
Bromodichloromethane	μg/Kg	14	--	--	0
Bromoform	μg/Kg	14	--	--	0
Bromomethane	μg/Kg	14	--	--	0
Carbon disulfide	μg/Kg	14	1.2 J	1.8 J	2

* Data qualifier included with concentration value

Table 4-35
Exposure Unit 1
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon tetrachloride	μg/Kg	14	--	--	0
Chlorobenzene	μg/Kg	14	--	--	0
Chloroethane	μg/Kg	14	--	--	0
Chloroform	μg/Kg	14	--	--	0
Chloromethane	μg/Kg	14	--	--	0
cis-1,2-Dichloroethene	μg/Kg	13	--	--	0
cis-1,3-Dichloropropene	μg/Kg	14	--	--	0
Dibromochloromethane	μg/Kg	14	--	--	0
Ethylbenzene	μg/Kg	14	0.58 J	0.58 J	1
Methylene chloride	μg/Kg	14	--	--	0
Styrene	μg/Kg	14	--	--	0
Tetrachloroethene	μg/Kg	14	--	--	0
Toluene	μg/Kg	14	0.74	1.5	2
trans-1,2-Dichloroethene	μg/Kg	13	--	--	0
trans-1,3-Dichloropropene	μg/Kg	14	--	--	0
Trichloroethene	μg/Kg	14	--	--	0
Vinyl chloride	μg/Kg	14	--	--	0
Xylenes (total)	μg/Kg	14	0.39 J	1.3 J	2

* Data qualifier included with concentration value

Table 4-36
Exposure Unit 2
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	23	8310 E	40100	23
Antimony	mg/Kg	23	0.31 BN	1.83 N	11
Arsenic	mg/Kg	23	1.2	8 N*	23
Barium	mg/Kg	23	69 E	481	23
Beryllium	mg/Kg	23	0.36 B	5.2	23
Boron	mg/Kg	23	1.5 B	147	22
Cadmium	mg/Kg	23	0.094 B	0.964	6
Calcium	mg/Kg	23	1930 E	238000 *	23
Chromium	mg/Kg	23	2.9	67	23
Cobalt	mg/Kg	23	0.24 BE	21.8 *	23
Copper	mg/Kg	23	3.1	57.6	23
Iron	mg/Kg	23	2260	39500	23
Lead	mg/Kg	23	3.5	588	23
Lithium	mg/Kg	23	15.7 E	103	23
Magnesium	mg/Kg	23	1750 E	44400	23
Manganese	mg/Kg	23	89.3 E	4070	23
Mercury	mg/Kg	23	0.01 B	1.5 N	23
Nickel	mg/Kg	23	0.65	46.8 *E	23
Potassium	mg/Kg	23	379 E	9150 N	23
Selenium	mg/Kg	23	0.19 BN	5.8 B	22
Silver	mg/Kg	23	0.03 BN	0.34	21
Sodium	mg/Kg	23	38.3	2410 *	23
Thallium	mg/Kg	23	0.06 B	0.249 E	21
Vanadium	mg/Kg	23	5	52	23
Zinc	mg/Kg	23	6.7 E	475	23
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	5	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	5	--	--	0
2,4-Dinitrotoluene	μg/Kg	27	--	--	0
2,6-Dinitrotoluene	μg/Kg	27	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	5	--	--	0
2-Nitrotoluene	μg/Kg	5	--	--	0
3-Dinitrobenzene	μg/Kg	5	--	--	0
3-Nitrotoluene	μg/Kg	5	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	5	--	--	0
4-Nitrotoluene	μg/Kg	5	--	--	0
HMX	μg/Kg	5	--	--	0
Nitrobenzene	μg/Kg	27	--	--	0
RDX	μg/Kg	5	--	--	0
Tetryl	μg/Kg	5	--	--	0
PAHs					
Acenaphthene	μg/Kg	26	51	6270 JD	4
Acenaphthylene	μg/Kg	26	38.2	87	2

* Data qualifier included with concentration value

Table 4-36
Exposure Unit 2
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	26	5.5	6660	4
Benzo(a)anthracene	μg/Kg	26	4.6	26900 D	9
Benzo(a)pyrene	μg/Kg	26	10	36000 D	9
Benzo(b)fluoranthene	μg/Kg	26	5.9	35000 D	10
Benzo(g,h,i)perylene	μg/Kg	26	48	19400 E	7
Benzo(k)fluoranthene	μg/Kg	26	2.5	25900 D	9
Chrysene	μg/Kg	26	7.1	26300 D	9
Dibenzo(a,h)anthracene	μg/Kg	26	4010 JD	7850 D	2
Fluoranthene	μg/Kg	26	23.4 J	55800 D	9
Fluorene	μg/Kg	26	14	2570	3
Indeno(1,2,3-cd)pyrene	μg/Kg	26	8.6	17500	7
Naphthalene	μg/Kg	26	51.7 J	893 J	3
Phenanthrene	μg/Kg	26	27.9	56300 D	8
Pyrene	μg/Kg	26	13	62900 D	9
PCBs					
Aroclor-1016	μg/Kg	12	--	--	0
Aroclor-1221	μg/Kg	12	--	--	0
Aroclor-1232	μg/Kg	12	--	--	0
Aroclor-1242	μg/Kg	12	3.9 J	3.9 J	1
Aroclor-1248	μg/Kg	12	--	--	0
Aroclor-1254	μg/Kg	12	4.8	4.8	1
Aroclor-1260	μg/Kg	12	1.4 J	69.6	7
Pesticides					
4,4'-DDD	μg/Kg	12	0.289 J	2.01	3
4,4'-DDE	μg/Kg	12	0.472 J	3.94	6
4,4'-DDT	μg/Kg	12	0.571 J	4.45	5
Aldrin	μg/Kg	12	--	--	0
alpha-BHC	μg/Kg	12	--	--	0
alpha-Chlordane	μg/Kg	12	--	--	0
beta-BHC	μg/Kg	12	--	--	0
delta-BHC	μg/Kg	12	--	--	0
Dieldrin	μg/Kg	12	0.397 J	0.742 J	2
Endosulfan I	μg/Kg	12	--	--	0
Endosulfan II	μg/Kg	12	--	--	0
Endosulfan sulfate	μg/Kg	12	--	--	0
Endrin	μg/Kg	12	--	--	0
Endrin aldehyde	μg/Kg	12	--	--	0
Endrin ketone	μg/Kg	12	--	--	0
gamma-BHC (Lindane)	μg/Kg	12	--	--	0
gamma-Chlordane	μg/Kg	12	--	--	0
Heptachlor	μg/Kg	12	--	--	0
Heptachlor epoxide	μg/Kg	12	--	--	0
Methoxychlor	μg/Kg	12	--	--	0
Toxaphene	μg/Kg	12	--	--	0

* Data qualifier included with concentration value

Table 4-36
Exposure Unit 2
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	53	0.433	3.77	6
Alpha	pCi/g	21	9.05	92.4	21
Americium-241	pCi/g	53	0.0681	0.0681	1
Beta	pCi/g	21	12.7	36	21
Cesium-137	pCi/g	54	0.0213	0.817	49
Cobalt-60	pCi/g	53	--	--	0
Plutonium-238	pCi/g	2	--	--	0
Plutonium-239/240	pCi/g	2	--	--	0
Potassium-40	pCi/g	23	5.06	24.3	23
Protactinium-231	pCi/g	53	--	--	0
Radium-226	pCi/g	63	0.711	61.5	63
Radium-228	pCi/g	53	0.514	3.18	53
Strontium-90	pCi/g	2	--	--	0
Thorium-228	pCi/g	63	0.558	2.09	61
Thorium-230	pCi/g	63	0.802	40.8	62
Thorium-232	pCi/g	63	0.487	1.33	63
Total Activity	pCi/g	7	--	--	0
Total Uranium	μg/g	63	1.25	33.1	60
Uranium-234	pCi/g	63	0.143	10.1	63
Uranium-235	pCi/g	63	0.0589 J	0.302 J	7
Uranium-238	pCi/g	63	0.134	10.1	61
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	26	--	--	0
1,2-Dichlorobenzene	μg/Kg	26	--	--	0
1,3-Dichlorobenzene	μg/Kg	26	--	--	0
1,4-Dichlorobenzene	μg/Kg	26	--	--	0
2,4,5-Trichlorophenol	μg/Kg	26	--	--	0
2,4,6-Trichlorophenol	μg/Kg	26	--	--	0
2,4-Dichlorophenol	μg/Kg	26	--	--	0
2,4-Dimethylphenol	μg/Kg	26	--	--	0
2,4-Dinitrophenol	μg/Kg	26	--	--	0
2-Chloronaphthalene	μg/Kg	26	--	--	0
2-Chlorophenol	μg/Kg	26	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	26	--	--	0
2-Methylnaphthalene	μg/Kg	25	--	--	0
2-Nitroaniline	μg/Kg	26	--	--	0
2-Nitrophenol	μg/Kg	26	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	26	--	--	0
3-Nitroaniline	μg/Kg	26	--	--	0
4-Bromophenylphenylether	μg/Kg	26	--	--	0
4-Chloro-3-methylphenol	μg/Kg	26	--	--	0
4-Chloroaniline	μg/Kg	26	--	--	0
4-Chlorophenylphenylether	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-36
Exposure Unit 2
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	26	--	--	0
4-Nitrophenol	μg/Kg	26	--	--	0
Benzoic Acid	μg/Kg	25	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	26	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	26	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	26	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	26	114 J	7900	6
Butylbenzylphthalate	μg/Kg	26	--	--	0
Carbazole	μg/Kg	26	210 J	6660 JD	2
Dibenzofuran	μg/Kg	26	--	--	0
Diethylphthalate	μg/Kg	26	--	--	0
Dimethylphthalate	μg/Kg	26	--	--	0
Di-n-butylphthalate	μg/Kg	26	--	--	0
Di-n-octylphthalate	μg/Kg	26	--	--	0
Diphenylamine	μg/Kg	18	--	--	0
Hexachlorobenzene	μg/Kg	26	--	--	0
Hexachlorobutadiene	μg/Kg	26	--	--	0
Hexachlorocyclopentadiene	μg/Kg	26	--	--	0
Hexachloroethane	μg/Kg	26	--	--	0
Isophorone	μg/Kg	26	--	--	0
m,p-Cresols	μg/Kg	25	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	26	--	--	0
N-Nitrosodiphenylamine	μg/Kg	8	--	--	0
o-Cresol	μg/Kg	26	--	--	0
p-Cresol	μg/Kg	1	--	--	0
Pentachlorophenol	μg/Kg	26	--	--	0
Phenol	μg/Kg	26	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	16	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	16	--	--	0
1,1,2-Trichloroethane	μg/Kg	16	--	--	0
1,1-Dichloroethane	μg/Kg	16	--	--	0
1,1-Dichloroethene	μg/Kg	16	--	--	0
1,2-Dichloroethane	μg/Kg	16	--	--	0
1,2-Dichloroethene	μg/Kg	1	--	--	0
1,2-Dichloropropane	μg/Kg	16	--	--	0
2-Butanone	μg/Kg	16	6.7	125	3
2-Hexanone	μg/Kg	16	4.4	4.4	1
4-Methyl-2-pentanone	μg/Kg	16	--	--	0
Acetone	μg/Kg	16	8.6	406 E	6
Benzene	μg/Kg	16	0.38 J	2.6	5
Bromodichloromethane	μg/Kg	16	--	--	0
Bromoform	μg/Kg	16	--	--	0
Bromomethane	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-36
Exposure Unit 2
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon disulfide	μg/Kg	16	1.4 J	60	4
Carbon tetrachloride	μg/Kg	16	--	--	0
Chlorobenzene	μg/Kg	16	--	--	0
Chloroethane	μg/Kg	16	--	--	0
Chloroform	μg/Kg	16	--	--	0
Chloromethane	μg/Kg	16	--	--	0
cis-1,2-Dichloroethene	μg/Kg	15	--	--	0
cis-1,3-Dichloropropene	μg/Kg	16	--	--	0
Dibromochloromethane	μg/Kg	16	--	--	0
Ethylbenzene	μg/Kg	16	18.3	18.3	1
Methylene chloride	μg/Kg	16	140 J	140 J	1
Styrene	μg/Kg	16	--	--	0
Tetrachloroethene	μg/Kg	16	--	--	0
Toluene	μg/Kg	16	0.37 J	6.4	6
trans-1,2-Dichloroethene	μg/Kg	15	--	--	0
trans-1,3-Dichloropropene	μg/Kg	16	--	--	0
Trichloroethene	μg/Kg	16	--	--	0
Vinyl chloride	μg/Kg	16	--	--	0
Xylenes (total)	μg/Kg	16	0.51 J	1.8 J	3

* Data qualifier included with concentration value

Table 4-37
Exposure Unit 3
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	14	7830 J	18700 *	14
Antimony	mg/Kg	14	0.33 BN	0.974 BN	7
Arsenic	mg/Kg	14	1.38	11 *	14
Barium	mg/Kg	14	26.7	196	14
Beryllium	mg/Kg	14	0.346 J	0.887	14
Boron	mg/Kg	14	3.7 B	15	14
Cadmium	mg/Kg	14	0.07 B	0.337 B	6
Calcium	mg/Kg	14	3580	52000	14
Chromium	mg/Kg	14	10.9 J	36.8 E	14
Cobalt	mg/Kg	14	3.8	10.7	14
Copper	mg/Kg	14	19.5	40.5 N	14
Iron	mg/Kg	14	11700	25700 *	14
Lead	mg/Kg	14	3.11 J	70.2	14
Lithium	mg/Kg	14	12 J	23.6	14
Magnesium	mg/Kg	14	2400	12600	14
Manganese	mg/Kg	14	141	957 *	14
Mercury	mg/Kg	13	0.007 B	0.07	10
Nickel	mg/Kg	14	10.8	26.4	14
Potassium	mg/Kg	14	498	3660 E*	14
Selenium	mg/Kg	13	0.354 B	1.3	12
Silver	mg/Kg	14	0.056 J	0.291	14
Sodium	mg/Kg	14	67.8 E	392	14
Thallium	mg/Kg	14	0.095 J	0.199 E	14
Vanadium	mg/Kg	14	17.2	39.7 *	14
Zinc	mg/Kg	14	30.8 J	63.9 *N	14
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	6	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	6	--	--	0
2,4-Dinitrotoluene	μg/Kg	16	--	--	0
2,6-Dinitrotoluene	μg/Kg	16	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	6	--	--	0
2-Nitrotoluene	μg/Kg	5	--	--	0
3-Dinitrobenzene	μg/Kg	6	--	--	0
3-Nitrotoluene	μg/Kg	6	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	6	--	--	0
4-Nitrotoluene	μg/Kg	6	--	--	0
HMX	μg/Kg	6	--	--	0
Nitrobenzene	μg/Kg	16	--	--	0
RDX	μg/Kg	6	--	--	0
Tetryl	μg/Kg	6	--	--	0
PAHs					
Acenaphthene	μg/Kg	16	--	--	0
Acenaphthylene	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-37
Exposure Unit 3
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	16	--	--	0
Benzo(a)anthracene	μg/Kg	16	91.3 J	91.3 J	1
Benzo(a)pyrene	μg/Kg	16	200 J	200 J	1
Benzo(b)fluoranthene	μg/Kg	16	20.1 P	297 J	4
Benzo(g,h,i)perylene	μg/Kg	16	216 J	216 J	1
Benzo(k)fluoranthene	μg/Kg	16	196 J	196 J	1
Chrysene	μg/Kg	16	305 J	305 J	1
Dibenzo(a,h)anthracene	μg/Kg	16	--	--	0
Fluoranthene	μg/Kg	16	26.2 J	253 J	3
Fluorene	μg/Kg	16	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	16	154 J	154 J	1
Naphthalene	μg/Kg	16	--	--	0
Phenanthrene	μg/Kg	16	31.6 J	31.6 J	1
Pyrene	μg/Kg	16	30.8 J	255 J	3
PCBs					
Aroclor-1016	μg/Kg	8	--	--	0
Aroclor-1221	μg/Kg	8	--	--	0
Aroclor-1232	μg/Kg	8	--	--	0
Aroclor-1242	μg/Kg	8	--	--	0
Aroclor-1248	μg/Kg	8	--	--	0
Aroclor-1254	μg/Kg	8	2.9 J	2.9 J	1
Aroclor-1260	μg/Kg	8	2.7 JP	16	3
Pesticides					
4,4'-DDD	μg/Kg	8	0.42 JP	0.52 JP	2
4,4'-DDE	μg/Kg	8	0.23 J	2.94	4
4,4'-DDT	μg/Kg	8	0.725 J	2.58	3
Aldrin	μg/Kg	8	--	--	0
alpha-BHC	μg/Kg	8	--	--	0
alpha-Chlordane	μg/Kg	8	--	--	0
beta-BHC	μg/Kg	8	--	--	0
delta-BHC	μg/Kg	8	--	--	0
Dieldrin	μg/Kg	8	0.32 J	0.33 J	2
Endosulfan I	μg/Kg	8	--	--	0
Endosulfan II	μg/Kg	8	--	--	0
Endosulfan sulfate	μg/Kg	8	0.33 J	0.52 J	2
Endrin	μg/Kg	8	--	--	0
Endrin aldehyde	μg/Kg	8	0.39 J	0.39 J	1
Endrin ketone	μg/Kg	8	0.31 JP	0.43 JP	2
gamma-BHC (Lindane)	μg/Kg	8	--	--	0
gamma-Chlordane	μg/Kg	8	--	--	0
Heptachlor	μg/Kg	8	--	--	0
Heptachlor epoxide	μg/Kg	8	--	--	0
Methoxychlor	μg/Kg	8	1.8 J	2.6 J	2
Toxaphene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-37
Exposure Unit 3
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	39	0.455	2.26	3
Alpha	pCi/g	11	8.39	20	11
Americium-241	pCi/g	39	--	--	0
Beta	pCi/g	10	15.9	26.5	10
Cesium-137	pCi/g	40	0.0311	0.375	20
Cobalt-60	pCi/g	39	--	--	0
Potassium-40	pCi/g	32	5.72	21.3	32
Protactinium-231	pCi/g	39	--	--	0
Radium-226	pCi/g	43	0.516	37.5	43
Radium-228	pCi/g	39	0.427	1.11	39
Thorium-228	pCi/g	43	0.639	2.34	43
Thorium-230	pCi/g	42	0.64	12.1	42
Thorium-232	pCi/g	42	0.519	1.38	42
Total Activity	pCi/g	4	--	--	0
Total Uranium	μg/g	42	0.566	34.3	42
Uranium-234	pCi/g	42	0.421	11.5	39
Uranium-235	pCi/g	42	0.0552 J	0.309	12
Uranium-238	pCi/g	42	0.246	11	40
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	16	--	--	0
1,2-Dichlorobenzene	μg/Kg	16	--	--	0
1,3-Dichlorobenzene	μg/Kg	16	--	--	0
1,4-Dichlorobenzene	μg/Kg	16	--	--	0
2,4,5-Trichlorophenol	μg/Kg	16	--	--	0
2,4,6-Trichlorophenol	μg/Kg	16	--	--	0
2,4-Dichlorophenol	μg/Kg	16	--	--	0
2,4-Dimethylphenol	μg/Kg	16	--	--	0
2,4-Dinitrophenol	μg/Kg	16	--	--	0
2-Chloronaphthalene	μg/Kg	16	--	--	0
2-Chlorophenol	μg/Kg	16	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	16	--	--	0
2-Methylnaphthalene	μg/Kg	16	--	--	0
2-Nitroaniline	μg/Kg	14	--	--	0
2-Nitrophenol	μg/Kg	16	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	16	--	--	0
3-Nitroaniline	μg/Kg	16	--	--	0
4-Bromophenylphenylether	μg/Kg	16	--	--	0
4-Chloro-3-methylphenol	μg/Kg	16	--	--	0
4-Chloroaniline	μg/Kg	16	--	--	0
4-Chlorophenylphenylether	μg/Kg	16	--	--	0
4-Nitroaniline	μg/Kg	16	--	--	0
4-Nitrophenol	μg/Kg	16	--	--	0
Benzoic Acid	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-37
Exposure Unit 3
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	16	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	16	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	16	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	16	47.6 J	1170 J	6
Butylbenzylphthalate	μg/Kg	16	--	--	0
Carbazole	μg/Kg	16	--	--	0
Dibenzofuran	μg/Kg	16	--	--	0
Diethylphthalate	μg/Kg	16	--	--	0
Dimethylphthalate	μg/Kg	16	--	--	0
Di-n-butylphthalate	μg/Kg	16	--	--	0
Di-n-octylphthalate	μg/Kg	16	--	--	0
Diphenylamine	μg/Kg	10	--	--	0
Hexachlorobenzene	μg/Kg	16	--	--	0
Hexachlorobutadiene	μg/Kg	16	--	--	0
Hexachlorocyclopentadiene	μg/Kg	16	--	--	0
Hexachloroethane	μg/Kg	16	--	--	0
Isophorone	μg/Kg	16	--	--	0
m,p-Cresols	μg/Kg	16	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	16	--	--	0
N-Nitrosodiphenylamine	μg/Kg	6	--	--	0
o-Cresol	μg/Kg	16	--	--	0
Pentachlorophenol	μg/Kg	16	--	--	0
Phenol	μg/Kg	16	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	8	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	8	--	--	0
1,1,2-Trichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethene	μg/Kg	8	0.95 J	0.95	1
1,2-Dichloroethane	μg/Kg	8	--	--	0
1,2-Dichloropropane	μg/Kg	8	--	--	0
2-Butanone	μg/Kg	8	--	--	0
2-Hexanone	μg/Kg	8	--	--	0
4-Methyl-2-pentanone	μg/Kg	8	--	--	0
Acetone	μg/Kg	8	3 J	11.5	3
Benzene	μg/Kg	8	--	--	0
Bromodichloromethane	μg/Kg	8	--	--	0
Bromoform	μg/Kg	8	--	--	0
Bromomethane	μg/Kg	8	--	--	0
Carbon disulfide	μg/Kg	8	--	--	0
Carbon tetrachloride	μg/Kg	8	--	--	0
Chlorobenzene	μg/Kg	8	--	--	0
Chloroethane	μg/Kg	8	--	--	0
Chloroform	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-37
Exposure Unit 3
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	8	--	--	0
cis-1,2-Dichloroethene	μg/Kg	7	--	--	0
cis-1,3-Dichloropropene	μg/Kg	8	--	--	0
Dibromochloromethane	μg/Kg	8	--	--	0
Ethylbenzene	μg/Kg	8	--	--	0
Methylene chloride	μg/Kg	8	--	--	0
o-Xylene	μg/Kg	1	--	--	0
Styrene	μg/Kg	8	--	--	0
Tetrachloroethene	μg/Kg	8	--	--	0
Toluene	μg/Kg	8	0.4 J	1.1	3
trans-1,2-Dichloroethene	μg/Kg	7	--	--	0
trans-1,3-Dichloropropene	μg/Kg	8	--	--	0
Trichloroethene	μg/Kg	7	--	--	0
Vinyl chloride	μg/Kg	8	--	--	0
Xylenes (total)	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-38
Exposure Unit 4
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	37	7170	57400	37
Antimony	mg/Kg	36	0.627 BN	3.57 N	7
Arsenic	mg/Kg	37	2 E	17.2 N	37
Barium	mg/Kg	36	68	2670 N*	36
Beryllium	mg/Kg	37	0.354 B	2.2	37
Boron	mg/Kg	37	5.13 B	477	37
Cadmium	mg/Kg	36	0.04 B	0.932 E	17
Calcium	mg/Kg	37	3520	93600 E	37
Chromium	mg/Kg	37	11.4	196	37
Cobalt	mg/Kg	37	5.62 *	15.1 E	37
Copper	mg/Kg	37	24 *	590 J	37
Iron	mg/Kg	37	13700	154000 J	37
Lead	mg/Kg	36	6 *E	686	36
Lithium	mg/Kg	36	7.79 N*	40.4	36
Magnesium	mg/Kg	37	3130	17900	37
Manganese	mg/Kg	37	374	2030 E	37
Mercury	mg/Kg	36	0.01 *	0.284 *	36
Nickel	mg/Kg	37	14.3 E	76.1 *	37
Potassium	mg/Kg	37	1110	9290 E	37
Selenium	mg/Kg	37	0.31 B	1.99 N	37
Silver	mg/Kg	36	0.059 B	0.375 B	31
Sodium	mg/Kg	37	50.2	54800	37
Thallium	mg/Kg	37	0.08 B	0.36 E	36
Vanadium	mg/Kg	37	15.4	49.9 N	37
Zinc	mg/Kg	37	41.7 *N	250	37
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	15	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	15	--	--	0
2,4-Dinitrotoluene	μg/Kg	47	64.1 J	64.1 J	1
2,6-Dinitrotoluene	μg/Kg	47	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	15	--	--	0
2-Nitrotoluene	μg/Kg	15	--	--	0
3-Dinitrobenzene	μg/Kg	15	--	--	0
3-Nitrotoluene	μg/Kg	15	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	15	--	--	0
4-Nitrotoluene	μg/Kg	15	--	--	0
HMX	μg/Kg	15	--	--	0
Nitrobenzene	μg/Kg	47	--	--	0
RDX	μg/Kg	15	--	--	0
Tetryl	μg/Kg	15	--	--	0
PAHs					
Acenaphthene	μg/Kg	45	257 J	257 J	1
Acenaphthylene	μg/Kg	45	4.33 J	151 J	5

* Data qualifier included with concentration value

Table 4-38
Exposure Unit 4
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	45	21.3 J	420 J	3
Benzo(a)anthracene	μg/Kg	45	1.62 J	623	14
Benzo(a)pyrene	μg/Kg	45	23.2 J	2400	11
Benzo(b)fluoranthene	μg/Kg	45	3.32 J	2980	13
Benzo(g,h,i)perylene	μg/Kg	45	29.1 P	2880 J	8
Benzo(k)fluoranthene	μg/Kg	45	16.1	1240	9
Chrysene	μg/Kg	45	2.38 J	1090	15
Dibenzo(a,h)anthracene	μg/Kg	45	--	--	0
Fluoranthene	μg/Kg	45	6.34 P	2760	19
Fluorene	μg/Kg	45	4.96 J	178 JB	4
Indeno(1,2,3-cd)pyrene	μg/Kg	45	38.3	875	8
Naphthalene	μg/Kg	45	5.16 J	76.7	4
Phenanthrene	μg/Kg	45	20.9 J	2290	13
Pyrene	μg/Kg	45	3.33 J	2130	18
PCBs					
Aroclor-1016	μg/Kg	41	--	--	0
Aroclor-1221	μg/Kg	41	--	--	0
Aroclor-1232	μg/Kg	41	--	--	0
Aroclor-1242	μg/Kg	41	--	--	0
Aroclor-1248	μg/Kg	41	--	--	0
Aroclor-1254	μg/Kg	41	7.9	714 JP	11
Aroclor-1260	μg/Kg	41	4 J	70200	34
Pesticides					
4,4'-DDD	μg/Kg	41	0.26 J	0.41	2
4,4'-DDE	μg/Kg	41	0.19 JP	10.6	15
4,4'-DDT	μg/Kg	41	1.2 J	13.1	4
Aldrin	μg/Kg	41	--	--	0
alpha-BHC	μg/Kg	41	0.27 J	0.27 J	1
alpha-Chlordane	μg/Kg	41	--	--	0
beta-BHC	μg/Kg	41	0.33 JP	0.38 J	2
delta-BHC	μg/Kg	41	0.47 JP	0.91	2
Dieldrin	μg/Kg	41	0.92 JP	0.92 JP	1
Endosulfan I	μg/Kg	41	--	--	0
Endosulfan II	μg/Kg	41	--	--	0
Endosulfan sulfate	μg/Kg	41	0.4 JP	0.99 J	3
Endrin	μg/Kg	41	--	--	0
Endrin aldehyde	μg/Kg	41	0.78 JP	0.84 JP	2
Endrin ketone	μg/Kg	41	--	--	0
gamma-BHC (Lindane)	μg/Kg	41	0.34 J	0.64 J	2
gamma-Chlordane	μg/Kg	41	--	--	0
Heptachlor	μg/Kg	41	--	--	0
Heptachlor epoxide	μg/Kg	41	--	--	0
Methoxychlor	μg/Kg	41	20.3	20.3	1
Toxaphene	μg/Kg	42	--	--	0

* Data qualifier included with concentration value

Table 4-38
Exposure Unit 4
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	61	--	--	0
Alpha	pCi/g	29	7.15	26.1	29
Americium-241	pCi/g	61	0.035	0.104	2
Beta	pCi/g	29	15.9	35.4	29
Cesium-137	pCi/g	69	0.0331	1.92 J	53
Cobalt-60	pCi/g	61	--	--	0
Plutonium-238	pCi/g	10	--	--	0
Plutonium-239/240	pCi/g	10	--	--	0
Potassium-40	pCi/g	27	2.34	20.8	27
Protactinium-231	pCi/g	61	--	--	0
Radium-226	pCi/g	71	0.555	5.83	69
Radium-228	pCi/g	61	0.292	1.18	59
Strontium-90	pCi/g	10	--	--	0
Thorium-228	pCi/g	71	0.33	1.96	66
Thorium-230	pCi/g	72	0.732	5.21	71
Thorium-232	pCi/g	72	0.102	1.38	71
Total Activity	pCi/g	14	--	--	0
Total Uranium	μg/g	72	0.411	7.43	72
Uranium-234	pCi/g	71	0.275	15.2	67
Uranium-235	pCi/g	71	0.0726 J	0.64	5
Uranium-238	pCi/g	72	0.424	2.73	70
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	45	--	--	0
1,2-Dichlorobenzene	μg/Kg	45	--	--	0
1,3-Dichlorobenzene	μg/Kg	45	--	--	0
1,4-Dichlorobenzene	μg/Kg	45	--	--	0
2,4,5-Trichlorophenol	μg/Kg	45	--	--	0
2,4,6-Trichlorophenol	μg/Kg	44	--	--	0
2,4-Dichlorophenol	μg/Kg	45	--	--	0
2,4-Dimethylphenol	μg/Kg	45	--	--	0
2,4-Dinitrophenol	μg/Kg	45	--	--	0
2-Chloronaphthalene	μg/Kg	45	--	--	0
2-Chlorophenol	μg/Kg	45	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	45	--	--	0
2-Methylnaphthalene	μg/Kg	45	32.6 J	66.7	3
2-Nitroaniline	μg/Kg	44	--	--	0
2-Nitrophenol	μg/Kg	45	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	45	--	--	0
3-Nitroaniline	μg/Kg	45	--	--	0
4-Bromophenylphenylether	μg/Kg	45	--	--	0
4-Chloro-3-methylphenol	μg/Kg	45	--	--	0
4-Chloroaniline	μg/Kg	45	--	--	0
4-Chlorophenylphenylether	μg/Kg	45	--	--	0

* Data qualifier included with concentration value

Table 4-38
Exposure Unit 4
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	45	--	--	0
4-Nitrophenol	μg/Kg	45	--	--	0
Benzoic Acid	μg/Kg	45	69 J	498 J	2
bis(2-Chloroethoxy)methane	μg/Kg	45	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	45	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	45	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	45	44.5 J	1060	11
Butylbenzylphthalate	μg/Kg	45	62.7 J	62.7 J	1
Carbazole	μg/Kg	45	--	--	0
Dibenzofuran	μg/Kg	45	20.8 J	20.8 J	1
Diethylphthalate	μg/Kg	45	--	--	0
Dimethylphthalate	μg/Kg	45	--	--	0
Di-n-butylphthalate	μg/Kg	45	291 J	291 J	1
Di-n-octylphthalate	μg/Kg	45	--	--	0
Diphenylamine	μg/Kg	31	--	--	0
Hexachlorobenzene	μg/Kg	45	--	--	0
Hexachlorobutadiene	μg/Kg	45	--	--	0
Hexachlorocyclopentadiene	μg/Kg	45	--	--	0
Hexachloroethane	μg/Kg	45	--	--	0
Isophorone	μg/Kg	45	--	--	0
m,p-Cresols	μg/Kg	45	498	498	1
N-Nitroso-di-n-propylamine	μg/Kg	45	--	--	0
N-Nitrosodiphenylamine	μg/Kg	14	--	--	0
o-Cresol	μg/Kg	45	--	--	0
Pentachlorophenol	μg/Kg	45	--	--	0
Phenol	μg/Kg	45	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	27	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	27	--	--	0
1,1,2-Trichloroethane	μg/Kg	27	--	--	0
1,1-Dichloroethane	μg/Kg	27	--	--	0
1,1-Dichloroethene	μg/Kg	27	0.539 J	1.12 J	3
1,2-Dichloroethane	μg/Kg	27	--	--	0
1,2-Dichloropropane	μg/Kg	27	--	--	0
2-Butanone	μg/Kg	27	4.4	13.5	2
2-Hexanone	μg/Kg	27	--	--	0
4-Methyl-2-pentanone	μg/Kg	27	--	--	0
Acetone	μg/Kg	27	2.46 J	95.1	12
Benzene	μg/Kg	27	--	--	0
Bromodichloromethane	μg/Kg	27	--	--	0
Bromoform	μg/Kg	27	--	--	0
Bromomethane	μg/Kg	27	--	--	0
Carbon disulfide	μg/Kg	27	3.9	3.9	1
Carbon tetrachloride	μg/Kg	27	--	--	0

* Data qualifier included with concentration value

Table 4-38
Exposure Unit 4
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chlorobenzene	μg/Kg	27	--	--	0
Chloroethane	μg/Kg	27	--	--	0
Chloroform	μg/Kg	27	--	--	0
Chloromethane	μg/Kg	27	--	--	0
cis-1,2-Dichloroethene	μg/Kg	27	0.4 J	121 J	5
cis-1,3-Dichloropropene	μg/Kg	27	--	--	0
Dibromochloromethane	μg/Kg	27	--	--	0
Ethylbenzene	μg/Kg	27	--	--	0
m,p-Xylenes	μg/Kg	1	--	--	0
Methylene chloride	μg/Kg	27	0.82	1.7 J	5
o-Xylene	μg/Kg	2	--	--	0
Styrene	μg/Kg	27	--	--	0
Tetrachloroethene	μg/Kg	27	3.92	2200 D	7
Toluene	μg/Kg	27	0.27 J	1.1 J	8
trans-1,2-Dichloroethene	μg/Kg	27	0.56 J	0.94	3
trans-1,3-Dichloropropene	μg/Kg	27	--	--	0
Trichloroethene	μg/Kg	27	0.571 J	75.6 J	7
Vinyl chloride	μg/Kg	27	--	--	0
Xylenes (total)	μg/Kg	27	--	--	0

* Data qualifier included with concentration value

Table 4-39
Exposure Unit 5
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	11	4370	32400 E*	11
Antimony	mg/Kg	11	0.27 BN	1.04 BN	4
Arsenic	mg/Kg	11	2.3	6.56 *	11
Barium	mg/Kg	11	30.5	441 *	11
Beryllium	mg/Kg	11	0.22 B	7.7 E*	11
Boron	mg/Kg	11	1.8 B	88.2 E*N	11
Cadmium	mg/Kg	11	0.08 B	0.91	6
Calcium	mg/Kg	11	1580	179000 *	11
Chromium	mg/Kg	11	6.1	30.1 *N	11
Cobalt	mg/Kg	11	2.3	17	11
Copper	mg/Kg	11	9.6	58.1 E*N	11
Iron	mg/Kg	11	7930	26400 *	11
Lead	mg/Kg	11	2.5	23.5	11
Lithium	mg/Kg	10	8.9 E	37.2	10
Magnesium	mg/Kg	11	1310	12200 *	11
Manganese	mg/Kg	11	122	5010 *	11
Mercury	mg/Kg	11	0.01 B	0.15	9
Nickel	mg/Kg	11	7.9	25.6 E	11
Potassium	mg/Kg	11	440	4050 *	11
Selenium	mg/Kg	11	0.31 B	2.35	10
Silver	mg/Kg	11	0.049 BE	0.213 B	10
Sodium	mg/Kg	11	33	1210 E*	11
Thallium	mg/Kg	11	0.078 BE	0.256 E	7
Vanadium	mg/Kg	11	10.1 *	33.6 E*N	11
Zinc	mg/Kg	11	25.3 *	92.7	11
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	1	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	1	--	--	0
2,4-Dinitrotoluene	μg/Kg	13	--	--	0
2,6-Dinitrotoluene	μg/Kg	13	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	1	--	--	0
2-Nitrotoluene	μg/Kg	1	--	--	0
3-Dinitrobenzene	μg/Kg	1	--	--	0
3-Nitrotoluene	μg/Kg	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	1	--	--	0
4-Nitrotoluene	μg/Kg	1	--	--	0
HMX	μg/Kg	1	--	--	0
Nitrobenzene	μg/Kg	13	--	--	0
RDX	μg/Kg	1	--	--	0
Tetryl	μg/Kg	1	--	--	0
PAHs					
Acenaphthene	μg/Kg	13	--	--	0
Acenaphthylene	μg/Kg	13	96.2	96.2	1

* Data qualifier included with concentration value

Table 4-39
Exposure Unit 5
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	13	--	--	0
Benzo(a)anthracene	μg/Kg	13	3.85	145	3
Benzo(a)pyrene	μg/Kg	13	6.35 P	240	2
Benzo(b)fluoranthene	μg/Kg	13	6.66	561	3
Benzo(g,h,i)perylene	μg/Kg	13	2.06 P	176	2
Benzo(k)fluoranthene	μg/Kg	13	2.23	159	2
Chrysene	μg/Kg	13	3.76	216	2
Dibenzo(a,h)anthracene	μg/Kg	13	--	--	0
Fluoranthene	μg/Kg	13	3.91	258	3
Fluorene	μg/Kg	13	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	13	283	283	1
Naphthalene	μg/Kg	13	--	--	0
Phenanthrene	μg/Kg	13	3.04 J	24 J	2
Pyrene	μg/Kg	13	4.19	237	2
PCBs					
Aroclor-1016	μg/Kg	6	--	--	0
Aroclor-1221	μg/Kg	6	--	--	0
Aroclor-1232	μg/Kg	6	--	--	0
Aroclor-1242	μg/Kg	6	--	--	0
Aroclor-1248	μg/Kg	6	--	--	0
Aroclor-1254	μg/Kg	6	4.2	12 P	3
Aroclor-1260	μg/Kg	6	3 J	24.8 J	4
Pesticides					
4,4'-DDD	μg/Kg	6	--	--	0
4,4'-DDE	μg/Kg	6	2.6 P	2.6 P	1
4,4'-DDT	μg/Kg	6	0.885 J	5.4	2
Aldrin	μg/Kg	6	--	--	0
alpha-BHC	μg/Kg	6	--	--	0
alpha-Chlordane	μg/Kg	6	--	--	0
beta-BHC	μg/Kg	6	--	--	0
delta-BHC	μg/Kg	6	--	--	0
Dieldrin	μg/Kg	6	--	--	0
Endosulfan I	μg/Kg	6	--	--	0
Endosulfan II	μg/Kg	6	--	--	0
Endosulfan sulfate	μg/Kg	6	--	--	0
Endrin	μg/Kg	6	--	--	0
Endrin aldehyde	μg/Kg	6	--	--	0
Endrin ketone	μg/Kg	6	--	--	0
gamma-BHC (Lindane)	μg/Kg	6	--	--	0
gamma-Chlordane	μg/Kg	6	--	--	0
Heptachlor	μg/Kg	6	--	--	0
Heptachlor epoxide	μg/Kg	6	--	--	0
Methoxychlor	μg/Kg	6	--	--	0
Toxaphene	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-39
Exposure Unit 5
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	34	1.33	14.2	2
Alpha	pCi/g	14	6.05	416	14
Americium-241	pCi/g	34	--	--	0
Beta	pCi/g	14	10.2	221	14
Cesium-137	pCi/g	38	0.029	0.672	24
Cobalt-60	pCi/g	34	--	--	0
Potassium-40	pCi/g	25	11.3	22.4	25
Protactinium-231	pCi/g	34	--	--	0
Radium-226	pCi/g	40	0.71	285	40
Radium-228	pCi/g	34	0.654	1.14	34
Thorium-228	pCi/g	39	0.63 J	1.83	39
Thorium-230	pCi/g	40	0.717	8.73	39
Thorium-232	pCi/g	40	0.485 J	1.22	40
Total Activity	pCi/g	3	--	--	0
Total Uranium	μg/g	40	1.35	5	38
Uranium-234	pCi/g	40	0.434	4.25	38
Uranium-235	pCi/g	40	0.042 J	0.461	6
Uranium-238	pCi/g	40	0.483	4.12	39
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	13	--	--	0
1,2-Dichlorobenzene	μg/Kg	13	--	--	0
1,3-Dichlorobenzene	μg/Kg	13	--	--	0
1,4-Dichlorobenzene	μg/Kg	13	--	--	0
2,4,5-Trichlorophenol	μg/Kg	13	--	--	0
2,4,6-Trichlorophenol	μg/Kg	13	--	--	0
2,4-Dichlorophenol	μg/Kg	13	--	--	0
2,4-Dimethylphenol	μg/Kg	13	--	--	0
2,4-Dinitrophenol	μg/Kg	13	--	--	0
2-Chloronaphthalene	μg/Kg	13	--	--	0
2-Chlorophenol	μg/Kg	13	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	13	--	--	0
2-Methylnaphthalene	μg/Kg	13	--	--	0
2-Nitroaniline	μg/Kg	13	--	--	0
2-Nitrophenol	μg/Kg	13	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	13	--	--	0
3-Nitroaniline	μg/Kg	13	--	--	0
4-Bromophenylphenylether	μg/Kg	13	--	--	0
4-Chloro-3-methylphenol	μg/Kg	13	--	--	0
4-Chloroaniline	μg/Kg	13	--	--	0
4-Chlorophenylphenylether	μg/Kg	13	--	--	0
4-Nitroaniline	μg/Kg	13	--	--	0
4-Nitrophenol	μg/Kg	13	--	--	0
Benzoic Acid	μg/Kg	13	--	--	0

* Data qualifier included with concentration value

Table 4-39
Exposure Unit 5
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	13	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	13	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	13	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	13	56 J	56 J	1
Butylbenzylphthalate	μg/Kg	13	--	--	0
Carbazole	μg/Kg	13	--	--	0
Dibenzofuran	μg/Kg	13	--	--	0
Diethylphthalate	μg/Kg	13	--	--	0
Dimethylphthalate	μg/Kg	13	--	--	0
Di-n-butylphthalate	μg/Kg	13	--	--	0
Di-n-octylphthalate	μg/Kg	13	--	--	0
Diphenylamine	μg/Kg	10	--	--	0
Hexachlorobenzene	μg/Kg	13	--	--	0
Hexachlorobutadiene	μg/Kg	13	--	--	0
Hexachlorocyclopentadiene	μg/Kg	13	--	--	0
Hexachloroethane	μg/Kg	13	--	--	0
Isophorone	μg/Kg	13	--	--	0
m,p-Cresols	μg/Kg	13	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	13	--	--	0
N-Nitrosodiphenylamine	μg/Kg	3	--	--	0
o-Cresol	μg/Kg	13	--	--	0
Pentachlorophenol	μg/Kg	13	--	--	0
Phenol	μg/Kg	13	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	10	0.83 J	0.83 J	1
1,1,2,2-Tetrachloroethane	μg/Kg	10	--	--	0
1,1,2-Trichloroethane	μg/Kg	10	--	--	0
1,1-Dichloroethane	μg/Kg	10	--	--	0
1,1-Dichloroethene	μg/Kg	10	0.648 J	1.1	2
1,2-Dichloroethane	μg/Kg	10	--	--	0
1,2-Dichloropropane	μg/Kg	10	--	--	0
2-Butanone	μg/Kg	10	5.1 J	5.1 J	1
2-Hexanone	μg/Kg	10	--	--	0
4-Methyl-2-pentanone	μg/Kg	10	--	--	0
Acetone	μg/Kg	10	1.5 J	51.7	2
Benzene	μg/Kg	10	1.2	3	2
Bromodichloromethane	μg/Kg	10	--	--	0
Bromoform	μg/Kg	10	--	--	0
Bromomethane	μg/Kg	10	--	--	0
Carbon disulfide	μg/Kg	10	2.4 J	2.4 J	1
Carbon tetrachloride	μg/Kg	10	--	--	0
Chlorobenzene	μg/Kg	10	--	--	0
Chloroethane	μg/Kg	10	--	--	0
Chloroform	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-39
Exposure Unit 5
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	10	--	--	0
cis-1,2-Dichloroethene	μg/Kg	10	--	--	0
cis-1,3-Dichloropropene	μg/Kg	10	--	--	0
Dibromochloromethane	μg/Kg	10	--	--	0
Ethylbenzene	μg/Kg	10	--	--	0
Methylene chloride	μg/Kg	10	--	--	0
Styrene	μg/Kg	10	--	--	0
Tetrachloroethene	μg/Kg	10	1.3	1.3	1
Toluene	μg/Kg	10	0.27 J	2.8	7
trans-1,2-Dichloroethene	μg/Kg	10	--	--	0
trans-1,3-Dichloropropene	μg/Kg	10	--	--	0
Trichloroethene	μg/Kg	10	1 J	1 J	1
Vinyl chloride	μg/Kg	10	--	--	0
Xylenes (total)	μg/Kg	10	0.8 J	1.5 J	3

* Data qualifier included with concentration value

Table 4-40
Exposure Unit 6
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	16	6790	17200 *	16
Antimony	mg/Kg	16	0.36 BN	1.1 BN	5
Arsenic	mg/Kg	16	2.3	11.7	16
Barium	mg/Kg	16	71.9	143 E	16
Beryllium	mg/Kg	16	0.337 B	0.94 E	16
Boron	mg/Kg	16	1.3 B	8.4 *	16
Cadmium	mg/Kg	16	0.153 B	0.99	9
Calcium	mg/Kg	16	2060 *	60300	16
Chromium	mg/Kg	16	8.76	23.5	16
Cobalt	mg/Kg	16	3.1	13.2	16
Copper	mg/Kg	16	21	38.2 *	16
Iron	mg/Kg	16	7370	26100 E	16
Lead	mg/Kg	16	2.4	47.3	16
Lithium	mg/Kg	16	9.9 E	29 E	16
Magnesium	mg/Kg	16	1790	13500	16
Manganese	mg/Kg	16	112	1180 *	16
Mercury	mg/Kg	16	0.013	0.35	16
Nickel	mg/Kg	16	11.6	28.6	16
Potassium	mg/Kg	16	479 N	2520	16
Selenium	mg/Kg	15	0.09 BN	2.3 B	14
Silver	mg/Kg	16	0.04 B	0.15 B	16
Sodium	mg/Kg	16	42 E	319 E	16
Thallium	mg/Kg	16	0.03 B	0.36	12
Vanadium	mg/Kg	16	14.5	32.5	16
Zinc	mg/Kg	16	34.9 *N	199	16
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	9	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	9	--	--	0
2,4-Dinitrotoluene	μg/Kg	14	--	--	0
2,6-Dinitrotoluene	μg/Kg	14	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	9	--	--	0
2-Nitrotoluene	μg/Kg	9	--	--	0
3-Dinitrobenzene	μg/Kg	9	--	--	0
3-Nitrotoluene	μg/Kg	9	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	9	--	--	0
4-Nitrotoluene	μg/Kg	9	--	--	0
HMX	μg/Kg	9	--	--	0
Nitrobenzene	μg/Kg	14	--	--	0
RDX	μg/Kg	9	--	--	0
Tetryl	μg/Kg	9	--	--	0
PAHs					
Acenaphthene	μg/Kg	14	--	--	0
Acenaphthylene	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-40
Exposure Unit 6
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	14	--	--	0
Benzo(a)anthracene	μg/Kg	14	--	--	0
Benzo(a)pyrene	μg/Kg	14	--	--	0
Benzo(b)fluoranthene	μg/Kg	14	--	--	0
Benzo(g,h,i)perylene	μg/Kg	14	--	--	0
Benzo(k)fluoranthene	μg/Kg	14	280 J	280 J	1
Chrysene	μg/Kg	14	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	14	--	--	0
Fluoranthene	μg/Kg	14	--	--	0
Fluorene	μg/Kg	14	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	14	--	--	0
Naphthalene	μg/Kg	14	--	--	0
Phenanthrene	μg/Kg	14	--	--	0
Pyrene	μg/Kg	14	--	--	0
PCBs					
Aroclor-1016	μg/Kg	10	--	--	0
Aroclor-1221	μg/Kg	10	--	--	0
Aroclor-1232	μg/Kg	10	--	--	0
Aroclor-1242	μg/Kg	10	--	--	0
Aroclor-1248	μg/Kg	10	--	--	0
Aroclor-1254	μg/Kg	10	5.9	11.3 P	3
Aroclor-1260	μg/Kg	10	5.2 J	14.7	4
Pesticides					
4,4'-DDD	μg/Kg	10	--	--	0
4,4'-DDE	μg/Kg	10	0.273 J	1.91	3
4,4'-DDT	μg/Kg	10	1.61	1.61	1
Aldrin	μg/Kg	10	--	--	0
alpha-BHC	μg/Kg	10	--	--	0
alpha-Chlordane	μg/Kg	10	--	--	0
beta-BHC	μg/Kg	10	--	--	0
delta-BHC	μg/Kg	10	0.48 JP	0.48 JP	1
Dieldrin	μg/Kg	10	0.45 JP	0.45 JP	1
Endosulfan I	μg/Kg	10	--	--	0
Endosulfan II	μg/Kg	10	--	--	0
Endosulfan sulfate	μg/Kg	10	--	--	0
Endrin	μg/Kg	10	--	--	0
Endrin aldehyde	μg/Kg	10	--	--	0
Endrin ketone	μg/Kg	10	--	--	0
gamma-BHC (Lindane)	μg/Kg	10	--	--	0
gamma-Chlordane	μg/Kg	10	--	--	0
Heptachlor	μg/Kg	10	--	--	0
Heptachlor epoxide	μg/Kg	10	--	--	0
Methoxychlor	μg/Kg	10	--	--	0
Toxaphene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-40
Exposure Unit 6
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	31	0.579	18.9	5
Alpha	pCi/g	19	7.05	1390	19
Americium-241	pCi/g	31	--	--	0
Beta	pCi/g	19	13	739	19
Cesium-137	pCi/g	35	0.0361	0.848	26
Cobalt-60	pCi/g	31	--	--	0
Potassium-40	pCi/g	19	6.25	19.8	19
Protactinium-231	pCi/g	31	3.53	18.9	2
Radium-226	pCi/g	40	0.654	182	40
Radium-228	pCi/g	31	0.624	1.2	29
Thorium-228	pCi/g	40	0.579	1.71	39
Thorium-230	pCi/g	40	0.642 J	352	39
Thorium-232	pCi/g	40	0.306	1.11	40
Total Activity	pCi/g	4	--	--	0
Total Uranium	μg/g	40	0.828	287	38
Uranium-234	pCi/g	40	0.33	42.5	40
Uranium-235	pCi/g	40	0.0427	3.63	8
Uranium-238	pCi/g	40	0.295	41.5	40
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	14	--	--	0
1,2-Dichlorobenzene	μg/Kg	14	--	--	0
1,3-Dichlorobenzene	μg/Kg	14	--	--	0
1,4-Dichlorobenzene	μg/Kg	14	--	--	0
2,4,5-Trichlorophenol	μg/Kg	14	--	--	0
2,4,6-Trichlorophenol	μg/Kg	14	--	--	0
2,4-Dichlorophenol	μg/Kg	14	--	--	0
2,4-Dimethylphenol	μg/Kg	14	--	--	0
2,4-Dinitrophenol	μg/Kg	14	--	--	0
2-Chloronaphthalene	μg/Kg	14	--	--	0
2-Chlorophenol	μg/Kg	14	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	14	--	--	0
2-Methylnaphthalene	μg/Kg	14	--	--	0
2-Nitroaniline	μg/Kg	14	--	--	0
2-Nitrophenol	μg/Kg	14	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	14	--	--	0
3-Nitroaniline	μg/Kg	14	--	--	0
4-Bromophenylphenylether	μg/Kg	14	--	--	0
4-Chloro-3-methylphenol	μg/Kg	14	--	--	0
4-Chloroaniline	μg/Kg	14	--	--	0
4-Chlorophenylphenylether	μg/Kg	14	--	--	0
4-Nitroaniline	μg/Kg	14	--	--	0
4-Nitrophenol	μg/Kg	14	--	--	0
Benzoic Acid	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-40
Exposure Unit 6
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	14	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	14	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	14	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	14	55 J	319 J	5
Butylbenzylphthalate	μg/Kg	14	--	--	0
Carbazole	μg/Kg	14	--	--	0
Dibenzofuran	μg/Kg	14	--	--	0
Diethylphthalate	μg/Kg	14	--	--	0
Dimethylphthalate	μg/Kg	14	--	--	0
Di-n-butylphthalate	μg/Kg	14	--	--	0
Di-n-octylphthalate	μg/Kg	14	--	--	0
Diphenylamine	μg/Kg	12	--	--	0
Hexachlorobenzene	μg/Kg	14	--	--	0
Hexachlorobutadiene	μg/Kg	14	--	--	0
Hexachlorocyclopentadiene	μg/Kg	14	--	--	0
Hexachloroethane	μg/Kg	14	--	--	0
Isophorone	μg/Kg	14	--	--	0
m,p-Cresols	μg/Kg	14	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	14	--	--	0
N-Nitrosodiphenylamine	μg/Kg	2	--	--	0
o-Cresol	μg/Kg	14	--	--	0
Pentachlorophenol	μg/Kg	14	--	--	0
Phenol	μg/Kg	14	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	11	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	11	--	--	0
1,1,2-Trichloroethane	μg/Kg	11	--	--	0
1,1-Dichloroethane	μg/Kg	11	--	--	0
1,1-Dichloroethene	μg/Kg	11	--	--	0
1,2-Dichloroethane	μg/Kg	11	--	--	0
1,2-Dichloropropane	μg/Kg	11	--	--	0
2-Butanone	μg/Kg	11	2.6 J	12	2
2-Hexanone	μg/Kg	11	0.71 J	0.71 J	1
4-Methyl-2-pentanone	μg/Kg	11	--	--	0
Acetone	μg/Kg	11	3.2 J	98.1	3
Benzene	μg/Kg	11	1.3	1.4	2
Bromodichloromethane	μg/Kg	11	--	--	0
Bromoform	μg/Kg	11	--	--	0
Bromomethane	μg/Kg	11	--	--	0
Carbon disulfide	μg/Kg	11	2 J	2.4 J	2
Carbon tetrachloride	μg/Kg	11	--	--	0
Chlorobenzene	μg/Kg	11	--	--	0
Chloroethane	μg/Kg	11	--	--	0
Chloroform	μg/Kg	11	--	--	0

* Data qualifier included with concentration value

Table 4-40
Exposure Unit 6
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	11	--	--	0
cis-1,2-Dichloroethene	μg/Kg	11	--	--	0
cis-1,3-Dichloropropene	μg/Kg	11	--	--	0
Dibromochloromethane	μg/Kg	11	--	--	0
Ethylbenzene	μg/Kg	11	--	--	0
Methylene chloride	μg/Kg	11	7.1 JB	7.1 JB	1
Styrene	μg/Kg	11	--	--	0
Tetrachloroethene	μg/Kg	11	--	--	0
Toluene	μg/Kg	11	0.25 J	1.3	3
trans-1,2-Dichloroethene	μg/Kg	11	--	--	0
trans-1,3-Dichloropropene	μg/Kg	11	--	--	0
Trichloroethene	μg/Kg	11	--	--	0
Vinyl chloride	μg/Kg	11	--	--	0
Xylenes (total)	μg/Kg	11	0.76 J	0.76 J	1

* Data qualifier included with concentration value

Table 4-41
Exposure Unit 7
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	18	10800 *	19100	18
Antimony	mg/Kg	18	0.489 BN	1.52 BN	5
Arsenic	mg/Kg	18	2.8	5.87	18
Barium	mg/Kg	18	92.4	232 *	18
Beryllium	mg/Kg	18	0.422 B	0.939 E*	18
Boron	mg/Kg	18	2.52 B	12.3	18
Cadmium	mg/Kg	18	0.07 B	0.46 B	10
Calcium	mg/Kg	18	4190 *	48200	18
Chromium	mg/Kg	18	13.3	28.1 *N	18
Cobalt	mg/Kg	18	5.75	19.9	18
Copper	mg/Kg	18	20.2 E*N	36.4	18
Iron	mg/Kg	18	15500	34300 E*	18
Lead	mg/Kg	18	5.45	31.2	18
Lithium	mg/Kg	18	16.1	33.4	18
Magnesium	mg/Kg	18	3270	22800	18
Manganese	mg/Kg	18	293	2080 *	18
Mercury	mg/Kg	18	0.01 B	0.089	18
Nickel	mg/Kg	18	12.8	46.2	18
Potassium	mg/Kg	18	920 E	3140	18
Selenium	mg/Kg	18	0.371 B	2.46 N	17
Silver	mg/Kg	18	0.047 BE	0.11 B	14
Sodium	mg/Kg	18	47.5	173	18
Thallium	mg/Kg	18	0.06 B	0.183	18
Vanadium	mg/Kg	18	19.9	37.3	18
Zinc	mg/Kg	18	35.1 N	112	18
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	4	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	4	--	--	0
2,4-Dinitrotoluene	μg/Kg	16	--	--	0
2,6-Dinitrotoluene	μg/Kg	16	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	4	--	--	0
2-Nitrotoluene	μg/Kg	4	--	--	0
3-Dinitrobenzene	μg/Kg	4	--	--	0
3-Nitrotoluene	μg/Kg	4	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	4	--	--	0
4-Nitrotoluene	μg/Kg	4	--	--	0
HMX	μg/Kg	4	--	--	0
Nitrobenzene	μg/Kg	16	--	--	0
RDX	μg/Kg	4	--	--	0
Tetryl	μg/Kg	4	--	--	0
PAHs					
Acenaphthene	μg/Kg	16	--	--	0
Acenaphthylene	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-41
Exposure Unit 7
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	16	113	113	1
Benzo(a)anthracene	μg/Kg	16	3.18	491	6
Benzo(a)pyrene	μg/Kg	16	3.3	253	7
Benzo(b)fluoranthene	μg/Kg	16	6.76 J	641	6
Benzo(g,h,i)perylene	μg/Kg	16	10.3 h	36.8	3
Benzo(k)fluoranthene	μg/Kg	16	2.21	24.5	5
Chrysene	μg/Kg	16	0.886 Jh	486	9
Dibenzo(a,h)anthracene	μg/Kg	16	2.77 h	2.77 h	1
Fluoranthene	μg/Kg	16	0.617 J	1540	10
Fluorene	μg/Kg	16	26.1 J	26.1 J	1
Indeno(1,2,3-cd)pyrene	μg/Kg	16	110	110	1
Naphthalene	μg/Kg	16	2.99 Jh	17.3 J	2
Phenanthrene	μg/Kg	16	3.19 J	727	7
Pyrene	μg/Kg	16	4.1	1150	7
PCBs					
Aroclor-1016	μg/Kg	16	--	--	0
Aroclor-1221	μg/Kg	16	--	--	0
Aroclor-1232	μg/Kg	16	--	--	0
Aroclor-1242	μg/Kg	16	--	--	0
Aroclor-1248	μg/Kg	16	--	--	0
Aroclor-1254	μg/Kg	16	6.2	7.3 J	3
Aroclor-1260	μg/Kg	16	2.2 J	12	3
Pesticides					
4,4'-DDD	μg/Kg	16	0.67 JP	0.67 JP	1
4,4'-DDE	μg/Kg	16	0.387 J	1.55 J	6
4,4'-DDT	μg/Kg	16	0.506 J	1.86	5
Aldrin	μg/Kg	16	--	--	0
alpha-BHC	μg/Kg	16	--	--	0
alpha-Chlordane	μg/Kg	16	--	--	0
beta-BHC	μg/Kg	16	--	--	0
delta-BHC	μg/Kg	16	--	--	0
Dieldrin	μg/Kg	16	0.26 J	0.26 J	1
Endosulfan I	μg/Kg	16	--	--	0
Endosulfan II	μg/Kg	16	--	--	0
Endosulfan sulfate	μg/Kg	16	0.46 JP	0.46 JP	1
Endrin	μg/Kg	16	--	--	0
Endrin aldehyde	μg/Kg	16	0.77 JP	0.77 JP	1
Endrin ketone	μg/Kg	16	0.53 J	0.53 J	1
gamma-BHC (Lindane)	μg/Kg	16	--	--	0
gamma-Chlordane	μg/Kg	16	--	--	0
Heptachlor	μg/Kg	16	--	--	0
Heptachlor epoxide	μg/Kg	16	--	--	0
Methoxychlor	μg/Kg	16	1.9 JP	1.9	1
Toxaphene	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-41
Exposure Unit 7
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	60	0.341	24	15
Alpha	pCi/g	16	6.54	66.4	16
Americium-241	pCi/g	60	--	--	0
Beta	pCi/g	16	12.8	44.1	16
Cesium-137	pCi/g	61	0.0269	5.15 J	34
Cobalt-60	pCi/g	60	--	--	0
Plutonium-238	pCi/g	1	--	--	0
Plutonium-239/240	pCi/g	1	--	--	0
Potassium-40	pCi/g	41	9.64	22.9	41
Protactinium-231	pCi/g	60	1.22 J	17.1	2
Radium-226	pCi/g	63	0.432	446	63
Radium-228	pCi/g	60	0.388	1.37	59
Strontium-90	pCi/g	1	--	--	0
Thorium-228	pCi/g	63	0.547	1.69	60
Thorium-230	pCi/g	63	0.768	536	63
Thorium-232	pCi/g	63	0.496	1.7	63
Total Activity	pCi/g	14	--	--	0
Total Uranium	μg/g	63	0.57	19	63
Uranium-234	pCi/g	63	0.407	9.68	63
Uranium-235	pCi/g	63	0.0512	0.394	22
Uranium-238	pCi/g	63	0.555	7.1	63
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	16	--	--	0
1,2-Dichlorobenzene	μg/Kg	16	--	--	0
1,3-Dichlorobenzene	μg/Kg	16	--	--	0
1,4-Dichlorobenzene	μg/Kg	16	--	--	0
2,4,5-Trichlorophenol	μg/Kg	16	--	--	0
2,4,6-Trichlorophenol	μg/Kg	16	--	--	0
2,4-Dichlorophenol	μg/Kg	16	--	--	0
2,4-Dimethylphenol	μg/Kg	16	--	--	0
2,4-Dinitrophenol	μg/Kg	16	--	--	0
2-Chloronaphthalene	μg/Kg	16	--	--	0
2-Chlorophenol	μg/Kg	16	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	16	--	--	0
2-Methylnaphthalene	μg/Kg	16	--	--	0
2-Nitroaniline	μg/Kg	16	--	--	0
2-Nitrophenol	μg/Kg	16	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	16	--	--	0
3-Nitroaniline	μg/Kg	16	--	--	0
4-Bromophenylphenylether	μg/Kg	16	--	--	0
4-Chloro-3-methylphenol	μg/Kg	16	--	--	0
4-Chloroaniline	μg/Kg	16	--	--	0
4-Chlorophenylphenylether	μg/Kg	16	--	--	0

* Data qualifier included with concentration value

Table 4-41
Exposure Unit 7
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	16	--	--	0
4-Nitrophenol	μg/Kg	16	--	--	0
Benzoic Acid	μg/Kg	16	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	16	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	16	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	16	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	16	42 J	118 J	4
Butylbenzylphthalate	μg/Kg	16	--	--	0
Carbazole	μg/Kg	16	--	--	0
Dibenzofuran	μg/Kg	16	--	--	0
Diethylphthalate	μg/Kg	16	--	--	0
Dimethylphthalate	μg/Kg	16	--	--	0
Di-n-butylphthalate	μg/Kg	16	--	--	0
Di-n-octylphthalate	μg/Kg	16	--	--	0
Diphenylamine	μg/Kg	7	--	--	0
Hexachlorobenzene	μg/Kg	16	--	--	0
Hexachlorobutadiene	μg/Kg	16	--	--	0
Hexachlorocyclopentadiene	μg/Kg	16	--	--	0
Hexachloroethane	μg/Kg	16	--	--	0
Isophorone	μg/Kg	16	--	--	0
m,p-Cresols	μg/Kg	16	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	16	--	--	0
N-Nitrosodiphenylamine	μg/Kg	9	--	--	0
o-Cresol	μg/Kg	16	--	--	0
Pentachlorophenol	μg/Kg	16	--	--	0
Phenol	μg/Kg	16	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	15	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	15	--	--	0
1,1,2-Trichloroethane	μg/Kg	15	--	--	0
1,1-Dichloroethane	μg/Kg	15	--	--	0
1,1-Dichloroethene	μg/Kg	15	0.714 J	1.02	3
1,2-Dichloroethane	μg/Kg	15	--	--	0
1,2-Dichloropropane	μg/Kg	15	--	--	0
2-Butanone	μg/Kg	15	9.19	71.9	3
2-Hexanone	μg/Kg	15	--	--	0
4-Methyl-2-pentanone	μg/Kg	15	--	--	0
Acetone	μg/Kg	15	3.8 J	183	6
Benzene	μg/Kg	15	2	2.6	2
Bromodichloromethane	μg/Kg	15	--	--	0
Bromoform	μg/Kg	15	--	--	0
Bromomethane	μg/Kg	15	--	--	0
Carbon disulfide	μg/Kg	15	1.6 J	1.6 J	1
Carbon tetrachloride	μg/Kg	15	--	--	0

* Data qualifier included with concentration value

Table 4-41
Exposure Unit 7
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chlorobenzene	μg/Kg	15	--	--	0
Chloroethane	μg/Kg	15	--	--	0
Chloroform	μg/Kg	15	--	--	0
Chloromethane	μg/Kg	15	--	--	0
cis-1,2-Dichloroethene	μg/Kg	15	--	--	0
cis-1,3-Dichloropropene	μg/Kg	15	--	--	0
Dibromochloromethane	μg/Kg	15	--	--	0
Ethylbenzene	μg/Kg	15	12.2	12.2	1
Methylene chloride	μg/Kg	15	1.5 J	1.5 J	1
Styrene	μg/Kg	15	--	--	0
Tetrachloroethene	μg/Kg	15	--	--	0
Toluene	μg/Kg	15	0.5 J	3.4	4
trans-1,2-Dichloroethene	μg/Kg	15	--	--	0
trans-1,3-Dichloropropene	μg/Kg	15	--	--	0
Trichloroethene	μg/Kg	15	--	--	0
Vinyl chloride	μg/Kg	15	--	--	0
Xylenes (total)	μg/Kg	15	--	--	0

* Data qualifier included with concentration value

Table 4-42
Exposure Unit 8
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	28	4820 *	21800	28
Antimony	mg/Kg	28	0.25 BN	1.1 J	6
Arsenic	mg/Kg	28	2.1	7.8	28
Barium	mg/Kg	28	45.2	195 *	28
Beryllium	mg/Kg	28	0.22 J	1.6	28
Boron	mg/Kg	28	1.7 J	36.2 E*N	28
Cadmium	mg/Kg	29	0.095 B	1.2	20
Calcium	mg/Kg	28	3600 *	99000	28
Chromium	mg/Kg	28	9.4 *	42.4	28
Cobalt	mg/Kg	28	3 J	23.5	28
Copper	mg/Kg	28	12.9 *N	134	28
Iron	mg/Kg	28	11400	39300	28
Lead	mg/Kg	28	4.66	205	28
Lithium	mg/Kg	28	4.08 E	40.5	28
Magnesium	mg/Kg	29	1350	54400	29
Manganese	mg/Kg	29	148 E	1000 *	29
Mercury	mg/Kg	28	0.0094 B	0.21	26
Nickel	mg/Kg	29	9.8	107	29
Potassium	mg/Kg	28	591 *	3240 J	28
Selenium	mg/Kg	28	0.264 BN	1.8 B	26
Silver	mg/Kg	28	0.03 B	0.197 B	21
Sodium	mg/Kg	28	42.7 *	381	28
Thallium	mg/Kg	28	0.07 B	0.27	25
Vanadium	mg/Kg	28	9.2	43.3	28
Zinc	mg/Kg	28	25.8 E*	237	28
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	11	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	11	--	--	0
2,4-Dinitrotoluene	μg/Kg	57	--	--	0
2,6-Dinitrotoluene	μg/Kg	57	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	11	--	--	0
2-Nitrotoluene	μg/Kg	11	109	109	1
3-Dinitrobenzene	μg/Kg	11	--	--	0
3-Nitrotoluene	μg/Kg	11	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	11	--	--	0
4-Nitrotoluene	μg/Kg	11	--	--	0
HMX	μg/Kg	11	--	--	0
Nitrobenzene	μg/Kg	57	--	--	0
RDX	μg/Kg	11	--	--	0
Tetryl	μg/Kg	11	--	--	0
PAHs					
Acenaphthene	μg/Kg	56	16.5 J	25000 E	5
Acenaphthylene	μg/Kg	57	37.8 J	290	2

* Data qualifier included with concentration value

Table 4-42
Exposure Unit 8
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	57	26.3	24700	7
Benzo(a)anthracene	μg/Kg	57	0.76	73300	15
Benzo(a)pyrene	μg/Kg	57	28.2	82500	15
Benzo(b)fluoranthene	μg/Kg	57	3.5	42800 D	17
Benzo(g,h,i)perylene	μg/Kg	57	2.7	54100	12
Benzo(k)fluoranthene	μg/Kg	57	0.74	62900	11
Chrysene	μg/Kg	57	4	76000	16
Dibenzo(a,h)anthracene	μg/Kg	57	21	22500	6
Fluoranthene	μg/Kg	57	1.8	92400 D	21
Fluorene	μg/Kg	57	5.6	15200 J	13
Indeno(1,2,3-cd)pyrene	μg/Kg	57	48.1	43600	14
Naphthalene	μg/Kg	57	9.37 J	2000	9
Phenanthrene	μg/Kg	57	2.4	71600 D	19
Pyrene	μg/Kg	56	2.5	99700 D	19
PCBs					
Aroclor-1016	μg/Kg	18	--	--	0
Aroclor-1221	μg/Kg	18	--	--	0
Aroclor-1232	μg/Kg	18	--	--	0
Aroclor-1242	μg/Kg	18	--	--	0
Aroclor-1248	μg/Kg	18	--	--	0
Aroclor-1254	μg/Kg	18	2.7 J	2.7 J	1
Aroclor-1260	μg/Kg	18	1.6 J	130 J	7
Pesticides					
4,4'-DDD	μg/Kg	18	0.37 JP	0.37 JP	1
4,4'-DDE	μg/Kg	18	0.24 JP	13.3	8
4,4'-DDT	μg/Kg	18	0.888 J	18.9	5
Aldrin	μg/Kg	18	--	--	0
alpha-BHC	μg/Kg	18	--	--	0
alpha-Chlordane	μg/Kg	18	--	--	0
beta-BHC	μg/Kg	18	--	--	0
delta-BHC	μg/Kg	18	--	--	0
Dieldrin	μg/Kg	18	0.296 J	0.296 J	1
Endosulfan I	μg/Kg	18	--	--	0
Endosulfan II	μg/Kg	18	--	--	0
Endosulfan sulfate	μg/Kg	18	--	--	0
Endrin	μg/Kg	18	--	--	0
Endrin aldehyde	μg/Kg	18	--	--	0
Endrin ketone	μg/Kg	18	--	--	0
gamma-BHC (Lindane)	μg/Kg	18	--	--	0
gamma-Chlordane	μg/Kg	18	--	--	0
Heptachlor	μg/Kg	18	1.1 J	1.1 J	1
Heptachlor epoxide	μg/Kg	18	110 J	110 J	1
Methoxychlor	μg/Kg	18	--	--	0
Toxaphene	μg/Kg	18	--	--	0

* Data qualifier included with concentration value

Table 4-42
Exposure Unit 8
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	109	0.487	3.07	18
Alpha	pCi/g	33	6.55	172	33
Americium-241	pCi/g	109	0.112	0.636	3
Beta	pCi/g	33	12	94.2	33
Cesium-137	pCi/g	122	0.0306	4.88	83
Cobalt-60	pCi/g	109	--	--	0
Plutonium-238	pCi/g	5	--	--	0
Plutonium-239/240	pCi/g	5	0.322	0.322	1
Potassium-40	pCi/g	51	3.18	19.7	51
Protactinium-231	pCi/g	109	--	--	0
Radium-226	pCi/g	128	0.42	82.1	128
Radium-228	pCi/g	109	0.0607	1.2	108
Strontium-90	pCi/g	5	--	--	0
Thorium-228	pCi/g	129	0.38	1.86	124
Thorium-230	pCi/g	129	0.338	87.9	129
Thorium-232	pCi/g	128	0.325	1.48	127
Total Activity	pCi/g	16	--	--	0
Total Uranium	μg/g	129	0.481	5630	127
Uranium-234	pCi/g	129	0.464	1420	126
Uranium-235	pCi/g	128	0.07 J	96.2	37
Uranium-238	pCi/g	129	0.239	1420	129
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	57	--	--	0
1,2-Dichlorobenzene	μg/Kg	57	--	--	0
1,3-Dichlorobenzene	μg/Kg	57	--	--	0
1,4-Dichlorobenzene	μg/Kg	57	--	--	0
2,4,5-Trichlorophenol	μg/Kg	57	--	--	0
2,4,6-Trichlorophenol	μg/Kg	57	--	--	0
2,4-Dichlorophenol	μg/Kg	57	--	--	0
2,4-Dimethylphenol	μg/Kg	57	--	--	0
2,4-Dinitrophenol	μg/Kg	57	--	--	0
2-Chloronaphthalene	μg/Kg	57	--	--	0
2-Chlorophenol	μg/Kg	57	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	57	--	--	0
2-Methylnaphthalene	μg/Kg	55	28.2 J	354 J	5
2-Nitroaniline	μg/Kg	55	--	--	0
2-Nitrophenol	μg/Kg	57	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	57	--	--	0
3-Nitroaniline	μg/Kg	57	--	--	0
4-Bromophenylphenylether	μg/Kg	57	--	--	0
4-Chloro-3-methylphenol	μg/Kg	57	--	--	0
4-Chloroaniline	μg/Kg	57	--	--	0
4-Chlorophenylphenylether	μg/Kg	57	--	--	0

* Data qualifier included with concentration value

Table 4-42
Exposure Unit 8
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	57	--	--	0
4-Nitrophenol	μg/Kg	57	--	--	0
Benzoic Acid	μg/Kg	55	--	--	0
Benzyl Alcohol	μg/Kg	1	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	57	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	57	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	57	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	57	297 J	450	3
Butylbenzylphthalate	μg/Kg	57	--	--	0
Carbazole	μg/Kg	57	1140 J	20000	5
Dibenzofuran	μg/Kg	57	930	2180	2
Diethylphthalate	μg/Kg	57	--	--	0
Dimethylphthalate	μg/Kg	57	--	--	0
Di-n-butylphthalate	μg/Kg	57	--	--	0
Di-n-octylphthalate	μg/Kg	56	--	--	0
Diphenylamine	μg/Kg	50	--	--	0
Hexachlorobenzene	μg/Kg	57	--	--	0
Hexachlorobutadiene	μg/Kg	57	--	--	0
Hexachlorocyclopentadiene	μg/Kg	57	--	--	0
Hexachloroethane	μg/Kg	57	--	--	0
Isophorone	μg/Kg	57	--	--	0
m,p-Cresols	μg/Kg	55	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	57	--	--	0
N-Nitrosodiphenylamine	μg/Kg	7	--	--	0
o-Cresol	μg/Kg	57	--	--	0
p-Cresol	μg/Kg	2	--	--	0
Pentachlorophenol	μg/Kg	57	--	--	0
Phenol	μg/Kg	57	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	31	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	31	--	--	0
1,1,2-Trichloroethane	μg/Kg	31	--	--	0
1,1-Dichloroethane	μg/Kg	31	--	--	0
1,1-Dichloroethene	μg/Kg	31	0.48 J	32.2	6
1,2-Dichloroethane	μg/Kg	31	--	--	0
1,2-Dichloroethene	μg/Kg	2	--	--	0
1,2-Dichloropropane	μg/Kg	31	--	--	0
2-Butanone	μg/Kg	31	3.3	8.1	2
2-Hexanone	μg/Kg	31	--	--	0
4-Methyl-2-pentanone	μg/Kg	31	--	--	0
Acetone	μg/Kg	31	3.7 J	80 B	6
Benzene	μg/Kg	31	--	--	0
Bromodichloromethane	μg/Kg	31	--	--	0
Bromoform	μg/Kg	31	--	--	0

* Data qualifier included with concentration value

Table 4-42
Exposure Unit 8
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Bromomethane	μg/Kg	31	--	--	0
Carbon disulfide	μg/Kg	31	--	--	0
Carbon tetrachloride	μg/Kg	31	--	--	0
Chlorobenzene	μg/Kg	31	--	--	0
Chloroethane	μg/Kg	31	--	--	0
Chloroform	μg/Kg	31	0.45 J	0.45 J	1
Chloromethane	μg/Kg	31	--	--	0
cis-1,2-Dichloroethene	μg/Kg	27	--	--	0
cis-1,3-Dichloropropene	μg/Kg	31	--	--	0
Dibromochloromethane	μg/Kg	31	--	--	0
Ethylbenzene	μg/Kg	31	--	--	0
Methylene chloride	μg/Kg	32	1.1 J	150 J	4
Styrene	μg/Kg	31	--	--	0
Tetrachloroethene	μg/Kg	31	0.84 J	1.1 J	2
Toluene	μg/Kg	31	0.19 J	8.5	12
trans-1,2-Dichloroethene	μg/Kg	29	--	--	0
trans-1,3-Dichloropropene	μg/Kg	31	--	--	0
Trichloroethene	μg/Kg	31	--	--	0
Vinyl chloride	μg/Kg	31	--	--	0
Xylenes (total)	μg/Kg	30	0.32 J	0.32 J	1

* Data qualifier included with concentration value

Table 4-43
Exposure Unit 10
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	34	5520	22200	34
Antimony	mg/Kg	34	0.477 BN	3.92 J	17
Arsenic	mg/Kg	34	1.68	6.98	34
Barium	mg/Kg	34	66.4	210	34
Beryllium	mg/Kg	34	0.276 B	1.14	34
Boron	mg/Kg	34	3.4 BN	15.8 N	34
Cadmium	mg/Kg	34	0.03 B	0.623 J	21
Calcium	mg/Kg	34	4580	110000	34
Chromium	mg/Kg	34	8.11	31.9	34
Cobalt	mg/Kg	34	4.31	30.8	34
Copper	mg/Kg	34	14.8 E	40	34
Iron	mg/Kg	34	11800	38800	34
Lead	mg/Kg	34	2.94 N	22.6 N	34
Lithium	mg/Kg	33	9.1	34.4 E	33
Magnesium	mg/Kg	34	4840	56300 *	34
Manganese	mg/Kg	34	372	4570	34
Mercury	mg/Kg	34	0.003 B	0.055	32
Nickel	mg/Kg	34	7.93	84.7	34
Potassium	mg/Kg	34	1130 E	4950 E	34
Selenium	mg/Kg	34	0.364 B	2.76	26
Silver	mg/Kg	34	0.03 B	0.193 B	32
Sodium	mg/Kg	34	78.4 EN	232	34
Thallium	mg/Kg	34	0.052 BE	0.221 B	34
Vanadium	mg/Kg	34	15	44.3 N	34
Zinc	mg/Kg	34	23.1 N	830	34
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	3	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	3	--	--	0
2,4-Dinitrotoluene	μg/Kg	32	--	--	0
2,6-Dinitrotoluene	μg/Kg	32	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	3	--	--	0
2-Nitrotoluene	μg/Kg	3	--	--	0
3-Dinitrobenzene	μg/Kg	3	--	--	0
3-Nitrotoluene	μg/Kg	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	3	--	--	0
4-Nitrotoluene	μg/Kg	3	--	--	0
HMX	μg/Kg	3	--	--	0
Nitrobenzene	μg/Kg	32	--	--	0
RDX	μg/Kg	3	--	--	0
Tetryl	μg/Kg	3	--	--	0
PAHs					
Acenaphthene	μg/Kg	32	10.9 J	13.7	2
Acenaphthylene	μg/Kg	32	85.8	85.8	1

* Data qualifier included with concentration value

Table 4-43
Exposure Unit 10
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	32	8.46 J	136	3
Benzo(a)anthracene	μg/Kg	32	1.09 Jh	900	19
Benzo(a)pyrene	μg/Kg	32	2.09	691	16
Benzo(b)fluoranthene	μg/Kg	32	0.604	1280	18
Benzo(g,h,i)perylene	μg/Kg	32	1.47 J	300	13
Benzo(k)fluoranthene	μg/Kg	32	0.76	31.5 h	13
Chrysene	μg/Kg	32	1.33 J	1010	24
Dibenzo(a,h)anthracene	μg/Kg	32	1.43 J	6.8	3
Fluoranthene	μg/Kg	32	0.805 J	1760	25
Fluorene	μg/Kg	32	7.21 J	30.7 J	3
Indeno(1,2,3-cd)pyrene	μg/Kg	32	42.4	387	3
Naphthalene	μg/Kg	32	2.44 JP	2.44 JP	1
Phenanthrene	μg/Kg	32	2 J	624	16
Pyrene	μg/Kg	32	1.77 JP	1420	21
PCBs					
Aroclor-1016	μg/Kg	30	--	--	0
Aroclor-1221	μg/Kg	30	--	--	0
Aroclor-1232	μg/Kg	30	--	--	0
Aroclor-1242	μg/Kg	30	8.8	8.8	1
Aroclor-1248	μg/Kg	30	--	--	0
Aroclor-1254	μg/Kg	30	5.1	10.4	2
Aroclor-1260	μg/Kg	30	2.13 J	4.4	3
Pesticides					
4,4'-DDD	μg/Kg	30	2.18 J	2.18 J	1
4,4'-DDE	μg/Kg	30	0.302 J	5.33 J	13
4,4'-DDT	μg/Kg	30	0.587 J	12.5	15
Aldrin	μg/Kg	30	--	--	0
alpha-BHC	μg/Kg	30	--	--	0
alpha-Chlordane	μg/Kg	30	--	--	0
beta-BHC	μg/Kg	30	--	--	0
delta-BHC	μg/Kg	30	--	--	0
Dieldrin	μg/Kg	30	0.222 J	0.237 J	2
Endosulfan I	μg/Kg	30	--	--	0
Endosulfan II	μg/Kg	30	--	--	0
Endosulfan sulfate	μg/Kg	30	--	--	0
Endrin	μg/Kg	30	--	--	0
Endrin aldehyde	μg/Kg	30	--	--	0
Endrin ketone	μg/Kg	30	--	--	0
gamma-BHC (Lindane)	μg/Kg	30	--	--	0
gamma-Chlordane	μg/Kg	30	0.306 J	0.306 J	1
Heptachlor	μg/Kg	30	--	--	0
Heptachlor epoxide	μg/Kg	30	--	--	0
Methoxychlor	μg/Kg	30	--	--	0
Toxaphene	μg/Kg	30	--	--	0

* Data qualifier included with concentration value

Table 4-43
Exposure Unit 10
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	41	0.278	0.278	1
Alpha	pCi/g	34	5.52	68.2	33
Americium-241	pCi/g	41	--	--	0
Beta	pCi/g	34	12	53.1	34
Cesium-137	pCi/g	41	0.0372	0.35	12
Cobalt-60	pCi/g	41	--	--	0
Potassium-40	pCi/g	5	14.7	19.7	5
Protactinium-231	pCi/g	41	--	--	0
Radium-226	pCi/g	44	0.4	8.52	44
Radium-228	pCi/g	41	0.448	1.13	41
Thorium-228	pCi/g	44	0.549	1.71	44
Thorium-230	pCi/g	44	0.495	10.1	43
Thorium-232	pCi/g	44	0.32	1.58	44
Total Activity	pCi/g	30	37.9	37.9	1
Total Uranium	μg/g	44	1.08	69.4	44
Uranium-234	pCi/g	44	0.431	25.5	44
Uranium-235	pCi/g	44	0.065	1.69	10
Uranium-238	pCi/g	44	0.61	23.4	44
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	31	--	--	0
1,2-Dichlorobenzene	μg/Kg	32	--	--	0
1,3-Dichlorobenzene	μg/Kg	32	--	--	0
1,4-Dichlorobenzene	μg/Kg	32	--	--	0
2,4,5-Trichlorophenol	μg/Kg	32	--	--	0
2,4,6-Trichlorophenol	μg/Kg	32	--	--	0
2,4-Dichlorophenol	μg/Kg	32	--	--	0
2,4-Dimethylphenol	μg/Kg	32	--	--	0
2,4-Dinitrophenol	μg/Kg	32	--	--	0
2-Chloronaphthalene	μg/Kg	32	--	--	0
2-Chlorophenol	μg/Kg	32	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	32	--	--	0
2-Methylnaphthalene	μg/Kg	32	--	--	0
2-Nitroaniline	μg/Kg	32	--	--	0
2-Nitrophenol	μg/Kg	32	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	32	--	--	0
3-Nitroaniline	μg/Kg	32	--	--	0
4-Bromophenylphenylether	μg/Kg	32	--	--	0
4-Chloro-3-methylphenol	μg/Kg	32	--	--	0
4-Chloroaniline	μg/Kg	32	--	--	0
4-Chlorophenylphenylether	μg/Kg	32	--	--	0
4-Nitroaniline	μg/Kg	32	--	--	0
4-Nitrophenol	μg/Kg	32	--	--	0
Benzoic Acid	μg/Kg	32	--	--	0

* Data qualifier included with concentration value

Table 4-43
Exposure Unit 10
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	32	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	32	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	32	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	32	106 J	129 J	2
Butylbenzylphthalate	μg/Kg	32	--	--	0
Carbazole	μg/Kg	32	28.7 J	43.5 J	2
Dibenzofuran	μg/Kg	32	--	--	0
Diethylphthalate	μg/Kg	32	--	--	0
Dimethylphthalate	μg/Kg	32	--	--	0
Di-n-butylphthalate	μg/Kg	32	--	--	0
Di-n-octylphthalate	μg/Kg	32	--	--	0
Diphenylamine	μg/Kg	5	--	--	0
Hexachlorobenzene	μg/Kg	32	--	--	0
Hexachlorobutadiene	μg/Kg	32	--	--	0
Hexachlorocyclopentadiene	μg/Kg	32	--	--	0
Hexachloroethane	μg/Kg	32	--	--	0
Isophorone	μg/Kg	32	--	--	0
m,p-Cresols	μg/Kg	32	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	32	--	--	0
N-Nitrosodiphenylamine	μg/Kg	27	--	--	0
o-Cresol	μg/Kg	32	--	--	0
Pentachlorophenol	μg/Kg	32	--	--	0
Phenol	μg/Kg	32	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	30	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	30	--	--	0
1,1,2-Trichloroethane	μg/Kg	30	--	--	0
1,1-Dichloroethane	μg/Kg	30	--	--	0
1,1-Dichloroethene	μg/Kg	30	0.555 J	4.97	6
1,2-Dichloroethane	μg/Kg	30	--	--	0
1,2-Dichloropropane	μg/Kg	30	--	--	0
2-Butanone	μg/Kg	30	4.48 J	307	7
2-Hexanone	μg/Kg	30	--	--	0
4-Methyl-2-pentanone	μg/Kg	30	--	--	0
Acetone	μg/Kg	30	7.3	302	7
Benzene	μg/Kg	30	--	--	0
Bromodichloromethane	μg/Kg	30	--	--	0
Bromoform	μg/Kg	30	--	--	0
Bromomethane	μg/Kg	30	--	--	0
Carbon disulfide	μg/Kg	30	--	--	0
Carbon tetrachloride	μg/Kg	30	--	--	0
Chlorobenzene	μg/Kg	30	--	--	0
Chloroethane	μg/Kg	30	--	--	0
Chloroform	μg/Kg	30	--	--	0

* Data qualifier included with concentration value

Table 4-43
Exposure Unit 10
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	30	--	--	0
cis-1,2-Dichloroethene	μg/Kg	30	--	--	0
cis-1,3-Dichloropropene	μg/Kg	30	--	--	0
Dibromochloromethane	μg/Kg	30	--	--	0
Ethylbenzene	μg/Kg	30	--	--	0
Methylene chloride	μg/Kg	30	--	--	0
Styrene	μg/Kg	30	--	--	0
Tetrachloroethene	μg/Kg	30	--	--	0
Toluene	μg/Kg	30	0.465 J	0.589 J	3
trans-1,2-Dichloroethene	μg/Kg	30	--	--	0
trans-1,3-Dichloropropene	μg/Kg	30	--	--	0
Trichloroethene	μg/Kg	30	--	--	0
Vinyl chloride	μg/Kg	30	--	--	0
Xylenes (total)	μg/Kg	30	--	--	0

* Data qualifier included with concentration value

Table 4-44
Exposure Unit 11
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	32	8080	23600	32
Antimony	mg/Kg	32	0.369 BN*	2.3	7
Arsenic	mg/Kg	32	0.846	5.88 J	32
Barium	mg/Kg	32	85.4	223 N*	32
Beryllium	mg/Kg	32	0.408 B	1.8 E	32
Boron	mg/Kg	32	3.8 B	20 *	32
Cadmium	mg/Kg	32	0.14 B	0.95	13
Calcium	mg/Kg	32	4370	74900	32
Chromium	mg/Kg	32	10.2	62.1	32
Cobalt	mg/Kg	32	5.53 *N	16.1 J	32
Copper	mg/Kg	32	19.6	54 E*	32
Iron	mg/Kg	32	15300	37700	32
Lead	mg/Kg	32	3.34 NE	18 NE	32
Lithium	mg/Kg	32	10.7 NE	51.3	32
Magnesium	mg/Kg	32	5230	22000	32
Manganese	mg/Kg	32	256	2020 E*	32
Mercury	mg/Kg	32	0.004 B	1.1	29
Nickel	mg/Kg	32	11.3 N	34.9	32
Potassium	mg/Kg	32	1130 N	4820	32
Selenium	mg/Kg	32	0.353 B	2.36	30
Silver	mg/Kg	32	0.033 B	0.115 B	28
Sodium	mg/Kg	32	74.2 E	309 *	32
Thallium	mg/Kg	32	0.067 BE	0.26 J	32
Vanadium	mg/Kg	32	16.5	48.8	32
Zinc	mg/Kg	32	38.1 N	80.1	32
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	7	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	7	--	--	0
2,4-Dinitrotoluene	μg/Kg	33	--	--	0
2,6-Dinitrotoluene	μg/Kg	33	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	7	--	--	0
2-Nitrotoluene	μg/Kg	7	--	--	0
3-Dinitrobenzene	μg/Kg	7	--	--	0
3-Nitrotoluene	μg/Kg	7	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	7	--	--	0
4-Nitrotoluene	μg/Kg	7	--	--	0
HMX	μg/Kg	7	--	--	0
Nitrobenzene	μg/Kg	33	--	--	0
RDX	μg/Kg	7	--	--	0
Tetryl	μg/Kg	7	--	--	0
PAHs					
Acenaphthene	μg/Kg	33	34.9 J	296	3
Acenaphthylene	μg/Kg	33	7.5 J	7.5 J	1

* Data qualifier included with concentration value

Table 4-44
Exposure Unit 11
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	33	48.2	518	3
Benzo(a)anthracene	μg/Kg	33	1.08 JP	2430	9
Benzo(a)pyrene	μg/Kg	33	2.48	2560	8
Benzo(b)fluoranthene	μg/Kg	33	1.02 J	2740	11
Benzo(g,h,i)perylene	μg/Kg	33	2.52	1410	7
Benzo(k)fluoranthene	μg/Kg	33	5.87	2940	4
Chrysene	μg/Kg	33	0.947 J	2980	12
Dibenzo(a,h)anthracene	μg/Kg	33	209	209	1
Fluoranthene	μg/Kg	33	2.2 P	7210 D	11
Fluorene	μg/Kg	33	22.2 J	263	3
Indeno(1,2,3-cd)pyrene	μg/Kg	33	268	1330	3
Naphthalene	μg/Kg	33	3.44 J	336	3
Phenanthrene	μg/Kg	33	1.89 J	4360	11
Pyrene	μg/Kg	33	1.68 J	6280 D	11
PCBs					
Aroclor-1016	μg/Kg	29	--	--	0
Aroclor-1221	μg/Kg	29	--	--	0
Aroclor-1232	μg/Kg	29	--	--	0
Aroclor-1242	μg/Kg	29	4.8	6.7	2
Aroclor-1248	μg/Kg	29	--	--	0
Aroclor-1254	μg/Kg	29	2.6 J	3.8	3
Aroclor-1260	μg/Kg	29	2.2 J	2.2 J	1
Pesticides					
4,4'-DDD	μg/Kg	30	--	--	0
4,4'-DDE	μg/Kg	30	0.335 J	2.9 J	6
4,4'-DDT	μg/Kg	30	1.19 J	2.65	4
Aldrin	μg/Kg	30	--	--	0
alpha-BHC	μg/Kg	30	--	--	0
alpha-Chlordane	μg/Kg	30	--	--	0
beta-BHC	μg/Kg	30	--	--	0
delta-BHC	μg/Kg	30	--	--	0
Dieldrin	μg/Kg	30	--	--	0
Endosulfan I	μg/Kg	30	--	--	0
Endosulfan II	μg/Kg	30	--	--	0
Endosulfan sulfate	μg/Kg	30	--	--	0
Endrin	μg/Kg	30	--	--	0
Endrin aldehyde	μg/Kg	30	--	--	0
Endrin ketone	μg/Kg	30	--	--	0
gamma-BHC (Lindane)	μg/Kg	30	--	--	0
gamma-Chlordane	μg/Kg	30	--	--	0
Heptachlor	μg/Kg	30	1.7	1.7	1
Heptachlor epoxide	μg/Kg	30	--	--	0
Methoxychlor	μg/Kg	30	--	--	0
Toxaphene	μg/Kg	30	--	--	0

* Data qualifier included with concentration value

Table 4-44
Exposure Unit 11
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	71	0.478	132	7
Alpha	pCi/g	27	6.77	19000	27
Americium-241	pCi/g	71	--	--	0
Beta	pCi/g	27	20.1	15100	27
Cesium-137	pCi/g	72	0.0249	0.688	26
Cobalt-60	pCi/g	71	--	--	0
Plutonium-238	pCi/g	3	--	--	0
Plutonium-239/240	pCi/g	3	0.129	0.129	1
Potassium-40	pCi/g	40	5.23	24.6	39
Protactinium-231	pCi/g	71	127	127	1
Radium-226	pCi/g	76	0.379	386	75
Radium-228	pCi/g	71	0.233	1.49	68
Strontium-90	pCi/g	1	--	--	0
Thorium-228	pCi/g	76	0.287	1.95	73
Thorium-230	pCi/g	76	0.848	304	73
Thorium-232	pCi/g	76	0.14	1.87	73
Total Activity	pCi/g	15	--	--	0
Total Uranium	µg/g	76	0.656	2860	76
Uranium-234	pCi/g	76	0.396	8340	74
Uranium-235	pCi/g	76	0.0745	886	24
Uranium-238	pCi/g	76	0.388	8830	74
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/Kg	33	--	--	0
1,2-Dichlorobenzene	µg/Kg	33	--	--	0
1,3-Dichlorobenzene	µg/Kg	33	--	--	0
1,4-Dichlorobenzene	µg/Kg	33	--	--	0
2,4,5-Trichlorophenol	µg/Kg	33	--	--	0
2,4,6-Trichlorophenol	µg/Kg	33	--	--	0
2,4-Dichlorophenol	µg/Kg	33	--	--	0
2,4-Dimethylphenol	µg/Kg	33	--	--	0
2,4-Dinitrophenol	µg/Kg	33	--	--	0
2-Chloronaphthalene	µg/Kg	33	--	--	0
2-Chlorophenol	µg/Kg	33	--	--	0
2-Methyl-4,6-dinitrophenol	µg/Kg	33	--	--	0
2-Methylnaphthalene	µg/Kg	33	53.8	449	2
2-Nitroaniline	µg/Kg	33	--	--	0
2-Nitrophenol	µg/Kg	33	--	--	0
3,3'-Dichlorobenzidine	µg/Kg	33	--	--	0
3-Nitroaniline	µg/Kg	33	--	--	0
4-Bromophenylphenylether	µg/Kg	33	--	--	0
4-Chloro-3-methylphenol	µg/Kg	33	--	--	0
4-Chloroaniline	µg/Kg	33	--	--	0
4-Chlorophenylphenylether	µg/Kg	33	--	--	0

* Data qualifier included with concentration value

Table 4-44
Exposure Unit 11
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	33	--	--	0
4-Nitrophenol	μg/Kg	33	--	--	0
Benzoic Acid	μg/Kg	31	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	33	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	33	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	33	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	33	62.9	128 J	5
Butylbenzylphthalate	μg/Kg	33	17.7 J	17.7 J	1
Carbazole	μg/Kg	33	45 J	334 J	3
Dibenzofuran	μg/Kg	33	30.3 J	277 J	2
Diethylphthalate	μg/Kg	33	31.6 J	384 J	2
Dimethylphthalate	μg/Kg	33	--	--	0
Di-n-butylphthalate	μg/Kg	33	--	--	0
Di-n-octylphthalate	μg/Kg	33	--	--	0
Diphenylamine	μg/Kg	18	--	--	0
Hexachlorobenzene	μg/Kg	33	--	--	0
Hexachlorobutadiene	μg/Kg	33	--	--	0
Hexachlorocyclopentadiene	μg/Kg	33	--	--	0
Hexachloroethane	μg/Kg	33	--	--	0
Isophorone	μg/Kg	33	--	--	0
m,p-Cresols	μg/Kg	33	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	33	--	--	0
N-Nitrosodiphenylamine	μg/Kg	15	--	--	0
o-Cresol	μg/Kg	33	--	--	0
Pentachlorophenol	μg/Kg	33	--	--	0
Phenol	μg/Kg	33	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	23	0.75 J	0.75 J	1
1,1,2,2-Tetrachloroethane	μg/Kg	23	--	--	0
1,1,2-Trichloroethane	μg/Kg	23	--	--	0
1,1-Dichloroethane	μg/Kg	23	--	--	0
1,1-Dichloroethene	μg/Kg	23	1.13	1.3	2
1,2-Dichloroethane	μg/Kg	23	--	--	0
1,2-Dichloropropane	μg/Kg	23	--	--	0
2-Butanone	μg/Kg	23	6.19	45.9	5
2-Hexanone	μg/Kg	23	--	--	0
4-Methyl-2-pentanone	μg/Kg	23	--	--	0
Acetone	μg/Kg	23	3.7 J	29.6	12
Benzene	μg/Kg	23	2.3	2.6	2
Bromodichloromethane	μg/Kg	23	--	--	0
Bromoform	μg/Kg	23	--	--	0
Bromomethane	μg/Kg	23	--	--	0
Carbon disulfide	μg/Kg	23	1.8 J	1.8 J	1
Carbon tetrachloride	μg/Kg	23	--	--	0

* Data qualifier included with concentration value

Table 4-44
Exposure Unit 11
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chlorobenzene	μg/Kg	23	--	--	0
Chloroethane	μg/Kg	23	--	--	0
Chloroform	μg/Kg	23	--	--	0
Chloromethane	μg/Kg	23	--	--	0
cis-1,2-Dichloroethene	μg/Kg	23	--	--	0
cis-1,3-Dichloropropene	μg/Kg	23	--	--	0
Dibromochloromethane	μg/Kg	23	--	--	0
Ethylbenzene	μg/Kg	23	--	--	0
Methylene chloride	μg/Kg	23	--	--	0
Styrene	μg/Kg	23	--	--	0
Tetrachloroethene	μg/Kg	23	--	--	0
Toluene	μg/Kg	23	0.405 J	1.9	7
trans-1,2-Dichloroethene	μg/Kg	23	--	--	0
trans-1,3-Dichloropropene	μg/Kg	23	--	--	0
Trichloroethene	μg/Kg	23	--	--	0
Vinyl chloride	μg/Kg	23	--	--	0
Xylenes (total)	μg/Kg	23	1.1 J	1.1 J	1

* Data qualifier included with concentration value

Table 4-45
Exposure Unit 12
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	14	6510	23200	14
Antimony	mg/Kg	14	0.38 J	0.981 BN	3
Arsenic	mg/Kg	14	1.88	51.8 N	14
Barium	mg/Kg	14	70.5 *	301 N*	14
Beryllium	mg/Kg	14	0.59 E	1.79	14
Boron	mg/Kg	14	6.9	37.6	14
Cadmium	mg/Kg	14	0.06 B	1.29	10
Calcium	mg/Kg	14	7780	58400	14
Chromium	mg/Kg	14	11.7	28.2	14
Cobalt	mg/Kg	14	7.45	14.3	14
Copper	mg/Kg	14	21	99.8	14
Iron	mg/Kg	14	14300	39000	14
Lead	mg/Kg	14	5.9 *	25.1	14
Lithium	mg/Kg	14	10.3 EN	33.4	14
Magnesium	mg/Kg	14	3160	14400	14
Manganese	mg/Kg	14	153	1150	14
Mercury	mg/Kg	14	0.009 J	0.1	13
Nickel	mg/Kg	14	19.6	34	14
Potassium	mg/Kg	14	1110	3920 E	14
Selenium	mg/Kg	14	0.358 J	3.13 B	14
Silver	mg/Kg	14	0.059 J	0.361 BN	12
Sodium	mg/Kg	14	74.8	305	14
Thallium	mg/Kg	14	0.09 B	0.39	14
Vanadium	mg/Kg	14	17.7	45.8 N	14
Zinc	mg/Kg	14	46.7	112	14
Nitroaromatics					
2,4-Dinitrotoluene	μg/Kg	17	--	--	0
2,6-Dinitrotoluene	μg/Kg	17	--	--	0
Nitrobenzene	μg/Kg	17	--	--	0
PAHs					
Acenaphthene	μg/Kg	17	--	--	0
Acenaphthylene	μg/Kg	17	--	--	0
Anthracene	μg/Kg	17	43.5 J	43.5 J	1
Benzo(a)anthracene	μg/Kg	17	0.967 JP	945 J	6
Benzo(a)pyrene	μg/Kg	17	36.2	1340 J	5
Benzo(b)fluoranthene	μg/Kg	17	0.946 J	3550	5
Benzo(g,h,i)perylene	μg/Kg	17	18.9	1070 J	3
Benzo(k)fluoranthene	μg/Kg	17	18	1250 J	5
Chrysene	μg/Kg	17	1.51 J	1790	6
Dibenzo(a,h)anthracene	μg/Kg	17	--	--	0
Fluoranthene	μg/Kg	17	0.616 JP	1120 J	9
Fluorene	μg/Kg	17	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	17	1.52 JP	1600 J	3

* Data qualifier included with concentration value

Table 4-45
Exposure Unit 12
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Naphthalene	μg/Kg	17	3.03 JP	2170	4
Phenanthrene	μg/Kg	17	1.67 J	1050 J	6
Pyrene	μg/Kg	17	1.15 JP	252 J	7
PCBs					
Aroclor-1016	μg/Kg	5	--	--	0
Aroclor-1221	μg/Kg	5	--	--	0
Aroclor-1232	μg/Kg	5	--	--	0
Aroclor-1242	μg/Kg	5	--	--	0
Aroclor-1248	μg/Kg	5	--	--	0
Aroclor-1254	μg/Kg	5	--	--	0
Aroclor-1260	μg/Kg	5	1.4 J	4.8 J	2
Pesticides					
4,4'-DDD	μg/Kg	5	--	--	0
4,4'-DDE	μg/Kg	5	0.378 J	1.46 J	4
4,4'-DDT	μg/Kg	5	0.796 J	2.84	4
Aldrin	μg/Kg	5	--	--	0
alpha-BHC	μg/Kg	5	--	--	0
alpha-Chlordane	μg/Kg	5	--	--	0
beta-BHC	μg/Kg	5	--	--	0
delta-BHC	μg/Kg	5	--	--	0
Dieldrin	μg/Kg	5	--	--	0
Endosulfan I	μg/Kg	5	--	--	0
Endosulfan II	μg/Kg	5	--	--	0
Endosulfan sulfate	μg/Kg	5	--	--	0
Endrin	μg/Kg	5	--	--	0
Endrin aldehyde	μg/Kg	5	--	--	0
Endrin ketone	μg/Kg	5	--	--	0
gamma-BHC (Lindane)	μg/Kg	5	--	--	0
gamma-Chlordane	μg/Kg	5	--	--	0
Heptachlor	μg/Kg	5	--	--	0
Heptachlor epoxide	μg/Kg	5	--	--	0
Methoxychlor	μg/Kg	5	--	--	0
Toxaphene	μg/Kg	5	--	--	0
Radionuclides					
Actinium-227	pCi/g	22	2.71	2.72	2
Alpha	pCi/g	16	8.21	284	16
Americium-241	pCi/g	22	--	--	0
Beta	pCi/g	16	16.6	153	16
Cesium-137	pCi/g	25	0.0379	0.739	19
Cobalt-60	pCi/g	22	--	--	0
Potassium-40	pCi/g	6	9.91	21.8	5
Protactinium-231	pCi/g	22	--	--	0
Radium-226	pCi/g	30	0.634	29.6	30
Radium-228	pCi/g	22	0.666	1.37	21

* Data qualifier included with concentration value

Table 4-45
Exposure Unit 12
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Thorium-228	pCi/g	30	0.0481	2.13	30
Thorium-230	pCi/g	30	0.0906	69.6	30
Thorium-232	pCi/g	30	0.036	1.47	30
Total Activity	pCi/g	3	--	--	0
Total Uranium	μg/g	30	0.111	49.4	28
Uranium-234	pCi/g	30	0.0527	12.1	30
Uranium-235	pCi/g	30	0.0487 J	0.409	7
Uranium-238	pCi/g	30	0.0416	12.1	30
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	17	--	--	0
1,2-Dichlorobenzene	μg/Kg	17	--	--	0
1,3-Dichlorobenzene	μg/Kg	17	--	--	0
1,4-Dichlorobenzene	μg/Kg	17	--	--	0
2,4,5-Trichlorophenol	μg/Kg	17	--	--	0
2,4,6-Trichlorophenol	μg/Kg	17	--	--	0
2,4-Dichlorophenol	μg/Kg	17	--	--	0
2,4-Dimethylphenol	μg/Kg	17	--	--	0
2,4-Dinitrophenol	μg/Kg	17	--	--	0
2-Chloronaphthalene	μg/Kg	17	--	--	0
2-Chlorophenol	μg/Kg	17	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	17	--	--	0
2-Methylnaphthalene	μg/Kg	17	798	2950	3
2-Nitroaniline	μg/Kg	17	--	--	0
2-Nitrophenol	μg/Kg	17	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	17	--	--	0
3-Nitroaniline	μg/Kg	17	--	--	0
4-Bromophenylphenylether	μg/Kg	17	--	--	0
4-Chloro-3-methylphenol	μg/Kg	17	--	--	0
4-Chloroaniline	μg/Kg	17	--	--	0
4-Chlorophenylphenylether	μg/Kg	17	--	--	0
4-Nitroaniline	μg/Kg	17	--	--	0
4-Nitrophenol	μg/Kg	17	--	--	0
Benzoic Acid	μg/Kg	17	602 J	602 J	1
bis(2-Chloroethoxy)methane	μg/Kg	17	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	17	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	17	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	17	203 J	738	2
Butylbenzylphthalate	μg/Kg	17	--	--	0
Carbazole	μg/Kg	17	--	--	0
Dibenzofuran	μg/Kg	17	233 J	612	2
Diethylphthalate	μg/Kg	17	--	--	0
Dimethylphthalate	μg/Kg	17	--	--	0
Di-n-butylphthalate	μg/Kg	17	--	--	0
Di-n-octylphthalate	μg/Kg	17	--	--	0

* Data qualifier included with concentration value

Table 4-45
Exposure Unit 12
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Diphenylamine	μg/Kg	12	--	--	0
Hexachlorobenzene	μg/Kg	17	--	--	0
Hexachlorobutadiene	μg/Kg	17	--	--	0
Hexachlorocyclopentadiene	μg/Kg	17	--	--	0
Hexachloroethane	μg/Kg	17	--	--	0
Isophorone	μg/Kg	17	--	--	0
m,p-Cresols	μg/Kg	17	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	17	--	--	0
N-Nitrosodiphenylamine	μg/Kg	5	--	--	0
o-Cresol	μg/Kg	17	--	--	0
Pentachlorophenol	μg/Kg	17	--	--	0
Phenol	μg/Kg	17	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	8	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	8	--	--	0
1,1,2-Trichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethene	μg/Kg	8	--	--	0
1,2-Dichloroethane	μg/Kg	8	--	--	0
1,2-Dichloropropane	μg/Kg	8	--	--	0
2-Butanone	μg/Kg	8	5.4 J	17.7	2
2-Hexanone	μg/Kg	8	--	--	0
4-Methyl-2-pentanone	μg/Kg	8	--	--	0
Acetone	μg/Kg	8	6.7	81.9	2
Benzene	μg/Kg	8	--	--	0
Bromodichloromethane	μg/Kg	8	--	--	0
Bromoform	μg/Kg	8	--	--	0
Bromomethane	μg/Kg	8	--	--	0
Carbon disulfide	μg/Kg	8	--	--	0
Carbon tetrachloride	μg/Kg	8	--	--	0
Chlorobenzene	μg/Kg	8	--	--	0
Chloroethane	μg/Kg	8	--	--	0
Chloroform	μg/Kg	8	--	--	0
Chloromethane	μg/Kg	8	--	--	0
cis-1,2-Dichloroethene	μg/Kg	8	--	--	0
cis-1,3-Dichloropropene	μg/Kg	8	--	--	0
Dibromochloromethane	μg/Kg	8	--	--	0
Ethylbenzene	μg/Kg	8	--	--	0
Methylene chloride	μg/Kg	8	9.6	18.5	3
Styrene	μg/Kg	8	--	--	0
Tetrachloroethene	μg/Kg	8	--	--	0
Toluene	μg/Kg	8	1.1 J	1.1 J	1
trans-1,2-Dichloroethene	μg/Kg	8	--	--	0
trans-1,3-Dichloropropene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-45
Exposure Unit 12
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Trichloroethene	μg/Kg	8	--	--	0
Vinyl chloride	μg/Kg	8	--	--	0
Xylenes (total)	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-46
Exposure Unit 13
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	34	3310 *	24100	34
Antimony	mg/Kg	34	0.34 BN	2.2 N	8
Arsenic	mg/Kg	34	1.1 EN	11.2	34
Barium	mg/Kg	34	17.3 *N	315	34
Beryllium	mg/Kg	34	0.395 B	1.25	33
Boron	mg/Kg	34	5.3 B	343	34
Cadmium	mg/Kg	34	0.029 BE	2.04 E	21
Calcium	mg/Kg	34	3620	170000 *	34
Chromium	mg/Kg	34	4.09 *	69.1	34
Cobalt	mg/Kg	34	2.31 *	17.2 *	34
Copper	mg/Kg	34	15.7 E	1050	34
Iron	mg/Kg	34	6530 *	52600	34
Lead	mg/Kg	34	5.3 N	142	34
Lithium	mg/Kg	34	6.8	35.8	34
Magnesium	mg/Kg	34	4830	55300 *	34
Manganese	mg/Kg	34	172 *	1550	34
Mercury	mg/Kg	34	0.007 B	1.31 *	34
Nickel	mg/Kg	34	1.48 B	348	34
Potassium	mg/Kg	34	808 EN	6510	34
Selenium	mg/Kg	34	0.435 B	1.83	28
Silver	mg/Kg	34	0.03 B	0.228	25
Sodium	mg/Kg	34	78.7 E	1780	34
Thallium	mg/Kg	34	0.061 B	0.26 E	34
Vanadium	mg/Kg	34	7.03 *	45.7 N	34
Zinc	mg/Kg	34	37.2 *	2450	34
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	6	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	6	--	--	0
2,4-Dinitrotoluene	μg/Kg	42	108	108	1
2,6-Dinitrotoluene	μg/Kg	42	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	6	--	--	0
2-Nitrotoluene	μg/Kg	6	--	--	0
3-Dinitrobenzene	μg/Kg	6	--	--	0
3-Nitrotoluene	μg/Kg	6	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	6	--	--	0
4-Nitrotoluene	μg/Kg	6	--	--	0
HMX	μg/Kg	6	--	--	0
Nitrobenzene	μg/Kg	42	--	--	0
RDX	μg/Kg	6	--	--	0
Tetryl	μg/Kg	6	--	--	0
PAHs					
Acenaphthene	μg/Kg	41	40.7 J	40.7 J	1
Acenaphthylene	μg/Kg	42	1.07 J	1.07 J	1

* Data qualifier included with concentration value

Table 4-46
Exposure Unit 13
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	42	22.6 J	60.4 J	4
Benzo(a)anthracene	μg/Kg	42	0.779 J	379	10
Benzo(a)pyrene	μg/Kg	42	19.6	385	8
Benzo(b)fluoranthene	μg/Kg	42	1.67 J	700 P	11
Benzo(g,h,i)perylene	μg/Kg	42	11.8	215 J	5
Benzo(k)fluoranthene	μg/Kg	42	1 P	247 J	9
Chrysene	μg/Kg	42	0.878 J	440	18
Dibenzo(a,h)anthracene	μg/Kg	42	--	--	0
Fluoranthene	μg/Kg	42	0.557 J	892	24
Fluorene	μg/Kg	42	35.6 J	35.6 J	1
Indeno(1,2,3-cd)pyrene	μg/Kg	42	21.3 J	188 J	4
Naphthalene	μg/Kg	42	11.2 J	483	6
Phenanthrene	μg/Kg	42	1.96 J	642	17
Pyrene	μg/Kg	41	1.7 J	925	18
PCBs					
Aroclor-1016	μg/Kg	26	--	--	0
Aroclor-1221	μg/Kg	26	--	--	0
Aroclor-1232	μg/Kg	26	--	--	0
Aroclor-1242	μg/Kg	26	--	--	0
Aroclor-1248	μg/Kg	26	--	--	0
Aroclor-1254	μg/Kg	26	5.8	441	5
Aroclor-1260	μg/Kg	26	2.8 J	84.5 P	9
Pesticides					
4,4'-DDD	μg/Kg	26	--	--	0
4,4'-DDE	μg/Kg	26	0.43 J	4.12	6
4,4'-DDT	μg/Kg	26	1.19 J	8.58	8
Aldrin	μg/Kg	26	--	--	0
alpha-BHC	μg/Kg	26	--	--	0
alpha-Chlordane	μg/Kg	26	--	--	0
beta-BHC	μg/Kg	26	--	--	0
delta-BHC	μg/Kg	26	--	--	0
Dieldrin	μg/Kg	26	0.583 J	0.583 J	1
Endosulfan I	μg/Kg	26	--	--	0
Endosulfan II	μg/Kg	26	--	--	0
Endosulfan sulfate	μg/Kg	26	--	--	0
Endrin	μg/Kg	26	--	--	0
Endrin aldehyde	μg/Kg	26	0.579 J	5.72	3
Endrin ketone	μg/Kg	26	0.461 J	0.461 J	1
gamma-BHC (Lindane)	μg/Kg	26	--	--	0
gamma-Chlordane	μg/Kg	26	--	--	0
Heptachlor	μg/Kg	26	--	--	0
Heptachlor epoxide	μg/Kg	26	--	--	0
Methoxychlor	μg/Kg	26	--	--	0
Toxaphene	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-46
Exposure Unit 13
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	34	1.95	9.3	2
Alpha	pCi/g	32	4.42	3030	32
Americium-241	pCi/g	34	--	--	0
Beta	pCi/g	32	12.8	1180	32
Cesium-137	pCi/g	34	0.0313	0.148	6
Cobalt-60	pCi/g	34	--	--	0
Plutonium-238	pCi/g	10	--	--	0
Plutonium-239/240	pCi/g	10	0.536	0.536	1
Potassium-40	pCi/g	12	14.2	23	12
Protactinium-231	pCi/g	34	--	--	0
Radium-226	pCi/g	48	0.375	1140	48
Radium-228	pCi/g	34	0.411	1.18	32
Strontium-90	pCi/g	10	--	--	0
Thorium-228	pCi/g	48	0.441	2.1	45
Thorium-230	pCi/g	48	0.526	978	48
Thorium-232	pCi/g	48	0.349	2.07	48
Total Activity	pCi/g	13	--	--	0
Total Uranium	μg/g	48	0.724	44.8	46
Uranium-234	pCi/g	48	0.421	29.7	48
Uranium-235	pCi/g	48	0.099	1.2	5
Uranium-238	pCi/g	48	0.481	26.2	48
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	42	--	--	0
1,2-Dichlorobenzene	μg/Kg	42	--	--	0
1,3-Dichlorobenzene	μg/Kg	42	--	--	0
1,4-Dichlorobenzene	μg/Kg	42	--	--	0
2,4,5-Trichlorophenol	μg/Kg	42	--	--	0
2,4,6-Trichlorophenol	μg/Kg	42	--	--	0
2,4-Dichlorophenol	μg/Kg	42	--	--	0
2,4-Dimethylphenol	μg/Kg	42	--	--	0
2,4-Dinitrophenol	μg/Kg	42	--	--	0
2-Chloronaphthalene	μg/Kg	42	--	--	0
2-Chlorophenol	μg/Kg	42	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	42	--	--	0
2-Methylnaphthalene	μg/Kg	42	25.4 J	819	6
2-Nitroaniline	μg/Kg	42	--	--	0
2-Nitrophenol	μg/Kg	42	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	42	--	--	0
3-Nitroaniline	μg/Kg	42	--	--	0
4-Bromophenylphenylether	μg/Kg	42	--	--	0
4-Chloro-3-methylphenol	μg/Kg	42	--	--	0
4-Chloroaniline	μg/Kg	42	--	--	0
4-Chlorophenylphenylether	μg/Kg	42	--	--	0

* Data qualifier included with concentration value

Table 4-46
Exposure Unit 13
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	42	--	--	0
4-Nitrophenol	μg/Kg	42	--	--	0
Benzoic Acid	μg/Kg	42	--	--	0
Benzyl Alcohol	μg/Kg	2	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	42	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	42	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	42	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	42	42.1 J	1380	8
Butylbenzylphthalate	μg/Kg	42	--	--	0
Carbazole	μg/Kg	42	--	--	0
Dibenzofuran	μg/Kg	42	34.1 J	60.2 J	2
Diethylphthalate	μg/Kg	42	--	--	0
Dimethylphthalate	μg/Kg	42	--	--	0
Di-n-butylphthalate	μg/Kg	42	--	--	0
Di-n-octylphthalate	μg/Kg	42	310 J	310 J	1
Diphenylamine	μg/Kg	27	--	--	0
Hexachlorobenzene	μg/Kg	42	--	--	0
Hexachlorobutadiene	μg/Kg	42	--	--	0
Hexachlorocyclopentadiene	μg/Kg	42	--	--	0
Hexachloroethane	μg/Kg	42	--	--	0
Isophorone	μg/Kg	42	--	--	0
m,p-Cresols	μg/Kg	42	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	42	--	--	0
N-Nitrosodiphenylamine	μg/Kg	15	--	--	0
o-Cresol	μg/Kg	42	--	--	0
Pentachlorophenol	μg/Kg	42	--	--	0
Phenol	μg/Kg	42	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	35	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	35	--	--	0
1,1,2-Trichloroethane	μg/Kg	35	--	--	0
1,1-Dichloroethane	μg/Kg	35	--	--	0
1,1-Dichloroethene	μg/Kg	35	0.85	1.54	3
1,2-Dichloroethane	μg/Kg	35	--	--	0
1,2-Dichloropropane	μg/Kg	35	--	--	0
2-Butanone	μg/Kg	35	6.98	8.2	2
2-Hexanone	μg/Kg	35	--	--	0
4-Methyl-2-pentanone	μg/Kg	35	--	--	0
Acetone	μg/Kg	35	5.61	59.9	8
Benzene	μg/Kg	35	--	--	0
Bromodichloromethane	μg/Kg	35	--	--	0
Bromoform	μg/Kg	35	--	--	0
Bromomethane	μg/Kg	35	--	--	0
Carbon disulfide	μg/Kg	35	8.36	8.36	1

* Data qualifier included with concentration value

Table 4-46
Exposure Unit 13
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon tetrachloride	μg/Kg	35	--	--	0
Chlorobenzene	μg/Kg	35	--	--	0
Chloroethane	μg/Kg	35	--	--	0
Chloroform	μg/Kg	35	1.7	1.7	1
Chloromethane	μg/Kg	35	--	--	0
cis-1,2-Dichloroethene	μg/Kg	35	0.77 J	999 D	4
cis-1,3-Dichloropropene	μg/Kg	35	--	--	0
Dibromochloromethane	μg/Kg	35	0.903 J	0.903 J	1
Ethylbenzene	μg/Kg	35	--	--	0
Methylene chloride	μg/Kg	35	1.3 J	15.2	6
Styrene	μg/Kg	35	--	--	0
Tetrachloroethene	μg/Kg	35	0.711 J	14.3	10
Toluene	μg/Kg	35	0.34 J	4.7	11
trans-1,2-Dichloroethene	μg/Kg	35	1 J	30.3	3
trans-1,3-Dichloropropene	μg/Kg	35	--	--	0
Trichloroethene	μg/Kg	35	0.437 J	6700 D	12
Vinyl chloride	μg/Kg	35	--	--	0
Xylenes (total)	μg/Kg	35	--	--	0

* Data qualifier included with concentration value

Table 4-47
Exposure Unit 14
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	15	6660	147000	15
Antimony	mg/Kg	15	0.519 BN	1.38 N	3
Arsenic	mg/Kg	15	1.42	9.32 N	15
Barium	mg/Kg	15	19.6	2210	15
Beryllium	mg/Kg	15	0.37 B	28	15
Boron	mg/Kg	15	4.76 B	1580 N*	15
Cadmium	mg/Kg	15	0.126 B	1.04 *	13
Calcium	mg/Kg	15	4040 *	240000	15
Chromium	mg/Kg	15	10.1	38 *N	15
Cobalt	mg/Kg	15	4.82	15	15
Copper	mg/Kg	15	23.2 *N	94.7 *N	15
Iron	mg/Kg	15	10900	33100	15
Lead	mg/Kg	15	5.03	67.8	15
Lithium	mg/Kg	15	11.4 B	46.8	15
Magnesium	mg/Kg	15	3080	232000	15
Manganese	mg/Kg	15	90.4 *	4300	15
Mercury	mg/Kg	15	0.01 B	0.075	12
Nickel	mg/Kg	15	12.7	37.3	15
Potassium	mg/Kg	15	1030 N	12200	15
Selenium	mg/Kg	15	0.461 B	5.25	14
Silver	mg/Kg	15	0.048 B	0.404 BN	15
Sodium	mg/Kg	15	64.3 *	6950 N	15
Thallium	mg/Kg	15	0.032 B	0.31	15
Vanadium	mg/Kg	15	18.2	65.9 *N	15
Zinc	mg/Kg	15	34.3	403	15
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	4	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	4	--	--	0
2,4-Dinitrotoluene	μg/Kg	15	--	--	0
2,6-Dinitrotoluene	μg/Kg	15	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	4	--	--	0
2-Nitrotoluene	μg/Kg	4	--	--	0
3-Dinitrobenzene	μg/Kg	4	--	--	0
3-Nitrotoluene	μg/Kg	4	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	4	--	--	0
4-Nitrotoluene	μg/Kg	4	--	--	0
HMX	μg/Kg	4	--	--	0
Nitrobenzene	μg/Kg	15	--	--	0
RDX	μg/Kg	4	--	--	0
Tetryl	μg/Kg	4	--	--	0
PAHs					
Acenaphthene	μg/Kg	15	--	--	0
Acenaphthylene	μg/Kg	15	--	--	0

* Data qualifier included with concentration value

Table 4-47
Exposure Unit 14
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	15	--	--	0
Benzo(a)anthracene	μg/Kg	15	--	--	0
Benzo(a)pyrene	μg/Kg	15	--	--	0
Benzo(b)fluoranthene	μg/Kg	15	--	--	0
Benzo(g,h,i)perylene	μg/Kg	15	--	--	0
Benzo(k)fluoranthene	μg/Kg	15	--	--	0
Chrysene	μg/Kg	15	1.78 J	1.78 J	1
Dibenzo(a,h)anthracene	μg/Kg	15	--	--	0
Fluoranthene	μg/Kg	15	3 J	23.3 J	2
Fluorene	μg/Kg	15	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	15	--	--	0
Naphthalene	μg/Kg	15	1410 J	1410 J	1
Phenanthrene	μg/Kg	15	--	--	0
Pyrene	μg/Kg	15	19.8 J	19.8 J	1
PCBs					
Aroclor-1016	μg/Kg	8	--	--	0
Aroclor-1221	μg/Kg	8	--	--	0
Aroclor-1232	μg/Kg	8	--	--	0
Aroclor-1242	μg/Kg	8	--	--	0
Aroclor-1248	μg/Kg	8	--	--	0
Aroclor-1254	μg/Kg	8	--	--	0
Aroclor-1260	μg/Kg	8	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	8	--	--	0
4,4'-DDE	μg/Kg	8	--	--	0
4,4'-DDT	μg/Kg	8	0.936 J	0.936 J	1
Aldrin	μg/Kg	8	--	--	0
alpha-BHC	μg/Kg	8	--	--	0
alpha-Chlordane	μg/Kg	8	--	--	0
beta-BHC	μg/Kg	8	--	--	0
delta-BHC	μg/Kg	8	--	--	0
Dieldrin	μg/Kg	8	--	--	0
Endosulfan I	μg/Kg	8	--	--	0
Endosulfan II	μg/Kg	8	--	--	0
Endosulfan sulfate	μg/Kg	8	--	--	0
Endrin	μg/Kg	8	--	--	0
Endrin aldehyde	μg/Kg	8	--	--	0
Endrin ketone	μg/Kg	8	--	--	0
gamma-BHC (Lindane)	μg/Kg	8	--	--	0
gamma-Chlordane	μg/Kg	8	--	--	0
Heptachlor	μg/Kg	8	--	--	0
Heptachlor epoxide	μg/Kg	8	--	--	0
Methoxychlor	μg/Kg	8	--	--	0
Toxaphene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-47
Exposure Unit 14
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	37	1 J	5.11	2
Alpha	pCi/g	8	9.8	22.1	8
Americium-241	pCi/g	37	--	--	0
Beta	pCi/g	8	20.1	40.7	8
Cesium-137	pCi/g	39	0.0291	1.27	18
Cobalt-60	pCi/g	37	--	--	0
Potassium-40	pCi/g	18	11.4 J	24.6	18
Protactinium-231	pCi/g	37	--	--	0
Radium-226	pCi/g	43	0.465	299	43
Radium-228	pCi/g	37	0.51	1.25	35
Thorium-228	pCi/g	43	0.578	1.7	42
Thorium-230	pCi/g	43	0.582	4.47	41
Thorium-232	pCi/g	43	0.46	1.29	43
Total Activity	pCi/g	2	--	--	0
Total Uranium	μg/g	43	1.86	9.96	43
Uranium-234	pCi/g	43	0.514	5.6	42
Uranium-235	pCi/g	43	0.0395	0.898	12
Uranium-238	pCi/g	43	0.345	3.82	42
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	15	--	--	0
1,2-Dichlorobenzene	μg/Kg	15	--	--	0
1,3-Dichlorobenzene	μg/Kg	15	--	--	0
1,4-Dichlorobenzene	μg/Kg	15	--	--	0
2,4,5-Trichlorophenol	μg/Kg	15	--	--	0
2,4,6-Trichlorophenol	μg/Kg	15	--	--	0
2,4-Dichlorophenol	μg/Kg	15	--	--	0
2,4-Dimethylphenol	μg/Kg	15	--	--	0
2,4-Dinitrophenol	μg/Kg	15	--	--	0
2-Chloronaphthalene	μg/Kg	15	--	--	0
2-Chlorophenol	μg/Kg	15	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	15	--	--	0
2-Methylnaphthalene	μg/Kg	15	2080	2080	1
2-Nitroaniline	μg/Kg	15	--	--	0
2-Nitrophenol	μg/Kg	15	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	15	--	--	0
3-Nitroaniline	μg/Kg	15	--	--	0
4-Bromophenylphenylether	μg/Kg	15	--	--	0
4-Chloro-3-methylphenol	μg/Kg	15	--	--	0
4-Chloroaniline	μg/Kg	15	--	--	0
4-Chlorophenylphenylether	μg/Kg	15	--	--	0
4-Nitroaniline	μg/Kg	15	--	--	0
4-Nitrophenol	μg/Kg	15	--	--	0
Benzoic Acid	μg/Kg	15	--	--	0

* Data qualifier included with concentration value

Table 4-47
Exposure Unit 14
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	15	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	15	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	15	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	15	2270	2270	1
Butylbenzylphthalate	μg/Kg	15	--	--	0
Carbazole	μg/Kg	15	--	--	0
Dibenzofuran	μg/Kg	15	--	--	0
Diethylphthalate	μg/Kg	15	--	--	0
Dimethylphthalate	μg/Kg	15	--	--	0
Di-n-butylphthalate	μg/Kg	15	--	--	0
Di-n-octylphthalate	μg/Kg	15	506	506	1
Diphenylamine	μg/Kg	14	--	--	0
Hexachlorobenzene	μg/Kg	15	--	--	0
Hexachlorobutadiene	μg/Kg	15	--	--	0
Hexachlorocyclopentadiene	μg/Kg	15	--	--	0
Hexachloroethane	μg/Kg	15	--	--	0
Isophorone	μg/Kg	15	--	--	0
m,p-Cresols	μg/Kg	15	51.9 J	51.9 J	1
N-Nitroso-di-n-propylamine	μg/Kg	15	--	--	0
N-Nitrosodiphenylamine	μg/Kg	1	--	--	0
o-Cresol	μg/Kg	15	--	--	0
Pentachlorophenol	μg/Kg	15	--	--	0
Phenol	μg/Kg	15	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	8	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	8	--	--	0
1,1,2-Trichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethane	μg/Kg	8	--	--	0
1,1-Dichloroethene	μg/Kg	8	1	1	1
1,2-Dichloroethane	μg/Kg	8	--	--	0
1,2-Dichloropropane	μg/Kg	8	--	--	0
2-Butanone	μg/Kg	8	54.9	54.9	1
2-Hexanone	μg/Kg	8	--	--	0
4-Methyl-2-pentanone	μg/Kg	8	--	--	0
Acetone	μg/Kg	8	2.2 J	234	5
Benzene	μg/Kg	8	--	--	0
Bromodichloromethane	μg/Kg	8	--	--	0
Bromoform	μg/Kg	8	--	--	0
Bromomethane	μg/Kg	8	--	--	0
Carbon disulfide	μg/Kg	8	4.21 J	4.21 J	1
Carbon tetrachloride	μg/Kg	8	--	--	0
Chlorobenzene	μg/Kg	8	--	--	0
Chloroethane	μg/Kg	8	--	--	0
Chloroform	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-47
Exposure Unit 14
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/Kg	8	--	--	0
cis-1,2-Dichloroethene	μg/Kg	8	--	--	0
cis-1,3-Dichloropropene	μg/Kg	8	--	--	0
Dibromochloromethane	μg/Kg	8	--	--	0
Ethylbenzene	μg/Kg	8	--	--	0
Methylene chloride	μg/Kg	8	--	--	0
Styrene	μg/Kg	8	--	--	0
Tetrachloroethene	μg/Kg	8	0.83 J	0.83	1
Toluene	μg/Kg	8	0.65 J	1.35	2
trans-1,2-Dichloroethene	μg/Kg	8	--	--	0
trans-1,3-Dichloropropene	μg/Kg	8	--	--	0
Trichloroethene	μg/Kg	8	0.56 J	0.56 J	1
Vinyl chloride	μg/Kg	8	--	--	0
Xylenes (total)	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-48
Exposure Unit 17
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	417	3310 *	147000	417
Antimony	mg/Kg	416	0.25 BN	3.92 J	122
Arsenic	mg/Kg	417	0.846	51.8 N	417
Barium	mg/Kg	416	17.3 *N	2670 N*	416
Beryllium	mg/Kg	417	0.15 B	28	416
Boron	mg/Kg	417	0.63 B	1580 N*	414
Cadmium	mg/Kg	417	0.029 BE	2.04 E	203
Calcium	mg/Kg	417	1580	240000	417
Chromium	mg/Kg	417	2.9	196	417
Cobalt	mg/Kg	417	0.24 BE	30.8	417
Copper	mg/Kg	417	3.1	1050	417
Iron	mg/Kg	417	2260	154000 J	417
Lead	mg/Kg	416	2.36	686	416
Lithium	mg/Kg	414	4.08 E	106	414
Magnesium	mg/Kg	418	1310	232000	418
Manganese	mg/Kg	418	89.3 E	5010 *	418
Mercury	mg/Kg	415	0.003 B	1.5 N	378
Nickel	mg/Kg	418	0.65	348	418
Potassium	mg/Kg	417	379 E	12200	417
Selenium	mg/Kg	415	0.09 BN	5.8 B	367
Silver	mg/Kg	416	0.02 B	0.75 N	367
Sodium	mg/Kg	417	33	54800	417
Thallium	mg/Kg	417	0.02 B	0.398 E	395
Vanadium	mg/Kg	417	5	65.9 *N	417
Zinc	mg/Kg	417	6.7 E	2450	417
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	124	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	124	--	--	0
2,4-Dinitrotoluene	μg/Kg	468	64.1 J	108	2
2,6-Dinitrotoluene	μg/Kg	468	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	124	--	--	0
2-Nitrotoluene	μg/Kg	123	109	109	1
3-Dinitrobenzene	μg/Kg	124	--	--	0
3-Nitrotoluene	μg/Kg	124	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	124	--	--	0
4-Nitrotoluene	μg/Kg	124	--	--	0
HMX	μg/Kg	124	--	--	0
Nitrobenzene	μg/Kg	468	--	--	0
RDX	μg/Kg	124	--	--	0
Tetryl	μg/Kg	124	--	--	0
PAHs					
Acenaphthene	μg/Kg	461	10.9 J	25000 E	17
Acenaphthylene	μg/Kg	463	1.07 J	290	13

* Data qualifier included with concentration value

Table 4-48
Exposure Unit 17
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	459	5.5	24700	27
Benzo(a)anthracene	μg/Kg	459	0.571 J	73300	100
Benzo(a)pyrene	μg/Kg	459	2.09	82500	85
Benzo(b)fluoranthene	μg/Kg	459	0.604	42800 D	106
Benzo(g,h,i)perylene	μg/Kg	459	1.47 J	54100	70
Benzo(k)fluoranthene	μg/Kg	459	0.61	62900	73
Chrysene	μg/Kg	459	0.747 J	76000	132
Dibenzo(a,h)anthracene	μg/Kg	459	1.43 J	22500	15
Fluoranthene	μg/Kg	459	0.557 J	92400 D	144
Fluorene	μg/Kg	463	4.96 J	15200 J	29
Indeno(1,2,3-cd)pyrene	μg/Kg	459	1.26 J	43600	49
Naphthalene	μg/Kg	463	1.42 J	2170	37
Phenanthrene	μg/Kg	459	1.6	71600 D	123
Pyrene	μg/Kg	457	0.82	99700 D	125
PCBs					
Aroclor-1016	μg/Kg	324	--	--	0
Aroclor-1221	μg/Kg	324	--	--	0
Aroclor-1232	μg/Kg	324	--	--	0
Aroclor-1242	μg/Kg	324	3.9 J	8.8	4
Aroclor-1248	μg/Kg	324	--	--	0
Aroclor-1254	μg/Kg	324	2.3	714 JP	38
Aroclor-1260	μg/Kg	324	1.4 J	70200	82
Pesticides					
4,4'-DDD	μg/Kg	305	0.26 J	2.18 J	11
4,4'-DDE	μg/Kg	305	0.19 JP	13.3	81
4,4'-DDT	μg/Kg	305	0.506 J	18.9	79
Aldrin	μg/Kg	305	0.24 J	0.24 J	1
alpha-BHC	μg/Kg	305	0.27 J	0.27 J	1
alpha-Chlordane	μg/Kg	305	--	--	0
beta-BHC	μg/Kg	305	0.33 JP	0.38 J	2
delta-BHC	μg/Kg	305	0.47	0.91	3
Dieldrin	μg/Kg	305	0.222 J	0.92 JP	12
Endosulfan I	μg/Kg	305	--	--	0
Endosulfan II	μg/Kg	305	--	--	0
Endosulfan sulfate	μg/Kg	305	0.33 J	0.99 J	7
Endrin	μg/Kg	305	--	--	0
Endrin aldehyde	μg/Kg	305	0.39 J	5.72	7
Endrin ketone	μg/Kg	305	0.31 JP	0.53 J	4
gamma-BHC (Lindane)	μg/Kg	305	0.34 J	0.64 J	2
gamma-Chlordane	μg/Kg	305	0.306 J	0.306 J	1
Heptachlor	μg/Kg	305	0.36 J	1.7	4
Heptachlor epoxide	μg/Kg	305	110 J	110 J	1
Methoxychlor	μg/Kg	305	1.8 J	20.3	4
Toxaphene	μg/Kg	306	--	--	0

* Data qualifier included with concentration value

Table 4-48
Exposure Unit 17
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	758	0-.126 J	132	71
Alpha	pCi/g	406	3.78	19000	404
Americium-241	pCi/g	758	0.0301	0.636	9
Beta	pCi/g	405	10.2	15100	405
Cesium-137	pCi/g	811	00 J	5.15 J	418
Cobalt-60	pCi/g	758	0.0058 J	0.0058 J	1
Plutonium-238	pCi/g	34	--	--	0
Plutonium-239/240	pCi/g	34	0.129	0.536	3
Potassium-40	pCi/g	348	2.34	48.7	346
Protactinium-231	pCi/g	758	0-.264 J	127	7
Radium-226	pCi/g	911	0.375	1140	900
Radium-228	pCi/g	758	0.0607	3.18	741
Strontium-90	pCi/g	31	--	--	0
Thorium-228	pCi/g	911	0.0481	4.66	880
Thorium-230	pCi/g	912	0.0906	978	888
Thorium-232	pCi/g	911	0.036	2.07	904
Total Activity	pCi/g	189	37.9	37.9	1
Total Uranium	μg/g	910	0.111	5630	884
Uranium-234	pCi/g	911	0.0527	8340	891
Uranium-235	pCi/g	910	0.0306	886	190
Uranium-238	pCi/g	912	0.0416	8830	902
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	461	--	--	0
1,2-Dichlorobenzene	μg/Kg	463	--	--	0
1,3-Dichlorobenzene	μg/Kg	463	--	--	0
1,4-Dichlorobenzene	μg/Kg	463	--	--	0
2,4,5-Trichlorophenol	μg/Kg	463	--	--	0
2,4,6-Trichlorophenol	μg/Kg	462	--	--	0
2,4-Dichlorophenol	μg/Kg	463	--	--	0
2,4-Dimethylphenol	μg/Kg	463	--	--	0
2,4-Dinitrophenol	μg/Kg	463	--	--	0
2-Chloronaphthalene	μg/Kg	463	--	--	0
2-Chlorophenol	μg/Kg	463	21.7 J	21.7 J	1
2-Methyl-4,6-dinitrophenol	μg/Kg	459	--	--	0
2-Methylnaphthalene	μg/Kg	456	25.4 J	2950	21
2-Nitroaniline	μg/Kg	457	--	--	0
2-Nitrophenol	μg/Kg	463	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	459	--	--	0
3-Nitroaniline	μg/Kg	463	--	--	0
4-Bromophenylphenylether	μg/Kg	459	--	--	0
4-Chloro-3-methylphenol	μg/Kg	463	--	--	0
4-Chloroaniline	μg/Kg	463	--	--	0
4-Chlorophenylphenylether	μg/Kg	459	--	--	0

* Data qualifier included with concentration value

Table 4-48
Exposure Unit 17
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	459	--	--	0
4-Nitrophenol	μg/Kg	463	--	--	0
Benzoic Acid	μg/Kg	448	69 J	602 J	3
Benzyl Alcohol	μg/Kg	4	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	463	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	463	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	463	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	459	42 J	7900	60
Butylbenzylphthalate	μg/Kg	459	17.7 J	62.7 J	2
Carbazole	μg/Kg	459	28.7 J	20000	12
Dibenzofuran	μg/Kg	463	20.8 J	2180	9
Diethylphthalate	μg/Kg	463	31.6 J	384 J	2
Dimethylphthalate	μg/Kg	463	--	--	0
Di-n-butylphthalate	μg/Kg	459	291 J	291 J	1
Di-n-octylphthalate	μg/Kg	458	150 J	506	3
Diphenylamine	μg/Kg	287	--	--	0
Hexachlorobenzene	μg/Kg	459	--	--	0
Hexachlorobutadiene	μg/Kg	463	--	--	0
Hexachlorocyclopentadiene	μg/Kg	463	--	--	0
Hexachloroethane	μg/Kg	463	--	--	0
Isophorone	μg/Kg	463	--	--	0
m,p-Cresols	μg/Kg	456	19.7 J	498	3
N-Nitroso-di-n-propylamine	μg/Kg	463	--	--	0
N-Nitrosodiphenylamine	μg/Kg	172	--	--	0
o-Cresol	μg/Kg	463	--	--	0
p-Cresol	μg/Kg	7	--	--	0
Pentachlorophenol	μg/Kg	459	--	--	0
PETN	μg/Kg	1	--	--	0
Phenol	μg/Kg	463	28.1 J	28.1 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	363	0.75 J	0.83 J	3
1,1,2,2-Tetrachloroethane	μg/Kg	363	--	--	0
1,1,2-Trichloroethane	μg/Kg	363	--	--	0
1,1-Dichloroethane	μg/Kg	363	--	--	0
1,1-Dichloroethene	μg/Kg	363	0.384 J	32.2	47
1,2-Dichloroethane	μg/Kg	363	--	--	0
1,2-Dichloroethene	μg/Kg	7	--	--	0
1,2-Dichloropropane	μg/Kg	363	--	--	0
2-Butanone	μg/Kg	363	2.6 J	307	36
2-Hexanone	μg/Kg	363	0.66 J	4.4	4
4-Methyl-2-pentanone	μg/Kg	363	1 J	1 J	1
Acetone	μg/Kg	363	1.5 J	10100 E	127
Benzene	μg/Kg	363	0.078 J	4.1	27
Bromodichloromethane	μg/Kg	363	--	--	0

* Data qualifier included with concentration value

Table 4-48
Exposure Unit 17
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Bromoform	μg/Kg	363	--	--	0
Bromomethane	μg/Kg	363	--	--	0
Carbon disulfide	μg/Kg	363	0.6 J	123 J	26
Carbon tetrachloride	μg/Kg	363	--	--	0
Chlorobenzene	μg/Kg	363	--	--	0
Chloroethane	μg/Kg	363	--	--	0
Chloroform	μg/Kg	363	0.36 J	1.7	3
Chloromethane	μg/Kg	363	--	--	0
cis-1,2-Dichloroethene	μg/Kg	353	0.4 J	999 D	12
cis-1,3-Dichloropropene	μg/Kg	363	--	--	0
Dibromochloromethane	μg/Kg	363	0.903 J	0.903 J	1
Ethylbenzene	μg/Kg	363	0.4 J	18.3	5
m,p-Xylenes	μg/Kg	1	--	--	0
Methylene chloride	μg/Kg	364	0.82	220 J	25
o-Xylene	μg/Kg	3	--	--	0
Styrene	μg/Kg	363	--	--	0
Tetrachloroethene	μg/Kg	363	0.711 J	63000 D	24
Toluene	μg/Kg	363	0.19 J	8.5	94
trans-1,2-Dichloroethene	μg/Kg	355	0.28 J	30.3	9
trans-1,3-Dichloropropene	μg/Kg	363	--	--	0
Trichloroethene	μg/Kg	362	0.437 J	6700 D	24
Vinyl chloride	μg/Kg	363	1.4	5.4	3
Xylenes (total)	μg/Kg	362	0.32 J	16.2	19

* Data qualifier included with concentration value

Table 4-49
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	98	3330 E	25000	98
Antimony	mg/Kg	98	0.25 BN	3.24 N	28
Arsenic	mg/Kg	98	1.4 E	20.6	98
Barium	mg/Kg	98	56.7	208	98
Beryllium	mg/Kg	98	0.15 B	1.2	98
Boron	mg/Kg	98	0.63 B	51.5	96
Cadmium	mg/Kg	98	0.07 B	2	21
Calcium	mg/Kg	98	10500	98400	98
Chromium	mg/Kg	98	5.1 E	61.7 *	98
Cobalt	mg/Kg	98	3.8 E	20.5	98
Copper	mg/Kg	98	8.25	63.3	98
Iron	mg/Kg	98	8720 E	44000	98
Lead	mg/Kg	98	2.36	50.5	98
Lithium	mg/Kg	98	6.9	106	98
Magnesium	mg/Kg	98	4260	22600	98
Manganese	mg/Kg	98	354	1670	98
Mercury	mg/Kg	98	0.003 B	0.1	78
Nickel	mg/Kg	98	7.1 *E	44.5	98
Potassium	mg/Kg	98	505 E	5590	98
Selenium	mg/Kg	98	0.13 BN	3.2 B	76
Silver	mg/Kg	98	0.02 B	0.411 B	91
Sodium	mg/Kg	98	65.4 E	753	98
Thallium	mg/Kg	98	0.02 B	0.398 E	93
Vanadium	mg/Kg	98	7.8 E	49.4	98
Zinc	mg/Kg	98	18.7 *E	175	98
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	39	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	39	--	--	0
2,4-Dinitrotoluene	μg/Kg	110	--	--	0
2,6-Dinitrotoluene	μg/Kg	110	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	39	--	--	0
2-Nitrotoluene	μg/Kg	39	--	--	0
3-Dinitrobenzene	μg/Kg	39	--	--	0
3-Nitrotoluene	μg/Kg	39	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	39	--	--	0
4-Nitrotoluene	μg/Kg	39	--	--	0
HMX	μg/Kg	39	--	--	0
Nitrobenzene	μg/Kg	110	--	--	0
RDX	μg/Kg	39	--	--	0
Tetryl	μg/Kg	39	--	--	0
PAHs					
Acenaphthene	μg/Kg	108	180	180	1
Acenaphthylene	μg/Kg	108	--	--	0

* Data qualifier included with concentration value

Table 4-49
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	108	18	18	1
Benzo(a)anthracene	μg/Kg	108	0.65	38	7
Benzo(a)pyrene	μg/Kg	108	13.2	45	3
Benzo(b)fluoranthene	μg/Kg	108	1.14	80	6
Benzo(g,h,i)perylene	μg/Kg	108	1.81 J	100	8
Benzo(k)fluoranthene	μg/Kg	108	0.61	39.2 J	4
Chrysene	μg/Kg	108	0.747 J	35	18
Dibenzo(a,h)anthracene	μg/Kg	108	2	5	2
Fluoranthene	μg/Kg	108	1.02 J	120	5
Fluorene	μg/Kg	108	6.9	6.9	1
Indeno(1,2,3-cd)pyrene	μg/Kg	108	1.26 J	27.5 J	4
Naphthalene	μg/Kg	108	1.42 J	19	3
Phenanthrene	μg/Kg	108	1.6	80	19
Pyrene	μg/Kg	108	0.82	201	7
PCBs					
Aroclor-1016	μg/Kg	76	--	--	0
Aroclor-1221	μg/Kg	76	--	--	0
Aroclor-1232	μg/Kg	76	--	--	0
Aroclor-1242	μg/Kg	76	--	--	0
Aroclor-1248	μg/Kg	76	--	--	0
Aroclor-1254	μg/Kg	76	2.3	124	4
Aroclor-1260	μg/Kg	76	4.7	26	3
Pesticides					
4,4'-DDD	μg/Kg	76	--	--	0
4,4'-DDE	μg/Kg	76	0.321 J	1.35 J	5
4,4'-DDT	μg/Kg	76	0.515 J	2.01	15
Aldrin	μg/Kg	76	0.24 J	0.24 J	1
alpha-BHC	μg/Kg	76	--	--	0
alpha-Chlordane	μg/Kg	76	--	--	0
beta-BHC	μg/Kg	76	--	--	0
delta-BHC	μg/Kg	76	--	--	0
Dieldrin	μg/Kg	76	--	--	0
Endosulfan I	μg/Kg	76	--	--	0
Endosulfan II	μg/Kg	76	--	--	0
Endosulfan sulfate	μg/Kg	76	0.818 J	0.818 J	1
Endrin	μg/Kg	76	--	--	0
Endrin aldehyde	μg/Kg	76	--	--	0
Endrin ketone	μg/Kg	76	--	--	0
gamma-BHC (Lindane)	μg/Kg	76	--	--	0
gamma-Chlordane	μg/Kg	76	--	--	0
Heptachlor	μg/Kg	76	0.36 J	1 J	2
Heptachlor epoxide	μg/Kg	76	--	--	0
Methoxychlor	μg/Kg	76	--	--	0
Toxaphene	μg/Kg	76	--	--	0

* Data qualifier included with concentration value

Table 4-49
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	82	0-.126 J	0-.126 J	1
Alpha	pCi/g	99	3.78	19.5	98
Americium-241	pCi/g	82	0.0371 J	0.0371 J	1
Beta	pCi/g	99	10.5	40.8	99
Cesium-137	pCi/g	94	00 J	0.429 J	3
Cobalt-60	pCi/g	82	0.0058 J	0.0058 J	1
Plutonium-238	pCi/g	2	--	--	0
Plutonium-239/240	pCi/g	2	--	--	0
Protactinium-231	pCi/g	82	0-.264 J	0-.264 J	1
Radium-226	pCi/g	132	0.381 J	1.43	132
Radium-228	pCi/g	82	0.572	1.39	82
Strontium-90	pCi/g	2	--	--	0
Thorium-228	pCi/g	132	0.54 J	4.66	127
Thorium-230	pCi/g	132	0.427 J	2.31	128
Thorium-232	pCi/g	132	0.311 J	1.72	131
Total Activity	pCi/g	48	--	--	0
Total Uranium	μg/g	130	0.548	3.15 J	117
Uranium-234	pCi/g	132	0.18 J	1.52	127
Uranium-235	pCi/g	132	0.0306	0.374	13
Uranium-238	pCi/g	132	0.304	1.44	132
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	107	--	--	0
1,2-Dichlorobenzene	μg/Kg	108	--	--	0
1,3-Dichlorobenzene	μg/Kg	108	--	--	0
1,4-Dichlorobenzene	μg/Kg	108	--	--	0
2,4,5-Trichlorophenol	μg/Kg	108	--	--	0
2,4,6-Trichlorophenol	μg/Kg	108	--	--	0
2,4-Dichlorophenol	μg/Kg	108	--	--	0
2,4-Dimethylphenol	μg/Kg	108	--	--	0
2,4-Dinitrophenol	μg/Kg	108	--	--	0
2-Chloronaphthalene	μg/Kg	108	--	--	0
2-Chlorophenol	μg/Kg	108	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	108	--	--	0
2-Methylnaphthalene	μg/Kg	105	--	--	0
2-Nitroaniline	μg/Kg	107	--	--	0
2-Nitrophenol	μg/Kg	108	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	108	--	--	0
3-Nitroaniline	μg/Kg	108	--	--	0
4-Bromophenylphenylether	μg/Kg	108	--	--	0
4-Chloro-3-methylphenol	μg/Kg	108	--	--	0
4-Chloroaniline	μg/Kg	108	--	--	0
4-Chlorophenylphenylether	μg/Kg	108	--	--	0
4-Nitroaniline	μg/Kg	108	--	--	0

* Data qualifier included with concentration value

Table 4-49
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitrophenol	μg/Kg	108	--	--	0
Benzoic Acid	μg/Kg	105	--	--	0
Benzyl Alcohol	μg/Kg	1	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	108	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	108	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	108	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	108	61.2 J	600	4
Butylbenzylphthalate	μg/Kg	108	--	--	0
Carbazole	μg/Kg	108	--	--	0
Dibenzofuran	μg/Kg	108	--	--	0
Diethylphthalate	μg/Kg	108	--	--	0
Dimethylphthalate	μg/Kg	108	--	--	0
Di-n-butylphthalate	μg/Kg	108	--	--	0
Di-n-octylphthalate	μg/Kg	108	--	--	0
Diphenylamine	μg/Kg	60	--	--	0
Hexachlorobenzene	μg/Kg	108	--	--	0
Hexachlorobutadiene	μg/Kg	108	--	--	0
Hexachlorocyclopentadiene	μg/Kg	108	--	--	0
Hexachloroethane	μg/Kg	108	--	--	0
Isophorone	μg/Kg	108	--	--	0
m,p-Cresols	μg/Kg	105	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	108	--	--	0
N-Nitrosodiphenylamine	μg/Kg	48	--	--	0
o-Cresol	μg/Kg	108	--	--	0
p-Cresol	μg/Kg	3	--	--	0
Pentachlorophenol	μg/Kg	108	--	--	0
Phenol	μg/Kg	108	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	101	0.78 J	0.78 J	1
1,1,2,2-Tetrachloroethane	μg/Kg	101	--	--	0
1,1,2-Trichloroethane	μg/Kg	101	--	--	0
1,1-Dichloroethane	μg/Kg	101	--	--	0
1,1-Dichloroethene	μg/Kg	101	0.384 J	3.2	18
1,2-Dichloroethane	μg/Kg	101	--	--	0
1,2-Dichloroethene	μg/Kg	3	--	--	0
1,2-Dichloropropane	μg/Kg	101	--	--	0
2-Butanone	μg/Kg	101	9.24	88.8 J	3
2-Hexanone	μg/Kg	101	0.66 J	3	2
4-Methyl-2-pentanone	μg/Kg	101	1 J	1 J	1
Acetone	μg/Kg	101	2.3 J	10100 E	50
Benzene	μg/Kg	101	0.078 J	4.1	11
Bromodichloromethane	μg/Kg	101	--	--	0
Bromoform	μg/Kg	101	--	--	0
Bromomethane	μg/Kg	101	--	--	0

* Data qualifier included with concentration value

Table 4-49
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon disulfide	μg/Kg	101	0.6 J	123 J	12
Carbon tetrachloride	μg/Kg	101	--	--	0
Chlorobenzene	μg/Kg	101	--	--	0
Chloroethane	μg/Kg	101	--	--	0
Chloroform	μg/Kg	101	--	--	0
Chloromethane	μg/Kg	101	--	--	0
cis-1,2-Dichloroethene	μg/Kg	98	40	213 E	3
cis-1,3-Dichloropropene	μg/Kg	101	--	--	0
Dibromochloromethane	μg/Kg	101	--	--	0
Ethylbenzene	μg/Kg	101	0.4 J	2.2	2
Methylene chloride	μg/Kg	101	18	220 J	4
Styrene	μg/Kg	101	--	--	0
Tetrachloroethene	μg/Kg	101	1.9	63000 D	3
Toluene	μg/Kg	101	0.3 J	4.7	20
trans-1,2-Dichloroethene	μg/Kg	98	0.28 J	4 J	3
trans-1,3-Dichloropropene	μg/Kg	101	--	--	0
Trichloroethene	μg/Kg	101	3.4	3050 D	3
Vinyl chloride	μg/Kg	101	1.4	5.4	3
Xylenes (total)	μg/Kg	101	0.32 J	16.2	8

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SB-EU011-3300-2.0	1.04 BN
			SB-EU013-3302-1.0	0.993 BN
Barium	mg/Kg	263	C5-VS-SO-B300-1	279 J
Boron	mg/Kg	10.1	SD713-324	10.5 *
			SS504-692	10.9
Cadmium	mg/Kg	0.53	SD712-319	0.68
			SD713-324	1.1
Copper	mg/Kg	49.3	SB-EU012-3301-1.0	56.7 *N
			SB-EU014-3303-1.0	146 *N
Iron	mg/Kg	36400	TB501-2847-01.5-130	36500
			TB501-2848-03.0-095	36900
Lead	mg/Kg	37.6	SS504-692	37.7 *E
Mercury	mg/Kg	0.27	SD712-319	0.55
			SD713-324	1.1
Nickel	mg/Kg	38	C5-VS-SO-B300-1	46
Selenium	mg/Kg	0.37	SB-EU011-3300-2.0	0.864 B
			SB-EU012-3301-1.0	0.892 B
			SB-EU013-3302-1.0	0.697 B
			SB-EU014-3303-1.0	0.68 B
			SD712-319	1.7 N
			SD713-324	0.91 BN
			SD714-326	0.84 BN
			SS501-059	1.1
			SS503-064	1.3
			SS504-692	1.05 B
			SS505-694	1.47 B
			SS-EU011-3327	0.725 B
			TB501-2847-01.5-130	0.687 BN
			TB501-2848-03.0-095	0.57 BN
			TB501-2849-02.7-068	0.891 BN
Silver	mg/Kg	0.27	SS503-064	0.75 N
			SS505-694	0.341 B

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-EU011-3300-2.0	0.115 BE
			SB-EU012-3301-1.0	0.13 E
			SB-EU013-3302-1.0	0.129 E
			SB-EU014-3303-1.0	0.133 E
			SD712-319	0.27
			SD713-324	0.14
			SD714-326	0.16 B
			SS501-059	0.1 B
			SS502-060	0.07 B
			SS503-064	0.09 B
			SS504-692	0.285 B
			SS-EU011-3327	0.11 BE
			TB501-2847-01.5-130	0.168 E
			TB501-2848-03.0-095	0.155 E
			TB501-2849-02.7-068	0.154 E
Vanadium	mg/Kg	35.2	SS502-060	36.7 *
			TB501-2847-01.5-130	39.3 N
			TB501-2848-03.0-095	42.5 N
PAHs				
Naphthalene	µg/Kg	--	SS504-692	292 J
PCBs				
Aroclor-1260	µg/Kg	--	SD714-326	8.9 J
Pesticides				
4,4'-DDD	µg/Kg	--	SS-EU011-3327	0.357 J
4,4'-DDE	µg/Kg	--	SB-EU012-3301-1.0	2.41 J
			SB-EU013-3302-1.0	2.36
			SS505-694	0.69 J
			SS-EU011-3327	2.67
4,4'-DDT	µg/Kg	--	SB-EU012-3301-1.0	3.47 J
			SB-EU013-3302-1.0	2.13
			SB-EU014-3303-1.0	0.711 J
			SS-EU011-3327	2.24
Dieldrin	µg/Kg	--	SB-EU013-3302-1.0	0.622 J
Radionuclides				
Actinium-227	pCi/g	0.08	SB5A016-2254-1.0	8.66
			SB5A016-2255-1.5	9.39
			SB5A016-2256-1.7	4.58
			SD746-2150	8
			SD747-2152	2.22
			SS5A016-2170	1.51
Alpha	pCi/g	15.1	SD714-326	15.5
			SS502-060	23.2
			SS503-064	230

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SS502-060	34.3
			SS503-064	219
Cesium-137	pCi/g	0.343	SB5A016-2255-1.5	0.434
			SD714-326	0.399 J
			SD746-2150	0.49
			SS504-692	0.864
			SS5A001-637	1.13
			SS5A004-640	1.07
			SS5A010-2164	0.417
			SS5A011-2165	0.402
			SS5A012-2166	0.423
			SS5A013-2167	0.391
Potassium-40	pCi/g	32.9	SB5A018-2211-2.0	48.7
Radium-226	pCi/g	1.2	SB5A010-2257-1.0	5.03
			SB5A013-2210-2.0	1.44
			SB5A016-2254-1.0	155
			SB5A016-2255-1.5	151
			SB5A016-2256-1.7	85.7
			SB5A018-2211-2.0	2.14
			SD746-2150	184
			SD746-2244	3.34
			SD746-2248	50
			SD747-2152	37.1
			SD747-2253	2.57
			SS504-692	6.07
			SS5A010-2164	5.36
			SS5A011-2165	1.92
			SS5A012-2166	4.57
			SS5A013-2167	3.72
			SS5A014-2168	4.79
			SS5A016-2170	13.4
			SS5A021-2214	6.39
			SS-EU011-3327	1.49
Radium-228	pCi/g	1.26	SB5A010-2257-1.0	1.75
			SB5A018-2211-2.0	2.53
			SS5A006-642	1.44
			SS5A010-2164	1.61
			SS5A012-2166	1.5
			SS5A013-2167	1.41
			SS5A014-2168	2.08
			SS5A021-2214	2.43

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SB5A010-2257-1.0	1.65
			SB-EU013-3302-1.0	1.67
			SS5A006-642	2.38
			SS5A010-2164	1.79
			SS5A021-2214	2.01
Thorium-230	pCi/g	1.39	SB5A010-2257-1.0	3.65
			SB5A013-2210-2.0	12.6
			SB5A016-2254-1.0	354
			SB5A016-2255-1.5	344
			SB5A016-2256-1.7	227
			SB5A019-2212-1.75	1.47
			SB-EU012-3301-1.0	2.62
			SB-EU013-3302-1.0	1.81
			SD746-2150	230
			SD746-2244	4.82
			SD746-2248	55.7
			SD747-2152	48.1
			SD747-2253	3.53
			SD-WD1-3406-0.5	1.66
			SS505-694	1.97
			SS5A010-2164	4.56
			SS5A011-2165	1.88
			SS5A012-2166	3.37
			SS5A013-2167	3.42
			SS5A014-2168	2.21
			SS5A016-2170	31.3
			SS5A021-2214	4.53
			SS-EU011-3327	2.14
			TB501-2848-03.0-095	1.42
Thorium-232	pCi/g	1.24	SB5A018-2211-2.0	1.69
			SB-EU011-3300-2.0	1.37
			SS504-692	1.36
			SS5A006-642	1.73
			SS5A010-2164	1.31

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB5A010-2257-1.0	6.56
			SB5A016-2254-1.0	16
			SB5A016-2255-1.5	13.6
			SB5A016-2256-1.7	10
			SB5A019-2212-1.75	4.12
			SB-EU014-3303-1.0	3.95
			SD746-2150	6.35
			SD746-2248	3.86
			SS502-060	27.1
			SS503-064	366
			SS504-692	27.7
			SS5A001-637	8.97
			SS5A002-638	8.01
			SS5A006-642	7.6
			SS5A008-644	3.67
			SS5A010-2164	7.63
			SS5A012-2166	6
			SS5A013-2167	6.73
			SS5A014-2168	6.81
			SS5A016-2170	4.43
Uranium-234	pCi/g	1.66	SS5A021-2214	10
			TB501-2847-01.5-130	5.6
			TB501-2849-02.7-068	18.2
			SB5A010-2257-1.0	2.54
			SB5A016-2254-1.0	6.8
			SB5A016-2255-1.5	7.05
			SB5A016-2256-1.7	4.29
			SD746-2150	4.14
			SD746-2248	1.71
			SS502-060	7.09
			SS503-064	119
			SS504-692	7.66
			SS505-694	1.79
			SS5A001-637	2.51
			SS5A002-638	4.07
			SS5A006-642	2.26
			SS5A010-2164	2.37
			SS5A012-2166	3.4
			SS5A013-2167	3.79
			SS5A016-2170	2.11
			SS5A021-2214	3.4
			TB501-2847-01.5-130	2.35
			TB501-2849-02.7-068	5.61

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SB5A016-2254-1.0	1.18
			SB5A016-2255-1.5	0.248
			SB5A016-2256-1.7	0.173
			SB5A019-2212-1.75	0.119
			SD712-319	0.109 J
			SD746-2150	0.257
			SD747-2253	0.411
			SD-WD1-3406-0.5	0.404
			SS502-060	0.264 J
			SS503-064	6.15
			SS504-692	0.338
			SS5A006-642	0.262
			SS5A011-2165	0.177
			SS5A012-2166	0.507
			SS5A013-2167	0.367
			SS5A014-2168	0.129
			SS5A021-2214	0.221
			TB501-2847-01.5-130	0.214
Uranium-238	pCi/g	1.34	SB5A010-2257-1.0	3.01
			SB5A013-2210-2.0	1.47
			SB5A016-2254-1.0	5.09
			SB5A016-2255-1.5	4.7
			SB5A016-2256-1.7	3.12
			SB5A019-2212-1.75	1.48
			SB-EU012-3301-1.0	1.72
			SD746-2150	3.01
			SS502-060	6.5
			SS503-064	120
			SS504-692	7.52
			SS505-694	2.17
			SS5A001-637	2.73
			SS5A002-638	4.13
			SS5A004-640	1.42
			SS5A006-642	2.69
			SS5A010-2164	2.5
			SS5A012-2166	2.55
			SS5A013-2167	2.72
			SS5A014-2168	1.82
			SS5A016-2170	1.81
			SS5A021-2214	3.72
			TB501-2847-01.5-130	2.25
			TB501-2849-02.7-068	6.27
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS504-692	440

* Data qualifier included with concentration value

Table 4-50
Exposure Unit 1
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Di-n-octylphthalate	μg/Kg	--	C5-VS-SO-B300-1	150 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS505-694	1.5
2-Butanone	μg/Kg	--	SS501-059	6
			SS502-060	6.5
			SS503-064	5.1
Acetone	μg/Kg	--	SB-EU012-3301-1.0	4.22 J
			SD714-326	8 J
			SS501-059	50.2
			SS502-060	65.6
			SS503-064	56.8
Benzene	μg/Kg	--	SS502-060	0.54 J
Carbon disulfide	μg/Kg	--	SS501-059	1.2 J
			SS503-064	1.8 J
Ethylbenzene	μg/Kg	--	SS503-064	0.58 J
Toluene	μg/Kg	--	SS501-059	0.74
			SS503-064	1.5
Xylenes (total)	μg/Kg	--	SS503-064	0.39 J
			SS505-694	1.3 J

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-DRUM01-3370-1.0	24600 E*
			SS402-039	40100
			SS4A012-611	24400
			SS-DRUM01-3369	38400 *
Antimony	mg/Kg	0.94	SB-EU022-3306-2.0	1.22 N
			SS-DRUM01-3369	1.83 N
			SS-EU021-3328	1.15 N
			SS-EU022-3329	1.13 BN
Barium	mg/Kg	263	SB-EU022-3306-2.0	290 N*
			SS402-039	481
Beryllium	mg/Kg	1	SB-DRUM01-3370-1.0	1.5 E*
			SS402-039	5.2
			SS4A012-611	2.38
			SS-DRUM01-3369	3.42
Boron	mg/Kg	10.1	SB-DRUM01-3370-1.0	40.5 E*N
			SS402-039	147
			SS4A012-611	10.2
			SS-DRUM01-3369	85.8
Cadmium	mg/Kg	0.53	SS4A012-611	0.964
Calcium	mg/Kg	58900	SS402-039	238000 *
			SS4A012-611	88100
Chromium	mg/Kg	25.8	SB-DRUM01-3370-1.0	31.5 *N
			SS401-037	26.1
			SS4A012-611	67
			SS-DRUM01-3369	29.4 *
			SS-EU021-3328	30.9 *
Copper	mg/Kg	49.3	SS404-041	55 N
			SS4A012-611	57.6
Lead	mg/Kg	37.6	SS403-040	588
			SS404-041	48.8
			SS406-043	42.8
			SS4A008-606	38.3
			SS4A010-608	96.6
			SS4A012-611	67.8
			SS4B003-614	49.7
			SS-DRUM01-3369	38 *
Lithium	mg/Kg	36.8	SS808-077	103
Magnesium	mg/Kg	14800	SS406-043	29500
			SS4A012-611	44400
Mercury	mg/Kg	0.27	C5-AC-SO-F200-1	0.4 J
			SS404-041	1.5 N

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	mg/Kg	38	SS404-041	46.8 *E
			SS-DRUM01-3369	43.5 *
Potassium	mg/Kg	2860	SB-DRUM01-3370-1.0	6010 *
			SS-DRUM01-3369	9150 N
Selenium	mg/Kg	0.37	C5-AC-SO-F200-1	0.52 J
			SB404-121-4	0.63 B
			SB-DRUM01-3370-1.0	1.28
			SB-EU021-3305-1.0	0.856 B
			SB-EU022-3306-2.0	0.87 B
			SB-EU023-3307-2.0	0.473 B
			SS402-039	5.4 B
			SS403-040	0.87 B
			SS404-041	1.5
			SS405-042	1
			SS406-043	0.69 BN
			SS4A008-606	1.16 B
			SS4A010-608	1.06 B
			SS4A012-611	2.28
			SS4B003-614	0.983 B
			SS808-077	5.8 B
			SS810-079	0.84 B
			SS822-710	0.685 B
			SS-DRUM01-3369	1.61
			SS-EU021-3328	0.794 B
			SS-EU022-3329	0.995 B
Silver	mg/Kg	0.27	SS403-040	0.34
Sodium	mg/Kg	331	SB404-121-4	479 E
			SS402-039	780 E
			SS-DRUM01-3369	2410 *

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB404-121-4	0.1 B
			SB-DRUM01-3370-1.0	0.24 E
			SB-EU021-3305-1.0	0.119 E
			SB-EU022-3306-2.0	0.124 E
			SB-EU023-3307-2.0	0.135 E
			SS401-037	0.07 B
			SS403-040	0.15
			SS404-041	0.09 B
			SS405-042	0.12
			SS406-043	0.1 B
			SS4A008-606	0.128
			SS4A010-608	0.145
			SS4A012-611	0.135
			SS4B003-614	0.151
			SS808-077	0.08 B
			SS809-078	0.06 B
			SS810-079	0.13
			SS822-710	0.153 B
			SS-DRUM01-3369	0.249 E
			SS-EU021-3328	0.138 E
			SS-EU022-3329	0.12 BE
Vanadium	mg/Kg	35.2	SB-DRUM01-3370-1.0	44.9 E*N
			SS-DRUM01-3369	52
Zinc	mg/Kg	266	SS4A012-611	475
PAHs				
Acenaphthene	µg/Kg	79	SS405-042	206 J
			SS4A003-601	2460 JD
			SS4A007-605	6270 JD
Acenaphthylene	µg/Kg	--	C5-AC-SO-F200-1	87
			SS-DRUM01-3369	38.2
Anthracene	µg/Kg	8	SS405-042	240 J
			SS4A003-601	1530 J
			SS4A007-605	6660
Benzo(a)anthracene	µg/Kg	284	SS405-042	1170
			SS4A003-601	17900 D
			SS4A007-605	26900 D
			SS4B001-612	887 J
Benzo(a)pyrene	µg/Kg	313	SS405-042	1830
			SS4A003-601	36000 D
			SS4A007-605	27500 D
			SS4B001-612	2560

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SS405-042	1740
			SS4A003-601	29700 E
			SS4A007-605	35000 D
			SS4B001-612	4480
			SS-DRUM01-3369	413
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	16	C5-AC-SO-F200-1	48
			SB-DRUM01-3370-1.0	60.3
			SS405-042	1030
			SS4A003-601	19400 E
			SS4A007-605	9820
			SS4B001-612	1460 J
			SS-DRUM01-3369	101
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS405-042	1410
			SS4A003-601	25900 D
			SS4A007-605	6420
			SS4B001-612	1650
Chrysene	$\mu\text{g/Kg}$	378	SS405-042	1210
			SS4A003-601	19800 D
			SS4A007-605	26300 D
			SS4B001-612	2380
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	2.7	SS4A003-601	7850 D
			SS4A007-605	4010 JD
Fluoranthene	$\mu\text{g/Kg}$	889	SS405-042	1920
			SS4A003-601	12700 D
			SS4A007-605	55800 D
Fluorene	$\mu\text{g/Kg}$	2.9	C5-AC-SO-F200-1	14
			SS405-042	103 J
			SS4A007-605	2570
Indeno(1,2,3-cd)pyrene	$\mu\text{g/Kg}$	8.8	SS404-041	135 J
			SS405-042	980
			SS4A003-601	17500
			SS4A007-605	8990
			SS4B001-612	1420 J
			SS-DRUM01-3369	332
Naphthalene	$\mu\text{g/Kg}$	--	C5-AC-SO-F200-1	100
			SS405-042	51.7 J
			SS4A007-605	893 J
Phenanthrene	$\mu\text{g/Kg}$	538	SS405-042	1320
			SS4A003-601	6040 D
			SS4A007-605	56300 D

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Pyrene	μg/Kg	716	SS405-042	1900
			SS4A003-601	17300 D
			SS4A007-605	62900 D
			SS4B001-612	897 J
PCBs				
Aroclor-1242	μg/Kg	--	SB-DRUM01-3370-1.0	3.9 J
Aroclor-1254	μg/Kg	--	SB-DRUM01-3370-1.0	4.8
Aroclor-1260	μg/Kg	--	SB-DRUM01-3370-1.0	8.7
			SB-EU021-3305-1.0	1.4 J
			SS403-040	9.8 JP
			SS406-043	69.6
			SS-DRUM01-3369	6.3
			SS-EU021-3328	14.7 J
			SS-EU022-3329	3.4 J
Pesticides				
4,4'-DDD	μg/Kg	--	SB-DRUM01-3370-1.0	0.433 J
			SS-DRUM01-3369	2.01
			SS-EU022-3329	0.289 J
4,4'-DDE	μg/Kg	--	SB-DRUM01-3370-1.0	3.94
			SB-EU022-3306-2.0	0.472 J
			SB-EU023-3307-2.0	0.818 J
			SS-DRUM01-3369	3.78
			SS-EU021-3328	3.07 J
			SS-EU022-3329	2.58
4,4'-DDT	μg/Kg	--	SB-DRUM01-3370-1.0	4.28
			SB-EU022-3306-2.0	0.887 J
			SB-EU023-3307-2.0	0.571 J
			SS-DRUM01-3369	4.45
			SS-EU022-3329	2.06
Dieldrin	μg/Kg	--	SB-DRUM01-3370-1.0	0.397 J
			SS-DRUM01-3369	0.742 J
Radionuclides				
Actinium-227	pCi/g	0.08	SB4A013-2356	0.433
			SB8F001-2242-1.0	0.687
			SS4A014-2271	0.607
			SS8F001-2201	3.77
			SS8F003-2203	1.51
			SS8F005-2206	1.26

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SB404-121-1.4	43.7
			SB4A013-2356	57.1
			SB4A013-2357	69.9
			SB4A013-2358	46.7
			SB4A015-2355	49.9
			SB-DRUM01-3370-1.0	15.6
			SS402-039	92.4
			SS403-040	20.7
			SS404-041	46.5
			SS405-042	19
			SS406-043	31.8
			SS808-077	19.6
Beta	pCi/g	28.9	SS-DRUM01-3369	19.9
			SB404-121-1.4	29.8
			SB4A013-2356	36
			SB4A013-2357	35.2
			SB4A015-2355	32.8
			SS402-039	35
			SS404-041	31.8
Cesium-137	pCi/g	0.343	SS406-043	29.9
			SB4A013-2357	0.36
			SB-DRUM01-3370-1.0	0.467
			SS4A002-600	0.429
			SS4A003-601	0.56
			SS4A004-602	0.408
			SS4A007-605	0.817
			SS4A013-2270	0.385
			SS4A016-2275	0.402
			SS4A019-2425	0.533
			SS4B003-614	0.384
			SS8D001-2188	0.449
			SS8E002-2199	0.473 J
			SS8F001-2201	0.585
			SS8F005-2206	0.381
			SS-DRUM01-3369	0.669
			SS-EU021-3328	0.399

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB404-121-1.4	7.72
			SB4A013-2356	5.06
			SB4A013-2357	5.15
			SB4A013-2358	4.35
			SB4A014-2272-1.0	8.05
			SB4A015-2355	7.42
			SB8F001-2242-1.0	14.3
			SB8F001-2243-1.5	11.3
			SB8F005-2245-1.0	6.14
			SB8F006-2246-1.5	1.23
			SB8F006-2247-1.5	1.31
			SB8F006-2251-1.0	1.99
			SB-DRUM01-3370-1.0	1.66
			SS401-037	1.39
			SS402-039	9.49
			SS403-040	1.58
			SS404-041	4.5
			SS405-042	1.62
			SS406-043	2.15
			SS4A001-598	1.64
			SS4A002-600	1.41
			SS4A003-601	5.35
			SS4A004-602	1.87
			SS4A005-603	1.83
			SS4A006-604	1.69
			SS4A007-605	3.27
			SS4A008-606	1.3
			SS4A010-608	1.34
			SS4A011-610	1.92
			SS4A013-2270	6
			SS4A014-2271	8.48
			SS4A015-2274	7.17
			SS4A019-2425	4.49
			SS4B001-612	3.09
			SS4B002-613	2.66
			SS4B003-614	2.14
			SS8D001-2188	3.78
			SS8E002-2199	1.98 J
			SS8F001-2201	61.5
			SS8F003-2203	45.9
			SS8F005-2206	18.9
			SS8F006-2207	7.32
			SS-DRUM01-3369	2.38
			SS-EU021-3328	1.31

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-228	pCi/g	1.26	SB4A014-2272-1.0	1.35
			SS4A015-2274	1.32
			SS8F003-2203	1.27
			SS8F006-2207	3.18
Thorium-228	pCi/g	1.64	SB4A013-2357	2.09
			SB4A015-2355	1.8

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB404-121-1.4	8.12
			SB4A013-2356	7.84
			SB4A013-2357	9.7
			SB4A013-2358	4.95
			SB4A014-2272-1.0	5.64
			SB4A015-2355	6.31
			SB8F001-2242-1.0	3.37
			SB8F001-2243-1.5	2.29
			SB8F005-2245-1.0	6.85
			SB8F006-2246-1.5	1.91
			SB8F006-2251-1.0	1.81
			SB-DRUM01-3370-1.0	2.58
			SB-EU023-3307-2.0	1.91
			SS401-037	1.62
			SS402-039	10.8
			SS403-040	2.15
			SS404-041	9.54
			SS406-043	2.27
			SS4A001-598	2.67
			SS4A002-600	1.88
			SS4A003-601	3.62
			SS4A004-602	2.25
			SS4A005-603	2.18
			SS4A006-604	2.05
			SS4A007-605	6.29
			SS4A008-606	1.45
			SS4A010-608	1.43
			SS4A011-610	3.38
			SS4A012-611	2.72
			SS4A013-2270	11.2
			SS4A014-2271	6.3
			SS4A015-2274	5.36
			SS4A016-2275	1.66
			SS4A018-2277	1.53
			SS4A019-2425	2.46
			SS4B001-612	4.47
			SS4B002-613	3.7
			SS4B003-614	2.37
			SS8D001-2188	3.73
			SS8E002-2199	2.12 J
			SS8F001-2201	6.76
			SS8F003-2203	39.4
			SS8F005-2206	40.8
			SS8F006-2207	2.99

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS-DRUM01-3369	2.69
			SS-EU021-3328	1.73
			SS-EU022-3329	1.48
Total Uranium	µg/g	3.58	SB404-121-1.4	24.5
			SB4A013-2356	4.17
			SB4A013-2357	4.55
			SB4A013-2358	5.05
			SB4A014-2272-1.0	13.9
			SB4A015-2355	11.2
			SB8F006-2251-1.0	4.21
			SS402-039	33.1
			SS4A007-605	6.11
			SS4A011-610	3.6
			SS4A012-611	8.69
			SS4A013-2270	4.05
			SS4A014-2271	11.4
			SS4A015-2274	10.5
			SS4B001-612	8.97
			SS4B002-613	5.07
			SS8F001-2201	4.32
			SS8F003-2203	4.83
			SS8F005-2206	4.33
			SS8F006-2207	6.63
Uranium-234	pCi/g	1.66	SB404-121-1.4	7.15
			SB4A013-2356	3.65
			SB4A013-2357	2.3
			SB4A013-2358	3.65
			SB4A014-2272-1.0	4.7
			SB4A015-2355	6.57
			SS402-039	10.1
			SS4A011-610	1.76
			SS4A012-611	2.82
			SS4A013-2270	1.94
			SS4A014-2271	5.31
			SS4A015-2274	4.64
			SS4B001-612	3.63
			SS8F001-2201	2.79
			SS8F003-2203	1.86
			SS8F005-2206	1.74
			SS8F006-2207	2.4

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SB404-121-1.4	0.124 J
			SS402-039	0.302 J
			SS4A014-2271	0.252
			SS4A015-2274	0.184
			SS8F003-2203	0.0978
			SS8F006-2207	0.167
Uranium-238	pCi/g	1.34	SB404-121-1.4	6.69
			SB4A013-2356	2.85
			SB4A013-2357	2.87
			SB4A013-2358	3.57
			SB4A014-2272-1.0	5.56
			SB4A015-2355	5.31
			SS402-039	10.1
			SS4A007-605	1.84
			SS4A009-607	1.72
			SS4A011-610	1.36
			SS4A012-611	3.02
			SS4A013-2270	1.87
			SS4A014-2271	4.56
			SS4A015-2274	4.63
			SS4B001-612	2.72
			SS8F001-2201	1.9
			SS8F003-2203	1.65
			SS8F005-2206	1.51
			SS8F006-2207	1.73
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/Kg	5130	SS4A004-602	7900
Carbazole	μg/Kg	--	SS405-042	210 J
			SS4A007-605	6660 JD
Volatile Organics				
2-Butanone	μg/Kg	--	SB404-121-4	125
			SS401-037	6.7
			SS809-078	9
2-Hexanone	μg/Kg	--	SS405-042	4.4
Acetone	μg/Kg	--	SB404-121-4	406 E
			SS401-037	63.1 B
			SS404-041	23.9
			SS809-078	71.3
			SS-DRUM01-3369	8.6
			SS-EU022-3329	8.84

* Data qualifier included with concentration value

Table 4-51
Exposure Unit 2
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzene	$\mu\text{g/Kg}$	--	SB404-121-4	0.38 J
			SS401-037	2.6
			SS403-040	1.6
			SS404-041	1.5
			SS405-042	1.8
Carbon disulfide	$\mu\text{g/Kg}$	--	SB404-121-4	60
			SS402-039	9.1
			SS403-040	1.4 J
			SS404-041	4
Ethylbenzene	$\mu\text{g/Kg}$	--	SB404-121-4	18.3
Methylene chloride	$\mu\text{g/Kg}$	--	C5-AC-SO-F200-1	140 J
Toluene	$\mu\text{g/Kg}$	--	SB404-121-4	6.4
			SS401-037	3.9
			SS402-039	0.37 J
			SS403-040	1.1
			SS404-041	2.3
			SS405-042	1.6
Xylenes (total)	$\mu\text{g/Kg}$	--	SB404-121-4	0.51 J
			SS401-037	1.8 J
			SS404-041	0.99 J

* Data qualifier included with concentration value

Table 4-52
Exposure Unit 3
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SB-EU032-3309-1.0	0.974 BN
Arsenic	mg/Kg	8.73	SS-EU031-3330	11 *
Boron	mg/Kg	10.1	SB-EU032-3309-1.0	10.6
			TB403-2821-04.0-008	12.1
			TB403-2823-08.0-045	15
Chromium	mg/Kg	25.8	SS407-044	36.8 E
Lead	mg/Kg	37.6	SS409-046	70.2
Potassium	mg/Kg	2860	TB403-2821-04.0-008	2980 E*
			TB403-2823-08.0-045	3660 E*
Selenium	mg/Kg	0.37	SB-EU031-3308-2.0	0.422 B
			SB-EU032-3309-1.0	0.741 B
			SS407-044	1.3
			SS408-045	1.2
			SS409-046	0.73 B
			SS4B005-616	0.981 B
			SS-EU031-3330	0.409 B
			SS-EU032-3331	0.577 B
			TB403-2821-04.0-008	0.823 BN
			TB403-2823-08.0-045	0.666 BN
Silver	mg/Kg	0.27	SS-EU031-3330	0.291
Sodium	mg/Kg	331	TB403-2823-08.0-045	392
Thallium	mg/Kg	--	SB409-126-7.5	0.17
			SB-EU031-3308-2.0	0.121 E
			SB-EU032-3309-1.0	0.124 E
			SS407-044	0.11 B
			SS408-045	0.1 B
			SS409-046	0.13
			SS4B005-616	0.118
			SS-EU031-3330	0.099 BE
			SS-EU032-3331	0.125 E
			SS-EU033-3332	0.11 BE
			SS-EU034-3333	0.102 BE
			TB403-2821-04.0-008	0.199 E
			TB403-2822-07.0-024	0.095 J
			TB403-2823-08.0-045	0.143 E
Vanadium	mg/Kg	35.2	TB403-2823-08.0-045	39.7 *
PAHs				
Benzo(g,h,i)perylene	μg/Kg	16	SS408-045	216 J
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SS408-045	154 J
PCBs				
Aroclor-1254	μg/Kg	--	TB403-2821-04.0-008	2.9 J

* Data qualifier included with concentration value

Table 4-52
Exposure Unit 3
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SB-EU032-3309-1.0	5.4
			SS409-046	16
			TB403-2821-04.0-008	2.7 JP
Pesticides				
4,4'-DDD	μg/Kg	--	TB403-2821-04.0-008	0.52 JP
			TB403-2822-07.0-024	0.42 JP
4,4'-DDE	μg/Kg	--	SB-EU032-3309-1.0	1.1 J
			SS-EU031-3330	2.94
			TB403-2821-04.0-008	0.29 J
			TB403-2822-07.0-024	0.23 J
4,4'-DDT	μg/Kg	--	SB-EU031-3308-2.0	0.725 J
			SB-EU032-3309-1.0	0.893 J
			SS-EU031-3330	2.58
Dieldrin	μg/Kg	--	TB403-2821-04.0-008	0.33 J
			TB403-2822-07.0-024	0.32 J
Endosulfan sulfate	μg/Kg	--	TB403-2821-04.0-008	0.52 J
			TB403-2822-07.0-024	0.33 J
Endrin aldehyde	μg/Kg	--	TB403-2821-04.0-008	0.39 J
Endrin ketone	μg/Kg	--	TB403-2821-04.0-008	0.43 JP
			TB403-2822-07.0-024	0.31 JP
Methoxychlor	μg/Kg	--	TB403-2821-04.0-008	2.6 J
			TB403-2822-07.0-024	1.8 J
Radionuclides				
Actinium-227	pCi/g	0.08	SS4B009-2280	2.26
			SS4B021-2295	0.938
			TB411-2837-01.5-052	0.455
Alpha	pCi/g	15.1	SB4B014-2353	20
			SS-EU031-3330	15.7
Cesium-137	pCi/g	0.343	SS4B006-617	0.359
			SS4B008-2279	0.375

* Data qualifier included with concentration value

Table 4-52
Exposure Unit 3
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB4B009-2281-2.0	2.28
			SB4B014-2353	4.25
			SB4B021-2296-2.0	1.37
			SS407-044	1.98
			SS409-046	1.28
			SS4B005-616	1.41
			SS4B006-617	1.72
			SS4B007-2278	1.4
			SS4B008-2279	1.71
			SS4B009-2280	37.5
			SS4B010-2282	7.31
			SS4B014-2288	15.2
			SS4B015-2289	2.05
			SS4B016-2290	2.36
			SS4B017-2291	7.14
			SS4B019-2293	1.44
			SS4B021-2295	17.6
			TB403-2821-04.0-008	1.24
			TB411-2836-01.5-034	2.12
			TB411-2837-01.5-052	7.68
Thorium-228	pCi/g	1.64	SB4B014-2353	1.8
			SB4B014-2354	2.34
			SB-EU032-3309-1.0	1.66

* Data qualifier included with concentration value

Table 4-52
Exposure Unit 3
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB4B014-2353	3.09
			SB-EU032-3309-1.0	2.03
			SS407-044	1.54
			SS4B005-616	1.5
			SS4B006-617	1.94
			SS4B007-2278	2.37
			SS4B008-2279	2.14
			SS4B009-2280	8.46
			SS4B010-2282	12.1
			SS4B013-2285	2.22
			SS4B014-2288	2.96
			SS4B015-2289	2.56
			SS4B016-2290	3.32
			SS4B017-2291	1.55
			SS4B019-2293	1.65
			SS4B021-2295	3.76
			SS-EU031-3330	1.41
			SS-EU032-3331	1.58
			TB403-2821-04.0-008	1.52
			TB403-2822-07.0-024	1.41 J
Thorium-232	pCi/g	1.24	TB411-2836-01.5-034	2.02
			TB411-2837-01.5-052	8.74
			TB412-2839-05.0-034	1.65
Total Uranium	µg/g	3.58	SB4B011-2283-2.0	1.38
			SS4B016-2290	1.33
			SS-EU032-3331	1.27
			SB4B009-2281-2.0	4.39
			SB4B014-2353	3.82
			SS407-044	3.69
			SS4B009-2280	34.3
			SS4B010-2282	6.6
			SS4B014-2288	4.28
			SS4B015-2289	3.88
			SS4B016-2290	7.76
			SS4B021-2295	3.91
			TB403-2821-04.0-008	3.67
			TB411-2836-01.5-034	4.82
			TB411-2837-01.5-052	6.1

* Data qualifier included with concentration value

Table 4-52
Exposure Unit 3
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB4B009-2281-2.0	1.68
			SS4B009-2280	11.5
			SS4B010-2282	3.03
			SS4B015-2289	2.09
			SS4B016-2290	3.39
			SS4B021-2295	2.08
			TB403-2821-04.0-008	1.91
			TB411-2836-01.5-034	1.7
			TB411-2837-01.5-052	3.22
Uranium-235	pCi/g	0.0847	SB-EU032-3309-1.0	0.164
			SS408-045	0.163 J
			SS4B009-2280	0.309
			SS4B010-2282	0.158
			SS4B014-2288	0.15
			SS4B016-2290	0.229
			SS4B019-2293	0.119
			SS-EU032-3331	0.167
			TB403-2822-07.0-024	0.191 J
			TB411-2836-01.5-034	0.133
TB413-2843-03.0-015	0.117			
Uranium-238	pCi/g	1.34	SB4B009-2281-2.0	1.86
			SB4B014-2353	2.25
			SS407-044	1.62
			SS4B009-2280	11
			SS4B010-2282	3.46
			SS4B012-2284	1.47
			SS4B014-2288	1.69
			SS4B015-2289	1.91
			SS4B016-2290	3
			SS4B021-2295	1.89
			TB403-2821-04.0-008	1.57
			TB411-2836-01.5-034	1.57
			TB411-2837-01.5-052	2.97
Volatile Organics				
1,1-Dichloroethene	µg/Kg	--	TB403-2822-07.0-024	0.95 J
Acetone	µg/Kg	--	SB409-126-7.5	3 J
			TB403-2822-07.0-024	11.5
			TB403-2823-08.0-045	9.6
Toluene	µg/Kg	--	TB403-2821-04.0-008	0.4 J
			TB403-2822-07.0-024	1.1
			TB403-2823-08.0-045	1.1

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-DRUM06-3396-1.0	19600
			SS418-055	21800
			SS-DRUM05-3381	20100 J
			TB406-2827-02.0-027	57400
			TB406-2828-01.0-010	22700
			TB408-2829-02.7-005	25400
Antimony	mg/Kg	0.94	SB-DRUM04-3379-1.0	1.33 N
			SB-DRUM05-3382-1.0	1.05 BN
			SB-EU042-3311-1.0	1.04 BN
			SS-DRUM02-3372	3.57 N
			SS-DRUM04-3378	1.54 N
			SS-DRUM05-3381	2 J
Arsenic	mg/Kg	8.73	SS-DRUM02-3372	17.2 N
			SS-DRUM04-3378	13.8 N
Barium	mg/Kg	263	SS-DRUM04-3378	2670 N*
			TB406-2827-02.0-027	325
			TB408-2831-04.7-054	264
Beryllium	mg/Kg	1	SB-DRUM06-3396-1.0	1.31
			TB406-2827-02.0-027	2.2
			TB408-2829-02.7-005	1.29
Boron	mg/Kg	10.1	SB-DRUM05-3382-1.0	24.9 *N
			SB-DRUM06-3396-1.0	25.5 N
			SB-DRUM07-3399-1.0	10.5 N
			SS410-047	15.5
			SS415-052	10.5
			SS418-055	97.1
			SS419-056	17.1 *
			SS-DRUM02-3372	280
			SS-DRUM04-3378	12
			SS-DRUM05-3381	313 J
			SS-DRUM06-3395	23.4 N
			SS-DRUM07-3398	23.5 N
			SS-MW422-3608	11.8 N
			SS-MW423-3611	12.6 N
			TB406-2826-07.0-043	19.3
			TB406-2827-02.0-027	477
			TB406-2828-01.0-010	240
			TB408-2829-02.7-005	19
			TB408-2830-03.9-021	16.1
			TB408-2831-04.7-054	15.2

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SB-EU042-3311-1.0	0.613
			SS414-051	0.58 B
			SS416-053	0.61
			SS419-056	0.67
			SS4C001-618	0.534 B
			SS-DRUM02-3372	0.624 B
			SS-DRUM05-3381	0.559 J
			TB406-2827-02.0-027	0.932 E
Calcium	mg/Kg	58900	SB417-138-3	69800
			SS412-049	93600 E
			TB408-2830-03.9-021	76400 E
			TB408-2831-04.7-054	62700 E
Chromium	mg/Kg	25.8	SS417-054	196
			SS418-055	26.7 *
			SS-DRUM02-3372	37.9 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM05-3381	49.4 J
			TB406-2827-02.0-027	37
			TB408-2829-02.7-005	30.9
Copper	mg/Kg	49.3	SB-DRUM04-3379-1.0	55 *N
			SB-DRUM06-3396-1.0	91.6
			SS410-047	51
			SS413-050	75.4
			SS418-055	50.1
			SS4D007-621	50.3
			SS-DRUM02-3372	159 *N
			SS-DRUM04-3378	76.2 *N
			SS-DRUM05-3381	590 J
			SS-DRUM06-3395	270
Iron	mg/Kg	36400	TB406-2827-02.0-027	87.1 N
			SB-DRUM04-3379-1.0	36700 *
			SS-DRUM02-3372	105000 *
			SS-DRUM04-3378	50400 *
			SS-DRUM05-3381	154000 J
			TB408-2829-02.7-005	37100

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lead	mg/Kg	37.6	SB-EU042-3311-1.0	598 *
			SS413-050	686
			SS414-051	53.1
			SS415-052	41.4
			SS417-054	48.8
			SS418-055	38.1
			SS4C001-618	140
			SS4D005-619	54.7
			SS4D007-621	39.2
			SS-DRUM02-3372	391 *
			SS-DRUM04-3378	149 *
			SS-DRUM07-3398	64.8
			SS-MW423-3611	53.7 *
Magnesium	mg/Kg	14800	SB417-138-3	14900
			SS412-049	17900
Mercury	mg/Kg	0.27	TB406-2827-02.0-027	0.284 *
Nickel	mg/Kg	38	SB-DRUM05-3382-1.0	44.7
			SS-DRUM02-3372	76.1 *
			SS-DRUM05-3381	65.1
			TB406-2827-02.0-027	68.2 E
			TB408-2829-02.7-005	39.2 E
Potassium	mg/Kg	2860	SB-DRUM05-3382-1.0	2880 E*
			SS418-055	5850
			SS-DRUM05-3381	6330 J
			TB406-2827-02.0-027	9290 E
			TB406-2828-01.0-010	4740 E
			TB408-2829-02.7-005	3230 E
			TB408-2830-03.9-021	3580 E
			TB408-2831-04.7-054	3430 E

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB415-136-9.2	0.75 B
			SB417-138-3	1
			SB417-138-8.9	0.66 B
			SB-DRUM04-3379-1.0	0.676 B
			SB-DRUM05-3382-1.0	0.815 B
			SB-DRUM06-3396-1.0	0.665 B
			SB-DRUM07-3399-1.0	0.71 B
			SB-EU042-3311-1.0	0.59 B
			SS410-047	1
			SS411-048	1.3
			SS412-049	0.53 B
			SS413-050	1.1
			SS415-052	0.97 B
			SS416-053	0.65 B
			SS417-054	1.2
			SS418-055	0.99 B
			SS419-056	0.73 BN
			SS4C001-618	0.581 B
			SS4D005-619	1.08 B
			SS4D007-621	1.34
			SS4D008-623	1.14 B
			SS-DRUM02-3372	0.65 B
			SS-DRUM04-3378	0.626 B
			SS-DRUM05-3381	1.22
			SS-DRUM06-3395	0.71 B
			SS-DRUM07-3398	0.954 B
			SS-MW422-3608	0.82 B
			SS-MW423-3611	0.456 B
			SS-MW424-3620	1.99 N
			TB406-2826-07.0-043	0.524 B
			TB406-2827-02.0-027	1.16
			TB406-2828-01.0-010	0.562 B
			TB408-2829-02.7-005	0.711 B
			TB408-2830-03.9-021	0.904 B
			TB408-2831-04.7-054	0.597 B
Silver	mg/Kg	0.27	SS4C001-618	0.375 B
			SS4D005-619	0.293 E
			SS-DRUM02-3372	0.273
Sodium	mg/Kg	331	SS418-055	766 E
			SS-DRUM02-3372	4520 *
			TB406-2827-02.0-027	54800
			TB406-2828-01.0-010	6970

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB415-136-9.2	0.12 B
			SB417-138-3	0.13
			SB417-138-8.9	0.21
			SB-DRUM04-3379-1.0	0.118 E
			SB-DRUM05-3382-1.0	0.148 E
			SB-DRUM06-3396-1.0	0.156
			SB-DRUM07-3399-1.0	0.175
			SB-EU041-3310-1.0	0.091 BE
			SB-EU042-3311-1.0	0.147 E
			SS410-047	0.14
			SS411-048	0.11 B
			SS412-049	0.08 B
			SS413-050	0.16
			SS414-051	0.13 B
			SS415-052	0.15
			SS416-053	0.089 B
			SS417-054	0.2
			SS418-055	0.24
			SS419-056	0.11 B
			SS4D005-619	0.202
			SS4D007-621	0.094 B
			SS4D008-623	0.108 B
			SS-DRUM02-3372	0.115 BE
			SS-DRUM04-3378	0.11 BE
			SS-DRUM05-3381	0.163 E
			SS-DRUM06-3395	0.151
			SS-DRUM07-3398	0.242
			SS-MW422-3608	0.175 E
			SS-MW423-3611	0.19 E
			SS-MW424-3620	0.116
			TB406-2826-07.0-043	0.2 E
			TB406-2827-02.0-027	0.36 E
			TB406-2828-01.0-010	0.262 E
			TB408-2829-02.7-005	0.212 E
			TB408-2830-03.9-021	0.199 E
			TB408-2831-04.7-054	0.167 E
Vanadium	mg/Kg	35.2	SS418-055	41.2
			SS-DRUM05-3381	38.2 J
			TB406-2827-02.0-027	49.9 N
			TB406-2828-01.0-010	37.3 N
			TB408-2829-02.7-005	47.6 N
PAHs				

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acenaphthylene	$\mu\text{g/Kg}$	--	SB-DRUM04-3379-1.0	93.9
			SB-DRUM07-3399-1.0	4.33 J
			SS-DRUM04-3378	51.5
			SS-DRUM07-3398	14.9 J
			SS-MW423-3611	151 J
Anthracene	$\mu\text{g/Kg}$	8	SB-DRUM04-3379-1.0	21.3 J
			SS-DRUM04-3378	78.5
			TB408-2830-03.9-021	420 J
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	SS417-054	446
			SS4D007-621	623
			SS-DRUM04-3378	578
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	SB-DRUM04-3379-1.0	358
			SS417-054	508
			SS4D007-621	670
			SS-DRUM04-3378	1290
			TB408-2830-03.9-021	2400
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	SB-DRUM04-3379-1.0	1080
			SS417-054	647
			SS4D007-621	949
			SS-DRUM04-3378	2980
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	16	SB-DRUM04-3379-1.0	233
			SB-DRUM06-3396-1.0	29.1 P
			SS412-049	2880 J
			SS413-050	49.3 J
			SS417-054	231 J
			SS4D007-621	376
			SS-DRUM04-3378	792
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	SS-DRUM07-3398	62.5 P
			SS417-054	595
			SS4D007-621	908
			SS-DRUM04-3378	601
Chrysene	$\mu\text{g/Kg}$	378	TB408-2830-03.9-021	1240
			SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090
Fluorene	$\mu\text{g/Kg}$	2.9	TB408-2830-03.9-021	931
			SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090
Fluoranthene	$\mu\text{g/Kg}$	889	TB408-2830-03.9-021	931
			SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090
Fluorene	$\mu\text{g/Kg}$	2.9	TB408-2830-03.9-021	931
			SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090
Fluorene	$\mu\text{g/Kg}$	2.9	TB408-2830-03.9-021	931
			SS417-054	562
			SS4D007-621	992
			SS-DRUM04-3378	1090

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SB-DRUM04-3379-1.0	403
			SS413-050	38.6 J
			SS417-054	240 J
			SS4D007-621	387
			SS-DRUM02-3372	39.5
			SS-DRUM04-3378	875
			SS-DRUM05-3381	38.3
			SS-DRUM07-3398	306
Naphthalene	μg/Kg	--	SB-DRUM06-3396-1.0	5.16 J
			SB-DRUM07-3399-1.0	37.3
			SS-DRUM06-3395	7 J
			SS-DRUM07-3398	76.7
Phenanthrene	μg/Kg	538	TB408-2830-03.9-021	2290
Pyrene	μg/Kg	716	SS-DRUM04-3378	795
			TB408-2830-03.9-021	2130
PCBs				
Aroclor-1254	μg/Kg	--	SB-DRUM05-3382-1.0	19.4
			SB-DRUM06-3396-1.0	7.9
			SB-EU042-3311-1.0	668
			SS4C001-618	714 JP
			SS4D007-621	226
			SS4D008-623	100
			SS4F001-633	28.5 J
			SS4F002-634	28 J
			SS4F004-636	32.7 JP
			SS-DRUM06-3395	20.9
			TB408-2829-02.7-005	13.2

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SB-DRUM04-3379-1.0	1650
			SB-DRUM05-3382-1.0	165
			SB-DRUM06-3396-1.0	62.5
			SB-DRUM07-3399-1.0	25100
			SB-EU041-3310-1.0	125
			SB-EU042-3311-1.0	4660
			SS313-687	4 J
			SS413-050	2030
			SS414-051	154
			SS415-052	110
			SS417-054	1120
			SS418-055	392
			SS4C001-618	14500
			SS4D005-619	320
			SS4D007-621	511
			SS4D008-623	361
			SS4D010-626	2580
			SS4D013-629	162
			SS4D015-631	354
			SS4F001-633	65.3
			SS4F002-634	94.4
			SS4F004-636	19.4 JP
			SS-DRUM02-3372	249
			SS-DRUM04-3378	5740
			SS-DRUM05-3381	309
			SS-DRUM06-3395	120
			SS-DRUM07-3398	70200
			SS-MW422-3608	1230 B
			SS-MW423-3611	7.1 B
			SS-MW424-3620	6
			TB404-2856-02.3-028	5.7
			TB406-2827-02.0-027	18.8 J
			TB406-2828-01.0-010	48.8
			TB408-2829-02.7-005	17.9
Pesticides				

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	μg/Kg	--	SB-DRUM05-3382-1.0	3.13
			SB-DRUM06-3396-1.0	5.52
			SS313-687	1.1 JP
			SS4C001-618	6 P
			SS4D008-623	3.9
			SS4D013-629	2.7 P
			SS4D015-631	3.4 P
			SS4F004-636	3 P
			SS-DRUM02-3372	2.58
			SS-DRUM05-3381	4.33
			SS-DRUM06-3395	10.6
			TB404-2856-02.3-028	0.37 JP
			TB406-2828-01.0-010	0.6 J
			TB408-2830-03.9-021	2.7 J
			TB408-2831-04.7-054	0.19 JP
4,4'-DDT	μg/Kg	--	SB-DRUM06-3396-1.0	9.02
			SS4F004-636	7.3 P
			SS-DRUM06-3395	13.1
			TB404-2856-02.3-028	1.2 J
Endosulfan sulfate	μg/Kg	--	SS4F004-636	0.99 J
			TB404-2825-06.2-021	0.4 JP
			TB408-2831-04.7-054	0.44 JP
Radionuclides				
Alpha	pCi/g	15.1	SB417-138-8.9	25.1
			SB4C002-2352	16
			SB-DRUM07-3399-1.0	16.4
			SB-EU042-3311-1.0	16.2
			SS411-048	23.4
			SS412-049	15.6
			SS413-050	21
			SS415-052	19.7
			SS417-054	20.2
			SS419-056	19.8
			SS4C003-2299	18.9
			SS-DRUM02-3372	26.1
Beta	pCi/g	28.9	SB417-138-8.9	30.3
			SS411-048	35.4

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SB-DRUM06-3396-1.0	0.375
			SS313-687	0.456
			SS414-051	1.92 J
			SS417-054	0.351 J
			SS418-055	0.493 J
			SS422-688	1.29
			SS4C001-618	0.379
			SS4C006-2303	0.383
			SS4D005-619	0.403
			SS4D006-620	0.379
			SS4D008-623	0.413
			SS4D009-625	0.38
			SS4D010-626	0.431
			SS4D011-627	0.585
			SS4D012-628	0.35
			SS4D013-629	0.439
			SS4D015-631	0.431
			SS4D019-2308	0.347
			SS4D020-2309	0.396
			SS4F001-633	0.374
			SS4F002-634	0.389
			SS-DRUM02-3372	1.02
			SS-DRUM04-3378	0.377
			SS-DRUM05-3381	0.522 J
			SS-DRUM06-3395	0.506
			SS-DRUM07-3398	0.42
			TB414-2846-01.0-043	0.53

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB4C002-2351	2.67
			SB4C002-2352	2.29
			SB-DRUM07-3399-1.0	1.36
			SB-EU042-3311-1.0	1.34
			SS313-687	1.52
			SS410-047	1.27
			SS413-050	2.01
			SS414-051	1.64
			SS415-052	1.67
			SS417-054	4.45
			SS418-055	1.35
			SS422-688	2.33
			SS4C002-2298	5.83
			SS4C003-2299	1.78
			SS4C004-2300	3.72
			SS4C006-2303	1.33
			SS4D005-619	1.73
			SS4D006-620	1.21
			SS4D008-623	1.48
			SS4D010-626	1.95
			SS4D011-627	2.34
			SS4D012-628	2.69
			SS4D013-629	1.86
			SS4D014-630	1.51
			SS4D015-631	2.32
			SS4D017-2306	4.66
			SS4D019-2308	2.95
			SS4D020-2309	1.43
			SS4F004-636	1.26
			SS-DRUM02-3372	2.54
			SS-DRUM04-3378	1.41
			SS-DRUM07-3398	1.78
			TB406-2827-02.0-027	3.38
			TB408-2830-03.9-021	1.58
Thorium-228	pCi/g	1.64	SS313-687	1.72
			SS4C003-2299	1.7
			SS4D005-619	1.68
			SS-MW424-3620	1.96
			TB408-2830-03.9-021	1.68

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB4C002-2351	1.65
			SB4C002-2352	1.72
			SB-DRUM04-3379-1.0	1.4
			SB-DRUM05-3382-1.0	2.64
			SB-DRUM06-3396-1.0	2.07
			SB-DRUM07-3399-1.0	2.86
			SB-EU042-3311-1.0	2.13
			SS313-687	1.87
			SS410-047	1.5 J
			SS412-049	2.05
			SS413-050	2.83
			SS414-051	2.09 J
			SS415-052	2.1 J
			SS417-054	2.63 J
			SS418-055	1.46 J
			SS419-056	1.42 J
			SS422-688	1.79
			SS4C002-2298	4.21
			SS4C003-2299	1.62
			SS4C004-2300	3.52
			SS4C005-2302	2.55
			SS4C006-2303	1.66
			SS4D005-619	3.25
			SS4D006-620	2.34
			SS4D009-625	2.04
			SS4D010-626	2
			SS4D011-627	2.67
			SS4D012-628	1.87
			SS4D013-629	2.4
			SS4D014-630	2.11
			SS4D015-631	2.97
			SS4D017-2306	3.47
			SS4D019-2308	2.4
			SS4D020-2309	2.24
			SS4F009-2315	1.77
			SS4G001-2316	1.92
			SS-DRUM02-3372	5.21
			SS-DRUM04-3378	2.26
			SS-DRUM05-3381	1.86 J
			SS-DRUM06-3395	1.73
			SS-DRUM07-3398	2.59
			SS-MW422-3608	1.8 J
			SS-MW423-3611	1.92
			TB404-2856-02.3-028	1.44

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	TB406-2827-02.0-027	2.07
			TB414-2846-01.0-043	1.51
Thorium-232	pCi/g	1.24	SB-DRUM05-3382-1.0	1.36
			SB-EU042-3311-1.0	1.38
			SS417-054	1.25 J
			SS4D017-2306	1.32
			SS-DRUM06-3395	1.3
			SS-MW424-3620	1.33
Total Uranium	μg/g	3.58	SS4C002-2298	7.43
			SS4C003-2299	5.19
			SS4C004-2300	4.15
			SS4D011-627	3.68
			SS4D017-2306	3.97
			SS-DRUM07-3398	4.18
			TB406-2827-02.0-027	5.75
			TB414-2844-05.5-004	3.78
			TB414-2845-08.0-040	5.94
Uranium-234	pCi/g	1.66	TB414-2846-01.0-043	4.53
			SS4C002-2298	2.46
			SS4C003-2299	2.92
			SS4D012-628	1.69
			SS4D017-2306	1.85
			TB406-2827-02.0-027	1.95
			TB414-2844-05.5-004	15.2
			TB414-2845-08.0-040	1.99
Uranium-235	pCi/g	0.0847	TB414-2846-01.0-043	1.91
			SS-MW424-3620	0.221
			TB406-2828-01.0-010	0.115 J
			TB414-2844-05.5-004	0.64
Uranium-238	pCi/g	1.34	TB414-2846-01.0-043	0.155
			SB4C002-2351	1.66
			SS313-687	1.4
			SS422-688	1.7
			SS4C002-2298	2.47
			SS4C003-2299	2.2
			SS4C004-2300	1.74
			SS4D011-627	1.37
			SS4D017-2306	1.35
			TB406-2827-02.0-027	1.56
			TB414-2845-08.0-040	2.73
			TB414-2846-01.0-043	1.58
Semivolatile Organics				

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
2-Methylnaphthalene	μg/Kg	--	SB-DRUM07-3399-1.0	36.8 J
			SB-EU042-3311-1.0	32.6 J
			SS-DRUM07-3398	66.7
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SB-DRUM06-3396-1.0	0.539 J
			SS-DRUM07-3398	1.12 J
			TB406-2828-01.0-010	0.81
2-Butanone	μg/Kg	--	TB406-2827-02.0-027	4.4
			TB406-2828-01.0-010	13.5
Acetone	μg/Kg	--	SB-DRUM04-3379-1.0	4.12 J
			SB-EU042-3311-1.0	9.07
			SS-DRUM06-3395	2.46 J
			SS-DRUM07-3398	6.56
			SS-MW422-3608	6.92
			SS-MW424-3620	4.21 J
			TB406-2826-07.0-043	3.6
			TB406-2827-02.0-027	30.7
			TB406-2828-01.0-010	95.1
			TB408-2829-02.7-005	6.2
			TB408-2830-03.9-021	5.7
			TB408-2831-04.7-054	7.4
cis-1,2-Dichloroethene	μg/Kg	--	SB415-136-9.2	25.8
			SB-DRUM05-3382-1.0	121 J
			SS415-052	6.9
			TB406-2827-02.0-027	0.46 J
			TB406-2828-01.0-010	0.4 J
Methylene chloride	μg/Kg	--	TB406-2826-07.0-043	0.82 J
			TB406-2827-02.0-027	1 J
			TB408-2829-02.7-005	1.4 J
			TB408-2830-03.9-021	1.7 J
			TB408-2831-04.7-054	1.1 J
Tetrachloroethene	μg/Kg	--	SB415-136-9.2	2200 D
			SB-DRUM05-3382-1.0	1630
			SS415-052	39.1
			SS418-055	10.8
			SS-DRUM02-3372	10
			SS-DRUM05-3381	1410
			SS-MW424-3620	3.92

* Data qualifier included with concentration value

Table 4-53
Exposure Unit 4
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SB415-136-9.2	1.1 J
			SS-MW424-3620	0.46 J
			TB406-2826-07.0-043	0.27 J
			TB406-2827-02.0-027	0.32 J
			TB406-2828-01.0-010	0.39 J
			TB408-2829-02.7-005	0.52 J
			TB408-2830-03.9-021	0.54 J
			TB408-2831-04.7-054	0.28 J
trans-1,2-Dichloroethene	$\mu\text{g/Kg}$	--	SB415-136-9.2	0.82 J
			SS415-052	0.56 J
			TB406-2827-02.0-027	0.94
Trichloroethene	$\mu\text{g/Kg}$	--	SB415-136-9.2	23.6
			SB-DRUM05-3382-1.0	75.6 J
			SS415-052	11.4
			SS-DRUM05-3381	71.4 J
			SS-MW424-3620	0.571 J
			TB406-2827-02.0-027	7.9 B
			TB406-2828-01.0-010	4.6

* Data qualifier included with concentration value

Table 4-54
Exposure Unit 5
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SS-EU051-3334	32400 E*
Antimony	mg/Kg	0.94	SB-EU051-3312-1.0	1.04 BN
Barium	mg/Kg	263	SS-EU051-3334	441 *
Beryllium	mg/Kg	1	SB-EU051-3312-1.0	1.3
			SS-EU051-3334	7.7 E*
Boron	mg/Kg	10.1	SB-EU051-3312-1.0	17.6 *N
			SS-EU051-3334	88.2 E*N
Cadmium	mg/Kg	0.53	SB423-719-10.0	0.691
			SS421-058	0.91
			SS605-697	0.751
Calcium	mg/Kg	58900	SB-EU051-3312-1.0	60400
			SS-EU051-3334	179000 *
Chromium	mg/Kg	25.8	SS-EU051-3334	30.1 *N
Copper	mg/Kg	49.3	SS-EU051-3334	58.1 E*N
Potassium	mg/Kg	2860	SS-EU051-3334	4050 *
Selenium	mg/Kg	0.37	SB420-142-7	1.2 *N
			SB423-719-10.0	0.709 B
			SB-EU051-3312-1.0	0.492 B
			SB-EU052-3313-1.5	0.779 B
			SS421-058	0.62 BN
			SS423-689	0.944 B
			SS601-065	0.56 B
			SS605-697	0.701 B
			SS-EU051-3334	2.35
Sodium	mg/Kg	331	SS-EU051-3334	1210 E*
Thallium	mg/Kg	--	SB-EU051-3312-1.0	0.078 BE
			SB-EU052-3313-1.5	0.256 E
			SS420-057	0.1 B
			SS421-058	0.14
			SS601-065	0.15
			SS811-080	0.13
			SS-EU051-3334	0.105 BE
PAHs				
Acenaphthylene	μg/Kg	--	SS-EU051-3334	96.2
Benzo(b)fluoranthene	μg/Kg	396	SS-EU051-3334	561
Benzo(g,h,i)perylene	μg/Kg	16	SS-EU051-3334	176
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SS-EU051-3334	283
PCBs				
Aroclor-1254	μg/Kg	--	SS4F003-635	7.8 JP
			SS811-080	12 P
			SS-EU051-3334	4.2

* Data qualifier included with concentration value

Table 4-54
Exposure Unit 5
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SB-EU051-3312-1.0	3 J
			SS4F003-635	24.8 J
			SS811-080	17.6
			SS-EU051-3334	5.3
Pesticides				
4,4'-DDE	μg/Kg	--	SS4F003-635	2.6 P
4,4'-DDT	μg/Kg	--	SB-EU052-3313-1.5	0.885 J
			SS4F003-635	5.4
Radionuclides				
Actinium-227	pCi/g	0.08	SS4G002-2365	1.33
			SS6A001-2317	14.2
Alpha	pCi/g	15.1	SB4G002-2366	18.7
			SB4G002-2367	15.5
			SB6A001-2362	416
			SB6A001-2363	404
			SD737-381	16
			SS420-057	15.6
			SS421-058	21
Beta	pCi/g	28.9	SB6A001-2362	191
			SB6A001-2363	221
Cesium-137	pCi/g	0.343	SD737-381	0.607 J
			SS4F003-635	0.395
			SS4F005-2311	0.364
			SS4F007-2313	0.359
			SS601-065	0.406 J
			SS6A003-2320	0.375
			SS811-080	0.377 J
			SS8G005-2347	0.672
Radium-226	pCi/g	1.2	SB6A001-2318-2.0	6.33
			SB6A001-2362	79.9
			SB6A001-2363	167
			SB6A006-2324-2.0	1.27
			SD737-381	1.3
			SS420-057	2.35
			SS423-689	1.92
			SS4F003-635	1.23
			SS4G002-2365	43.9
			SS6A001-2317	285
			SS6A003-2320	2.24
			SS6A006-2325	1.34
			SS6A010-2364	3.39
SS-EU051-3334	3.56			

* Data qualifier included with concentration value

Table 4-54
Exposure Unit 5
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SB4G002-2366	1.83
			SB4G002-2367	1.75
			SB6A001-2362	1.77
			SS605-697	1.69
Thorium-230	pCi/g	1.39	SB6A001-2318-2.0	1.63
			SB6A001-2362	6.12
			SB6A001-2363	6.98
			SS4F003-635	1.59
			SS4F005-2311	1.7
			SS4F006-2312	1.89
			SS4F008-2314	1.46
			SS4G002-2365	8.51
			SS6A001-2317	8.73
			SS6A010-2364	2.69 J
			SS8G005-2347	1.44
			SS-EU051-3334	2.48
Total Uranium	μg/g	3.58	TB410-2834-04.0-055	1.8
			SB6A001-2363	4.46
			SS4G002-2365	4.09
Uranium-234	pCi/g	1.66	SS-EU051-3334	5
			SB6A001-2363	4.25
Uranium-235	pCi/g	0.0847	SS-EU051-3334	2.37
			SB4G002-2368	0.461
			SS6A001-2317	0.203
			SS6A009-2329	0.189
			SS6A010-2364	0.148 J
Uranium-238	pCi/g	1.34	SS-EU051-3334	0.447
			SB6A001-2363	4.12
			SS4G002-2365	1.77
			SS6A001-2317	1.38
			SS6A009-2329	1.83
Volatile Organics			SS-EU051-3334	2.45
			SS811-080	0.83 J
			SS-EU051-3334	0.648 J
			TB410-2833-02.0-035	1.1
			SS420-057	5.1 J
2-Butanone	μg/Kg	--	SD737-381	1.5 J
			SS420-057	51.7
Acetone	μg/Kg	--	SB420-142-7	3
			SS420-057	1.2
Benzene	μg/Kg	--	SS420-057	2.4 J
			SS811-080	1.3
Carbon disulfide	μg/Kg	--	SS420-057	2.4 J
Tetrachloroethene	μg/Kg	--	SS811-080	1.3

* Data qualifier included with concentration value

Table 4-54
Exposure Unit 5
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SB420-142-7	2.2
			SD737-381	0.27 J
			SS420-057	2.8
			SS811-080	2.1
			TB410-2832-06.0-008	0.31 J
			TB410-2833-02.0-035	0.38 J
			TB410-2834-04.0-055	0.39 J
Trichloroethene	$\mu\text{g/Kg}$	--	SS811-080	1 J
Xylenes (total)	$\mu\text{g/Kg}$	--	SB420-142-7	1.5 J
			SS420-057	1 J
			SS811-080	0.8 J

* Data qualifier included with concentration value

Table 4-55
Exposure Unit 6
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SB-EU062-3315-2.0	1.1 BN
Arsenic	mg/Kg	8.73	SD732-370	11.7
Cadmium	mg/Kg	0.53	SB825-742-9.5	0.99
			SD731-368	0.73
			SD732-370	0.86
			SD733-373	0.69 B
			SS825-713	0.744
Lead	mg/Kg	37.6	SD732-370	47.3
			SD734-375	38.9
Mercury	mg/Kg	0.27	SD732-370	0.35
Selenium	mg/Kg	0.37	SB812-165-10	0.79 B
			SB825-742-9.5	0.603 B
			SB-EU062-3315-2.0	0.51 B
			SD732-370	2.2 N
			SD733-373	1.7 N
			SS604-069	2.3 B
			SS607-699	0.79 B
			SS825-713	0.558 B
			SS-EU061-3335	0.83 B
			SS-EU062-3336	0.767 B
Thallium	mg/Kg	--	SB812-165-10	0.03 B
			SB-EU061-3314-2.0	0.059 BE
			SB-EU062-3315-2.0	0.105 BE
			SD732-370	0.31
			SD733-373	0.36
			SD734-375	0.23
			SS602-066	0.04 B
			SS603-068	0.07 B
			SS604-069	0.06 B
			SS812-084	0.1 B
			SS-EU061-3335	0.114 B
			SS-EU062-3336	0.129 E
PCBs				
Aroclor-1254	µg/Kg	--	SD731-368	5.9
			SD734-375	11.3 P
			SS825-713	6
Aroclor-1260	µg/Kg	--	SD732-370	10.5 J
			SD733-373	5.2 J
			SD734-375	12.2
			SS825-713	14.7
Pesticides				

* Data qualifier included with concentration value

Table 4-55
Exposure Unit 6
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	μg/Kg	--	SB-EU061-3314-2.0	1.91
			SB-EU062-3315-2.0	0.273 J
			SS825-713	1.2 JP
4,4'-DDT	μg/Kg	--	SB-EU061-3314-2.0	1.61
delta-BHC	μg/Kg	--	SS825-713	0.48 JP
Dieldrin	μg/Kg	--	SS825-713	0.45 JP
Radionuclides				
Actinium-227	pCi/g	0.08	SB6B005-2360	0.955
			SS606-698	18.9
			SS6B005-2335	1.6
			SS829-409	7.34
			SS-EU061-3335	0.579
Alpha	pCi/g	15.1	SB6B005-2359	513
			SB6B005-2360	168
			SB6B005-2361	40.2
			SB812-165-10	16
			SB828-418-0.5	21
			SB829-419-1.3	21.3
			SS603-068	15.8
			SS829-409	1390
			SS-EU061-3335	26.4
Beta	pCi/g	28.9	SB6B005-2359	214
			SB6B005-2360	114
			SB6B005-2361	48.2
			SD731-368	32.4
			SS829-409	739
Cesium-137	pCi/g	0.343	SD734-375	0.808 J
			SS6C001-2337	0.357
			SS6C003-2339	0.345
			SS829-409	0.848
			SS8G002-2344	0.435
Protactinium-231	pCi/g	0.08	SB6B005-2359	3.53
			SS606-698	18.9

* Data qualifier included with concentration value

Table 4-55
Exposure Unit 6
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB6B005-2359	70.1
			SB6B005-2360	9.5
			SB828-418-0.5	8.33
			SB829-419-1.3	3.72
			SD732-370	1.21
			SS606-698	103
			SS607-699	1.3
			SS6A005-2323	2.54
			SS6B001-2330	2.78
			SS6B005-2335	29.3
			SS6C006-2342	1.25
			SS829-409	182
			SS8G001-2343	1.5
			SS8G002-2344	1.35
			SS-EU061-3335	4.1
Thorium-230	pCi/g	1.39	SB6B005-2359	14.5
			SB6B005-2360	3.89
			SB828-418-0.5	3.13
			SB-EU061-3314-2.0	1.49
			SS606-698	352
			SS6B001-2330	1.51
			SS6B005-2335	8.25
			SS829-409	5.29
			SS8G002-2344	1.59
			SS-EU061-3335	8.02
Total Uranium	µg/g	3.58	SB6B005-2359	29.8
			SB6B005-2360	79.2
			SB6B005-2361	27.7
			SB828-418-0.5	9.08
			SS606-698	287
			SS6B005-2335	6.55
			SS6C006-2342	3.69
Uranium-234	pCi/g	1.66	SB6B005-2359	14.3
			SB6B005-2360	40.7
			SB6B005-2361	13.7
			SB828-418-0.5	2.72
			SS606-698	42.5
			SS6B005-2335	2.42
Uranium-235	pCi/g	0.0847	SB6B005-2359	0.874
			SB6B005-2360	3.63
			SS604-069	0.13 J
			SS606-698	2.13
			SS6B001-2330	0.139
			SS6B005-2335	0.252

* Data qualifier included with concentration value

Table 4-55
Exposure Unit 6
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB6B005-2359	13.4
			SB6B005-2360	39.7
			SB6B005-2361	14
			SB828-418-0.5	3.04
			SS606-698	41.5
			SS6B005-2335	2.62
			SS6C006-2342	1.61
Volatile Organics				
2-Butanone	μg/Kg	--	SS602-066	2.6 J
			SS603-068	12
2-Hexanone	μg/Kg	--	SS603-068	0.71 J
Acetone	μg/Kg	--	SD731-368	3.2 J
			SS602-066	27.2
			SS603-068	98.1
Benzene	μg/Kg	--	SS602-066	1.3
			SS603-068	1.4
Carbon disulfide	μg/Kg	--	SS602-066	2 J
			SS603-068	2.4 J
Methylene chloride	μg/Kg	--	SD731-368	7.1 JB
Toluene	μg/Kg	--	SD731-368	0.25 J
			SS602-066	1.2
			SS603-068	1.3
Xylenes (total)	μg/Kg	--	SS602-066	0.76 J

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	0.94	SB-EU071-3316-2.0	1.1 BN
			SS-EU071-3337	1.1 BN
			SS-TWP837-3521	1.52 BN
Boron	mg/Kg	10.1	SS-TWP838-3524	12.1 B
			SS-TWP840-3530	10.5
			TB802A-2903-03.8-096	12.3
Chromium	mg/Kg	25.8	SB-EU071-3316-2.0	28.1 *N
Magnesium	mg/Kg	14800	SS-EU072-3338	15400 *
			SS-TWP836-3518	22800
Nickel	mg/Kg	38	TB802A-2903-03.8-096	46.2
Potassium	mg/Kg	2860	SS-TWP838-3524	2880
			TB802A-2903-03.8-096	3140
Selenium	mg/Kg	0.37	SB-EU071-3316-2.0	0.612 B
			SB-EU072-3317-1.5	0.513 B
			SD711-317	1.1
			SS806-075	1.3 B
			SS-EU071-3337	0.58 B
			SS-EU072-3338	0.594 B
			SS-TWP835-3515	2.46 N
			SS-TWP836-3518	2.38 N
			SS-TWP837-3521	2.46 N
			SS-TWP838-3524	0.371 B
			SS-TWP840-3530	1.42 N
			TB802-2901-04.2-008	0.667 B
			TB802-2902-04.0-018	0.747 B
			TB802A-2903-03.8-096	0.698 B
			TB808-2850-04.5-016	1.36 B
			TB808-2851-01.5-020	1.54 B
			TB808-2852-01.5-016	1.36 B

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-EU071-3316-2.0	0.139 E
			SB-EU072-3317-1.5	0.118 E
			SD711-317	0.093 B
			SS806-075	0.08 B
			SS807-076	0.06 B
			SS-EU071-3337	0.141 E
			SS-EU072-3338	0.11 BE
			SS-TWP835-3515	0.098 B
			SS-TWP836-3518	0.132
			SS-TWP837-3521	0.158
			SS-TWP838-3524	0.11 B
			SS-TWP840-3530	0.114
			TB802-2901-04.2-008	0.154
			TB802-2902-04.0-018	0.151
			TB802A-2903-03.8-096	0.183
			TB808-2850-04.5-016	0.164 E
			TB808-2851-01.5-020	0.152 E
			TB808-2852-01.5-016	0.147 E
Vanadium	mg/Kg	35.2	TB802A-2903-03.8-096	37.3
PAHs				
Anthracene	µg/Kg	8	TB802A-2903-03.8-096	113
Benzo(a)anthracene	µg/Kg	284	TB802A-2903-03.8-096	491
Benzo(b)fluoranthene	µg/Kg	396	TB802A-2903-03.8-096	641
Benzo(g,h,i)perylene	µg/Kg	16	SS-EU071-3337	36.8
			SS-EU072-3338	17.4
Chrysene	µg/Kg	378	TB802A-2903-03.8-096	486
Dibenzo(a,h)anthracene	µg/Kg	2.7	SS-TWP835-3515	2.77 h
Fluoranthene	µg/Kg	889	TB802A-2903-03.8-096	1540
Fluorene	µg/Kg	2.9	TB802A-2903-03.8-096	26.1 J
Indeno(1,2,3-cd)pyrene	µg/Kg	8.8	TB802A-2903-03.8-096	110
Naphthalene	µg/Kg	--	SS-EU071-3337	17.3 J
			SS-TWP835-3515	2.99 Jh
Phenanthrene	µg/Kg	538	TB802A-2903-03.8-096	727
Pyrene	µg/Kg	716	TB802A-2903-03.8-096	1150
PCBs				
Aroclor-1254	µg/Kg	--	TB802-2902-04.0-018	6.2
			TB802A-2903-03.8-096	7.3 J
			TB808-2852-01.5-016	6.9 P
Aroclor-1260	µg/Kg	--	SS-EU071-3337	2.2 J
			TB802-2902-04.0-018	12
			TB802A-2903-03.8-096	9.3 JP
Pesticides				
4,4'-DDD	µg/Kg	--	TB802-2902-04.0-018	0.67 JP

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	$\mu\text{g/Kg}$	--	SB-EU071-3316-2.0	1.55 J
			SS-EU072-3338	0.387 J
			SS-TWP835-3515	1.33 J
			SS-TWP837-3521	0.655 J
			SS-TWP838-3524	0.681 J
			SS-TWP840-3530	0.438 J
4,4'-DDT	$\mu\text{g/Kg}$	--	SB-EU071-3316-2.0	1.86
			SS-TWP835-3515	1.82
			SS-TWP836-3518	1.18 J
			SS-TWP837-3521	1.24 J
			SS-TWP838-3524	0.506 J
Dieldrin	$\mu\text{g/Kg}$	--	TB802-2902-04.0-018	0.26 J
Endosulfan sulfate	$\mu\text{g/Kg}$	--	TB802-2902-04.0-018	0.46 JP
Endrin aldehyde	$\mu\text{g/Kg}$	--	TB802-2902-04.0-018	0.77 JP
Endrin ketone	$\mu\text{g/Kg}$	--	TB802-2902-04.0-018	0.53 J
Methoxychlor	$\mu\text{g/Kg}$	--	TB802-2902-04.0-018	1.9 JP
Radionuclides				
Actinium-227	pCi/g	0.08	SB8D003-2236-1.0	0.565
			SB8D006-2232-0.8	5.83
			SB8D006-2237-1.5	0.86
			SB8D016-2231-2.0	3.33 J
			SB8E003-2235-1.5	3.4
			SD748-2153	3.6
			SD750-2155	4.29
			SS821-709	0.341
			SS8D003-2190	3.3
			SS8D004-2191	3.5 J
			SS8D006-2193	0.782
			SS8D007-2195	1.32
			SS8D009-2197	24
			TB802-2902-04.0-018	0.487
			TB802A-2903-03.8-096	1.61
Alpha	pCi/g	15.1	SD711-317	66.4
			SD743-675	26.5
			SD745-677	48.4
			SS806-075	21.1
			SS807-076	19.8
Beta	pCi/g	28.9	SD711-317	38.3
			SD743-675	30.4
			SD744-676	29.1
			SD745-677	44.1

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SB8D003-2233-0.75	1.16
			SB8D003-2236-1.0	0.417
			SB8D016-2231-2.0	5.15 J
			SD748-2153	0.428
			SS8D003-2190	1.07
Radium-226	pCi/g	1.2	SB8D003-2233-0.75	44.5
			SB8D003-2236-1.0	7.17
			SB8D004-2222-1.8	3.79
			SB8D006-2232-0.8	143
			SB8D006-2237-1.5	14.2
			SB8D006-2238-2.0	7.94
			SB8D007-2223-1.8	5.68
			SB8D009-2224-2.0	10
			SB8D016-2231-2.0	19.1 J
			SB8E003-2235-1.5	74.8
			SD711-317	16
			SD744-676	2.4
			SD745-677	1.52
			SD748-2153	58.6
			SD748-2239	10.5
			SD750-2155	75.7
			SD750-2216	3.42
			SS806-075	1.27
			SS807-076	1.7
			SS820-708	2.19
			SS8C001-2184	1.86
			SS8D003-2190	45.5
			SS8D004-2191	42.2 J
			SS8D006-2193	13.4
			SS8D007-2195	14.9
			SS8D009-2197	446
			SS8E001-2198	1.27
			SS-EU072-3338	1.46
			TB802-2901-04.2-008	2.68 J
			TB802-2902-04.0-018	7.83
			TB802A-2903-03.8-096	34.5
			TB808-2851-01.5-020	1.41
			TB808-2852-01.5-016	1.3
Thorium-228	pCi/g	1.64	SB-EU071-3316-2.0	1.69

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB8D003-2233-0.75	8.06
			SB8D003-2236-1.0	3.56
			SB8D006-2232-0.8	98.3
			SB8D006-2237-1.5	24.3
			SB8D006-2238-2.0	8.96
			SB8D007-2223-1.8	3.7
			SB8D009-2224-2.0	25.3
			SB8D016-2231-2.0	21.9 J
			SB8D016-3.5-3634	1.76
			SB8E003-2235-1.5	38.5
			SB-EU072-3317-1.5	1.99
			SD711-317	11.4
			SD743-675	2.12
			SD745-677	8.96
			SD748-2153	71.4
			SD748-2239	17.8
			SD750-2155	109
			SD750-2216	7.04
			SS806-075	1.92
			SS807-076	1.57
			SS820-708	3.13
			SS8C001-2184	1.98
			SS8D003-2190	8.94
			SS8D004-2191	58.8 J
			SS8D006-2193	14.1
			SS8D007-2195	9.04
			SS8D008-2196	1.49
			SS8D009-2197	536
			SS8E001-2198	1.66
			SS-EU071-3337	1.74
			SS-EU072-3338	2.52
			SS-TWP835-3515	1.69
			SS-TWP836-3518	2.01
			SS-TWP837-3521	1.62
			SS-TWP838-3524	1.4
			TB802-2901-04.2-008	2.64 J
			TB802-2902-04.0-018	15.2
			TB802A-2903-03.8-096	39.2
			TB808-2851-01.5-020	2.52
			TB808-2852-01.5-016	1.99
Thorium-232	pCi/g	1.24	SB-EU071-3316-2.0	1.26
			SS8D009-2197	1.7
			SS-TWP835-3515	1.3

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB8D003-2233-0.75	4.39
			SB8D003-2236-1.0	3.74
			SB8D006-2232-0.8	4.78
			SB8D016-2231-2.0	12.6
			SD748-2153	5.11
			SD750-2155	8.04
			SS806-075	3.71
			SS820-708	3.94
			SS821-709	3.7
			SS8D002-2189	5.61
			SS8D003-2190	5.71
			SS8D004-2191	5.42
			SS8D007-2195	10.9
			SS8D009-2197	19
			TB802-2902-04.0-018	7.29
			TB802A-2903-03.8-096	17.8
Uranium-234	pCi/g	1.66	SB8D003-2233-0.75	1.75
			SB8D006-2232-0.8	1.67
			SB8D016-2231-2.0	4.2 J
			SD748-2153	2.73
			SD748-2239	1.7
			SD750-2155	4.01
			SS806-075	1.77
			SS820-708	1.95
			SS8D003-2190	1.75
			SS8D004-2191	2.31 J
			SS8D007-2195	2.34
			SS8D009-2197	9.68
			TB802-2902-04.0-018	2.08
			TB802A-2903-03.8-096	5.51
Uranium-235	pCi/g	0.0847	SB8D006-2232-0.8	0.0851
			SB8D006-2238-2.0	0.0866
			SB8D016-2231-2.0	0.247 J
			SD749-2154	0.17
			SD750-2155	0.152
			SD750-2216	0.161
			SS8C002-2185	0.106
			SS8D003-2190	0.15
			SS8D007-2195	0.142
			SS8D009-2197	0.394
			TB802A-2903-03.8-096	0.322

* Data qualifier included with concentration value

Table 4-56
Exposure Unit 7
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB8D003-2233-0.75	1.46
			SB8D016-2231-2.0	4.14 J
			SD743-675	1.49
			SD748-2153	1.9
			SD748-2239	1.36
			SD750-2155	2.58
			SS820-708	1.65
			SS821-709	1.38
			SS8D003-2190	1.63
			SS8D004-2191	1.85 J
			SS8D007-2195	2.11
			SS8D009-2197	7.1
			SS-EU071-3337	1.66
			TB802-2901-04.2-008	1.46 J
			TB802-2902-04.0-018	2.39
			TB802A-2903-03.8-096	5.61
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS-TWP835-3515	0.714 J
			SS-TWP837-3521	0.9 J
			SS-TWP840-3530	1.02
2-Butanone	μg/Kg	--	SS-TWP838-3524	71.9
			SS-TWP840-3530	9.19
			TB802A-2903-03.8-096	22
Acetone	μg/Kg	--	SS806-075	69.4
			SS-TWP838-3524	8.22
			SS-TWP840-3530	16.2
			TB802A-2903-03.8-096	183
			TB808-2850-04.5-016	3.8 J
			TB808-2852-01.5-016	4 J
Benzene	μg/Kg	--	SS806-075	2
			SS807-076	2.6
Carbon disulfide	μg/Kg	--	SS806-075	1.6 J
Ethylbenzene	μg/Kg	--	TB802A-2903-03.8-096	12.2
Methylene chloride	μg/Kg	--	TB808-2851-01.5-020	1.5 J
Toluene	μg/Kg	--	SS806-075	3.2
			SS807-076	3.4
			TB802A-2903-03.8-096	1.8 J
			TB808-2850-04.5-016	0.5 J

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-EU081-3318-1.5	20000 E*
			SD725-353	20600
			TB302-2813-01.0-042	21800
Antimony	mg/Kg	0.94	C5-SO-SO-D800-1	1.1 J
Beryllium	mg/Kg	1	SD725-353	1.1 B
			SS308-032	1.6
Boron	mg/Kg	10.1	SB-EU081-3318-1.5	36.2 E*N
			SB-EU082-3319-1.5	15.1 N
			SD725-353	16
			SS311-035	10.8
			SS-EU081-3339	16.5 E*N
			SS-MW313-3590	14.4 N
Cadmium	mg/Kg	0.53	TB302-2813-01.0-042	12.2
			SB304-106-9	0.73
			SB307-112-10	0.6
			SB310-115-8.5	0.65
			SD723-349	1.2
			SS304-028	0.87
			SS306-030	0.68
			SS308-032	0.56 B
			SS311-035	0.65 B
Calcium	mg/Kg	58900	TB301-2811-01.0-029	1.04
			SS308-032	99000
			SS311-035	90600
Chromium	mg/Kg	25.8	SS-MW313-3590	70600 *
			SB-EU081-3318-1.5	27.3 *N
			SD723-349	26.6 E
			SD725-353	42.4
			TB301-2811-01.0-029	38.2
			TB302-2813-01.0-042	26.2
Copper	mg/Kg	49.3	SB303-105-8	134
			SD725-353	59.2
			SS308-032	52.3
			SS-MW313-3590	129 *
			TB301-2810-01.5-003	69.5
			TB301-2811-01.0-029	65.8
Lead	mg/Kg	37.6	C5-SO-SO-D800-1	76.9 *
			SS303-027	39.9
			SS308-032	99.8 N
			SS311-035	72 *
			TB301-2810-01.5-003	42.8
			TB301-2811-01.0-029	205

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lithium	mg/Kg	36.8	C5-SO-SO-D200-8	37.3
			SD725-353	40.5
Magnesium	mg/Kg	14800	SS308-032	49300
			SS311-035	54400
			SS-MW313-3590	38200 *
			TB301-2811-01.0-029	25300
Nickel	mg/Kg	38	SD725-353	42.5
			TB301-2811-01.0-029	107
Potassium	mg/Kg	2860	C5-SO-SO-D200-8	3240 J
			SB-EU082-3319-1.5	3130 E
			SD725-353	3190
			SS309-033	3060 E
			TB302-2813-01.0-042	2920 E
Selenium	mg/Kg	0.37	SB303-105-8	0.88 B
			SB307-112-10	0.8 B
			SB310-115-8.5	1.1
			SB-EU081-3318-1.5	0.629 B
			SB-EU082-3319-1.5	0.387 B
			SD723-349	1.3 B
			SD724-351	1.4 B
			SD725-353	1.8 B
			SS302-026	1.1
			SS303-027	0.85 B
			SS304-028	1 BN
			SS306-030	0.52 B
			SS308-032	1.1 N
			SS309-033	0.81 BN
			SS310-034	0.99
			SS311-035	1.6
			SS-EU081-3339	0.378 B
			SS-MW313-3590	0.545 B
			SS-MW314-3593	0.702 B
			TB301-2809-03.5-034	0.675 BN
Sodium	mg/Kg	331	TB301-2811-01.0-029	0.898 BN
			TB302-2812-08.0-004	0.484 BN
			TB302-2813-01.0-042	0.839 BN
			TB302-2814-06.0-074	0.584 BN
			C5-SO-SO-D200-8	381
			SS308-032	356 E

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	C5-SO-SO-D200-8	0.14 J
			SB303-105-8	0.16
			SB307-112-10	0.13
			SB310-115-8.5	0.12 B
			SB-EU081-3318-1.5	0.183 E
			SB-EU082-3319-1.5	0.158
			SD725-353	0.27
			SS302-026	0.07 B
			SS303-027	0.13
			SS304-028	0.11 B
			SS306-030	0.13 B
			SS307-031	0.09 B
			SS308-032	0.16
			SS309-033	0.08 B
			SS310-034	0.099 B
			SS311-035	0.15
			SS-EU081-3339	0.129 E
			SS-MW313-3590	0.188 E
			SS-MW314-3593	0.191 E
			TB301-2809-03.5-034	0.214 E
			TB301-2810-01.5-003	0.075 BE
			TB301-2811-01.0-029	0.232 E
			TB302-2812-08.0-004	0.116 E
			TB302-2813-01.0-042	0.19 E
			TB302-2814-06.0-074	0.116 BE
Vanadium	mg/Kg	35.2	SB-EU081-3318-1.5	39.7 E*N
			SD725-353	43.3
			TB302-2813-01.0-042	39.2 N
Nitroaromatics				
2-Nitrotoluene	µg/Kg	--	SS308-032	109
PAHs				
Acenaphthene	µg/Kg	79	C5-SO-SO-D800-1	25000 E
			SS308-032	5290
			SS3C007-590	3750 J
			SS3C008-591	13300 J
Anthracene	µg/Kg	8	C5-SO-SO-D800-1	3100 E
			SB-EU081-3318-1.5	26.3
			SS308-032	9140
			SS309-033	1590 J
			SS3C003-586	216 J
			SS3C007-590	7280
			SS3C008-591	24700

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	C5-SO-SO-D800-1	5500 E
			SS308-032	28900 D
			SS309-033	3190
			SS3C002-585	353 J
			SS3C006-589	4750 J
			SS3C007-590	33300 D
			SS3C008-591	73300
			SS3C011-594	16800 J
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	C5-SO-SO-D800-1	4700 E
			SS308-032	33600 D
			SS309-033	3080
			SS311-035	540 J
			SS3C002-585	408 J
			SS3C006-589	4100 J
			SS3C007-590	34000 D
			SS3C008-591	82500
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	C5-SO-SO-D800-1	5800 E
			SS308-032	31500 D
			SS309-033	3430
			SS3C002-585	469
			SS3C006-589	5960 J
			SS3C007-590	37700 D
			SS3C008-591	42800 D
			SS3C011-594	20200 J
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	16	C5-SO-SO-D800-1	3100 E
			SB-EU081-3318-1.5	80.7 P
			SS308-032	22500 D
			SS309-033	1860
			SS3C002-585	253 J
			SS3C007-590	22400 D
			SS3C008-591	54100
			SS3C011-594	12600 J
			SS-EU081-3339	45.7
			SS-MW313-3590	55.6
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	TB301-2811-01.0-029	45.9
			C5-SO-SO-D800-1	2400 E
			SS308-032	25900 D
			SS309-033	2280
			SS3C002-585	351 J
			SS3C007-590	31000 D
	$\mu\text{g/Kg}$	322	SS3C008-591	62900

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chrysene	$\mu\text{g/Kg}$	378	C5-SO-SO-D800-1	3800 E
			SS308-032	29400 D
			SS309-033	3100
			SS3C002-585	379 J
			SS3C006-589	4620 J
			SS3C007-590	35700 D
			SS3C008-591	76000
			SS3C011-594	16300 J
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	2.7	C5-SO-SO-D800-1	390 J
			SS308-032	4780
			SS309-033	830 J
			SS3C007-590	9640 JD
			SS3C008-591	22500
			SS-MW313-3590	21
Fluoranthene	$\mu\text{g/Kg}$	889	C5-SO-SO-D800-1	16000 E
			SS308-032	81500 D
			SS309-033	9650
			SS3C002-585	919
			SS3C006-589	11400
			SS3C007-590	80000 D
			SS3C008-591	92400 D
			SS3C011-594	39200
Fluorene	$\mu\text{g/Kg}$	2.9	C5-SO-SO-D800-1	1100 E
			SB-EU081-3318-1.5	11.8 J
			SS308-032	4020
			SS309-033	711 J
			SS3C001-584	950 J
			SS3C006-589	4830 J
			SS3C007-590	2630 J
			SS3C008-591	8830 J
			SS3C011-594	15200 J
			SS3C012-596	244 J
			SS3C013-597	226 J
			TB301-2810-01.5-003	7.7 J
			TB301-2811-01.0-029	5.6 J

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	C5-SO-SO-D800-1	1900 E
			SS308-032	13800
			SS309-033	1740
			SS3B001-573	2280 J
			SS3C001-584	992 J
			SS3C002-585	220 J
			SS3C006-589	5990 J
			SS3C007-590	19400 D
			SS3C008-591	43600
			SS3C011-594	21200 J
			SS3C012-596	328 J
			SS3C013-597	205 J
			SS-EU081-3339	48.1
			TB301-2811-01.0-029	106
Naphthalene	μg/Kg	--	C5-SO-SO-D800-1	2000
			SB-EU081-3318-1.5	30.6
			SS311-035	181 J
			SS312-036	56.8 J
			SS3A006-561	235 J
			SS-EU081-3339	9.37 J
			SS-MW313-3590	12.6 JP
			TB301-2810-01.5-003	35.2 J
			TB301-2811-01.0-029	22.8 J
Phenanthrene	μg/Kg	538	C5-SO-SO-D800-1	13000 E
			SS308-032	61800 D
			SS309-033	8550
			SS3C002-585	733
			SS3C006-589	8230
			SS3C007-590	57800 D
			SS3C008-591	71600 D
			SS3C011-594	26500
Pyrene	μg/Kg	716	C5-SO-SO-D800-1	12000 E
			SS308-032	53600 E
			SS3C002-585	940
			SS3C006-589	9810
			SS3C007-590	88000 D
			SS3C008-591	99700 D
			SS3C011-594	33600
PCBs				
Aroclor-1254	μg/Kg	--	SB-EU082-3319-1.5	2.7 J

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	C5-SO-SO-D800-1	130 J
			SB-EU081-3318-1.5	9
			SS303-027	17.2
			SS309-033	5.5
			SS311-035	20.8
			SS-MW314-3593	4.6 h
			TB302-2813-01.0-042	1.6 J
Pesticides				
4,4'-DDD	μg/Kg	--	TB302-2812-08.0-004	0.37 JP
4,4'-DDE	μg/Kg	--	SB-EU081-3318-1.5	0.682 J
			SB-EU082-3319-1.5	0.641 J
			SD723-349	1.8 J
			SS311-035	13.3
			SS-EU081-3339	0.538 J
			SS-MW314-3593	3.08
			TB302-2812-08.0-004	0.24 JP
			TB302-2813-01.0-042	1.6 J
4,4'-DDT	μg/Kg	--	SB-EU081-3318-1.5	0.888 J
			SB-EU082-3319-1.5	2.26
			SS311-035	18.9
			SS-EU081-3339	1.29 J
			SS-MW314-3593	1.88
Dieldrin	μg/Kg	--	SB-EU082-3319-1.5	0.296 J
Heptachlor	μg/Kg	--	C5-SO-SO-D200-8	1.1 J
Heptachlor epoxide	μg/Kg	--	C5-SO-SO-D800-1	110 J
Radionuclides				
Actinium-227	pCi/g	0.08	SB314-415-1.5	1.41
			SB3A017-2249-1.0	0.862
			SB3B015-2471-1.25	0.652
			SB3C014-2472-1.0	1.56
			SB3C015-2475-1.5	0.752
			SS314-404	2.28
			SS3A016-572	0.487
			SS3A021-2392	1.43
			SS3A023-2394	1.29
			SS3A024-2395	0.98
			SS3B011-2398	0.758
			SS3C014-2411	1.44
			SS3C015-2412	1.89
			SS3D001-2414	1.24
			SS3D004-2418	2.98
			SS3D006-2420	3.07
			SS-MW313-3590	0.507
			TB301-2811-01.0-029	1.7

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SB304-106-9	17.7
			SB314-415-1.5	103
			SD723-349	18.1
			SD724-351	20.2
			SD725-353	21.9
			SS301-025	20.6
			SS302-026	15.4
			SS303-027	15.3
			SS304-028	20.9
			SS305-029	16.8
			SS306-030	20.8
			SS308-032	84.8
			SS309-033	32.9
			SS310-034	15.2
			SS311-035	56.3
			SS312-036	55.8
Beta	pCi/g	28.9	SS314-404	172
			SS-MW313-3590	35.3
			SB301-103-10	29
			SB304-106-9	32.2
			SB314-415-1.5	54.4
			SD725-353	31.1
			SS301-025	33.9
			SS308-032	47.6
			SS309-033	34.2
			SS311-035	37.6
			SS312-036	43.5
			SS314-404	94.2
			SS-MW313-3590	36.1

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SB310-115-8.5	0.633 J
			SB314-415-1.5	0.421
			SB3A017-2249-1.0	0.49
			SB3C015-2475-1.5	0.371
			SB3D001-2476-1.0	0.866
			SS306-030	0.619 J
			SS314-404	1.22
			SS3A001-555	0.602
			SS3A002-556	0.611
			SS3A003-557	0.52
			SS3A004-559	0.399
			SS3A005-560	0.474
			SS3A006-561	0.773
			SS3A007-562	0.852
			SS3A013-569	0.579
			SS3A016-572	0.565
			SS3A017-2162	0.719
			SS3A020-2389	0.612
			SS3A021-2392	0.842
			SS3A023-2394	0.806
			SS3B002-575	0.458
			SS3B003-576	0.894
			SS3B004-577	0.557
			SS3B005-578	0.352
			SS3B007-580	0.414
			SS3B010-583	0.515
			SS3B011-2398	1.08
			SS3C001-584	0.466
			SS3C002-585	0.586
			SS3C003-586	0.4
			SS3C004-587	0.448
			SS3C005-588	0.47
			SS3C006-589	0.484
			SS3C007-590	0.903
			SS3C008-591	0.574
			SS3C014-2411	0.468
			SS3C015-2412	0.548
			SS3C016-2413	0.393
			SS3D001-2414	2.23
			SS3D002-2415	3
			SS3D009-2423	0.366
			SS-MW313-3590	0.443
			SS-MW314-3593	0.363
			TB301-2811-01.0-029	4.88

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Plutonium-239/240	pCi/g	--	SB3D001-5.0-3632	0.322

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB314-415-1.5	28.1
			SB3A017-2249-1.0	16.7
			SB3B015-2471-1.25	6.43
			SB3C014-2472-1.0	10.6
			SB3C015-2475-1.5	9.95
			SB3D001-2476-1.0	5.63
			SB-EU082-3319-1.5	1.51
			SD723-349	1.55
			SEDC06-08-2146	5.95
			SS303-027	3.84
			SS304-028	1.61
			SS305-029	1.27
			SS308-032	3.56
			SS309-033	2.58
			SS310-034	1.56
			SS311-035	6.58
			SS312-036	7.49
			SS314-404	55.4
			SS3A001-555	2.57
			SS3A002-556	4.06
			SS3A003-557	3.2
			SS3A004-559	2.67
			SS3A005-560	3.87
			SS3A006-561	6.31
			SS3A007-562	5.5
			SS3A008-563	2.26
			SS3A009-565	2.86
			SS3A010-566	2.35
			SS3A011-567	1.77
			SS3A012-568	1.97
			SS3A013-569	5.51
			SS3A016-572	4.21
			SS3A017-2162	15.1
			SS3A020-2389	8.54
			SS3A021-2392	21
			SS3A022-2393	1.48
			SS3A023-2394	17.6
			SS3A024-2395	10.7
			SS3A025-2397	2.6
			SS3B002-575	2.05
			SS3B003-576	7.91
			SS3B004-577	4.16
			SS3B005-578	2.94
			SS3B007-580	2.96

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS3B010-583	2.84
			SS3B011-2398	12.5
			SS3B012-2401	1.79
			SS3B013-2402	5.7
			SS3B014-2404	1.7
			SS3B015-2405	12.4
			SS3B016-2406	2.32
			SS3B017-2407	2.61
			SS3B018-2409	1.4
			SS3B019-2410	1.24
			SS3C001-584	1.95
			SS3C002-585	2.31
			SS3C003-586	1.51
			SS3C004-587	1.86
			SS3C005-588	1.98
			SS3C006-589	2.65
			SS3C007-590	2.5
			SS3C008-591	1.8
			SS3C011-594	1.36
			SS3C012-596	2.19
			SS3C013-597	1.58
			SS3C014-2411	13.4
			SS3C015-2412	19.6
			SS3C016-2413	1.94
			SS3D001-2414	19.3
			SS3D002-2415	2.03
			SS3D004-2418	50.2
			SS3D006-2420	82.1
			SS3D007-2421	7.3
			SS3D008-2422	1.43 J
			SS3D009-2423	1.77
			SS-MW313-3590	4.51
			SS-MW314-3593	1.42
			TB301-2811-01.0-029	17.4
			TB302-2813-01.0-042	1.35
			TB303-2816-01.0-016	1.24
Thorium-228	pCi/g	1.64	SB3D002-5.0-3633	1.81
			SB-MH41-8.0-3656	1.68
			SS3A002-556	1.86
			SS-MW313-3590	1.66

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB314-415-1.5	8.12
			SB3A017-2249-1.0	6.18
			SB3A017-5.0-3635	1.56
			SB3B011-2399-2.0	1.8
			SB3B015-2471-1.25	5.02
			SB3B015-5.0-3637	1.88
			SB3C014-2472-1.0	9.46
			SB3C015-2475-1.5	22.3
			SB3D001-2476-1.0	4.99
			SB-EU081-3318-1.5	1.65
			SB-EU082-3319-1.5	1.62
			SB-MH41-8.0-3656	1.47
			SB-MH43-9.0-3655	1.46
			SB-MH45-9.0-3654	1.5
			SD723-349	2.1 J
			SEDC06-08-2146	4.86
			SS303-027	3.48 J
			SS304-028	1.8 J
			SS306-030	1.87 J
			SS308-032	14.2
			SS309-033	5.64
			SS310-034	1.92 J
			SS311-035	15.6
			SS312-036	10.3
			SS314-404	15.8
			SS3A001-555	2.45
			SS3A002-556	7.36
			SS3A003-557	4.18
			SS3A004-559	5.17
			SS3A005-560	7.79
			SS3A006-561	9.35
			SS3A007-562	8.82
			SS3A008-563	2.33
			SS3A009-565	3.21
			SS3A010-566	3.69
			SS3A011-567	2.61
			SS3A012-568	2.25
			SS3A013-569	7.3
			SS3A016-572	5.79
			SS3A017-2162	7.59
			SS3A021-2392	21.8
			SS3A022-2393	1.53
			SS3A023-2394	11.5
			SS3A024-2395	8.85

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS3A025-2397	3.87
			SS3B001-573	2.15
			SS3B002-575	3.32
			SS3B003-576	8.65
			SS3B004-577	6.88
			SS3B005-578	3.24
			SS3B007-580	3.09
			SS3B008-581	1.43
			SS3B010-583	5.68
			SS3B011-2398	16.9
			SS3B012-2401	2.75
			SS3B013-2402	12.5
			SS3B014-2404	2.71
			SS3B015-2405	9.85
			SS3B016-2406	3.47
			SS3B017-2407	3.09
			SS3B018-2409	1.94
			SS3B019-2410	2.42
			SS3C001-584	3.61
			SS3C002-585	4.23
			SS3C003-586	2.94
			SS3C004-587	2.72
			SS3C005-588	5.23
			SS3C006-589	10.7
			SS3C007-590	10.8
			SS3C008-591	1.83
			SS3C009-592	1.71
			SS3C011-594	1.86
			SS3C012-596	2.44
			SS3C013-597	2.9
			SS3C014-2411	10.1
			SS3C015-2412	87.9
			SS3C016-2413	3.12
			SS3D001-2414	11.2
			SS3D002-2415	2.24
			SS3D004-2418	7.87
			SS3D006-2420	32.9
			SS3D007-2421	7.54
			SS3D008-2422	2.05 J
			SS3D009-2423	2.25
			SS-EU081-3339	1.41
			SS-MW313-3590	3.07
			SS-MW314-3593	2.89
			TB301-2810-01.5-003	1.8

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	TB301-2811-01.0-029	25.8
			TB302-2813-01.0-042	1.47
			TB303-2816-01.0-016	1.79
			TB305-2922-04.0-014	1.4
			TB305-2924-05.0-080	1.84
Thorium-232	pCi/g	1.24	SS3B010-583	1.25
			SS-MW314-3593	1.48

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB3B015-2471-1.25	24.4
			SB3C014-2472-1.0	15.3
			SB3C014-2473-2.0	7.19
			SB3C015-2475-1.5	54.8
			SB-EU081-3318-1.5	5.32
			SB-EU082-3319-1.5	4.18
			SD725-353	5.06
			SS303-027	4.81 J
			SS306-030	4.2 J
			SS308-032	10.4
			SS311-035	5.33
			SS314-404	5.77
			SS3A002-556	3.94
			SS3A003-557	4.24
			SS3A004-559	12.1
			SS3A005-560	9.12
			SS3A006-561	3.92
			SS3A007-562	4.26
			SS3A012-568	4.26
			SS3A013-569	3.95
			SS3A015-571	4.6
			SS3A016-572	5.36
			SS3A021-2392	4.8
			SS3A023-2394	3.73
			SS3A024-2395	4.63
			SS3B001-573	4.77
			SS3B003-576	6.25
			SS3B004-577	5.39
			SS3B005-578	5.44
			SS3B007-580	7.17
			SS3B008-581	3.89
			SS3B010-583	5.62
			SS3B011-2398	5.51
			SS3B014-2404	4.4
			SS3B015-2405	16.9
			SS3B016-2406	4.07
			SS3C002-585	4.19
			SS3C005-588	12.4
			SS3C006-589	5.71
			SS3C007-590	9.41
			SS3C010-593	20.9
			SS3C011-594	6.46
			SS3C012-596	3.81
			SS3C014-2411	15.4

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SS3C015-2412	330
			SS3C016-2413	3.6
			SS3D001-2414	6.02
			SS3D002-2415	3.61
			SS3D004-2418	4.31
			SS3D005-2419	6.72
			SS3D006-2420	1270
			SS3D007-2421	5630
			SS3D008-2422	15
			SS3D009-2423	20.2
			TB301-2811-01.0-029	11.8
			TB302-2813-01.0-042	3.78
			TB304-2818-01.3-000	31.3
			TB305-2922-04.0-014	5.73
			TB305-2924-05.0-080	4.44

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB3B015-2471-1.25	6.53
			SB3C014-2472-1.0	7.72
			SB3C014-2473-2.0	2.35
			SB3C015-2475-1.5	17.5
			SB-EU081-3318-1.5	2.11
			SEDC06-08-2146	2.04
			SS303-027	2.72
			SS308-032	3.66
			SS311-035	1.9
			SS312-036	2.25
			SS314-404	2.98
			SS3A002-556	2.34
			SS3A004-559	2.93
			SS3A005-560	9.03
			SS3A006-561	1.78
			SS3A007-562	1.68
			SS3A013-569	2.36
			SS3A016-572	2.01
			SS3B001-573	2.39
			SS3B003-576	2.23
			SS3B004-577	2.59
			SS3B005-578	2.15
			SS3B007-580	2.9
			SS3B010-583	3.42
			SS3B011-2398	2.16
			SS3B013-2402	2.35
			SS3B014-2404	3.67
			SS3B015-2405	7.19
			SS3C002-585	2.09
			SS3C005-588	1.83
			SS3C006-589	2.25
			SS3C007-590	3.89
			SS3C012-596	1.67
			SS3C014-2411	8.5
			SS3C015-2412	64.6
			SS3C016-2413	1.98
			SS3D001-2414	2.4
			SS3D002-2415	2.14
			SS3D005-2419	3.45
			SS3D006-2420	371
			SS3D007-2421	1420
			SS3D008-2422	5.02 J
			SS3D009-2423	7.83
			SS-MW313-3590	2.59

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SS-MW314-3593	2.02
			TB301-2811-01.0-029	3.36
			TB304-2818-01.3-000	9.95
			TB305-2924-05.0-080	1.71
Uranium-235	pCi/g	0.0847	SB303-105-8	0.0894 J
			SB3B015-2471-1.25	0.239
			SB3C014-2472-1.0	0.461
			SB3C014-2473-2.0	0.244
			SB3C015-2475-1.5	0.879
			SB3D001-2476-1.0	0.153
			SB3D002-5.0-3633	0.12
			SS303-027	0.214 J
			SS306-030	0.124 J
			SS308-032	0.102 J
			SS311-035	0.0862 J
			SS3A005-560	0.329
			SS3A006-561	0.186
			SS3A007-562	0.206
			SS3A021-2392	0.209
			SS3A022-2393	0.168
			SS3B012-2401	0.152
			SS3B015-2405	0.403
			SS3B019-2410	0.26
			SS3C013-597	0.363
			SS3C014-2411	0.433
			SS3C015-2412	2.94
			SS3D001-2414	0.233
			SS3D002-2415	0.283
			SS3D004-2418	0.25
			SS3D005-2419	0.237
			SS3D006-2420	21.1
			SS3D007-2421	96.2
			SS3D008-2422	0.697 J
			SS3D009-2423	0.44
			SS-MW314-3593	0.39
			TB301-2811-01.0-029	0.277
			TB304-2818-01.3-000	0.83
			TB305-2922-04.0-014	0.316
			TB305-2924-05.0-080	0.249

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB314-415-1.5	1.39
			SB3A017-2249-1.0	1.52
			SB3B011-2399-2.0	1.4
			SB3B015-2471-1.25	5.66
			SB3C014-2472-1.0	7.64
			SB3C014-2473-2.0	2.22
			SB3C015-2475-1.5	16.5
			SB-EU081-3318-1.5	2.01
			SD725-353	1.49
			SEDC06-08-2146	3.52
			SS303-027	2.42
			SS306-030	1.48
			SS308-032	3.42
			SS311-035	1.75
			SS312-036	2.09
			SS314-404	2.37
			SS3A002-556	1.62
			SS3A004-559	4
			SS3A005-560	9.23
			SS3A006-561	1.85
			SS3A007-562	1.52
			SS3A013-569	1.42
			SS3A015-571	1.41
			SS3A020-2389	1.89
			SS3A021-2392	1.47
			SS3A022-2393	1.37
			SS3A024-2395	1.92
			SS3B001-573	2.46
			SS3B003-576	2.49
			SS3B004-577	2.17
			SS3B005-578	1.78
			SS3B007-580	2.49
			SS3B008-581	1.51
			SS3B010-583	2.46
			SS3B011-2398	1.81
			SS3B012-2401	1.65
			SS3B013-2402	2.33
			SS3B014-2404	3.34
			SS3B015-2405	7.86
			SS3B016-2406	1.98
			SS3C001-584	1.36
			SS3C002-585	1.56
			SS3C005-588	1.96
			SS3C006-589	2.44

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SS3C007-590	4.03
			SS3C008-591	1.94
			SS3C011-594	1.5
			SS3C014-2411	7.69
			SS3C015-2412	65.9
			SS3C016-2413	1.71
			SS3D001-2414	2.37
			SS3D005-2419	3.77
			SS3D006-2420	373
			SS3D007-2421	1420
			SS3D008-2422	4.7 J
			SS3D009-2423	7.52
			SS-EU081-3339	1.73
			SS-MW313-3590	2.3
			SS-MW314-3593	1.52
			TB301-2811-01.0-029	2.91
			TB304-2818-01.3-000	10.3
			TB305-2924-05.0-080	1.9
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS311-035	269 J
			SS312-036	73.4 J
			SS3A006-561	354 J
			TB301-2810-01.5-003	35.3 J
			TB301-2811-01.0-029	28.2 J
Carbazole	μg/Kg	--	C5-SO-SO-D800-1	2700
			SS308-032	6580
			SS309-033	1140 J
			SS3C007-590	9940 JD
			SS3C008-591	20000
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS-MW314-3593	1.4
			TB301-2809-03.5-034	11
			TB301-2811-01.0-029	32.2
			TB302-2812-08.0-004	14.3
			TB302-2814-06.0-074	0.56
			TB303-2817-05.0-033	0.48 J
2-Butanone	μg/Kg	--	TB301-2809-03.5-034	8.1
			TB301-2811-01.0-029	3.3 J
Acetone	μg/Kg	--	SB310-115-8.5	3.7 J
			SS-MW314-3593	13.7
			TB301-2809-03.5-034	80 B
			TB303-2815-05.0-009	4.8
			TB303-2816-01.0-016	4.9
			TB303-2817-05.0-033	14.9

* Data qualifier included with concentration value

Table 4-57
Exposure Unit 8
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Methylene chloride	$\mu\text{g/Kg}$	--	C5-SO-SO-D800-1	150 J
			TB303-2815-05.0-009	1.2 J
			TB303-2816-01.0-016	1.1 J
			TB303-2817-05.0-033	1.2 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	SB303-105-8	1.1 J
			SS303-027	0.84 J
Toluene	$\mu\text{g/Kg}$	--	SB310-115-8.5	8.5
			SD723-349	0.21 J
			SS310-034	5.7
			SS311-035	0.33 J
			TB301-2809-03.5-034	0.33 J
			TB301-2810-01.5-003	0.41 J
			TB301-2811-01.0-029	0.41 J
			TB302-2812-08.0-004	0.2 J
			TB302-2814-06.0-074	0.19 J
			TB303-2815-05.0-009	0.37 J
			TB303-2816-01.0-016	0.32 J
			TB303-2817-05.0-033	0.34 J

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-EU101-3400-1.0	21600
			SB-EU102-3323-2.0	22200
			SD701-293	20600
			SS-TWP844-3542	20600
			SS-TWP851-3563	21900 *
			SS-TWP852-3566	19500
			SS-TWP854-3572	19900
Antimony	mg/Kg	0.94	SS-MW861-3599	0.951 BN
			SS-MW862-3602	2.59 BN*
			SS-MW863-3605	3.92 J
			SS-TWP834-3512	1.34 N
			SS-TWP839-3527	1.01 BN
			SS-TWP844-3542	2.09 BN*
			SS-TWP850-3560	2.35 BN
			SS-TWP851-3563	1.39 BN
Beryllium	mg/Kg	1	SS-TWP857-3581	1.87 BN
			SB-EU101-3400-1.0	1.1
			SB-EU102-3323-2.0	1.14
			SD701-293	1.1
Boron	mg/Kg	10.1	SS-TWP852-3566	1.04 B
			SB-EU101-3400-1.0	15.8 N
			SB-EU102-3323-2.0	10.3 N
			SS-EU101-3343	11.7 N
			SS-EU102-3344	12.5 N
			SS-EU113-3348	14.8
			SS-TWP831-3503	12.1 B
			SS-TWP832-3506	11.4 N*
			SS-TWP833-3509	12.8
			SS-TWP834-3512	12.9
			SS-TWP850-3560	11.3 B
			SS-TWP852-3566	14.4 B
			SS-TWP854-3572	13.6 B
			SS-TWP855-3575	11.8 B
			SS-TWP858-3584	13.6
			SS-TWP859-3587	12.8
Cadmium	mg/Kg	0.53	SS-MW863-3605	0.623 J
Calcium	mg/Kg	58900	SS-TWP830-3500	104000 *
			SS-TWP853-3569	110000
			SS-TWP859-3587	86900

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	mg/Kg	25.8	SB-EU101-3400-1.0	31.9
			SB-EU102-3323-2.0	30.6
			SD701-293	26.8
			SS-TWP851-3563	26.4
			SS-TWP852-3566	27.9
			SS-TWP854-3572	26.8
Iron	mg/Kg	36400	SB-EU102-3323-2.0	36900
			SD701-293	38800
Magnesium	mg/Kg	14800	SD702-295	22100
			SS-TWP830-3500	56300 *
			SS-TWP834-3512	15100
			SS-TWP853-3569	46700
			SS-TWP854-3572	16700
			SS-TWP859-3587	45800
Nickel	mg/Kg	38	SB-EU101-3400-1.0	84.7
Potassium	mg/Kg	2860	SB-EU101-3400-1.0	4950 E
			SS-EU101-3343	2940 E
			SS-EU102-3344	3120 E
			SS-EU113-3348	3010 N
			SS-TWP831-3503	2980
			SS-TWP832-3506	3500 *
			SS-TWP833-3509	3180
			SS-TWP834-3512	3210
			SS-TWP850-3560	3160 *
			SS-TWP852-3566	2890
			SS-TWP854-3572	3190
			SS-TWP858-3584	3570

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB102-715-9.5	0.937 B
			SB-EU101-3400-1.0	0.538 B
			SB-EU102-3323-2.0	0.691 B
			SB-EU103-3324-1.0	0.668 B
			SD701-293	0.76 BN
			SD702-295	1.2 B
			SD703-297	1.1
			SS102-685	0.99 B
			SS103-686	0.834 B
			SS-EU103-3345	0.551 B
			SS-EU113-3348	0.643 B
			SS-MW861-3599	2.16 N
			SS-MW862-3602	2.02
			SS-MW863-3605	2.58 J
			SS-TWP831-3503	0.375 B
			SS-TWP833-3509	0.447 B
			SS-TWP839-3527	0.402 B
			SS-TWP844-3542	1.92
			SS-TWP850-3560	2.13 N
			SS-TWP851-3563	2.76 N
			SS-TWP854-3572	0.405 B
			SS-TWP856-3578	0.477 B
			SS-TWP858-3584	0.579 B
			SS-TWP859-3587	0.438 B

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB102-715-9.5	0.214 B
			SB-EU101-3400-1.0	0.209
			SB-EU102-3323-2.0	0.141
			SB-EU103-3324-1.0	0.117
			SB-TWP833-10.0-3510	0.052 BE
			SD701-293	0.1 B
			SD702-295	0.15 B
			SD703-297	0.12 B
			SS102-685	0.221 B
			SS103-686	0.147 B
			SS-EU101-3343	0.109 B
			SS-EU102-3344	0.109 B
			SS-EU103-3345	0.103 B
			SS-EU113-3348	0.125 B
			SS-MW861-3599	0.153
			SS-MW862-3602	0.124 E
			SS-MW863-3605	0.199
			SS-TWP830-3500	0.14
			SS-TWP831-3503	0.131
			SS-TWP832-3506	0.13
			SS-TWP833-3509	0.142 E
			SS-TWP834-3512	0.13 E
			SS-TWP839-3527	0.14
			SS-TWP844-3542	0.149 E
			SS-TWP850-3560	0.139
			SS-TWP851-3563	0.148
			SS-TWP852-3566	0.129
			SS-TWP853-3569	0.141
			SS-TWP854-3572	0.096 B
			SS-TWP855-3575	0.163
			SS-TWP856-3578	0.13
			SS-TWP857-3581	0.129
			SS-TWP858-3584	0.135 E
			SS-TWP859-3587	0.148 E

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	35.2	SB-EU101-3400-1.0	44.3 N
			SB-EU102-3323-2.0	41.1 N
			SD701-293	39.8
			SS-TWP833-3509	36.7
			SS-TWP851-3563	39
			SS-TWP852-3566	37.9
			SS-TWP854-3572	39
			SS-TWP855-3575	37.3
			SS-TWP856-3578	36.7
			SS-TWP857-3581	35.5
			SS-TWP858-3584	36.4
Zinc	mg/Kg	266	SD702-295	830
			SS-MW861-3599	341 E
			SS-MW863-3605	348 J
PAHs				
Anthracene	μg/Kg	8	SS-MW861-3599	136
			SS-MW863-3605	40.2
			SS-TWP831-3503	8.46 J
Benzo(a)anthracene	μg/Kg	284	SS-MW861-3599	900
Benzo(a)pyrene	μg/Kg	313	SS-MW861-3599	691
Benzo(b)fluoranthene	μg/Kg	396	SS-MW861-3599	1280
Benzo(g,h,i)perylene	μg/Kg	16	SS-MW861-3599	300
			SS-MW863-3605	115
Chrysene	μg/Kg	378	SS-MW861-3599	1010
Dibenzo(a,h)anthracene	μg/Kg	2.7	SS-MW861-3599	6.8
			SS-TWP831-3503	2.87
Fluoranthene	μg/Kg	889	SS-MW861-3599	1760
Fluorene	μg/Kg	2.9	SS-MW861-3599	30.7 J
			SS-MW862-3602	7.21 J
			SS-MW863-3605	19.1 J
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SS-MW861-3599	387
			SS-MW862-3602	42.4
			SS-MW863-3605	70.9
Phenanthrene	μg/Kg	538	SS-MW861-3599	624
Pyrene	μg/Kg	716	SS-MW861-3599	1420
PCBs				
Aroclor-1254	μg/Kg	--	SB-EU101-3400-1.0	5.1
			SS-EU102-3344	10.4
Aroclor-1260	μg/Kg	--	SS-EU102-3344	2.13 J
			SS-MW863-3605	3.3 J
			SS-TWP833-3509	4.4
Pesticides				

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	μg/Kg	--	SB-EU101-3400-1.0	1.09 J
			SB-EU103-3324-1.0	2.25
			SB-TWP833-10.0-3510	0.375 J
			SS-EU103-3345	0.47 J
			SS-MW862-3602	0.942 J
			SS-MW863-3605	5.33 J
			SS-TWP833-3509	0.302 J
			SS-TWP834-3512	0.636 J
			SS-TWP844-3542	0.305 J
			SS-TWP854-3572	0.423 J
			SS-TWP855-3575	0.303 J
			SS-TWP856-3578	1.95
			SS-TWP859-3587	2.44
4,4'-DDT	μg/Kg	--	SB-EU101-3400-1.0	2.24
			SB-EU102-3323-2.0	2.29
			SB-EU103-3324-1.0	3.6
			SB-TWP833-10.0-3510	0.952 J
			SS-EU103-3345	2.16
			SS-MW861-3599	2.22
			SS-MW862-3602	1.93
			SS-MW863-3605	12.5
			SS-TWP833-3509	0.8 J
			SS-TWP834-3512	1.96
			SS-TWP839-3527	1.18 J
			SS-TWP851-3563	1.31 J
			SS-TWP853-3569	0.587 J
			SS-TWP856-3578	2.56
			SS-TWP859-3587	2.02
Dieldrin	μg/Kg	--	SS-TWP834-3512	0.237 J
			SS-TWP853-3569	0.222 J
Radionuclides				
Alpha	pCi/g	15.1	SB-EU101-3400-1.0	25.9
			SB-EU102-3323-2.0	35.8
			SD701-293	21.4
			SD703-297	68.2
			SD741-672	16.6
			SS-EU101-3343	19.3
			SS-TWP832-3506	18.8
			SS-TWP833-3509	34.6
			SS-TWP844-3542	16.2
			SS-TWP857-3581	27.1

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB-EU102-3323-2.0	53.1
			SB-MH06-8.5-3650	30
			SD703-297	39.9
			SS-TWP832-3506	29.1
			SS-TWP833-3509	43.5
			SS-TWP854-3572	31.1
			SS-TWP857-3581	38.5
Cesium-137	pCi/g	0.343	SS1A002-2158	0.35
Radium-226	pCi/g	1.2	SB-EU101-3400-1.0	3.8
			SD703-297	8.52
			SD741-672	1.64
			SS101-684	1.64
			SS1A002-2158	2.04
			SS-EU101-3343	2.69
Thorium-230	pCi/g	1.39	SS-TWP844-3542	1.3
			SB-EU101-3400-1.0	7.42
			SD703-297	10.1
			SS101-684	1.94
			SS102-685	1.45
			SS1A001-2157	1.57
			SS1A002-2158	1.88
			SS-EU101-3343	6.86
			SS-EU102-3344	1.54
			SS-EU113-3348	1.58
			SS-MW861-3599	1.67
			SS-TWP844-3542	2.58
			SS-TWP850-3560	1.44
			SS-TWP851-3563	1.46
			SS-TWP852-3566	2.53
			SS-TWP853-3569	1.52
			SS-TWP855-3575	2.7
			SS-TWP856-3578	2.04 J
Thorium-232	pCi/g	1.24	SB-EU103-3324-1.0	1.26
			SS-TWP852-3566	1.36
			SS-TWP853-3569	1.58
			SS-TWP856-3578	1.36 J
Total Uranium	µg/g	3.58	SB-EU102-3323-2.0	69.4
			SB-EU103-3324-1.0	4.33
			SD703-297	5.6
			SD741-672	4.89
			SS101-684	3.64
			SS103-686	3.9
			SS-TWP833-3509	40.2
			SS-TWP857-3581	24.3

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB-EU102-3323-2.0	25.5
			SD703-297	1.94
			SD741-672	2.05
			SS-TWP833-3509	18.9
			SS-TWP852-3566	1.92
			SS-TWP855-3575	2.75
			SS-TWP857-3581	11
Uranium-235	pCi/g	0.0847	SB-EU102-3323-2.0	1.69
			SB-MH06-8.5-3650	0.22
			SD703-297	0.124 J
			SS1A001-2157	0.15
			SS1B002-2160	0.229
			SS-MW861-3599	0.101
			SS-TWP833-3509	0.935
			SS-TWP857-3581	0.842
Uranium-238	pCi/g	1.34	SB-EU102-3323-2.0	23.4
			SB-EU103-3324-1.0	1.42
			SB-MH06-8.5-3650	1.77
			SD703-297	1.72
			SS103-686	1.44
			SS-TWP833-3509	21
			SS-TWP834-3512	1.41
			SS-TWP852-3566	1.67
			SS-TWP854-3572	1.65
			SS-TWP855-3575	2.75
			SS-TWP857-3581	12.2
			SS-TWP858-3584	1.55
Semivolatile Organics				
Carbazole	µg/Kg	--	SS-MW861-3599	43.5 J
			SS-MW863-3605	28.7 J
Volatile Organics				
1,1-Dichloroethene	µg/Kg	--	SB-EU102-3323-2.0	4.97
			SS-MW861-3599	0.82 J
			SS-MW862-3602	0.666 J
			SS-TWP844-3542	0.555 J
			SS-TWP850-3560	0.669 J
			SS-TWP851-3563	0.867 J
2-Butanone	µg/Kg	--	SS-TWP830-3500	63.2
			SS-TWP831-3503	86.4
			SS-TWP832-3506	307
			SS-TWP834-3512	6.27
			SS-TWP839-3527	8.02
			SS-TWP854-3572	11.7
			SS-TWP856-3578	4.48 J

* Data qualifier included with concentration value

Table 4-58
Exposure Unit 10
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SS-TWP830-3500	35.5
			SS-TWP831-3503	19.6
			SS-TWP832-3506	21.3
			SS-TWP834-3512	7.3
			SS-TWP854-3572	14
			SS-TWP856-3578	9.03
			SS-TWP857-3581	302
Toluene	$\mu\text{g/Kg}$	--	SS-TWP831-3503	0.589 J
			SS-TWP832-3506	0.465 J
			SS-TWP850-3560	0.485 J

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-EU111-3325-1.5	22000
			SB-TWP847-10.0-3552	23100
			SS-EU111-3346	19800
			SS-EU112-3347	22900
			SS-TWP845-3545	19900
			SS-TWP847-3551	21100
			SS-TWP848-3554	22700
			SS-TWP849-3557	19700
			TB810-2907-02.9-012	19500 *
			TB811-2911-02.3-012	20900 *
			TB811-2912-04.0-047	19800 *
Antimony	mg/Kg	0.94	TB812-2913-03.0-055	23600
			TB812-2915-05.0-001	21300
			SB-TWP847-10.0-3552	1 J
			SS-TWP845-3545	1.79 BN*
			SS-TWP846-3548	1.08 BN*
Beryllium	mg/Kg	1	SS-TWP848-3554	2.3 BN
			SS-TWP849-3557	1.81 BN
			SB-EU111-3325-1.5	1.01
			SB-TWP847-10.0-3552	1.02 J
			SD704-302	1.8 E
Boron	mg/Kg	10.1	SS-EU112-3347	1.2
			SS-TWP848-3554	1.24 B
			TB812-2913-03.0-055	1.14
			SB805-158-7.5	11.5
			SB-EU111-3325-1.5	11.6 N
			SB-TWP841-10.0-3534	14.6 N
			SB-TWP843-10.0-3540	15.7
			SB-TWP847-10.0-3552	15.1 J
			SD704-302	20 *
			SS-EU112-3347	12.4 N
			SS-TWP841-3533	10.2 N
			SS-TWP842-3536	12.3
			SS-TWP847-3551	10.3 BN
			SS-TWP848-3554	12.8 B
Cadmium	mg/Kg	0.53	TB810-2907-02.9-012	11.2
			TB810-2908-01.8-041	13.4
			TB811-2911-02.3-012	11.5
			TB811-2912-04.0-047	14
			TB812-2915-05.0-001	14.3
			SD704-302	0.95

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Calcium	mg/Kg	58900	SB-TWP847-10.0-3552	64700 J
			SS-TWP843-3539	64500
			TB810-2908-01.8-041	74900
			TB812-2915-05.0-001	62600
Chromium	mg/Kg	25.8	SB-EU111-3325-1.5	28
			SB-TWP847-10.0-3552	32.4
			SS-EU112-3347	28.7
			SS-TWP847-3551	30.4
			SS-TWP848-3554	62.1
			SS-TWP849-3557	26.5
			TB812-2913-03.0-055	30.6
			TB812-2915-05.0-001	27.3
Copper	mg/Kg	49.3	SS813-700	54 E*
Iron	mg/Kg	36400	TB812-2913-03.0-055	37700
Lithium	mg/Kg	36.8	SB-TWP847-10.0-3552	38.6 J
			SS-TWP848-3554	38.9 E
			TB812-2913-03.0-055	51.3
Magnesium	mg/Kg	14800	TB810-2908-01.8-041	22000
Mercury	mg/Kg	0.27	SD704-302	1.1
Potassium	mg/Kg	2860	SB-EU111-3325-1.5	2960 E
			SB-TWP841-10.0-3534	3860 *
			SB-TWP843-10.0-3540	3840 E
			SB-TWP847-10.0-3552	4820
			SS-TWP848-3554	2880
			TB810-2907-02.9-012	2930 E*
			TB810-2908-01.8-041	3180 E*
			TB811-2911-02.3-012	3130 E*
			TB811-2912-04.0-047	3630 E*
			TB812-2913-03.0-055	2940
			TB812-2915-05.0-001	3760

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB819-736-9.0	1.09 J
			SB-EU111-3325-1.5	0.531 B
			SB-TWP842-10.0-3537	0.88 BN
			SB-TWP843-10.0-3540	1.12 BN
			SB-TWP847-10.0-3552	2.36
			SD704-302	0.99 BN
			SS801-070	0.49 B
			SS802-071	0.67 B
			SS805-074	1.8 B
			SS813-700	0.902 B
			SS819-706	0.845 B
			SS-EU111-3346	0.509 B
			SS-EU112-3347	0.857 B
			SS-TWP842-3536	1.19 N
			SS-TWP843-3539	1.06 BN
			SS-TWP845-3545	2.18
			SS-TWP846-3548	2.13
			SS-TWP847-3551	2.26
			SS-TWP848-3554	2.3 N
			SS-TWP849-3557	1.44 N
			TB810-2907-02.9-012	0.516 BN
			TB810-2908-01.8-041	0.785 BN
			TB810-2909-05.8-045	0.431 BN
			TB811-2910-04.8-044	0.47 BN
			TB811-2911-02.3-012	0.471 BN
			TB811-2912-04.0-047	0.704 BN
			TB812-2913-03.0-055	0.608 B
			TB812-2914-03.0-014	0.614 B
			TB812-2915-05.0-001	0.617 B

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB805-158-7.5	0.1 B
			SB819-736-9.0	0.26 J
			SB-EU111-3325-1.5	0.137
			SB-TWP841-10.0-3534	0.116 BE
			SB-TWP842-10.0-3537	0.098 B
			SB-TWP843-10.0-3540	0.141
			SB-TWP847-10.0-3552	0.214 J
			SD704-302	0.13 B
			SS801-070	0.1 B
			SS802-071	0.09 B
			SS805-074	0.07 B
			SS813-700	0.16 B
			SS819-706	0.16 B
			SS-EU111-3346	0.121
			SS-EU112-3347	0.165
			SS-TWP841-3533	0.14 E
			SS-TWP842-3536	0.119
			SS-TWP843-3539	0.126
			SS-TWP845-3545	0.131 E
			SS-TWP846-3548	0.1 BE
			SS-TWP847-3551	0.13 E
			SS-TWP848-3554	0.117
			SS-TWP849-3557	0.144
			TB810-2907-02.9-012	0.154 E
			TB810-2908-01.8-041	0.143 E
			TB810-2909-05.8-045	0.132 E
			TB811-2910-04.8-044	0.067 BE
			TB811-2911-02.3-012	0.151 E
			TB811-2912-04.0-047	0.139 E
			TB812-2913-03.0-055	0.157
			TB812-2914-03.0-014	0.139
			TB812-2915-05.0-001	0.174
Vanadium	mg/Kg	35.2	SB-EU111-3325-1.5	39.6 N
			SB-TWP847-10.0-3552	41.8 J
			SS-EU112-3347	39.3 N
			SS-TWP847-3551	36.9 N
			SS-TWP849-3557	46.8 *N
			TB810-2907-02.9-012	36.8 *
			TB810-2908-01.8-041	37 *
			TB811-2911-02.3-012	40.1 *
			TB811-2912-04.0-047	39.2 *
			TB812-2913-03.0-055	48.8
			TB812-2914-03.0-014	38.7
			TB812-2915-05.0-001	39.1

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
PAHs				
Acenaphthene	μg/Kg	79	SS2A003-531	296
Anthracene	μg/Kg	8	SS2A002-530	48.2
			SS2A003-531	518
			SS-TWP848-3554	77.7
Benzo(a)anthracene	μg/Kg	284	SS2A003-531	2430
			SS-TWP848-3554	416
Benzo(a)pyrene	μg/Kg	313	SS2A002-530	349
			SS2A003-531	2560
			SS-TWP848-3554	536
Benzo(b)fluoranthene	μg/Kg	396	SS2A003-531	2740
			SS-TWP848-3554	801
Benzo(g,h,i)perylene	μg/Kg	16	SS2A002-530	234
			SS2A003-531	1410
			SS-TWP848-3554	281
Benzo(k)fluoranthene	μg/Kg	322	SS2A002-530	404
			SS2A003-531	2940
Chrysene	μg/Kg	378	SS2A002-530	409
			SS2A003-531	2980
			SS-TWP848-3554	436
Fluoranthene	μg/Kg	889	SS2A003-531	7210 D
Fluorene	μg/Kg	2.9	SS2A002-530	27.9 J
			SS2A003-531	263
			SS-TWP848-3554	22.2 J
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SS2A002-530	268
			SS2A003-531	1330
			SS-TWP848-3554	280
Naphthalene	μg/Kg	--	SS2A002-530	46.6
			SS2A003-531	336
			SS-TWP841-3533	3.44 J
Phenanthrene	μg/Kg	538	SS2A003-531	4360
Pyrene	μg/Kg	716	SS2A002-530	748
			SS2A003-531	6280 D
PCBs				
Aroclor-1242	μg/Kg	--	SS-TWP843-3539	4.8
			SS-TWP846-3548	6.7
Aroclor-1254	μg/Kg	--	SB-TWP847-10.0-3552	2.7 J
			SS-TWP846-3548	2.6 J
			SS-TWP847-3551	3.8 J
Pesticides				

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	μg/Kg	--	SB-EU111-3325-1.5	0.419 J
			SS-TWP842-3536	0.361 J
			SS-TWP845-3545	0.335 J
			SS-TWP846-3548	0.594 J
			SS-TWP847-3551	0.892 J
			TS809-2904-001	2.9 J
4,4'-DDT	μg/Kg	--	SB-EU111-3325-1.5	2.65
			SS-TWP843-3539	2.47
			SS-TWP846-3548	1.19 J
			SS-TWP847-3551	1.28 J
Radionuclides				
Actinium-227	pCi/g	0.08	SB826-416-1.3	0.478
			SD752-2241	0.906
			SS826-405	0.97
			SS827-406	9.22
			SS830-1036	132
			SS8A014-2181	3.6
			SS8H001-2443	0.629
Alpha	pCi/g	15.1	SB826-416-1.3	60.5
			SB827-417-2.0	75.7
			SB830-1037-2.0	48.5
			SD704-302	17.8
			SS801-070	17.7
			SS802-071	16.9
			SS805-074	21.8
			SS826-405	42.8
			SS827-406	536
			SS830-1036	3840
			SS-TWP848-3554	17.2
			TS812-2928-062	19000
Beta	pCi/g	28.9	SB805-158-7.5	32.4
			SB826-416-1.3	44.2
			SB827-417-2.0	53.6
			SB830-1037-2.0	81.6
			SB-TWP843-10.0-3540	30.1
			SB-TWP847-10.0-3552	30.3
			SD-CD1-3401-0.67	29.6
			SS801-070	38.6
			SS826-405	39.3
			SS827-406	301
			SS830-1036	1830
			TS812-2928-062	15100

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SD752-2241	0.472
			SS2A006-2369	0.447
			SS8H001-2443	0.688
			SS8H002-2444	0.388
Plutonium-239/240	pCi/g	--	TS812-2928-062	0.129

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB2A005-2220-1.7	1.69
			SB2A005-2240	3.41
			SB752-2250-1.5	3.31
			SB752-2252-1.0	14.4
			SB826-416-1.3	5.99
			SB827-417-2.0	8.37
			SB830-1037-2.0	2.25
			SB8A003-2217-2.0	1.6
			SB8A009-2218-2.0	1.65
			SD704-302	1.37
			SD752-2241	25.7
			SS2A004-2173	4.18
			SS2A006-2369	5.46
			SS2A009-2373	1.34
			SS801-070	1.81
			SS802-071	1.25
			SS805-074	1.5
			SS813-700	1.37
			SS814-701	2.71
			SS826-405	13.2
			SS827-406	185
			SS830-1036	386
			SS8A002-2174	3.01
			SS8A003-2175	47.9
			SS8A004-2176	6.2
			SS8A005-2177	2.12
			SS8A010-2182	1.24
			SS8A014-2181	67.9
			SS8B010-2442	1.83
			SS8H001-2443	7.49
			SS8H002-2444	15.1 J
			SS-TWP848-3554	1.76
			TB809-2906-01.0-045	1.9
			TB810-2908-01.8-041	82.7
			TB811-2912-04.0-047	1.23
			TB813-2925-08.0-013	32.6
			TB813-2926-01.0-021	1.65
			TS809-2904-001	3.09
			TS809-2905-007	3.39
			TS812-2928-062	9.64
Radium-228	pCi/g	1.26	SS827-406	1.35
			SS8A014-2181	1.49

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SB819-736-9.0	1.95
			SB-TWP841-10.0-3534	1.8
			SB-TWP843-10.0-3540	1.71
			SS827-406	1.74

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB2A005-2220-1.7	2.37
			SB2A005-2240	4.88
			SB752-2250-1.5	4.84
			SB752-2252-1.0	12.3
			SB826-416-1.3	13.2
			SB827-417-2.0	3.35
			SB830-1037-2.0	3.63
			SB8A001-2221-2.0	1.51
			SB8A003-2217-2.0	2.79
			SB8A009-2218-2.0	2.57
			SB-TWP841-10.0-3534	1.8
			SB-TWP843-10.0-3540	1.91
			SB-TWP847-10.0-3552	1.62 J
			SD704-302	1.82 J
			SD752-2241	18.2
			SS2A002-530	1.57
			SS2A004-2173	6.31
			SS2A006-2369	8.04
			SS2A009-2373	2.93
			SS801-070	1.49
			SS805-074	2.79
			SS813-700	2.02
			SS814-701	2.62
			SS826-405	11.9
			SS827-406	33.3
			SS830-1036	304
			SS8A002-2174	3.68
			SS8A003-2175	87.6
			SS8A004-2176	9.79
			SS8A005-2177	3.03
			SS8A008-2180	1.4
			SS8A014-2181	68.5
			SS8B009-2441	2.83
			SS8B010-2442	2.33
			SS8H001-2443	10
			SS8H002-2444	22.5 J
			SS-EU111-3346	1.44 J
			SS-TWP841-3533	2.01
			SS-TWP842-3536	1.75
			SS-TWP845-3545	2.57
			SS-TWP847-3551	2
			SS-TWP848-3554	2.7
			SS-TWP849-3557	2.06 J
			TB809-2906-01.0-045	8.2

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	TB810-2907-02.9-012	1.76
			TB810-2908-01.8-041	29.6
			TB811-2910-04.8-044	1.72
			TB811-2911-02.3-012	1.77
			TB811-2912-04.0-047	1.47
			TB812-2914-03.0-014	1.82
			TB813-2925-08.0-013	31.2
			TB813-2926-01.0-021	2.49
			TB813-2927-03.9-029	1.83
			TS809-2904-001	4.58
			TS809-2905-007	5.95
			TS812-2928-062	14.3
Thorium-232	pCi/g	1.24	SB819-736-9.0	1.31
			SB-TWP842-10.0-3537	1.33
			SB-TWP847-10.0-3552	1.27 J
			SS-TWP841-3533	1.39
			SS-TWP842-3536	1.52
			SS-TWP843-3539	1.25
			SS-TWP848-3554	1.54
			SS-TWP849-3557	1.32 J
			TB809-2906-01.0-045	1.34
			TB813-2925-08.0-013	1.87
			TS809-2905-007	1.34

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB752-2252-1.0	3.71
			SB826-416-1.3	10.8
			SB827-417-2.0	6.51
			SB830-1037-2.0	30.1
			SB8A009-2218-2.0	3.77
			SB8B008-2440-2.0	4.47
			SD-CD1-3401-0.67	4.69
			SS801-070	3.79
			SS813-700	3.65
			SS814-701	9.52
			SS819-706	55.8
			SS826-405	9.87
			SS827-406	8.35
			SS830-1036	884
			SS8A003-2175	5.86
			SS8A004-2176	3.65
			SS8A006-2178	3.61
			SS8A014-2181	4.98
			SS8B008-2438	15.5
			SS8B010-2442	8.09
			SS8H001-2443	10.4
			SS8H002-2444	11.3
			SS-EU111-3346	4.14
			TB809-2906-01.0-045	3.66
			TB810-2907-02.9-012	3.94
			TB810-2908-01.8-041	6.13
			TB811-2912-04.0-047	4.37
			TB813-2925-08.0-013	6.52
			TB813-2926-01.0-021	9.16
			TS812-2928-062	2860

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB826-416-1.3	5.86
			SB827-417-2.0	3.59
			SB830-1037-2.0	3.06
			SD-CD1-3401-0.67	2.09
			SS2A006-2369	1.96
			SS814-701	3.77
			SS819-706	15.6
			SS826-405	4.05
			SS827-406	3.34
			SS830-1036	89.9
			SS8A003-2175	4.19
			SS8A014-2181	2.38
			SS8B010-2442	2.94
			SS8H001-2443	2.89
			SS8H002-2444	3.8 J
			SS-TWP841-3533	1.85
			SS-TWP845-3545	1.73
			SS-TWP848-3554	2.1
			TB811-2912-04.0-047	1.8
			TB813-2925-08.0-013	2.17
			TB813-2926-01.0-021	1.92
			TS812-2928-062	8340
Uranium-235	pCi/g	0.0847	SB-EU111-3325-1.5	0.153
			SS819-706	0.625
			SS827-406	0.381
			SS830-1036	3.43
			SS8A003-2175	0.285
			SS8A004-2176	0.154
			SS8A014-2181	0.115
			SS8B010-2442	0.239
			SS8H001-2443	0.197
			SS8H002-2444	0.404 J
			SS-TWP841-3533	0.293
			SS-TWP845-3545	0.236
			SS-TWP846-3548	0.226
			SS-TWP847-3551	0.473
			SS-TWP848-3554	0.094
			TB811-2910-04.8-044	0.423
			TB811-2911-02.3-012	0.335
			TB812-2914-03.0-014	0.157
			TB813-2925-08.0-013	0.186
			TB813-2926-01.0-021	0.214
			TS809-2904-001	0.0981
			TS812-2928-062	886

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB826-416-1.3	6.53
			SB827-417-2.0	1.46
			SB830-1037-2.0	2.66
			SD-CD1-3401-0.67	2.01
			SS2A004-2173	1.74
			SS2A006-2369	1.95
			SS801-070	1.58
			SS813-700	1.61
			SS814-701	3.31
			SS819-706	14.7
			SS826-405	3.76
			SS827-406	2.36
			SS830-1036	88.6
			SS8A003-2175	3.18
			SS8A004-2176	1.38
			SS8A014-2181	1.75
			SS8B010-2442	2.92
			SS8H001-2443	2.83
			SS8H002-2444	4.04 J
			SS-TWP841-3533	1.82
			SS-TWP845-3545	1.66
			SS-TWP848-3554	1.93
			SS-TWP849-3557	1.43
			TB811-2912-04.0-047	1.91
			TB813-2925-08.0-013	1.95
			TB813-2926-01.0-021	1.86
			TS812-2928-062	8830
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS2A002-530	53.8
			SS2A003-531	449
Carbazole	μg/Kg	--	SS2A002-530	49.2 J
			SS2A003-531	334 J
			SS-TWP848-3554	45 J
Dibenzofuran	μg/Kg	--	SS2A002-530	30.3 J
			SS2A003-531	277 J
Diethylphthalate	μg/Kg	--	SS-EU111-3346	31.6 J
			TB810-2909-05.8-045	384 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SB-TWP842-10.0-3537	1.13
			TB811-2910-04.8-044	1.3

* Data qualifier included with concentration value

Table 4-59
Exposure Unit 11
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
2-Butanone	$\mu\text{g/Kg}$	--	SS801-070	36.5
			SS805-074	45.9
			SS-TWP842-3536	6.19
			SS-TWP845-3545	13.9
			SS-TWP848-3554	8.22
Acetone	$\mu\text{g/Kg}$	--	SB819-736-9.0	4 J
			SB-TWP841-10.0-3534	8.33
			SB-TWP842-10.0-3537	7.68
			SB-TWP843-10.0-3540	6.74
			SS805-074	29.6
			SS-EU112-3347	6.08 J
			SS-TWP845-3545	4.19 J
			SS-TWP847-3551	3.93 J
			SS-TWP848-3554	4.21 J
			TB810-2907-02.9-012	3.7 J
			TB810-2909-05.8-045	4 J
			TB811-2910-04.8-044	3.7 J
Benzene	$\mu\text{g/Kg}$	--	SS801-070	2.3
			SS805-074	2.6
Toluene	$\mu\text{g/Kg}$	--	SS801-070	1.8
			SS805-074	1.9
			SS-TWP848-3554	0.799 J
			SS-TWP849-3557	0.405 J
			TB810-2907-02.9-012	0.71 J
			TB810-2908-01.8-041	0.55 J
			TB810-2909-05.8-045	0.82 J

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-BH219-6.0-3661	20500
			SS-EU121-3349	23200
			SS-EU122-3350	19900
Antimony	mg/Kg	0.94	SB-BH219-6.0-3661	0.981 BN
Arsenic	mg/Kg	8.73	SS204-004	22.5
			SS2B001-532	9.03 N
			SS2B002-534	51.8 N
Barium	mg/Kg	263	SS-EU121-3349	301 N*
Beryllium	mg/Kg	1	SB-EU121-3326-2.0	1.03
			SB-EU122-3407-1.0	1.03
			SS2B001-532	1.03
			SS2B002-534	1.79
			SS-EU121-3349	1.49
			SS-EU122-3350	1.1
Boron	mg/Kg	10.1	SB215-099-7.5	27.9 *
			SB-BH219-6.0-3661	11
			SB-EU121-3326-2.0	15.9 N
			SB-EU122-3407-1.0	11.3 J
			SS204-004	21
			SS215-019	27.7 *
			SS2B001-532	23.6
			SS2B002-534	37.6
			SS-EU121-3349	12.8 N
Cadmium	mg/Kg	0.53	SB215-099-7.5	0.93
			SS215-019	0.7
			SS-EU121-3349	1.29
Chromium	mg/Kg	25.8	SB206-090-9	28.2
			SB-BH219-6.0-3661	26.5
			SB-EU121-3326-2.0	27.1
			SB-EU122-3407-1.0	26.6
			SS-EU121-3349	28.1
			SS-EU122-3350	27.6
Copper	mg/Kg	49.3	SS-EU121-3349	99.8
Potassium	mg/Kg	2860	SB206-090-9	3110 N
			SB-BH219-6.0-3661	3290
			SB-EU121-3326-2.0	3920 E
			SB-EU122-3407-1.0	3010 J

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB204-088-9	1.1
			SB206-090-9	1.2 N
			SB215-099-7.5	0.87 BN
			SB-BH219-6.0-3661	0.762 B
			SB-EU121-3326-2.0	0.642 B
			SS204-004	1.7 B
			SS206-009	1.5 N
			SS215-019	0.7 BN
			SS2B001-532	1.38 B
			SS2B002-534	3.13 B
			SS-EU121-3349	1.89
			SS-EU122-3350	0.666 B
			SS-EU123-3351	0.989 B
Silver	mg/Kg	0.27	SS2B001-532	0.352 BN
			SS2B002-534	0.361 BN
Thallium	mg/Kg	--	SB204-088-9	0.14
			SB206-090-9	0.13
			SB215-099-7.5	0.11 B
			SB-BH219-6.0-3661	0.123 BE
			SB-EU121-3326-2.0	0.155
			SB-EU122-3407-1.0	0.116 J
			SS204-004	0.39
			SS206-009	0.09 B
			SS215-019	0.09 B
			SS2B001-532	0.121 B
			SS2B002-534	0.18 B
			SS-EU121-3349	0.215
			SS-EU122-3350	0.114 B
			SS-EU123-3351	0.153
Vanadium	mg/Kg	35.2	SB-BH219-6.0-3661	43.6
			SB-EU121-3326-2.0	40.3 N
			SB-EU122-3407-1.0	38.8 J
			SS-EU121-3349	45.8 N
			SS-EU122-3350	41 N
PAHs				
Anthracene	μg/Kg	8	SS204-004	43.5 J
Benzo(a)anthracene	μg/Kg	284	SS2B002-534	945 J
Benzo(a)pyrene	μg/Kg	313	SS2B002-534	1340 J
Benzo(b)fluoranthene	μg/Kg	396	SS2B002-534	3550
Benzo(g,h,i)perylene	μg/Kg	16	SS206-009	63.4 J
			SS2B002-534	1070 J
			SS-EU121-3349	18.9
Benzo(k)fluoranthene	μg/Kg	322	SS2B002-534	1250 J

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chrysene	μg/Kg	378	SS2B002-534	1790
Fluoranthene	μg/Kg	889	SS2B002-534	1120 J
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SS2B001-532	965 J
			SS2B002-534	1600 J
Naphthalene	μg/Kg	--	SB204-088-2	568
			SS204-004	1330
			SS2B002-534	2170
			SS-EU121-3349	3.03 JP
Phenanthrene	μg/Kg	538	SS204-004	988
			SS2B002-534	1050 J
PCBs				
Aroclor-1260	μg/Kg	--	SS-EU121-3349	4.8 J
			SS-EU122-3350	1.4 J
Pesticides				
4,4'-DDE	μg/Kg	--	SB-BH219-6.0-3661	0.378 J
			SB-EU121-3326-2.0	0.758 J
			SS-EU121-3349	1.46 J
			SS-EU122-3350	1.21 J
4,4'-DDT	μg/Kg	--	SB-BH219-6.0-3661	0.796 J
			SB-EU121-3326-2.0	2.73
			SS-EU121-3349	2.84
			SS-EU122-3350	2.28
Radionuclides				
Actinium-227	pCi/g	0.08	SS218-400	2.71
			SS219-401	2.72
Alpha	pCi/g	15.1	SB206-090-9	19.6
			SB218-410-2.0	17.1
			SB219-411-2.0	17.3
			SD719-341	19.6
			SS205-008	38.9
			SS215-019	19.2
			SS218-400	284
			SS219-401	99.2
			SS-EU121-3349	22.3
			SS-EU123-3351	17.1 J
Beta	pCi/g	28.9	SB206-090-9	32.3
			SB218-410-2.0	31.7
			SS218-400	153
			SS219-401	72

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS219-401	0.679
			SS2A008-2371	0.47
			SS2B002-534	0.438
			SS2D001-547	0.572
			SS2D002-548	0.508
			SS2D003-549	0.484
			SS2D004-550	0.542
			SS2D005-551	0.424
			SS2D012-2384	0.739
Radium-226	pCi/g	1.2	SB219-411-2.0	1.61
			SS205-008	7.87
			SS206-009	1.72
			SS215-019	1.41
			SS218-400	29.6
			SS219-401	24.1
			SS2A008-2371	8.65
			SS2B001-532	1.41
			SS2B002-534	3.43
			SS2C002-2380	1.65
			SS2D001-547	1.47
			SS2D002-548	1.59
			SS2D003-549	2.13
			SS2D005-551	1.77
			SS2D011-2383	1.37
			SS2D012-2384	10.7
			SS2D013-2385	5.92
			SS-EU121-3349	1.46
			SS-EU123-3351	1.39
Thorium-228	pCi/g	1.64	SB2B002-649-9.5	1.66
			SB-BH219-6.0-3661	2.13
			SS219-401	1.96
			SS-EU123-3351	2.08 J

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB219-411-2.0	1.57
			SD719-341	2.08 J
			SS204-004	2.17
			SS205-008	3.47
			SS206-009	1.65
			SS218-400	69.6
			SS219-401	39.2
			SS2A008-2371	14
			SS2B001-532	1.42
			SS2B002-534	2.54
			SS2C002-2380	2.32
			SS2D001-547	2.75
			SS2D002-548	2.97
			SS2D003-549	3.26
			SS2D005-551	2.39
			SS2D009-2381	1.73
			SS2D011-2383	2.29
			SS2D012-2384	4.2
			SS2D013-2385	3.36
			SS-EU121-3349	2.51
Thorium-232	pCi/g	1.24	SS-EU122-3350	1.72
			SS-EU123-3351	2.59 J
			SB218-410-2.0	1.44
			SB219-411-2.0	1.47
			SS2D003-549	1.46
			SS2D005-551	1.39
Total Uranium	μg/g	3.58	SS2D011-2383	1.33
			SS-EU123-3351	1.3 J
			SB206-090-9	4.77
			SB215-099-7.5	3.61 J
			SB219-411-2.0	3.91
			SB-BH219-6.0-3661	4.37
			SD719-341	4.13 J
			SS218-400	49.4
			SS219-401	20.9
			SS2B002-534	3.65
			SS2D009-2381	5.57
			SS2D011-2383	7.71
			SS-EU121-3349	15.4
			SS-EU123-3351	3.64

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB215-099-7.5	1.69
			SB219-411-2.0	1.95
			SB-BH219-6.0-3661	2.36
			SD719-341	1.75
			SS218-400	12.1
			SS219-401	7.71
			SS2A008-2371	1.77
			SS2B002-534	1.81
			SS2D009-2381	2.23
			SS2D011-2383	3.08
			SS-EU121-3349	6
			SS-EU123-3351	1.96 J
Uranium-235	pCi/g	0.0847	SB215-099-7.5	0.111 J
			SS218-400	0.409
			SS2D011-2383	0.179
			SS2D013-2385	0.269
			SS-EU121-3349	0.251
Uranium-238	pCi/g	1.34	SB215-099-7.5	1.61
			SB218-410-2.0	1.41
			SB-BH219-6.0-3661	1.82
			SD719-341	1.49
			SS218-400	12.1
			SS219-401	7.51
			SS2A008-2371	1.64
			SS2B002-534	1.78
			SS2D009-2381	2.5
			SS2D011-2383	3.05
			SS-EU121-3349	5.66
			SS-EU123-3351	1.52 J
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SB204-088-2	798
			SS204-004	2050
			SS2B002-534	2950
Benzoic Acid	μg/Kg	--	SS204-004	602 J
Dibenzofuran	μg/Kg	--	SB204-088-2	233 J
			SS204-004	612
Volatile Organics				
2-Butanone	μg/Kg	--	SB-BH219-6.0-3661	17.7
			SS215-019	5.4 J
Acetone	μg/Kg	--	SB-BH219-6.0-3661	81.9
			SS215-019	6.7

* Data qualifier included with concentration value

Table 4-60
Exposure Unit 12
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Methylene chloride	$\mu\text{g/Kg}$	--	SB206-090-9	9.6
			SS205-008	18.2
			SS206-009	18.5
Toluene	$\mu\text{g/Kg}$	--	SB204-088-9	1.1 J

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	TB202-2803-05.2-038	21900
			TB202-2804-03.5-025	20800
			TB202-2805-03.0-062	21400
			TB203-2806-01.0-013	24100
			TB203-2807-04.0-058	22400
Antimony	mg/Kg	0.94	SB-BH225-10.0-3667	1.15 BN
			SB-EU131-3408-2.0	0.98 BN
			SS208-011	2.2 N
			SS-EU133-3354	1.3 N
Arsenic	mg/Kg	8.73	SB-CORE01-0.5-3731	10.7
			SS217-021	11.2
Barium	mg/Kg	263	TB202-2805-03.0-062	315
Beryllium	mg/Kg	1	TB202-2805-03.0-062	1.04
			TB203-2806-01.0-013	1.13
			TB203-2807-04.0-058	1.25
Boron	mg/Kg	10.1	SB213-097-3	17 N
			SB213-097-7.5	15.4 N
			SB-BH222-6.0-3664	15.8 N*
			SB-BH225-10.0-3667	26.2 N*
			SB-CORE03-1.5-3735	57.9
			SB-CORE04-0.5-3737	35.3
			SB-CORE05-0.5-3739	16.8
			SB-CORE06-0.5-3741	10.5
			SB-CORE07-0.5-3743	13.5
			SB-CORE08-0.5-3745	24.5
			SB-CORE09-0.5-3747	14.3
			SB-CORE10-0.5-3749	14.4
			SB-EU131-3408-2.0	10.7
			SS208-011	33.2
			SS213-017	15.4 N
			SS-EU131-3352	10.5 N
			SS-EU132-3353	21.4
			SS-EU133-3354	10.2
			SS-MW229-3617	57.6
			TB202-2803-05.2-038	343
			TB202-2804-03.5-025	70.7
			TB202-2805-03.0-062	276
			TB203-2806-01.0-013	21.9
			TB203-2807-04.0-058	17.4
			TS203-2808-020	14.5

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SB-CORE02-0.5-3733	0.765 *
			SS208-011	2
			SS-EU132-3353	0.869
			TB203-2807-04.0-058	0.621 BE
			TS203-2808-020	2.04 E
Calcium	mg/Kg	58900	SB-CORE02-0.5-3733	170000 *
			SS208-011	124000
			SS-EU132-3353	74000 *
			TB202-2804-03.5-025	66500 E
Chromium	mg/Kg	25.8	SB-BH222-6.0-3664	39.7 *N
			SS208-011	63.5
			SS217-021	29.4 *
			SS-EU132-3353	69.1
			TB202-2803-05.2-038	27.5
			TB202-2804-03.5-025	26.4
			TB202-2805-03.0-062	28.6
			TB203-2806-01.0-013	34.4
			TB203-2807-04.0-058	26.4
Copper	mg/Kg	49.3	TS203-2808-020	26.8
			SB-CORE06-0.5-3741	49.6 E
			SS208-011	1050
			SS-EU132-3353	84.1
			TB202-2805-03.0-062	201 N
			TB203-2806-01.0-013	56.8 N
			TB203-2807-04.0-058	69.7 N
Iron	mg/Kg	36400	TS203-2808-020	76 N
			SB-CORE09-0.5-3747	52600
Lead	mg/Kg	37.6	SB-CORE02-0.5-3733	78.5 *E
			SS208-011	142
			SS217-021	58.8 *
			SS-EU132-3353	88.7
			TB203-2806-01.0-013	76 *E
Magnesium	mg/Kg	14800	TS203-2808-020	96.1 *E
			SB-CORE02-0.5-3733	55300 *
			SS208-011	43700
Mercury	mg/Kg	0.27	SS-EU132-3353	36800
			SB-CORE01-0.5-3731	0.432
			SS208-011	0.4
Nickel	mg/Kg	38	TB203-2806-01.0-013	1.31 *
			SS208-011	348
			TB203-2806-01.0-013	43 E

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	2860	SB213-097-7.5	3330 E
			SB-BH225-10.0-3667	3390 *
			SS208-011	6510
			SS-EU131-3352	3040 E
			TB202-2803-05.2-038	4650 E
			TB202-2804-03.5-025	3480 E
			TB202-2805-03.0-062	4740 E
			TB203-2806-01.0-013	3430 E
Selenium	mg/Kg	0.37	SB209-093-10	0.91 B
			SB213-097-3	0.72 BN
			SB213-097-7.5	0.76 BN
			SB-CORE04-0.5-3737	0.443 B
			SB-CORE05-0.5-3739	0.435 B
			SB-CORE06-0.5-3741	0.712 B
			SB-CORE07-0.5-3743	0.475 B
			SB-CORE08-0.5-3745	0.535 B
			SB-CORE10-0.5-3749	0.473 B
			SB-EU131-3408-2.0	0.878 B
			SS207-010	1.1 B
			SS208-011	0.65 B
			SS209-012	1
			SS213-017	0.91 BN
			SS217-021	1.1
			SS-EU131-3352	0.497 B
			SS-EU132-3353	0.869 B
			SS-EU133-3354	0.542 B
			SS-MW229-3617	1.13 N
			TB201-2800-05.0-036	0.582 BN
			TB201-2801-01.0-013	0.707 BN
			TB201-2802-01.0-001	0.534 BN
			TB202-2803-05.2-038	0.634 B
			TB202-2804-03.5-025	0.728 B
			TB202-2805-03.0-062	0.614 B
			TB203-2806-01.0-013	0.847 B
			TB203-2807-04.0-058	1.83
			TS203-2808-020	0.88 B
Sodium	mg/Kg	331	SB213-097-3	436 E
			SS208-011	1660
			TB202-2803-05.2-038	1780
			TB202-2804-03.5-025	406
			TB202-2805-03.0-062	954

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB209-093-10	0.11 B
			SB213-097-3	0.07 B
			SB213-097-7.5	0.09 B
			SB-BH222-6.0-3664	0.136
			SB-BH225-10.0-3667	0.132
			SB-CORE01-0.5-3731	0.098 B
			SB-CORE02-0.5-3733	0.089 B
			SB-CORE03-1.5-3735	0.061 B
			SB-CORE04-0.5-3737	0.112 B
			SB-CORE05-0.5-3739	0.121
			SB-CORE06-0.5-3741	0.149
			SB-CORE07-0.5-3743	0.09 B
			SB-CORE08-0.5-3745	0.11 B
			SB-CORE09-0.5-3747	0.102 B
			SB-CORE10-0.5-3749	0.124
			SB-EU131-3408-2.0	0.153
			SS207-010	0.12 B
			SS208-011	0.16
			SS209-012	0.1 B
			SS213-017	0.17
			SS217-021	0.14
			SS-EU131-3352	0.114 B
			SS-EU132-3353	0.145
			SS-EU133-3354	0.099 B
			SS-MW229-3617	0.136
			TB201-2800-05.0-036	0.17 E
			TB201-2801-01.0-013	0.174 E
			TB201-2802-01.0-001	0.144 E
			TB202-2803-05.2-038	0.165 E
			TB202-2804-03.5-025	0.176 E
			TB202-2805-03.0-062	0.218 E
			TB203-2806-01.0-013	0.242 E
			TB203-2807-04.0-058	0.26 E
			TS203-2808-020	0.189 E
Vanadium	mg/Kg	35.2	SS208-011	40.5
			TB202-2803-05.2-038	42.1 N
			TB202-2804-03.5-025	38.7 N
			TB202-2805-03.0-062	41.8 N
			TB203-2806-01.0-013	45.7 N
			TB203-2807-04.0-058	38 N

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	mg/Kg	266	SB-CORE02-0.5-3733	290 *
			SS208-011	495
			SS217-021	270
			TB203-2806-01.0-013	766
			TS203-2808-020	2450
PAHs				
Anthracene	μg/Kg	8	SB-CORE01-0.5-3731	35.3 J
			SS201-001	60.4 J
			SS203-003	55.6 J
			TS203-2808-020	22.6 J
Benzo(a)anthracene	μg/Kg	284	SB-CORE09-0.5-3747	379
			SS201-001	323 J
Benzo(a)pyrene	μg/Kg	313	SB-CORE09-0.5-3747	385
			SS201-001	383 J
Benzo(b)fluoranthene	μg/Kg	396	SB-CORE09-0.5-3747	700 P
			SS201-001	446
Benzo(g,h,i)perylene	μg/Kg	16	SB-CORE09-0.5-3747	181
			SS201-001	215 J
			SS203-003	191 J
			SS208-011	40.4 J
Chrysene	μg/Kg	378	SS201-001	440
Fluoranthene	μg/Kg	889	SS201-001	892
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	SB-CORE01-0.5-3731	21.3 J
			SS201-001	182 J
			SS203-003	188 J
			SS208-011	30.6 J
Naphthalene	μg/Kg	--	SS201-001	343 J
			SS203-003	483
			SS208-011	23.2 J
			SS-EU131-3352	11.2 J
			TB201-2801-01.0-013	110
			TB201-2802-01.0-001	78.6
Phenanthrene	μg/Kg	538	SS201-001	642
Pyrene	μg/Kg	716	SS201-001	925
PCBs				
Aroclor-1254	μg/Kg	--	SB-CORE01-0.5-3731	441
			SB-CORE06-0.5-3741	29.6
			SB-CORE10-0.5-3749	5.8
			SS208-011	208
			SS217-021	77.7

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SB-CORE01-0.5-3731	50.8
			SB-CORE04-0.5-3737	5.7
			SB-CORE05-0.5-3739	2.8 J
			SB-CORE06-0.5-3741	11.7 J
			SB-CORE07-0.5-3743	26.4
			SB-CORE09-0.5-3747	4.8
			SB-CORE10-0.5-3749	4.2
			SS216-020	14.9
			SS217-021	84.5 P
Pesticides				
4,4'-DDE	μg/Kg	--	SB-BH225-10.0-3667	4.12
			SB-CORE02-0.5-3733	0.878 J
			SB-CORE03-1.5-3735	0.704 J
			SB-CORE04-0.5-3737	1.28 J
			SB-CORE06-0.5-3741	0.508 J
			SS-MW229-3617	0.43 J
4,4'-DDT	μg/Kg	--	SB-BH225-10.0-3667	3.6
			SB-CORE02-0.5-3733	8.58
			SB-CORE03-1.5-3735	1.69
			SB-CORE04-0.5-3737	1.79
			SB-CORE05-0.5-3739	2.46
			SB-CORE06-0.5-3741	1.19 J
			SB-CORE09-0.5-3747	3.44
			SS-MW229-3617	2.14
Endrin aldehyde	μg/Kg	--	SB-CORE02-0.5-3733	5.72
			SB-CORE03-1.5-3735	0.579 J
			TB202-2803-05.2-038	0.7 JP
Radionuclides				
Actinium-227	pCi/g	0.08	SS220-402	1.95
			SS221-403	9.3
Alpha	pCi/g	15.1	SB220-412-1.0	22.8
			SB221-413-2.0	23.7
			SS201-001	29.8
			SS203-003	121
			SS207-010	16.9
			SS208-011	19.1
			SS209-012	16.1
			SS211-015	34.1
			SS212-016	19.6
			SS213-017	16
			SS214-018	21.7
			SS216-020	22.8
			SS220-402	60.3
			SS221-403	3030

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB220-412-1.0	30
			SS201-001	29.5
			SS203-003	70.1
			SS211-015	30.6
			SS212-016	32.9
			SS216-020	32
			SS220-402	50.4
			SS221-403	1180
Plutonium-239/240	pCi/g	--	SB-CORE01-0.5-3731	0.536
Radium-226	pCi/g	1.2	SB220-412-1.0	10.7
			SB221-413-2.0	1.48
			SS201-001	1.66
			SS203-003	1140
			SS207-010	1.53
			SS209-012	1.42
			SS210-014	1.66
			SS211-015	3.92
			SS212-016	1.71
			SS213-017	1.36
			SS216-020	1.52
			SS217-021	1.45
			SS220-402	33.4
			SS221-403	127
			SS2B004-536	1.47
			SS2B007-540	1.56
Thorium-228	pCi/g	1.64	TB203-2806-01.0-013	2.33
			TS203-2808-020	1.64
			SB220-412-1.0	2.1
			SB-BH225-10.0-3667	1.76
			SB-CORE09-0.5-3747	1.8
			TB202-2805-03.0-062	1.65

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB220-412-1.0	2.01
			SB221-413-2.0	2.38
			SS201-001	3.48
			SS203-003	6.48
			SS207-010	2.32
			SS208-011	1.79
			SS209-012	2.01
			SS210-014	2.01
			SS211-015	7.39
			SS212-016	2.88
			SS213-017	1.69
			SS214-018	1.54
			SS216-020	3.13
			SS217-021	2.17
			SS220-402	8.24
			SS221-403	978
			SS2B007-540	2.81
			SS-MW229-3617	1.61
			TB201-2802-01.0-001	1.52
Thorium-232	pCi/g	1.24	TB203-2806-01.0-013	4.63
			TS203-2808-020	3.68
Thorium-232	pCi/g	1.24	SB-CORE07-0.5-3743	1.26
			SS221-403	2.07
Total Uranium	µg/g	3.58	SB220-412-1.0	15.1
			SB221-413-2.0	4.48
			SS203-003	5.06
			SS207-010	3.96
			SS208-011	3.61
			SS220-402	21.1
			SS221-403	44.8
			SS2B004-536	9.69
			SS2B006-539	6.21
			SS2B007-540	4.44
			TB202-2803-05.2-038	3.61
			TB203-2806-01.0-013	4.23
			TB203-2807-04.0-058	13.1
			TB204-2916-08.0-030	3.73

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB220-412-1.0	4.58
			SB-CORE06-0.5-3741	2.39
			SS220-402	8.43
			SS221-403	29.7
			SS2B004-536	2.08
			SS2B006-539	2.02
			SS2B007-540	2.41
			TB203-2807-04.0-058	4.02
Uranium-235	pCi/g	0.0847	SB-BH225-10.0-3667	0.099
			SB-CORE06-0.5-3741	0.324
			SS208-011	0.17 J
			SS220-402	0.452
			SS221-403	1.2
Uranium-238	pCi/g	1.34	SB220-412-1.0	4.36
			SB221-413-2.0	1.84
			SB-CORE06-0.5-3741	2.08
			SS201-001	1.37
			SS203-003	1.8
			SS207-010	2.15
			SS220-402	6.8
			SS221-403	26.2
			SS2B004-536	2.25
			SS2B006-539	2.26
			SS2B007-540	1.61
			TB203-2807-04.0-058	4.38
			TB204-2916-08.0-030	1.35
			TB204-2918-07.0-070	1.36
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS201-001	490
			SS203-003	819
			SS208-011	29 J
			SS216-020	25.4 J
			TB201-2801-01.0-013	152
			TB201-2802-01.0-001	103
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SB-BH224-10.0-3666	1.54
			SB-CORE03-1.5-3735	1.14
			TB201-2800-05.0-036	0.85
2-Butanone	μg/Kg	--	SB-BH222-6.0-3664	6.98
			TB202-2805-03.0-062	8.2

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SB-BH222-6.0-3664	31.3
			SB-BH224-10.0-3666	15.6
			SB-BH225-10.0-3667	5.61
			SB-CORE06-0.5-3741	7.94
			TB202-2805-03.0-062	59.9
			TB203-2806-01.0-013	10.3
			TB203-2807-04.0-058	11.3
			TS203-2808-020	9.8
cis-1,2-Dichloroethene	$\mu\text{g/Kg}$	--	SB201-085-10	999 D
			SB-BH224-10.0-3666	17.8
			SB-CORE04-0.5-3737	66.5 J
			SB-CORE06-0.5-3741	0.77 J
Methylene chloride	$\mu\text{g/Kg}$	--	SB209-093-10	4.1 J
			SS208-011	6.2
			SS210-014	15.2
			TB202-2805-03.0-062	1.6 J
			TB203-2807-04.0-058	1.7 J
			TS203-2808-020	1.3 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	SB-BH224-10.0-3666	0.734 J
			SB-CORE01-0.5-3731	0.711 J
			SB-CORE02-0.5-3733	1.15
			SB-CORE04-0.5-3737	12.9
			SB-CORE08-0.5-3745	1.73
			SB-CORE09-0.5-3747	0.962
			SB-CORE10-0.5-3749	5.47
			SS216-020	2.7
			TB203-2806-01.0-013	13.1
Toluene	$\mu\text{g/Kg}$	--	SB201-085-10	2.5
			SB209-093-10	4.7
			SB-CORE02-0.5-3733	0.495 J
			SS201-001	3.7
			TB201-2800-05.0-036	0.44 J
			TB201-2801-01.0-013	0.58 J
			TB201-2802-01.0-001	0.62 J
			TB202-2805-03.0-062	0.58 J
			TB203-2806-01.0-013	0.34 J
			TB203-2807-04.0-058	0.61 J
			TS203-2808-020	0.39 J
trans-1,2-Dichloroethene	$\mu\text{g/Kg}$	--	SB201-085-10	5.4
			SB-BH224-10.0-3666	1 J
			SB-CORE04-0.5-3737	30.3

* Data qualifier included with concentration value

Table 4-61
Exposure Unit 13
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Trichloroethene	$\mu\text{g/Kg}$	--	SB201-085-10	6700 D
			SB-BH224-10.0-3666	2.85
			SB-CORE01-0.5-3731	2.22
			SB-CORE03-1.5-3735	3.35
			SB-CORE04-0.5-3737	227
			SB-CORE05-0.5-3739	0.437 J
			SB-CORE06-0.5-3741	2.09
			SB-CORE08-0.5-3745	1.09
			SB-CORE09-0.5-3747	0.459 J
			SB-CORE10-0.5-3749	1.78
			SS201-001	1 J
			TB203-2806-01.0-013	0.77 J

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB-BH223-3.0-3665	36900 *
			SS816-703	147000
			TB205-2919-03.0-055	22800
Antimony	mg/Kg	0.94	SB-BH223-3.0-3665	1.32 BN
			SS-EU143-3357	1.38 N
Barium	mg/Kg	263	SB-BH223-3.0-3665	378 *N
			SS816-703	2210
Beryllium	mg/Kg	1	SB-BH223-3.0-3665	1.69
			SS816-703	28
			TB205-2919-03.0-055	1.09
Boron	mg/Kg	10.1	SB202-086-10	167
			SB-BH223-3.0-3665	1580 N*
			SS202-002	283
			SS2B003-535	24.2
			SS816-703	361
			TB205-2919-03.0-055	543
			TB205-2920-06.5-060	140
Cadmium	mg/Kg	0.53	TB205-2921-08.0-001	73.4
			SB804-157-7.5	0.74
			SB-BH223-3.0-3665	1.04 *
			SS804-073	0.58 B
Calcium	mg/Kg	58900	SS816-703	0.588 B
			TB205-2920-06.5-060	240000
				63300
Chromium	mg/Kg	25.8	SB202-086-10	28.8
			SB-BH223-3.0-3665	38 *N
			SS816-703	37.9
			TB205-2919-03.0-055	28.4
Copper	mg/Kg	49.3	SB-BH223-3.0-3665	94.7 *N
			SS816-703	58.3
Lead	mg/Kg	37.6	SS2B003-535	67.8
Lithium	mg/Kg	36.8	SB-BH223-3.0-3665	46.8 NE
Magnesium	mg/Kg	14800	SS816-703	232000
Potassium	mg/Kg	2860	SB202-086-10	3190
			SB-BH223-3.0-3665	4670 *
			SS816-703	12200

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB202-086-10	0.72 B
			SB803-156-7.5	1.2
			SB-BH223-3.0-3665	1.13 BN
			SS202-002	0.64 B
			SS2B003-535	1.44 B
			SS803-072	1.3
			SS804-073	1.3
			SS816-703	5.25
			SS-EU141-3355	0.744 B
			SS-EU142-3356	0.934 B
			SS-EU143-3357	0.791 B
			TB205-2919-03.0-055	0.461 B
			TB205-2920-06.5-060	0.722 B
			TB205-2921-08.0-001	0.513 B
Silver	mg/Kg	0.27	SS2B003-535	0.404 BN
Sodium	mg/Kg	331	SB202-086-10	344
			SB-BH223-3.0-3665	6950 N
			SS202-002	678
			SS816-703	4690
			TB205-2919-03.0-055	2160
Thallium	mg/Kg	--	SB202-086-10	0.2
			SB803-156-7.5	0.14
			SB804-157-7.5	0.16
			SB-BH223-3.0-3665	0.31
			SS202-002	0.11 B
			SS2B003-535	0.262 B
			SS803-072	0.12 B
			SS804-073	0.15
			SS816-703	0.032 B
			SS-EU141-3355	0.11
			SS-EU142-3356	0.123
			SS-EU143-3357	0.133
			TB205-2919-03.0-055	0.153
			TB205-2920-06.5-060	0.071 B
			TB205-2921-08.0-001	0.049 B
Vanadium	mg/Kg	35.2	SB202-086-10	35.4
			SB-BH223-3.0-3665	65.9 *N
			SS816-703	35.7
			TB205-2919-03.0-055	50.8
Zinc	mg/Kg	266	SS816-703	403
PAHs				
Naphthalene	µg/Kg	--	SS2B003-535	1410 J
Pesticides				
4,4'-DDT	µg/Kg	--	SB-BH223-3.0-3665	0.936 J

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides				
Actinium-227	pCi/g	0.08	SS816-703	5.11
			SS8B001-2430	1 J
Alpha	pCi/g	15.1	SB803-156-7.5	20.3
			SB804-157-7.5	15.8
			SB-BH223-3.0-3665	21.8
			SS804-073	22.1
Beta	pCi/g	28.9	SB202-086-10	34.4
			SB803-156-7.5	40.7
Cesium-137	pCi/g	0.343	SB804-157-7.5	0.473 J
			SS2B003-535	0.542
			SS2D006-552	0.646
			SS2D008-554	0.433
			SS817-704	1.27
			SS818-705	0.469
			SS8B003-2433	0.357
			SS8B006-2436	0.452
Radium-226	pCi/g	1.2	SB804-157-7.5	1.31
			SB-BH223-3.0-3665	1.24
			SS2B003-535	1.81
			SS2B008-541	1.47
			SS2B014-2374	126
			SS2D006-552	1.57
			SS2D007-553	1.83
			SS2D008-554	1.46
			SS815-702	3.07
			SS816-703	299
			SS817-704	2.72
			SS818-705	1.66
			SS8B001-2430	16.8 J
			SS8B003-2433	1.21
			SS8B006-2436	1.33

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB-BH223-3.0-3665	1.49
			SS2B003-535	3.94
			SS2B008-541	2.76
			SS2B009-542	1.99
			SS2B010-543	1.46
			SS2B014-2374	4.3
			SS2D006-552	1.91
			SS2D007-553	1.64
			SS2D008-554	2.84
			SS815-702	4.47
			SS816-703	3.39
			SS818-705	1.8
			SS8B001-2430	4.11 J
			SS8B003-2433	1.44
			SS8B005-2435	1.78
			SS8B006-2436	2.71
			SS8B007-2437	2.01
			SS-EU141-3355	1.57
Total Uranium	µg/g	3.58	SS202-002	6.34
			SS2B003-535	9.59
			SS2B008-541	5.62
			SS2B011-544	3.89
			SS2B014-2374	9.96
			SS2B015-2376	3.93
			SS2B016-2377	4.01
			SS2D010-2382	4.6
			SS804-073	4.41 J
			SS815-702	9.23
			SS816-703	8.94
			SS817-704	4.79
			SS818-705	5.52
			SS8B005-2435	4.07
			SS8B007-2437	9.69
			SS-EU141-3355	5.73
			TB205-2919-03.0-055	4.36

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB-BH223-3.0-3665	5.6
			SS202-002	1.93
			SS2B003-535	4.44
			SS2B010-543	1.9
			SS2B014-2374	3.68
			SS2D006-552	1.76
			SS804-073	2.11
			SS815-702	3.71
			SS816-703	2.28
			SS817-704	2.07
			SS818-705	2.63
			SS8B007-2437	4.02
			SS-EU141-3355	2.38
Uranium-235	pCi/g	0.0847	SB8B002-2432-2.0	0.12
			SB-BH223-3.0-3665	0.898
			SS202-002	0.14 J
			SS2B014-2374	0.321
			SS815-702	0.243
			SS817-704	0.132
			SS8B001-2430	0.107 J
			SS8B007-2437	0.234
			SS-EU141-3355	0.224
			TB205-2919-03.0-055	0.0962
Uranium-238	pCi/g	1.34	SB-BH223-3.0-3665	3.44
			SS202-002	1.91
			SS2B003-535	2.23
			SS2B008-541	1.42
			SS2B014-2374	3.82
			SS2B016-2377	1.52
			SS804-073	1.79
			SS815-702	3.13
			SS816-703	2.78
			SS817-704	1.77
			SS818-705	1.84
			SS8B007-2437	3.7
			SS-EU141-3355	1.75
Semivolatile Organics				
2-Methylnaphthalene	μg/Kg	--	SS2B003-535	2080
Di-n-octylphthalate	μg/Kg	--	SS2B008-541	506
m,p-Cresols	μg/Kg	--	SB-BH223-3.0-3665	51.9 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	TB205-2921-08.0-001	1
2-Butanone	μg/Kg	--	SB-BH223-3.0-3665	54.9

* Data qualifier included with concentration value

Table 4-62
Exposure Unit 14
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SB202-086-10	2.2 J
			SB-BH223-3.0-3665	234
			TB205-2919-03.0-055	36.3
			TB205-2920-06.5-060	27.3
			TB205-2921-08.0-001	13
Carbon disulfide	$\mu\text{g/Kg}$	--	SB-BH223-3.0-3665	4.21 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	TB205-2919-03.0-055	0.83 J
Toluene	$\mu\text{g/Kg}$	--	SB-BH223-3.0-3665	1.35
			TB205-2919-03.0-055	0.65 J
Trichloroethene	$\mu\text{g/Kg}$	--	TB205-2919-03.0-055	0.56 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	mg/Kg	19100	SB414-135-21	23300
			SB903-2085-2.0	19800
			SB-BH218-15.0-3660	20900
			SB-BH219-6.0-3661	20500
			SB-BH220-20.0-3662	20800
			SB-BH223-3.0-3665	36900 *
			SB-DRUM01-3370-1.0	24600 E*
			SB-DRUM06-3396-1.0	19600
			SB-EU081-3318-1.5	20000 E*
			SB-EU101-3400-1.0	21600
			SB-EU102-3323-2.0	22200
			SB-EU111-3325-1.5	22000
			SB-MW228-11.0-3615	23200
			SB-MW229-11.0-3614	23200
			SB-MW314-15.0-3594	22600 *
			SB-OTFL11-13.0-3658	25000
			SB-TWP835-15.0-3516	19200 *
			SB-TWP846-16.0-3549	19400
			SB-TWP847-10.0-3552	23100
			SB-TWP848-11.0-3555	19500
			SB-TWP849-11.0-3558	19400
			SD701-293	20600
			SD725-353	20600
			SS402-039	40100
			SS418-055	21800
			SS4A012-611	24400
			SS816-703	147000
			SS903-2083	24300
			SS-DRUM01-3369	38400 *
			SS-DRUM05-3381	20100 J
			SS-EU051-3334	32400 E*
			SS-EU111-3346	19800
			SS-EU112-3347	22900
			SS-EU121-3349	23200
			SS-EU122-3350	19900
			SS-TWP844-3542	20600
			SS-TWP845-3545	19900
			SS-TWP847-3551	21100
			SS-TWP848-3554	22700
			SS-TWP849-3557	19700
			SS-TWP851-3563	21900 *
			SS-TWP852-3566	19500
			SS-TWP854-3572	19900
			TB202-2803-05.2-038	21900

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	mg/Kg	19100	TB202-2804-03.5-025	20800
			TB202-2805-03.0-062	21400
			TB203-2806-01.0-013	24100
			TB203-2807-04.0-058	22400
			TB205-2919-03.0-055	22800
			TB302-2813-01.0-042	21800
			TB406-2827-02.0-027	57400
			TB406-2828-01.0-010	22700
			TB408-2829-02.7-005	25400
			TB501-2847-01.5-130	19600
			TB810-2907-02.9-012	19500 *
			TB811-2911-02.3-012	20900 *
			TB811-2912-04.0-047	19800 *
			TB812-2913-03.0-055	23600
			TB812-2915-05.0-001	21300

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Antimony	mg/Kg	0.94	C5-SO-SO-D800-1	1.1 J
			SB-BH219-6.0-3661	0.981 BN
			SB-BH221-15.0-3663	1.41 BN
			SB-BH223-3.0-3665	1.32 BN
			SB-BH225-10.0-3667	1.15 BN
			SB-DRUM04-3379-1.0	1.33 N
			SB-DRUM05-3382-1.0	1.05 BN
			SB-EU011-3300-2.0	1.04 BN
			SB-EU013-3302-1.0	0.993 BN
			SB-EU022-3306-2.0	1.22 N
			SB-EU032-3309-1.0	0.974 BN
			SB-EU042-3311-1.0	1.04 BN
			SB-EU051-3312-1.0	1.04 BN
			SB-EU062-3315-2.0	1.1 BN
			SB-EU071-3316-2.0	1.1 BN
			SB-EU131-3408-2.0	0.98 BN
			SB-MW228-11.0-3615	1.63 BN*
			SB-MW424-14.0-3621	1.63 BN
			SB-MW860-15.0-3597	1.41 BN
			SB-MW861-34.5-3596	2.88 BN
			SB-MW862-11.5-3603	1.92 BN
			SB-OTFL12-13.5-3659	1.08 BN
			SB-TWP831-15.0-3504	1.65 BN
			SB-TWP832-12.5-3507	1.54 N
			SB-TWP835-15.0-3516	2.19 BN
			SB-TWP836-15.0-3519	1.64 BN
			SB-TWP837-19.0-3522	1.96 BN*
			SB-TWP839-14.0-3528	1.49 BN
			SB-TWP845-13.0-3546	2.57 BN*
			SB-TWP847-10.0-3552	1 J
			SB-TWP848-11.0-3555	3.24 N
			SB-TWP849-11.0-3558	2.6 BN*
			SB-TWP850-17.0-3561	1.9 BN
			SB-TWP851-18.0-3564	3 J
			SB-TWP852-15.0-3567	1 BN
			SB-TWP856-11.0-3579	1.34 BN
			SS208-011	2.2 N
			SS-DRUM01-3369	1.83 N
			SS-DRUM02-3372	3.57 N
			SS-DRUM04-3378	1.54 N
			SS-DRUM05-3381	2 J
			SS-EU021-3328	1.15 N
			SS-EU022-3329	1.13 BN
			SS-EU071-3337	1.1 BN

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Antimony	mg/Kg	0.94	SS-EU133-3354	1.3 N
			SS-EU143-3357	1.38 N
			SS-MW861-3599	0.951 BN
			SS-MW862-3602	2.59 BN*
			SS-MW863-3605	3.92 J
			SS-TWP834-3512	1.34 N
			SS-TWP837-3521	1.52 BN
			SS-TWP839-3527	1.01 BN
			SS-TWP844-3542	2.09 BN*
			SS-TWP845-3545	1.79 BN*
			SS-TWP846-3548	1.08 BN*
			SS-TWP848-3554	2.3 BN
			SS-TWP849-3557	1.81 BN
			SS-TWP850-3560	2.35 BN
			SS-TWP851-3563	1.39 BN
			SS-TWP857-3581	1.87 BN
Arsenic	mg/Kg	8.73	SB816-733-12.0	20.6
			SB-CORE01-0.5-3731	10.7
			SD732-370	11.7
			SS204-004	22.5
			SS217-021	11.2
			SS2B001-532	9.03 N
			SS2B002-534	51.8 N
			SS2B003-535	9.32 N
			SS504-692	8.81 N
			SS-DRUM02-3372	17.2 N
			SS-DRUM04-3378	13.8 N
			SS-EU031-3330	11 *
			TB205-2920-06.5-060	9.3
Barium	mg/Kg	263	C5-VS-SO-B300-1	279 J
			SB-BH223-3.0-3665	378 *N
			SB-EU022-3306-2.0	290 N*
			SS402-039	481
			SS816-703	2210
			SS-DRUM04-3378	2670 N*
			SS-EU051-3334	441 *
			SS-EU121-3349	301 N*
			TB202-2805-03.0-062	315
			TB406-2827-02.0-027	325
			TB408-2831-04.7-054	264

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	mg/Kg	1	SB414-135-21	1.2
			SB816-733-12.0	1.06
			SB-BH220-20.0-3662	1.03 B
			SB-BH223-3.0-3665	1.69
			SB-DRUM01-3370-1.0	1.5 E*
			SB-DRUM06-3396-1.0	1.31
			SB-EU051-3312-1.0	1.3
			SB-EU101-3400-1.0	1.1
			SB-EU102-3323-2.0	1.14
			SB-EU111-3325-1.5	1.01
			SB-EU121-3326-2.0	1.03
			SB-EU122-3407-1.0	1.03
			SB-MW228-11.0-3615	1.09 B
			SB-MW229-11.0-3614	1.11
			SB-MW314-15.0-3594	1.07
			SB-OTFL11-13.0-3658	1.12 B
			SB-TWP847-10.0-3552	1.02 J
			SD701-293	1.1
			SD704-302	1.8 E
			SD725-353	1.1 B
			SS2B001-532	1.03
			SS2B002-534	1.79
			SS308-032	1.6
			SS402-039	5.2
			SS4A012-611	2.38
			SS816-703	28
			SS903-2083	1.15
			SS-DRUM01-3369	3.42
			SS-EU051-3334	7.7 E*
			SS-EU112-3347	1.2
			SS-EU121-3349	1.49
			SS-EU122-3350	1.1
			SS-TWP848-3554	1.24 B
			SS-TWP852-3566	1.04 B
			TB202-2805-03.0-062	1.04
			TB203-2806-01.0-013	1.13
			TB203-2807-04.0-058	1.25
			TB205-2919-03.0-055	1.09
			TB406-2827-02.0-027	2.2
			TB408-2829-02.7-005	1.29
			TB812-2913-03.0-055	1.14

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SB202-086-10	167
			SB208-092-12	11.1
			SB213-097-12.5	14.8 N
			SB213-097-3	17 N
			SB213-097-7.5	15.4 N
			SB215-099-7.5	27.9 *
			SB406-123-18	11.1
			SB411-129-20	12.3
			SB414-135-21	16
			SB418-140-19	12.1
			SB502-145-13	12.5
			SB805-158-7.5	11.5
			SB811-164-23	11
			SB816-733-12.0	11.1
			SB902-2082-2.0	12.2
			SB903-2085-2.0	13.7
			SB904-2088-3.0	10.4
			SB905-2090-2.0	14.7
			SB-BH218-15.0-3660	16.9 B
			SB-BH219-6.0-3661	11
			SB-BH220-20.0-3662	19.6
			SB-BH221-15.0-3663	15.3 B
			SB-BH222-6.0-3664	15.8 N*
			SB-BH223-3.0-3665	1580 N*
			SB-BH225-10.0-3667	26.2 N*
			SB-BH226-12.0-3668	23.5
			SB-BH227-15.0-3669	22.3
			SB-CORE03-1.5-3735	57.9
			SB-CORE04-0.5-3737	35.3
			SB-CORE05-0.5-3739	16.8
			SB-CORE06-0.5-3741	10.5
			SB-CORE07-0.5-3743	13.5
			SB-CORE08-0.5-3745	24.5
			SB-CORE09-0.5-3747	14.3
			SB-CORE10-0.5-3749	14.4
			SB-DRUM01-3370-1.0	40.5 E*N
			SB-DRUM05-3382-1.0	24.9 *N
			SB-DRUM06-3396-1.0	25.5 N
			SB-DRUM07-3399-1.0	10.5 N
			SB-EU032-3309-1.0	10.6
			SB-EU051-3312-1.0	17.6 *N
			SB-EU081-3318-1.5	36.2 E*N
			SB-EU082-3319-1.5	15.1 N
			SB-EU093-3322-2.0	12.6 E*N

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SB-EU101-3400-1.0	15.8 N
			SB-EU102-3323-2.0	10.3 N
			SB-EU111-3325-1.5	11.6 N
			SB-EU121-3326-2.0	15.9 N
			SB-EU122-3407-1.0	11.3 J
			SB-EU131-3408-2.0	10.7
			SB-MW228-11.0-3615	30.9 N
			SB-MW229-11.0-3614	51.5
			SB-MW313-11.0-3591	14 N
			SB-MW314-15.0-3594	20.2 N
			SB-MW422-15.0-3609	13.2 N
			SB-MW423-15.0-3612	15.1 N
			SB-MW862-11.5-3603	13.1 B
			SB-OTFL11-13.0-3658	19.8
			SB-OTFL12-13.5-3659	14.9
			SB-TWP830-15.0-3501	13.7 N*
			SB-TWP832-12.5-3507	16.8 N*
			SB-TWP834-14.0-3513	15.4
			SB-TWP835-15.0-3516	14.1 B
			SB-TWP836-15.0-3519	13.3 B
			SB-TWP837-19.0-3522	13 BN
			SB-TWP838-14.0-3525	16.3
			SB-TWP839-14.0-3528	15
			SB-TWP840-12.0-3531	14.5
			SB-TWP841-10.0-3534	14.6 N
			SB-TWP843-10.0-3540	15.7
			SB-TWP846-16.0-3549	14.3 BN
			SB-TWP847-10.0-3552	15.1 J
			SB-TWP848-11.0-3555	15.2 B
			SB-TWP849-11.0-3558	13.7 N
			SB-TWP851-18.0-3564	10.2 J
			SB-TWP853-16.5-3570	15.5
			SB-TWP854-13.0-3573	14.9 B
			SB-TWP859-18.0-3588	16.4
			SD704-302	20 *
			SD713-324	10.5 *
			SD725-353	16
			SS202-002	283
			SS204-004	21
			SS208-011	33.2
			SS213-017	15.4 N
			SS215-019	27.7 *
			SS2B001-532	23.6
			SS2B002-534	37.6

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SS2B003-535	24.2
			SS311-035	10.8
			SS402-039	147
			SS410-047	15.5
			SS415-052	10.5
			SS418-055	97.1
			SS419-056	17.1 *
			SS4A012-611	10.2
			SS504-692	10.9
			SS816-703	361
			SS904-2087	14.9
			SS905-2089	10.9
			SS906-2091	11.2
			SS907-2093	10.2
			SS908-2095	12.1
			SS909-2097	10.4 *
			SS910-2099	12.6 *
			SS-DRUM01-3369	85.8
			SS-DRUM02-3372	280
			SS-DRUM04-3378	12
			SS-DRUM05-3381	313 J
			SS-DRUM06-3395	23.4 N
			SS-DRUM07-3398	23.5 N
			SS-EU051-3334	88.2 E*N
			SS-EU081-3339	16.5 E*N
			SS-EU101-3343	11.7 N
			SS-EU102-3344	12.5 N
			SS-EU112-3347	12.4 N
			SS-EU113-3348	14.8
			SS-EU121-3349	12.8 N
			SS-EU131-3352	10.5 N
			SS-EU132-3353	21.4
			SS-EU133-3354	10.2
			SS-MW229-3617	57.6
			SS-MW313-3590	14.4 N
			SS-MW422-3608	11.8 N
			SS-MW423-3611	12.6 N
			SS-TWP831-3503	12.1 B
			SS-TWP832-3506	11.4 N*
			SS-TWP833-3509	12.8
			SS-TWP834-3512	12.9
			SS-TWP838-3524	12.1 B
			SS-TWP840-3530	10.5
			SS-TWP841-3533	10.2 N

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SS-TWP842-3536	12.3
			SS-TWP847-3551	10.3 BN
			SS-TWP848-3554	12.8 B
			SS-TWP850-3560	11.3 B
			SS-TWP852-3566	14.4 B
			SS-TWP854-3572	13.6 B
			SS-TWP855-3575	11.8 B
			SS-TWP858-3584	13.6
			SS-TWP859-3587	12.8
			TB202-2803-05.2-038	343
			TB202-2804-03.5-025	70.7
			TB202-2805-03.0-062	276
			TB203-2806-01.0-013	21.9
			TB203-2807-04.0-058	17.4
			TB205-2919-03.0-055	543
			TB205-2920-06.5-060	140
			TB205-2921-08.0-001	73.4
			TB302-2813-01.0-042	12.2
			TB403-2821-04.0-008	12.1
			TB403-2823-08.0-045	15
			TB406-2826-07.0-043	19.3
			TB406-2827-02.0-027	477
			TB406-2828-01.0-010	240
			TB408-2829-02.7-005	19
			TB408-2830-03.9-021	16.1
			TB408-2831-04.7-054	15.2
			TB802A-2903-03.8-096	12.3
			TB810-2907-02.9-012	11.2
			TB810-2908-01.8-041	13.4
			TB811-2911-02.3-012	11.5
			TB811-2912-04.0-047	14
			TB812-2915-05.0-001	14.3
			TS203-2808-020	14.5

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SB215-099-7.5	0.93
			SB304-106-9	0.73
			SB306-111-12.5	0.63
			SB307-112-10	0.6
			SB310-115-8.5	0.65
			SB414-135-21	2
			SB416-137-21	0.6
			SB418-140-19	0.55
			SB419-141-17	0.66
			SB421-143-16	0.69
			SB423-719-10.0	0.691
			SB601-150-13	0.93
			SB607-728-17.0	0.665
			SB804-157-7.5	0.74
			SB811-164-23	0.76
			SB825-742-9.5	0.99
			SB-BH223-3.0-3665	1.04 *
			SB-CORE02-0.5-3733	0.765 *
			SB-EU042-3311-1.0	0.613
			SD704-302	0.95
			SD712-319	0.68
			SD713-324	1.1
			SD723-349	1.2
			SD731-368	0.73
			SD732-370	0.86
			SD733-373	0.69 B
			SS208-011	2
			SS215-019	0.7
			SS304-028	0.87
			SS306-030	0.68
			SS308-032	0.56 B
			SS311-035	0.65 B
			SS414-051	0.58 B
			SS416-053	0.61
			SS419-056	0.67
			SS421-058	0.91
			SS4A012-611	0.964
			SS4C001-618	0.534 B
			SS605-697	0.751
			SS804-073	0.58 B
			SS816-703	0.588 B
			SS825-713	0.744
			SS-DRUM02-3372	0.624 B
			SS-DRUM05-3381	0.559 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SS-EU121-3349	1.29
			SS-EU132-3353	0.869
			SS-MW863-3605	0.623 J
			TB203-2807-04.0-058	0.621 BE
			TB301-2811-01.0-029	1.04
			TB406-2827-02.0-027	0.932 E
			TS203-2808-020	2.04 E
Calcium	mg/Kg	58900	C5-SO-SO-D800-10	60800
			SB414-135-21	98400
			SB417-138-3	69800
			SB825-742-9.5	60300
			SB-CORE02-0.5-3733	170000 *
			SB-EU051-3312-1.0	60400
			SB-MW863-32.0-3606	82200
			SB-OTFL11-13.0-3658	69200
			SB-TWP837-19.0-3522	63300 *
			SB-TWP844-11.0-3543	71700 *
			SB-TWP847-10.0-3552	64700 J
			SB-TWP850-17.0-3561	60100
			SS208-011	124000
			SS308-032	99000
			SS311-035	90600
			SS402-039	238000 *
			SS412-049	93600 E
			SS4A012-611	88100
			SS816-703	240000
			SS910-2099	62100 *
			SS-EU051-3334	179000 *
			SS-EU132-3353	74000 *
			SS-MW313-3590	70600 *
			SS-TWP830-3500	104000 *
			SS-TWP843-3539	64500
			SS-TWP853-3569	110000
			SS-TWP859-3587	86900
			TB202-2804-03.5-025	66500 E
			TB205-2920-06.5-060	63300
			TB408-2830-03.9-021	76400 E
			TB408-2831-04.7-054	62700 E
			TB810-2908-01.8-041	74900
			TB812-2915-05.0-001	62600

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	mg/Kg	25.8	SB202-086-10	28.8
			SB206-090-9	28.2
			SB208-092-12	27.9
			SB213-097-12.5	27.4
			SB411-129-20	26.2 *
			SB414-135-21	35.3
			SB415-136-12.5	26.1 *
			SB418-140-19	61.7 *
			SB502-145-13	27.6 *
			SB816-733-12.0	27.1
			SB-BH218-15.0-3660	29.8
			SB-BH219-6.0-3661	26.5
			SB-BH220-20.0-3662	30.1
			SB-BH221-15.0-3663	26.8
			SB-BH222-6.0-3664	39.7 *N
			SB-BH223-3.0-3665	38 *N
			SB-DRUM01-3370-1.0	31.5 *N
			SB-EU071-3316-2.0	28.1 *N
			SB-EU081-3318-1.5	27.3 *N
			SB-EU101-3400-1.0	31.9
			SB-EU102-3323-2.0	30.6
			SB-EU111-3325-1.5	28
			SB-EU121-3326-2.0	27.1
			SB-EU122-3407-1.0	26.6
			SB-MW228-11.0-3615	31.5
			SB-MW229-11.0-3614	28.6
			SB-MW314-15.0-3594	26.7
			SB-OTFL11-13.0-3658	36.2
			SB-OTFL12-13.5-3659	27.2
			SB-TWP832-12.5-3507	27.8 *N
			SB-TWP835-15.0-3516	27.7
			SB-TWP846-16.0-3549	26.7
			SB-TWP847-10.0-3552	32.4
			SB-TWP848-11.0-3555	28.3
			SB-TWP849-11.0-3558	26.8
			SB-TWP853-16.5-3570	26.1
			SB-TWP854-13.0-3573	27.3
			SD701-293	26.8
			SD723-349	26.6 E
			SD725-353	42.4
			SS208-011	63.5
			SS217-021	29.4 *
			SS401-037	26.1
			SS407-044	36.8 E

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	mg/Kg	25.8	SS417-054	196
			SS418-055	26.7 *
			SS4A012-611	67
			SS816-703	37.9
			SS903-2083	28.9
			SS-DRUM01-3369	29.4 *
			SS-DRUM02-3372	37.9 *
			SS-DRUM04-3378	88.7 *
			SS-DRUM05-3381	49.4 J
			SS-EU021-3328	30.9 *
			SS-EU051-3334	30.1 *N
			SS-EU112-3347	28.7
			SS-EU121-3349	28.1
			SS-EU122-3350	27.6
			SS-EU132-3353	69.1
			SS-TWP847-3551	30.4
			SS-TWP848-3554	62.1
			SS-TWP849-3557	26.5
			SS-TWP851-3563	26.4
			SS-TWP852-3566	27.9
			SS-TWP854-3572	26.8
			TB202-2803-05.2-038	27.5
			TB202-2804-03.5-025	26.4
			TB202-2805-03.0-062	28.6
			TB203-2806-01.0-013	34.4
			TB203-2807-04.0-058	26.4
			TB205-2919-03.0-055	28.4
			TB301-2811-01.0-029	38.2
			TB302-2813-01.0-042	26.2
			TB406-2827-02.0-027	37
			TB408-2829-02.7-005	30.9
			TB812-2913-03.0-055	30.6
			TB812-2915-05.0-001	27.3
			TS203-2808-020	26.8

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	mg/Kg	49.3	SB303-105-8	134
			SB414-135-21	63.3
			SB418-140-19	61.9
			SB-BH223-3.0-3665	94.7 *N
			SB-CORE06-0.5-3741	49.6 E
			SB-DRUM04-3379-1.0	55 *N
			SB-DRUM06-3396-1.0	91.6
			SB-EU012-3301-1.0	56.7 *N
			SB-EU014-3303-1.0	146 *N
			SB-EU091-3320-2.0	53.3 J
			SD725-353	59.2
			SS208-011	1050
			SS308-032	52.3
			SS404-041	55 N
			SS410-047	51
			SS413-050	75.4
			SS418-055	50.1
			SS4A012-611	57.6
			SS4D007-621	50.3
			SS813-700	54 E*
			SS816-703	58.3
			SS-DRUM02-3372	159 *N
			SS-DRUM04-3378	76.2 *N
			SS-DRUM05-3381	590 J
			SS-DRUM06-3395	270
			SS-EU051-3334	58.1 E*N
			SS-EU121-3349	99.8
			SS-EU132-3353	84.1
			SS-MW313-3590	129 *
			TB202-2805-03.0-062	201 N
			TB203-2806-01.0-013	56.8 N
			TB203-2807-04.0-058	69.7 N
			TB301-2810-01.5-003	69.5
			TB301-2811-01.0-029	65.8
			TB406-2827-02.0-027	87.1 N
			TS203-2808-020	76 N

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Iron	mg/Kg	36400	SB414-135-21	42800
			SB816-733-12.0	44000
			SB-CORE09-0.5-3747	52600
			SB-DRUM04-3379-1.0	36700 *
			SB-EU102-3323-2.0	36900
			SB-EU121-3326-2.0	38000
			SB-EU122-3407-1.0	37200
			SD701-293	38800
			SD725-353	37300
			SS2B002-534	39000
			SS403-040	39500
			SS-DRUM02-3372	105000 *
			SS-DRUM04-3378	50400 *
			SS-DRUM05-3381	154000 J
			TB301-2810-01.5-003	39300
			TB408-2829-02.7-005	37100
			TB501-2847-01.5-130	36500
			TB501-2848-03.0-095	36900
			TB812-2913-03.0-055	37700

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lead	mg/Kg	37.6	C5-SO-SO-D800-1	76.9 *
			SB801-154-18	50.5
			SB-CORE02-0.5-3733	78.5 *E
			SB-EU042-3311-1.0	598 *
			SD732-370	47.3
			SD734-375	38.9
			SS208-011	142
			SS217-021	58.8 *
			SS2B003-535	67.8
			SS303-027	39.9
			SS308-032	99.8 N
			SS311-035	72 *
			SS403-040	588
			SS404-041	48.8
			SS406-043	42.8
			SS409-046	70.2
			SS413-050	686
			SS414-051	53.1
			SS415-052	41.4
			SS417-054	48.8
			SS418-055	38.1
			SS4A008-606	38.3
			SS4A010-608	96.6
			SS4A012-611	67.8
			SS4B003-614	49.7
			SS4C001-618	140
			SS4D005-619	54.7
			SS4D007-621	39.2
			SS504-692	37.7 *E
			SS906-2091	47.5 E
			SS-DRUM01-3369	38 *
			SS-DRUM02-3372	391 *
			SS-DRUM04-3378	149 *
			SS-DRUM07-3398	64.8
			SS-EU132-3353	88.7
			SS-MW423-3611	53.7 *
			TB203-2806-01.0-013	76 *E
			TB301-2810-01.5-003	42.8
			TB301-2811-01.0-029	205
			TS203-2808-020	96.1 *E

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lithium	mg/Kg	36.8	C5-SO-SO-D200-8	37.3
			SB402-119-23	106
			SB411-129-20	38.9 EN
			SB-BH218-15.0-3660	37.6 E
			SB-BH220-20.0-3662	37.3 E
			SB-BH223-3.0-3665	46.8 NE
			SB-MW228-11.0-3615	41.6 E
			SB-MW314-15.0-3594	40.9
			SB-OTFL11-13.0-3658	39.4 N
			SB-TWP847-10.0-3552	38.6 J
			SD725-353	40.5
			SS808-077	103
			SS-EU051-3334	37.2
			SS-TWP848-3554	38.9 E
			TB408-2829-02.7-005	40.4
			TB812-2913-03.0-055	51.3

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Magnesium	mg/Kg	14800	SB208-092-12	15100
			SB414-135-21	22600
			SB417-138-3	14900
			SB-CORE02-0.5-3733	55300 *
			SB-MW228-11.0-3615	15200
			SB-OTFL11-13.0-3658	17200
			SB-TWP834-14.0-3513	15000
			SB-TWP837-19.0-3522	19100
			SB-TWP848-11.0-3555	16600 *
			SB-TWP850-17.0-3561	18300
			SD702-295	22100
			SS208-011	43700
			SS308-032	49300
			SS311-035	54400
			SS406-043	29500
			SS412-049	17900
			SS4A012-611	44400
			SS816-703	232000
			SS910-2099	25900 *
			SS-EU072-3338	15400 *
			SS-EU132-3353	36800
			SS-MW313-3590	38200 *
			SS-TWP830-3500	56300 *
			SS-TWP834-3512	15100
			SS-TWP836-3518	22800
			SS-TWP853-3569	46700
			SS-TWP854-3572	16700
			SS-TWP859-3587	45800
			TB301-2811-01.0-029	25300
			TB810-2908-01.8-041	22000
Mercury	mg/Kg	0.27	C5-AC-SO-F200-1	0.4 J
			SB-CORE01-0.5-3731	0.432
			SD704-302	1.1
			SD712-319	0.55
			SD713-324	1.1
			SD732-370	0.35
			SS208-011	0.4
			SS404-041	1.5 N
			TB203-2806-01.0-013	1.31 *
			TB406-2827-02.0-027	0.284 *

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	mg/Kg	38	C5-VS-SO-B300-1	46
			SB414-135-21	44.5
			SB502-145-13	40
			SB-DRUM05-3382-1.0	44.7
			SB-EU101-3400-1.0	84.7
			SD725-353	42.5
			SS208-011	348
			SS404-041	46.8 *E
			SS-DRUM01-3369	43.5 *
			SS-DRUM02-3372	76.1 *
			SS-DRUM05-3381	65.1
			TB203-2806-01.0-013	43 E
			TB301-2811-01.0-029	107
			TB406-2827-02.0-027	68.2 E
			TB408-2829-02.7-005	39.2 E
			TB802A-2903-03.8-096	46.2

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	2860	C5-SO-SO-D200-8	3240 J
			SB202-086-10	3190
			SB206-090-9	3110 N
			SB208-092-12	3120
			SB213-097-12.5	5180 E
			SB213-097-7.5	3330 E
			SB406-123-18	2970 N
			SB411-129-20	2920
			SB414-135-21	3700
			SB502-145-13	2910
			SB816-733-12.0	3190
			SB902-2082-2.0	3070 N
			SB903-2085-2.0	3560 N
			SB-BH218-15.0-3660	3900
			SB-BH219-6.0-3661	3290
			SB-BH220-20.0-3662	4060
			SB-BH221-15.0-3663	3450
			SB-BH223-3.0-3665	4670 *
			SB-BH225-10.0-3667	3390 *
			SB-BH226-12.0-3668	4120 EN
			SB-BH227-15.0-3669	2870 EN
			SB-DRUM01-3370-1.0	6010 *
			SB-DRUM05-3382-1.0	2880 E*
			SB-EU082-3319-1.5	3130 E
			SB-EU093-3322-2.0	3270 *
			SB-EU101-3400-1.0	4950 E
			SB-EU111-3325-1.5	2960 E
			SB-EU121-3326-2.0	3920 E
			SB-EU122-3407-1.0	3010 J
			SB-MW228-11.0-3615	5090
			SB-MW229-11.0-3614	5080 J
			SB-MW313-11.0-3591	3730 *
			SB-MW314-15.0-3594	5030 *
			SB-MW422-15.0-3609	3140 *
			SB-MW423-15.0-3612	3550 *
			SB-MW862-11.5-3603	3590 *
			SB-OTFL11-13.0-3658	5590
			SB-OTFL12-13.5-3659	3750
			SB-TWP830-15.0-3501	3000 *
			SB-TWP832-12.5-3507	3700 *
			SB-TWP834-14.0-3513	3790
			SB-TWP835-15.0-3516	4070 *
			SB-TWP836-15.0-3519	3710 *
			SB-TWP837-19.0-3522	3760

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	2860	SB-TWP838-14.0-3525	3730
			SB-TWP839-14.0-3528	3520
			SB-TWP840-12.0-3531	3360 E
			SB-TWP841-10.0-3534	3860 *
			SB-TWP843-10.0-3540	3840 E
			SB-TWP846-16.0-3549	4180
			SB-TWP847-10.0-3552	4820
			SB-TWP848-11.0-3555	3840
			SB-TWP849-11.0-3558	4020
			SB-TWP853-16.5-3570	3750
			SB-TWP854-13.0-3573	3710
			SB-TWP859-18.0-3588	4340
			SD725-353	3190
			SS208-011	6510
			SS309-033	3060 E
			SS418-055	5850
			SS816-703	12200
			SS904-2087	3350 N
			SS908-2095	2920 N
			SS-DRUM01-3369	9150 N
			SS-DRUM05-3381	6330 J
			SS-EU051-3334	4050 *
			SS-EU101-3343	2940 E
			SS-EU102-3344	3120 E
			SS-EU113-3348	3010 N
			SS-EU131-3352	3040 E
			SS-TWP831-3503	2980
			SS-TWP832-3506	3500 *
			SS-TWP833-3509	3180
			SS-TWP834-3512	3210
			SS-TWP838-3524	2880
			SS-TWP848-3554	2880
			SS-TWP850-3560	3160 *
			SS-TWP852-3566	2890
			SS-TWP854-3572	3190
			SS-TWP858-3584	3570
			TB202-2803-05.2-038	4650 E
			TB202-2804-03.5-025	3480 E
			TB202-2805-03.0-062	4740 E
			TB203-2806-01.0-013	3430 E
			TB302-2813-01.0-042	2920 E
			TB403-2821-04.0-008	2980 E*
			TB403-2823-08.0-045	3660 E*
			TB406-2827-02.0-027	9290 E

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	2860	TB406-2828-01.0-010	4740 E
			TB408-2829-02.7-005	3230 E
			TB408-2830-03.9-021	3580 E
			TB408-2831-04.7-054	3430 E
			TB802A-2903-03.8-096	3140
			TB810-2907-02.9-012	2930 E*
			TB810-2908-01.8-041	3180 E*
			TB811-2911-02.3-012	3130 E*
			TB811-2912-04.0-047	3630 E*
			TB812-2913-03.0-055	2940
			TB812-2915-05.0-001	3760

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	C5-AC-SO-F200-1	0.52 J
			SB102-715-9.5	0.937 B
			SB103-716-10.5	1 B
			SB202-086-10	0.72 B
			SB204-088-9	1.1
			SB206-090-9	1.2 N
			SB207-091-14	0.88
			SB208-092-12	0.74 B
			SB209-093-10	0.91 B
			SB213-097-12.5	0.69 BN
			SB213-097-3	0.72 BN
			SB213-097-7.5	0.76 BN
			SB215-099-7.5	0.87 BN
			SB217-101-13	1.2
			SB302-104-11	0.91 B
			SB303-105-8	0.88 B
			SB306-111-12.5	0.54 B
			SB307-112-10	0.8 B
			SB308-113-19	0.85 B
			SB309-114-19	0.61 BN
			SB310-115-8.5	1.1
			SB311-116-13	1.1
			SB401-118-20	0.39 BN
			SB402-119-23	3.2 B
			SB403-120-18	1 B
			SB404-121-25	1.1
			SB404-121-4	0.63 B
			SB405-122-25	1.2
			SB407-124-20	0.92 B
			SB408-125-20	0.9
			SB410-128-11	0.79 B
			SB411-129-20	1.1
			SB412-130-15	0.48 B
			SB413-131-19	1.4 B
			SB414-135-21	0.38 B
			SB415-136-12.5	0.76 B
			SB415-136-14	0.79 B
			SB415-136-9.2	0.75 B
			SB416-137-21	0.45 B
			SB417-138-3	1
			SB417-138-8.9	0.66 B
			SB418-140-19	0.85 B
			SB419-141-17	0.7 BN
			SB420-142-7	1.2 *N

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB421-143-16	0.81 BN
			SB423-719-10.0	0.709 B
			SB501-144-12	1 B
			SB502-145-13	1.2
			SB503-149-13	1.2
			SB504-722-14.0	0.768 B
			SB505-723-17.0	0.531 B
			SB601-150-13	0.67 B
			SB604-153-15	0.57 B
			SB605-726-16.5	0.415 B
			SB607-728-17.0	0.611 B
			SB801-154-18	1.5
			SB802-155-17	0.59 B
			SB803-156-7.5	1.2
			SB806-159-18.9	0.71 B
			SB807-160-18.2	1.6 B
			SB808-161-15	2.1 B
			SB809-162-18	0.45 BN
			SB810-163-12.0	0.46 B
			SB812-165-10	0.79 B
			SB813-730-10.5	0.738 B
			SB816-733-12.0	1.07 B
			SB819-736-9.0	1.09 J
			SB822-739-11.0	0.775 B
			SB825-742-9.5	0.603 B
			SB902-2082-2.0	0.531 BN
			SB903-2085-2.0	1.15
			SB904-2088-3.0	0.777
			SB905-2090-2.0	0.987
			SB906-2092-3.0	0.623 B
			SB907-2094-2.5	0.429 BN
			SB908-2096-2.5	0.62 B
			SB909-2098-2.0	0.636 B
			SB910-2100-2.0	0.411 B
			SB-BH219-6.0-3661	0.762 B
			SB-BH223-3.0-3665	1.13 BN
			SB-BH226-12.0-3668	0.448 B
			SB-BH227-15.0-3669	0.39 B
			SB-CORE04-0.5-3737	0.443 B
			SB-CORE05-0.5-3739	0.435 B
			SB-CORE06-0.5-3741	0.712 B
			SB-CORE07-0.5-3743	0.475 B
			SB-CORE08-0.5-3745	0.535 B
			SB-CORE10-0.5-3749	0.473 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB-DRUM01-3370-1.0	1.28
			SB-DRUM04-3379-1.0	0.676 B
			SB-DRUM05-3382-1.0	0.815 B
			SB-DRUM06-3396-1.0	0.665 B
			SB-DRUM07-3399-1.0	0.71 B
			SB-EU011-3300-2.0	0.864 B
			SB-EU012-3301-1.0	0.892 B
			SB-EU013-3302-1.0	0.697 B
			SB-EU014-3303-1.0	0.68 B
			SB-EU021-3305-1.0	0.856 B
			SB-EU022-3306-2.0	0.87 B
			SB-EU023-3307-2.0	0.473 B
			SB-EU031-3308-2.0	0.422 B
			SB-EU032-3309-1.0	0.741 B
			SB-EU042-3311-1.0	0.59 B
			SB-EU051-3312-1.0	0.492 B
			SB-EU052-3313-1.5	0.779 B
			SB-EU062-3315-2.0	0.51 B
			SB-EU071-3316-2.0	0.612 B
			SB-EU072-3317-1.5	0.513 B
			SB-EU081-3318-1.5	0.629 B
			SB-EU082-3319-1.5	0.387 B
			SB-EU091-3320-2.0	0.681 J
			SB-EU093-3322-2.0	0.431 B
			SB-EU101-3400-1.0	0.538 B
			SB-EU102-3323-2.0	0.691 B
			SB-EU103-3324-1.0	0.668 B
			SB-EU111-3325-1.5	0.531 B
			SB-EU121-3326-2.0	0.642 B
			SB-EU131-3408-2.0	0.878 B
			SB-MW228-11.0-3615	1.81
			SB-MW229-11.0-3614	1.25 J
			SB-MW229-28.5-3618	0.538 BN
			SB-MW424-14.0-3621	1.28 N
			SB-MW860-15.0-3597	0.918 BN
			SB-MW861-34.5-3596	1.27 N
			SB-MW861-38.0-3600	0.405 BN
			SB-MW862-11.5-3603	2.01 N
			SB-MW863-32.0-3606	1.3 N
			SB-OTFL12-13.5-3659	0.477 B
			SB-TWP831-15.0-3504	0.408 B
			SB-TWP834-14.0-3513	0.449 B
			SB-TWP835-15.0-3516	2.24 N
			SB-TWP836-15.0-3519	2.28 N

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB-TWP837-19.0-3522	2.18
			SB-TWP840-12.0-3531	0.922 BN
			SB-TWP842-10.0-3537	0.88 BN
			SB-TWP843-10.0-3540	1.12 BN
			SB-TWP844-11.0-3543	1.53
			SB-TWP845-13.0-3546	1.05 B
			SB-TWP846-16.0-3549	1.53
			SB-TWP847-10.0-3552	2.36
			SB-TWP848-11.0-3555	1.68 N
			SB-TWP849-11.0-3558	1.79
			SB-TWP850-17.0-3561	1.22 BN
			SB-TWP851-18.0-3564	1.28 J
			SB-TWP852-15.0-3567	0.578 B
			SB-TWP857-11.0-3582	0.443 B
			SD701-293	0.76 BN
			SD702-295	1.2 B
			SD703-297	1.1
			SD704-302	0.99 BN
			SD711-317	1.1
			SD712-319	1.7 N
			SD713-324	0.91 BN
			SD714-326	0.84 BN
			SD723-349	1.3 B
			SD724-351	1.4 B
			SD725-353	1.8 B
			SD732-370	2.2 N
			SD733-373	1.7 N
			SS102-685	0.99 B
			SS103-686	0.834 B
			SS202-002	0.64 B
			SS204-004	1.7 B
			SS206-009	1.5 N
			SS207-010	1.1 B
			SS208-011	0.65 B
			SS209-012	1
			SS213-017	0.91 BN
			SS215-019	0.7 BN
			SS217-021	1.1
			SS2B001-532	1.38 B
			SS2B002-534	3.13 B
			SS2B003-535	1.44 B
			SS302-026	1.1
			SS303-027	0.85 B
			SS304-028	1 BN

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS306-030	0.52 B
			SS308-032	1.1 N
			SS309-033	0.81 BN
			SS310-034	0.99
			SS311-035	1.6
			SS402-039	5.4 B
			SS403-040	0.87 B
			SS404-041	1.5
			SS405-042	1
			SS406-043	0.69 BN
			SS407-044	1.3
			SS408-045	1.2
			SS409-046	0.73 B
			SS410-047	1
			SS411-048	1.3
			SS412-049	0.53 B
			SS413-050	1.1
			SS415-052	0.97 B
			SS416-053	0.65 B
			SS417-054	1.2
			SS418-055	0.99 B
			SS419-056	0.73 BN
			SS421-058	0.62 BN
			SS423-689	0.944 B
			SS4A008-606	1.16 B
			SS4A010-608	1.06 B
			SS4A012-611	2.28
			SS4B003-614	0.983 B
			SS4B005-616	0.981 B
			SS4C001-618	0.581 B
			SS4D005-619	1.08 B
			SS4D007-621	1.34
			SS4D008-623	1.14 B
			SS501-059	1.1
			SS503-064	1.3
			SS504-692	1.05 B
			SS505-694	1.47 B
			SS601-065	0.56 B
			SS604-069	2.3 B
			SS605-697	0.701 B
			SS607-699	0.79 B
			SS801-070	0.49 B
			SS802-071	0.67 B
			SS803-072	1.3

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS804-073	1.3
			SS805-074	1.8 B
			SS806-075	1.3 B
			SS808-077	5.8 B
			SS810-079	0.84 B
			SS813-700	0.902 B
			SS816-703	5.25
			SS819-706	0.845 B
			SS822-710	0.685 B
			SS825-713	0.558 B
			SS901-2079	0.515 BN
			SS902-2081	0.468 BN
			SS903-2083	1.12
			SS905-2089	1.76
			SS906-2091	1.01
			SS907-2093	0.534 BN
			SS908-2095	1.21
			SS909-2097	0.454 B
			SS910-2099	0.591 B
			SS-DRUM01-3369	1.61
			SS-DRUM02-3372	0.65 B
			SS-DRUM04-3378	0.626 B
			SS-DRUM05-3381	1.22
			SS-DRUM06-3395	0.71 B
			SS-DRUM07-3398	0.954 B
			SS-EU011-3327	0.725 B
			SS-EU021-3328	0.794 B
			SS-EU022-3329	0.995 B
			SS-EU031-3330	0.409 B
			SS-EU032-3331	0.577 B
			SS-EU051-3334	2.35
			SS-EU061-3335	0.83 B
			SS-EU062-3336	0.767 B
			SS-EU071-3337	0.58 B
			SS-EU072-3338	0.594 B
			SS-EU081-3339	0.378 B
			SS-EU092-3341	0.572 B
			SS-EU093-3342	0.56 B
			SS-EU103-3345	0.551 B
			SS-EU111-3346	0.509 B
			SS-EU112-3347	0.857 B
			SS-EU113-3348	0.643 B
			SS-EU121-3349	1.89
			SS-EU122-3350	0.666 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SS-EU123-3351	0.989 B
			SS-EU131-3352	0.497 B
			SS-EU132-3353	0.869 B
			SS-EU133-3354	0.542 B
			SS-EU141-3355	0.744 B
			SS-EU142-3356	0.934 B
			SS-EU143-3357	0.791 B
			SS-MW229-3617	1.13 N
			SS-MW313-3590	0.545 B
			SS-MW314-3593	0.702 B
			SS-MW422-3608	0.82 B
			SS-MW423-3611	0.456 B
			SS-MW424-3620	1.99 N
			SS-MW861-3599	2.16 N
			SS-MW862-3602	2.02
			SS-MW863-3605	2.58 J
			SS-TWP831-3503	0.375 B
			SS-TWP833-3509	0.447 B
			SS-TWP835-3515	2.46 N
			SS-TWP836-3518	2.38 N
			SS-TWP837-3521	2.46 N
			SS-TWP838-3524	0.371 B
			SS-TWP839-3527	0.402 B
			SS-TWP840-3530	1.42 N
			SS-TWP842-3536	1.19 N
			SS-TWP843-3539	1.06 BN
			SS-TWP844-3542	1.92
			SS-TWP845-3545	2.18
			SS-TWP846-3548	2.13
			SS-TWP847-3551	2.26
			SS-TWP848-3554	2.3 N
			SS-TWP849-3557	1.44 N
			SS-TWP850-3560	2.13 N
			SS-TWP851-3563	2.76 N
			SS-TWP854-3572	0.405 B
			SS-TWP856-3578	0.477 B
			SS-TWP858-3584	0.579 B
			SS-TWP859-3587	0.438 B
			TB201-2800-05.0-036	0.582 BN
			TB201-2801-01.0-013	0.707 BN
			TB201-2802-01.0-001	0.534 BN
			TB202-2803-05.2-038	0.634 B
			TB202-2804-03.5-025	0.728 B
			TB202-2805-03.0-062	0.614 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	TB203-2806-01.0-013	0.847 B
			TB203-2807-04.0-058	1.83
			TB205-2919-03.0-055	0.461 B
			TB205-2920-06.5-060	0.722 B
			TB205-2921-08.0-001	0.513 B
			TB301-2809-03.5-034	0.675 BN
			TB301-2811-01.0-029	0.898 BN
			TB302-2812-08.0-004	0.484 BN
			TB302-2813-01.0-042	0.839 BN
			TB302-2814-06.0-074	0.584 BN
			TB403-2821-04.0-008	0.823 BN
			TB403-2823-08.0-045	0.666 BN
			TB406-2826-07.0-043	0.524 B
			TB406-2827-02.0-027	1.16
			TB406-2828-01.0-010	0.562 B
			TB408-2829-02.7-005	0.711 B
			TB408-2830-03.9-021	0.904 B
			TB408-2831-04.7-054	0.597 B
			TB501-2847-01.5-130	0.687 BN
			TB501-2848-03.0-095	0.57 BN
			TB501-2849-02.7-068	0.891 BN
			TB802-2901-04.2-008	0.667 B
			TB802-2902-04.0-018	0.747 B
			TB802A-2903-03.8-096	0.698 B
			TB808-2850-04.5-016	1.36 B
			TB808-2851-01.5-020	1.54 B
			TB808-2852-01.5-016	1.36 B
			TB810-2907-02.9-012	0.516 BN
			TB810-2908-01.8-041	0.785 BN
			TB810-2909-05.8-045	0.431 BN
			TB811-2910-04.8-044	0.47 BN
			TB811-2911-02.3-012	0.471 BN
			TB811-2912-04.0-047	0.704 BN
			TB812-2913-03.0-055	0.608 B
			TB812-2914-03.0-014	0.614 B
			TB812-2915-05.0-001	0.617 B
			TS203-2808-020	0.88 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	mg/Kg	0.27	SB505-723-17.0	0.411 B
			SB801-154-18	0.29 N
			SS2B001-532	0.352 BN
			SS2B002-534	0.361 BN
			SS2B003-535	0.404 BN
			SS403-040	0.34
			SS4C001-618	0.375 B
			SS4D005-619	0.293 E
			SS503-064	0.75 N
			SS505-694	0.341 B
			SS905-2089	0.716 E
			SS-DRUM02-3372	0.273
			SS-EU031-3330	0.291
Sodium	mg/Kg	331	C5-AC-SO-BP3-14	753
			C5-SO-SO-D200-8	381
			C5-VS-SO-D300-14	423
			SB202-086-10	344
			SB213-097-3	436 E
			SB404-121-4	479 E
			SB411-129-20	452 E
			SB414-135-21	486
			SB-BH223-3.0-3665	6950 N
			SB-MW229-11.0-3614	346
			SB-OTFL11-13.0-3658	403
			SS202-002	678
			SS208-011	1660
			SS308-032	356 E
			SS402-039	780 E
			SS418-055	766 E
			SS816-703	4690
			SS-DRUM01-3369	2410 *
			SS-DRUM02-3372	4520 *
			SS-EU051-3334	1210 E*
			TB202-2803-05.2-038	1780
			TB202-2804-03.5-025	406
			TB202-2805-03.0-062	954
			TB205-2919-03.0-055	2160
			TB403-2823-08.0-045	392
			TB406-2827-02.0-027	54800
			TB406-2828-01.0-010	6970

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	C5-SO-SO-D200-8	0.14 J
			SB102-715-9.5	0.214 B
			SB103-716-10.5	0.149 B
			SB202-086-10	0.2
			SB204-088-9	0.14
			SB206-090-9	0.13
			SB207-091-14	0.04 B
			SB208-092-12	0.16
			SB209-093-10	0.11 B
			SB213-097-12.5	0.15
			SB213-097-3	0.07 B
			SB213-097-7.5	0.09 B
			SB215-099-7.5	0.11 B
			SB217-101-13	0.12 B
			SB302-104-11	0.1 B
			SB303-105-8	0.16
			SB306-111-12.5	0.13
			SB307-112-10	0.13
			SB308-113-19	0.12 B
			SB309-114-19	0.03 B
			SB310-115-8.5	0.12 B
			SB311-116-13	0.11 B
			SB401-118-20	0.09 B
			SB402-119-23	0.07 B
			SB403-120-18	0.13 B
			SB404-121-25	0.1 B
			SB404-121-4	0.1 B
			SB405-122-25	0.04 B
			SB406-123-18	0.12 B
			SB407-124-20	0.02 B
			SB408-125-20	0.05 B
			SB409-126-7.5	0.17
			SB410-128-11	0.14
			SB411-129-20	0.21
			SB412-130-15	0.05 B
			SB413-131-19	0.1 B
			SB414-135-21	0.11 B
			SB415-136-12.5	0.14
			SB415-136-14	0.13
			SB415-136-9.2	0.12 B
			SB416-137-21	0.077 B
			SB417-138-3	0.13
			SB417-138-8.9	0.21
			SB418-140-19	0.13

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB419-141-17	0.2
			SB421-143-16	0.16
			SB501-144-12	0.18
			SB502-145-13	0.18
			SB503-149-13	0.07 B
			SB504-722-14.0	0.174 B
			SB505-723-17.0	0.124 B
			SB601-150-13	0.13
			SB602-151-15	0.08 B
			SB604-153-15	0.11 B
			SB801-154-18	0.1 B
			SB802-155-17	0.02 B
			SB803-156-7.5	0.14
			SB804-157-7.5	0.16
			SB805-158-7.5	0.1 B
			SB806-159-18.9	0.13
			SB807-160-18.2	0.12 B
			SB808-161-15	0.04 B
			SB809-162-18	0.02 B
			SB810-163-12.0	0.05 B
			SB811-164-23	0.13
			SB812-165-10	0.03 B
			SB813-730-10.5	0.173 B
			SB816-733-12.0	0.157
			SB819-736-9.0	0.26 J
			SB822-739-11.0	0.248 B
			SB901-2080-2.0	0.04 B
			SB902-2082-2.0	0.143
			SB903-2085-2.0	0.144
			SB904-2088-3.0	0.064 B
			SB905-2090-2.0	0.107 B
			SB906-2092-3.0	0.067 B
			SB907-2094-2.5	0.119
			SB908-2096-2.5	0.154
			SB909-2098-2.0	0.117
			SB910-2100-2.0	0.141
			SB-BH218-15.0-3660	0.17
			SB-BH219-6.0-3661	0.123 BE
			SB-BH220-20.0-3662	0.172
			SB-BH221-15.0-3663	0.155
			SB-BH222-6.0-3664	0.136
			SB-BH223-3.0-3665	0.31
			SB-BH225-10.0-3667	0.132
			SB-BH226-12.0-3668	0.151

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-BH227-15.0-3669	0.12 B
			SB-CORE01-0.5-3731	0.098 B
			SB-CORE02-0.5-3733	0.089 B
			SB-CORE03-1.5-3735	0.061 B
			SB-CORE04-0.5-3737	0.112 B
			SB-CORE05-0.5-3739	0.121
			SB-CORE06-0.5-3741	0.149
			SB-CORE07-0.5-3743	0.09 B
			SB-CORE08-0.5-3745	0.11 B
			SB-CORE09-0.5-3747	0.102 B
			SB-CORE10-0.5-3749	0.124
			SB-DRUM01-3370-1.0	0.24 E
			SB-DRUM04-3379-1.0	0.118 E
			SB-DRUM05-3382-1.0	0.148 E
			SB-DRUM06-3396-1.0	0.156
			SB-DRUM07-3399-1.0	0.175
			SB-EU011-3300-2.0	0.115 BE
			SB-EU012-3301-1.0	0.13 E
			SB-EU013-3302-1.0	0.129 E
			SB-EU014-3303-1.0	0.133 E
			SB-EU021-3305-1.0	0.119 E
			SB-EU022-3306-2.0	0.124 E
			SB-EU023-3307-2.0	0.135 E
			SB-EU031-3308-2.0	0.121 E
			SB-EU032-3309-1.0	0.124 E
			SB-EU041-3310-1.0	0.091 BE
			SB-EU042-3311-1.0	0.147 E
			SB-EU051-3312-1.0	0.078 BE
			SB-EU052-3313-1.5	0.256 E
			SB-EU061-3314-2.0	0.059 BE
			SB-EU062-3315-2.0	0.105 BE
			SB-EU071-3316-2.0	0.139 E
			SB-EU072-3317-1.5	0.118 E
			SB-EU081-3318-1.5	0.183 E
			SB-EU082-3319-1.5	0.158
			SB-EU091-3320-2.0	0.083 J
			SB-EU092-3321-2.0	0.067 BE
			SB-EU093-3322-2.0	0.164 E
			SB-EU101-3400-1.0	0.209
			SB-EU102-3323-2.0	0.141
			SB-EU103-3324-1.0	0.117
			SB-EU111-3325-1.5	0.137
			SB-EU121-3326-2.0	0.155
			SB-EU122-3407-1.0	0.116 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-EU131-3408-2.0	0.153
			SB-MW228-11.0-3615	0.398 E
			SB-MW229-11.0-3614	0.192
			SB-MW229-28.5-3618	0.146
			SB-MW313-11.0-3591	0.284 E
			SB-MW314-15.0-3594	0.226 E
			SB-MW422-15.0-3609	0.138 E
			SB-MW423-15.0-3612	0.173 E
			SB-MW424-14.0-3621	0.067 B
			SB-MW860-15.0-3597	0.046 B
			SB-MW861-34.5-3596	0.083 B
			SB-MW861-38.0-3600	0.064 B
			SB-MW862-11.5-3603	0.138
			SB-MW863-32.0-3606	0.073 B
			SB-OTFL11-13.0-3658	0.221
			SB-OTFL12-13.5-3659	0.18
			SB-TWP830-15.0-3501	0.127
			SB-TWP831-15.0-3504	0.093 B
			SB-TWP832-12.5-3507	0.213
			SB-TWP833-10.0-3510	0.052 BE
			SB-TWP834-14.0-3513	0.26 E
			SB-TWP835-15.0-3516	0.171
			SB-TWP836-15.0-3519	0.206
			SB-TWP837-19.0-3522	0.162 E
			SB-TWP838-14.0-3525	0.153
			SB-TWP839-14.0-3528	0.137
			SB-TWP840-12.0-3531	0.117 B
			SB-TWP841-10.0-3534	0.116 BE
			SB-TWP842-10.0-3537	0.098 B
			SB-TWP843-10.0-3540	0.141
			SB-TWP844-11.0-3543	0.118 BE
			SB-TWP845-13.0-3546	0.053 BE
			SB-TWP846-16.0-3549	0.12 BE
			SB-TWP847-10.0-3552	0.214 J
			SB-TWP848-11.0-3555	0.174
			SB-TWP849-11.0-3558	0.186 E
			SB-TWP850-17.0-3561	0.207
			SB-TWP851-18.0-3564	0.098 J
			SB-TWP852-15.0-3567	0.05 B
			SB-TWP853-16.5-3570	0.145
			SB-TWP854-13.0-3573	0.155
			SB-TWP855-15.0-3576	0.129
			SB-TWP856-11.0-3579	0.07 B
			SB-TWP857-11.0-3582	0.057 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-TWP858-16.0-3585	0.054 J
			SB-TWP859-18.0-3588	0.156
			SD701-293	0.1 B
			SD702-295	0.15 B
			SD703-297	0.12 B
			SD704-302	0.13 B
			SD711-317	0.093 B
			SD712-319	0.27
			SD713-324	0.14
			SD714-326	0.16 B
			SD725-353	0.27
			SD732-370	0.31
			SD733-373	0.36
			SD734-375	0.23
			SS102-685	0.221 B
			SS103-686	0.147 B
			SS202-002	0.11 B
			SS204-004	0.39
			SS206-009	0.09 B
			SS207-010	0.12 B
			SS208-011	0.16
			SS209-012	0.1 B
			SS213-017	0.17
			SS215-019	0.09 B
			SS217-021	0.14
			SS2B001-532	0.121 B
			SS2B002-534	0.18 B
			SS2B003-535	0.262 B
			SS302-026	0.07 B
			SS303-027	0.13
			SS304-028	0.11 B
			SS306-030	0.13 B
			SS307-031	0.09 B
			SS308-032	0.16
			SS309-033	0.08 B
			SS310-034	0.099 B
			SS311-035	0.15
			SS401-037	0.07 B
			SS403-040	0.15
			SS404-041	0.09 B
			SS405-042	0.12
			SS406-043	0.1 B
			SS407-044	0.11 B
			SS408-045	0.1 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS409-046	0.13
			SS410-047	0.14
			SS411-048	0.11 B
			SS412-049	0.08 B
			SS413-050	0.16
			SS414-051	0.13 B
			SS415-052	0.15
			SS416-053	0.089 B
			SS417-054	0.2
			SS418-055	0.24
			SS419-056	0.11 B
			SS420-057	0.1 B
			SS421-058	0.14
			SS4A008-606	0.128
			SS4A010-608	0.145
			SS4A012-611	0.135
			SS4B003-614	0.151
			SS4B005-616	0.118
			SS4D005-619	0.202
			SS4D007-621	0.094 B
			SS4D008-623	0.108 B
			SS501-059	0.1 B
			SS502-060	0.07 B
			SS503-064	0.09 B
			SS504-692	0.285 B
			SS601-065	0.15
			SS602-066	0.04 B
			SS603-068	0.07 B
			SS604-069	0.06 B
			SS801-070	0.1 B
			SS802-071	0.09 B
			SS803-072	0.12 B
			SS804-073	0.15
			SS805-074	0.07 B
			SS806-075	0.08 B
			SS807-076	0.06 B
			SS808-077	0.08 B
			SS809-078	0.06 B
			SS810-079	0.13
			SS811-080	0.13
			SS812-084	0.1 B
			SS813-700	0.16 B
			SS816-703	0.032 B
			SS819-706	0.16 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS822-710	0.153 B
			SS901-2079	0.056 B
			SS902-2081	0.124
			SS903-2083	0.106 B
			SS905-2089	0.108 B
			SS906-2091	0.098 B
			SS907-2093	0.138
			SS908-2095	0.131
			SS909-2097	0.123
			SS910-2099	0.128
			SS-DRUM01-3369	0.249 E
			SS-DRUM02-3372	0.115 BE
			SS-DRUM04-3378	0.11 BE
			SS-DRUM05-3381	0.163 E
			SS-DRUM06-3395	0.151
			SS-DRUM07-3398	0.242
			SS-EU011-3327	0.11 BE
			SS-EU021-3328	0.138 E
			SS-EU022-3329	0.12 BE
			SS-EU031-3330	0.099 BE
			SS-EU032-3331	0.125 E
			SS-EU033-3332	0.11 BE
			SS-EU034-3333	0.102 BE
			SS-EU051-3334	0.105 BE
			SS-EU061-3335	0.114 B
			SS-EU062-3336	0.129 E
			SS-EU071-3337	0.141 E
			SS-EU072-3338	0.11 BE
			SS-EU081-3339	0.129 E
			SS-EU091-3340	0.061 BE
			SS-EU092-3341	0.095 BE
			SS-EU093-3342	0.122 E
			SS-EU101-3343	0.109 B
			SS-EU102-3344	0.109 B
			SS-EU103-3345	0.103 B
			SS-EU111-3346	0.121
			SS-EU112-3347	0.165
			SS-EU113-3348	0.125 B
			SS-EU121-3349	0.215
			SS-EU122-3350	0.114 B
			SS-EU123-3351	0.153
			SS-EU131-3352	0.114 B
			SS-EU132-3353	0.145
			SS-EU133-3354	0.099 B

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS-EU141-3355	0.11
			SS-EU142-3356	0.123
			SS-EU143-3357	0.133
			SS-MW229-3617	0.136
			SS-MW313-3590	0.188 E
			SS-MW314-3593	0.191 E
			SS-MW422-3608	0.175 E
			SS-MW423-3611	0.19 E
			SS-MW424-3620	0.116
			SS-MW861-3599	0.153
			SS-MW862-3602	0.124 E
			SS-MW863-3605	0.199
			SS-TWP830-3500	0.14
			SS-TWP831-3503	0.131
			SS-TWP832-3506	0.13
			SS-TWP833-3509	0.142 E
			SS-TWP834-3512	0.13 E
			SS-TWP835-3515	0.098 B
			SS-TWP836-3518	0.132
			SS-TWP837-3521	0.158
			SS-TWP838-3524	0.11 B
			SS-TWP839-3527	0.14
			SS-TWP840-3530	0.114
			SS-TWP841-3533	0.14 E
			SS-TWP842-3536	0.119
			SS-TWP843-3539	0.126
			SS-TWP844-3542	0.149 E
			SS-TWP845-3545	0.131 E
			SS-TWP846-3548	0.1 BE
			SS-TWP847-3551	0.13 E
			SS-TWP848-3554	0.117
			SS-TWP849-3557	0.144
			SS-TWP850-3560	0.139
			SS-TWP851-3563	0.148
			SS-TWP852-3566	0.129
			SS-TWP853-3569	0.141
			SS-TWP854-3572	0.096 B
			SS-TWP855-3575	0.163
			SS-TWP856-3578	0.13
			SS-TWP857-3581	0.129
			SS-TWP858-3584	0.135 E
			SS-TWP859-3587	0.148 E
			TB201-2800-05.0-036	0.17 E
			TB201-2801-01.0-013	0.174 E

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	TB201-2802-01.0-001	0.144 E
			TB202-2803-05.2-038	0.165 E
			TB202-2804-03.5-025	0.176 E
			TB202-2805-03.0-062	0.218 E
			TB203-2806-01.0-013	0.242 E
			TB203-2807-04.0-058	0.26 E
			TB205-2919-03.0-055	0.153
			TB205-2920-06.5-060	0.071 B
			TB205-2921-08.0-001	0.049 B
			TB301-2809-03.5-034	0.214 E
			TB301-2810-01.5-003	0.075 BE
			TB301-2811-01.0-029	0.232 E
			TB302-2812-08.0-004	0.116 E
			TB302-2813-01.0-042	0.19 E
			TB302-2814-06.0-074	0.116 BE
			TB403-2821-04.0-008	0.199 E
			TB403-2822-07.0-024	0.095 J
			TB403-2823-08.0-045	0.143 E
			TB406-2826-07.0-043	0.2 E
			TB406-2827-02.0-027	0.36 E
			TB406-2828-01.0-010	0.262 E
			TB408-2829-02.7-005	0.212 E
			TB408-2830-03.9-021	0.199 E
			TB408-2831-04.7-054	0.167 E
			TB501-2847-01.5-130	0.168 E
			TB501-2848-03.0-095	0.155 E
			TB501-2849-02.7-068	0.154 E
			TB802-2901-04.2-008	0.154
			TB802-2902-04.0-018	0.151
			TB802A-2903-03.8-096	0.183
			TB808-2850-04.5-016	0.164 E
			TB808-2851-01.5-020	0.152 E
			TB808-2852-01.5-016	0.147 E
			TB810-2907-02.9-012	0.154 E
			TB810-2908-01.8-041	0.143 E
			TB810-2909-05.8-045	0.132 E
			TB811-2910-04.8-044	0.067 BE
			TB811-2911-02.3-012	0.151 E
			TB811-2912-04.0-047	0.139 E
			TB812-2913-03.0-055	0.157
			TB812-2914-03.0-014	0.139
			TB812-2915-05.0-001	0.174
			TS203-2808-020	0.189 E

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	35.2	SB202-086-10	35.4
			SB213-097-12.5	36.3
			SB414-135-21	44.5
			SB816-733-12.0	38.1
			SB902-2082-2.0	35.9
			SB903-2085-2.0	37.1
			SB-BH218-15.0-3660	41.8
			SB-BH219-6.0-3661	43.6
			SB-BH220-20.0-3662	41.7
			SB-BH221-15.0-3663	37.3
			SB-BH223-3.0-3665	65.9 *N
			SB-DRUM01-3370-1.0	44.9 E*N
			SB-EU081-3318-1.5	39.7 E*N
			SB-EU101-3400-1.0	44.3 N
			SB-EU102-3323-2.0	41.1 N
			SB-EU111-3325-1.5	39.6 N
			SB-EU121-3326-2.0	40.3 N
			SB-EU122-3407-1.0	38.8 J
			SB-MW228-11.0-3615	41.6 N
			SB-MW229-11.0-3614	39.4
			SB-MW314-15.0-3594	38.5 *
			SB-OTFL11-13.0-3658	49.4
			SB-OTFL12-13.5-3659	37.2
			SB-TWP832-12.5-3507	37.1 *N
			SB-TWP834-14.0-3513	36.2
			SB-TWP835-15.0-3516	37.7
			SB-TWP838-14.0-3525	36.8
			SB-TWP839-14.0-3528	35.8
			SB-TWP846-16.0-3549	35.9 N
			SB-TWP847-10.0-3552	41.8 J
			SB-TWP848-11.0-3555	36.5 *N
			SB-TWP853-16.5-3570	36.8
			SB-TWP854-13.0-3573	36.6
			SB-TWP859-18.0-3588	36.5
			SD701-293	39.8
			SD725-353	43.3
			SS208-011	40.5
			SS418-055	41.2
			SS502-060	36.7 *
			SS816-703	35.7
			SS903-2083	46.8
			SS907-2093	35.4
			SS-DRUM01-3369	52
			SS-DRUM05-3381	38.2 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	35.2	SS-EU112-3347	39.3 N
			SS-EU121-3349	45.8 N
			SS-EU122-3350	41 N
			SS-TWP833-3509	36.7
			SS-TWP847-3551	36.9 N
			SS-TWP849-3557	46.8 *N
			SS-TWP851-3563	39
			SS-TWP852-3566	37.9
			SS-TWP854-3572	39
			SS-TWP855-3575	37.3
			SS-TWP856-3578	36.7
			SS-TWP857-3581	35.5
			SS-TWP858-3584	36.4
			TB202-2803-05.2-038	42.1 N
			TB202-2804-03.5-025	38.7 N
			TB202-2805-03.0-062	41.8 N
			TB203-2806-01.0-013	45.7 N
			TB203-2807-04.0-058	38 N
			TB205-2919-03.0-055	50.8
			TB302-2813-01.0-042	39.2 N
			TB403-2823-08.0-045	39.7 *
			TB406-2827-02.0-027	49.9 N
			TB406-2828-01.0-010	37.3 N
			TB408-2829-02.7-005	47.6 N
			TB501-2847-01.5-130	39.3 N
			TB501-2848-03.0-095	42.5 N
			TB802A-2903-03.8-096	37.3
			TB810-2907-02.9-012	36.8 *
			TB810-2908-01.8-041	37 *
			TB811-2911-02.3-012	40.1 *
			TB811-2912-04.0-047	39.2 *
			TB812-2913-03.0-055	48.8
			TB812-2914-03.0-014	38.7
			TB812-2915-05.0-001	39.1
Zinc	mg/Kg	266	SB-CORE02-0.5-3733	290 *
			SD702-295	830
			SS208-011	495
			SS217-021	270
			SS4A012-611	475
			SS816-703	403
			SS-MW861-3599	341 E
			SS-MW863-3605	348 J
			TB203-2806-01.0-013	766
			TS203-2808-020	2450

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
PAHs				
Anthracene	$\mu\text{g/Kg}$	8	C5-SO-SO-D800-1	3100 E
			C5-SO-SO-D800-10	18
			SB-CORE01-0.5-3731	35.3 J
			SB-DRUM04-3379-1.0	21.3 J
			SB-EU081-3318-1.5	26.3
			SS201-001	60.4 J
			SS203-003	55.6 J
			SS204-004	43.5 J
			SS2A002-530	48.2
			SS2A003-531	518
			SS308-032	9140
			SS309-033	1590 J
			SS3C003-586	216 J
			SS3C007-590	7280
			SS3C008-591	24700
			SS405-042	240 J
			SS4A003-601	1530 J
			SS4A007-605	6660
			SS-DRUM04-3378	78.5
			SS-MW861-3599	136
			SS-MW863-3605	40.2
			SS-TWP831-3503	8.46 J
			SS-TWP848-3554	77.7
			TB408-2830-03.9-021	420 J
			TB802A-2903-03.8-096	113
			TS203-2808-020	22.6 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(a)anthracene	$\mu\text{g/Kg}$	284	C5-SO-SO-D800-1	5500 E
			SB-CORE09-0.5-3747	379
			SS201-001	323 J
			SS2A003-531	2430
			SS2B002-534	945 J
			SS308-032	28900 D
			SS309-033	3190
			SS3C002-585	353 J
			SS3C006-589	4750 J
			SS3C007-590	33300 D
			SS3C008-591	73300
			SS3C011-594	16800 J
			SS405-042	1170
			SS417-054	446
			SS4A003-601	17900 D
			SS4A007-605	26900 D
			SS4B001-612	887 J
			SS4D007-621	623
			SS-DRUM04-3378	578
			SS-MW861-3599	900
			SS-TWP848-3554	416
			TB802A-2903-03.8-096	491

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(a)pyrene	$\mu\text{g/Kg}$	313	C5-SO-SO-D800-1	4700 E
			SB-CORE09-0.5-3747	385
			SB-DRUM04-3379-1.0	358
			SS201-001	383 J
			SS2A002-530	349
			SS2A003-531	2560
			SS2B002-534	1340 J
			SS308-032	33600 D
			SS309-033	3080
			SS311-035	540 J
			SS3C002-585	408 J
			SS3C006-589	4100 J
			SS3C007-590	34000 D
			SS3C008-591	82500
			SS3C011-594	14900 J
			SS405-042	1830
			SS417-054	508
			SS4A003-601	36000 D
			SS4A007-605	27500 D
			SS4B001-612	2560
			SS4D007-621	670
			SS-DRUM04-3378	1290
			SS-MW861-3599	691
			SS-TWP848-3554	536
			TB408-2830-03.9-021	2400

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	396	C5-SO-SO-D800-1	5800 E
			SB-CORE09-0.5-3747	700 P
			SB-DRUM04-3379-1.0	1080
			SS201-001	446
			SS2A003-531	2740
			SS2B002-534	3550
			SS308-032	31500 D
			SS309-033	3430
			SS3C002-585	469
			SS3C006-589	5960 J
			SS3C007-590	37700 D
			SS3C008-591	42800 D
			SS3C011-594	20200 J
			SS405-042	1740
			SS417-054	647
			SS4A003-601	29700 E
			SS4A007-605	35000 D
			SS4B001-612	4480
			SS4D007-621	949
			SS-DRUM01-3369	413
			SS-DRUM04-3378	2980
			SS-EU051-3334	561
			SS-MW861-3599	1280
			SS-TWP848-3554	801
			TB802A-2903-03.8-096	641

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	16	C5-AC-SO-F200-1	48
			C5-SO-SO-D800-1	3100 E
			C5-SO-SO-D800-10	100
			SB412-130-15	34.8 J
			SB-CORE09-0.5-3747	181
			SB-DRUM01-3370-1.0	60.3
			SB-DRUM04-3379-1.0	233
			SB-DRUM06-3396-1.0	29.1 P
			SB-EU081-3318-1.5	80.7 P
			SS201-001	215 J
			SS203-003	191 J
			SS206-009	63.4 J
			SS208-011	40.4 J
			SS2A002-530	234
			SS2A003-531	1410
			SS2B002-534	1070 J
			SS308-032	22500 D
			SS309-033	1860
			SS3C002-585	253 J
			SS3C007-590	22400 D
			SS3C008-591	54100
			SS3C011-594	12600 J
			SS405-042	1030
			SS408-045	216 J
			SS412-049	2880 J
			SS413-050	49.3 J
			SS417-054	231 J
			SS4A003-601	19400 E
			SS4A007-605	9820
			SS4B001-612	1460 J
			SS4D007-621	376
			SS-DRUM01-3369	101
			SS-DRUM04-3378	792
			SS-DRUM07-3398	62.5 P
			SS-EU051-3334	176
			SS-EU071-3337	36.8
			SS-EU072-3338	17.4
			SS-EU081-3339	45.7
			SS-EU121-3349	18.9
			SS-MW313-3590	55.6
			SS-MW861-3599	300
			SS-MW863-3605	115
			SS-TWP848-3554	281
			TB301-2811-01.0-029	45.9

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	322	C5-SO-SO-D800-1	2400 E
			SS2A002-530	404
			SS2A003-531	2940
			SS2B002-534	1250 J
			SS308-032	25900 D
			SS309-033	2280
			SS3C002-585	351 J
			SS3C007-590	31000 D
			SS3C008-591	62900
			SS405-042	1410
			SS417-054	595
			SS4A003-601	25900 D
			SS4A007-605	6420
			SS4B001-612	1650
			SS4D007-621	908
			SS-DRUM04-3378	601
			TB408-2830-03.9-021	1240
Chrysene	$\mu\text{g/Kg}$	378	C5-SO-SO-D800-1	3800 E
			SS201-001	440
			SS2A002-530	409
			SS2A003-531	2980
			SS2B002-534	1790
			SS308-032	29400 D
			SS309-033	3100
			SS3C002-585	379 J
			SS3C006-589	4620 J
			SS3C007-590	35700 D
			SS3C008-591	76000
			SS3C011-594	16300 J
			SS405-042	1210
			SS417-054	562
			SS4A003-601	19800 D
			SS4A007-605	26300 D
			SS4B001-612	2380
			SS4D007-621	992
			SS-DRUM04-3378	1090
			SS-MW861-3599	1010
			SS-TWP848-3554	436
			TB408-2830-03.9-021	931
			TB802A-2903-03.8-096	486

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Fluoranthene	$\mu\text{g/Kg}$	889	C5-SO-SO-D800-1	16000 E
			SS201-001	892
			SS2A003-531	7210 D
			SS2B002-534	1120 J
			SS308-032	81500 D
			SS309-033	9650
			SS3C002-585	919
			SS3C006-589	11400
			SS3C007-590	80000 D
			SS3C008-591	92400 D
			SS3C011-594	39200
			SS405-042	1920
			SS4A003-601	12700 D
			SS4A007-605	55800 D
			SS-MW861-3599	1760
			TB408-2830-03.9-021	2760
			TB802A-2903-03.8-096	1540

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Fluorene	$\mu\text{g/Kg}$	2.9	C5-AC-SO-F200-1	14
			C5-SO-SO-D800-1	1100 E
			C5-SO-SO-D800-10	6.9
			SB-DRUM06-3396-1.0	4.96 J
			SB-EU081-3318-1.5	11.8 J
			SS201-001	35.6 J
			SS2A002-530	27.9 J
			SS2A003-531	263
			SS308-032	4020
			SS309-033	711 J
			SS3C001-584	950 J
			SS3C006-589	4830 J
			SS3C007-590	2630 J
			SS3C008-591	8830 J
			SS3C011-594	15200 J
			SS3C012-596	244 J
			SS3C013-597	226 J
			SS405-042	103 J
			SS4A007-605	2570
			SS-DRUM04-3378	11.6 J
			SS-DRUM07-3398	19.8 J
			SS-MW861-3599	30.7 J
			SS-MW862-3602	7.21 J
			SS-MW863-3605	19.1 J
			SS-TWP848-3554	22.2 J
			TB301-2810-01.5-003	7.7 J
			TB301-2811-01.0-029	5.6 J
			TB408-2830-03.9-021	178 JB
			TB802A-2903-03.8-096	26.1 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	$\mu\text{g/Kg}$	8.8	C5-SO-SO-D800-1	1900 E
			C5-SO-SO-D800-10	26
			SB412-130-15	27.5 J
			SB-CORE01-0.5-3731	21.3 J
			SB-DRUM04-3379-1.0	403
			SS201-001	182 J
			SS203-003	188 J
			SS208-011	30.6 J
			SS2A002-530	268
			SS2A003-531	1330
			SS2B001-532	965 J
			SS2B002-534	1600 J
			SS308-032	13800
			SS309-033	1740
			SS3B001-573	2280 J
			SS3C001-584	992 J
			SS3C002-585	220 J
			SS3C006-589	5990 J
			SS3C007-590	19400 D
			SS3C008-591	43600
			SS3C011-594	21200 J
			SS3C012-596	328 J
			SS3C013-597	205 J
			SS404-041	135 J
			SS405-042	980
			SS408-045	154 J
			SS413-050	38.6 J
			SS417-054	240 J
			SS4A003-601	17500
			SS4A007-605	8990
			SS4B001-612	1420 J
			SS4D007-621	387
			SS-DRUM01-3369	332
			SS-DRUM02-3372	39.5
			SS-DRUM04-3378	875
			SS-DRUM05-3381	38.3
			SS-DRUM07-3398	306
			SS-EU051-3334	283
			SS-EU081-3339	48.1
			SS-MW861-3599	387
			SS-MW862-3602	42.4
			SS-MW863-3605	70.9
			SS-TWP848-3554	280
			TB301-2811-01.0-029	106

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Indeno(1,2,3-cd)pyrene	μg/Kg	8.8	TB802A-2903-03.8-096	110
Naphthalene	μg/Kg	--	C5-AC-SO-F200-1	100
			C5-SO-SO-D800-1	2000
			C5-SO-SO-D800-10	19
			SB204-088-2	568
			SB-BH220-20.0-3662	1.42 J
			SB-BH226-12.0-3668	2.52 JP
			SB-DRUM06-3396-1.0	5.16 J
			SB-DRUM07-3399-1.0	37.3
			SB-EU081-3318-1.5	30.6
			SS201-001	343 J
			SS203-003	483
			SS204-004	1330
			SS208-011	23.2 J
			SS2A002-530	46.6
			SS2A003-531	336
			SS2B002-534	2170
			SS2B003-535	1410 J
			SS311-035	181 J
			SS312-036	56.8 J
			SS3A006-561	235 J
			SS405-042	51.7 J
			SS4A007-605	893 J
			SS504-692	292 J
			SS-DRUM06-3395	7 J
			SS-DRUM07-3398	76.7
			SS-EU071-3337	17.3 J
			SS-EU081-3339	9.37 J
			SS-EU102-3344	2.44 JP
			SS-EU121-3349	3.03 JP
			SS-EU131-3352	11.2 J
			SS-MW313-3590	12.6 JP
			SS-TWP835-3515	2.99 Jh
			SS-TWP841-3533	3.44 J
			TB201-2801-01.0-013	110
			TB201-2802-01.0-001	78.6
			TB301-2810-01.5-003	35.2 J
			TB301-2811-01.0-029	22.8 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Phenanthrene	μg/Kg	538	C5-SO-SO-D800-1	13000 E
			SS201-001	642
			SS204-004	988
			SS2A003-531	4360
			SS2B002-534	1050 J
			SS308-032	61800 D
			SS309-033	8550
			SS3C002-585	733
			SS3C006-589	8230
			SS3C007-590	57800 D
			SS3C008-591	71600 D
			SS3C011-594	26500
			SS405-042	1320
			SS4A003-601	6040 D
			SS4A007-605	56300 D
			SS-MW861-3599	624
			TB408-2830-03.9-021	2290
			TB802A-2903-03.8-096	727
Pyrene	μg/Kg	716	C5-SO-SO-D800-1	12000 E
			SS201-001	925
			SS2A002-530	748
			SS2A003-531	6280 D
			SS308-032	53600 E
			SS3C002-585	940
			SS3C006-589	9810
			SS3C007-590	88000 D
			SS3C008-591	99700 D
			SS3C011-594	33600
			SS405-042	1900
			SS4A003-601	17300 D
			SS4A007-605	62900 D
			SS4B001-612	897 J
			SS-DRUM04-3378	795
			SS-MW861-3599	1420
			TB408-2830-03.9-021	2130
			TB802A-2903-03.8-096	1150
PCBs				

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1254	µg/Kg	--	SB-CORE01-0.5-3731	441
			SB-CORE06-0.5-3741	29.6
			SB-CORE10-0.5-3749	5.8
			SB-DRUM01-3370-1.0	4.8
			SB-DRUM05-3382-1.0	19.4
			SB-DRUM06-3396-1.0	7.9
			SB-EU042-3311-1.0	668
			SB-EU082-3319-1.5	2.7 J
			SB-EU101-3400-1.0	5.1
			SB-TWP834-14.0-3513	124
			SB-TWP840-12.0-3531	21.2
			SB-TWP844-11.0-3543	2.4 J
			SB-TWP847-10.0-3552	2.7 J
			SB-TWP856-11.0-3579	2.3 J
			SD731-368	5.9
			SD734-375	11.3 P
			SS208-011	208
			SS217-021	77.7
			SS4C001-618	714 JP
			SS4D007-621	226
			SS4D008-623	100
			SS4F001-633	28.5 J
			SS4F002-634	28 J
			SS4F003-635	7.8 JP
			SS4F004-636	32.7 JP
			SS811-080	12 P
			SS825-713	6
			SS-DRUM06-3395	20.9
			SS-EU051-3334	4.2
			SS-EU093-3342	2.9 J
			SS-EU102-3344	10.4
			SS-TWP846-3548	2.6 J
			SS-TWP847-3551	3.8 J
			TB403-2821-04.0-008	2.9 J
			TB408-2829-02.7-005	13.2
			TB802-2902-04.0-018	6.2
			TB802A-2903-03.8-096	7.3 J
			TB808-2852-01.5-016	6.9 P

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	$\mu\text{g/Kg}$	--	C5-SO-SO-D800-1	130 J
			C5-SO-SO-D800-10	26
			SB-CORE01-0.5-3731	50.8
			SB-CORE04-0.5-3737	5.7
			SB-CORE05-0.5-3739	2.8 J
			SB-CORE06-0.5-3741	11.7 J
			SB-CORE07-0.5-3743	26.4
			SB-CORE09-0.5-3747	4.8
			SB-CORE10-0.5-3749	4.2
			SB-DRUM01-3370-1.0	8.7
			SB-DRUM04-3379-1.0	1650
			SB-DRUM05-3382-1.0	165
			SB-DRUM06-3396-1.0	62.5
			SB-DRUM07-3399-1.0	25100
			SB-EU021-3305-1.0	1.4 J
			SB-EU032-3309-1.0	5.4
			SB-EU041-3310-1.0	125
			SB-EU042-3311-1.0	4660
			SB-EU051-3312-1.0	3 J
			SB-EU081-3318-1.5	9
			SB-TWP834-14.0-3513	25.9
			SB-TWP840-12.0-3531	4.7
			SD714-326	8.9 J
			SD732-370	10.5 J
			SD733-373	5.2 J
			SD734-375	12.2
			SS216-020	14.9
			SS217-021	84.5 P
			SS303-027	17.2
			SS309-033	5.5
			SS311-035	20.8
			SS313-687	4 J
			SS403-040	9.8 JP
			SS406-043	69.6
			SS409-046	16
			SS413-050	2030
			SS414-051	154
			SS415-052	110
			SS417-054	1120
			SS418-055	392
			SS4C001-618	14500
			SS4D005-619	320
			SS4D007-621	511
			SS4D008-623	361

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	--	SS4D010-626	2580
			SS4D013-629	162
			SS4D015-631	354
			SS4F001-633	65.3
			SS4F002-634	94.4
			SS4F003-635	24.8 J
			SS4F004-636	19.4 JP
			SS811-080	17.6
			SS825-713	14.7
			SS908-2095	12.7 P
			SS-DRUM01-3369	6.3
			SS-DRUM02-3372	249
			SS-DRUM04-3378	5740
			SS-DRUM05-3381	309
			SS-DRUM06-3395	120
			SS-DRUM07-3398	70200
			SS-EU021-3328	14.7 J
			SS-EU022-3329	3.4 J
			SS-EU051-3334	5.3
			SS-EU071-3337	2.2 J
			SS-EU102-3344	2.13 J
			SS-EU121-3349	4.8 J
			SS-EU122-3350	1.4 J
			SS-MW314-3593	4.6 h
			SS-MW422-3608	1230 B
			SS-MW423-3611	7.1 B
			SS-MW424-3620	6
			SS-MW863-3605	3.3 J
			SS-TWP833-3509	4.4
			SS-TWP847-3551	2.2 J
			TB302-2813-01.0-042	1.6 J
			TB403-2821-04.0-008	2.7 JP
			TB404-2856-02.3-028	5.7
			TB406-2827-02.0-027	18.8 J
			TB406-2828-01.0-010	48.8
			TB408-2829-02.7-005	17.9
			TB802-2902-04.0-018	12
			TB802A-2903-03.8-096	9.3 JP
Pesticides				

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	$\mu\text{g/Kg}$	--	SB-BH219-6.0-3661	0.378 J
			SB-BH221-15.0-3663	1.1 J
			SB-BH225-10.0-3667	4.12
			SB-CORE02-0.5-3733	0.878 J
			SB-CORE03-1.5-3735	0.704 J
			SB-CORE04-0.5-3737	1.28 J
			SB-CORE06-0.5-3741	0.508 J
			SB-DRUM01-3370-1.0	3.94
			SB-DRUM05-3382-1.0	3.13
			SB-DRUM06-3396-1.0	5.52
			SB-EU012-3301-1.0	2.41 J
			SB-EU013-3302-1.0	2.36
			SB-EU022-3306-2.0	0.472 J
			SB-EU023-3307-2.0	0.818 J
			SB-EU032-3309-1.0	1.1 J
			SB-EU061-3314-2.0	1.91
			SB-EU062-3315-2.0	0.273 J
			SB-EU071-3316-2.0	1.55 J
			SB-EU081-3318-1.5	0.682 J
			SB-EU082-3319-1.5	0.641 J
			SB-EU101-3400-1.0	1.09 J
			SB-EU103-3324-1.0	2.25
			SB-EU111-3325-1.5	0.419 J
			SB-EU121-3326-2.0	0.758 J
			SB-MW422-15.0-3609	0.589 J
			SB-TWP831-15.0-3504	1.35 J
			SB-TWP833-10.0-3510	0.375 J
			SB-TWP844-11.0-3543	0.645 J
			SB-TWP858-16.0-3585	0.321 J
			SD723-349	1.8 J
			SS311-035	13.3
			SS313-687	1.1 JP
			SS4C001-618	6 P
			SS4D008-623	3.9
			SS4D013-629	2.7 P
			SS4D015-631	3.4 P
			SS4F003-635	2.6 P
			SS4F004-636	3 P
			SS505-694	0.69 J
			SS825-713	1.2 JP
			SS-DRUM01-3369	3.78
			SS-DRUM02-3372	2.58
			SS-DRUM05-3381	4.33
			SS-DRUM06-3395	10.6

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDE	$\mu\text{g/Kg}$	--	SS-EU011-3327	2.67
			SS-EU021-3328	3.07 J
			SS-EU022-3329	2.58
			SS-EU031-3330	2.94
			SS-EU072-3338	0.387 J
			SS-EU081-3339	0.538 J
			SS-EU103-3345	0.47 J
			SS-EU121-3349	1.46 J
			SS-EU122-3350	1.21 J
			SS-MW229-3617	0.43 J
			SS-MW314-3593	3.08
			SS-MW862-3602	0.942 J
			SS-MW863-3605	5.33 J
			SS-TWP833-3509	0.302 J
			SS-TWP834-3512	0.636 J
			SS-TWP835-3515	1.33 J
			SS-TWP837-3521	0.655 J
			SS-TWP838-3524	0.681 J
			SS-TWP840-3530	0.438 J
			SS-TWP842-3536	0.361 J
			SS-TWP844-3542	0.305 J
			SS-TWP845-3545	0.335 J
			SS-TWP846-3548	0.594 J
			SS-TWP847-3551	0.892 J
			SS-TWP854-3572	0.423 J
			SS-TWP855-3575	0.303 J
			SS-TWP856-3578	1.95
			SS-TWP859-3587	2.44
			TB302-2812-08.0-004	0.24 JP
			TB302-2813-01.0-042	1.6 J
			TB403-2821-04.0-008	0.29 J
			TB403-2822-07.0-024	0.23 J
			TB404-2856-02.3-028	0.37 JP
			TB406-2828-01.0-010	0.6 J
			TB408-2830-03.9-021	2.7 J
			TB408-2831-04.7-054	0.19 JP
			TS809-2904-001	2.9 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDT	$\mu\text{g/Kg}$	--	SB-BH219-6.0-3661	0.796 J
			SB-BH221-15.0-3663	0.932 J
			SB-BH223-3.0-3665	0.936 J
			SB-BH225-10.0-3667	3.6
			SB-BH226-12.0-3668	1.75 J
			SB-CORE02-0.5-3733	8.58
			SB-CORE03-1.5-3735	1.69
			SB-CORE04-0.5-3737	1.79
			SB-CORE05-0.5-3739	2.46
			SB-CORE06-0.5-3741	1.19 J
			SB-CORE09-0.5-3747	3.44
			SB-DRUM01-3370-1.0	4.28
			SB-DRUM06-3396-1.0	9.02
			SB-EU012-3301-1.0	3.47 J
			SB-EU013-3302-1.0	2.13
			SB-EU014-3303-1.0	0.711 J
			SB-EU022-3306-2.0	0.887 J
			SB-EU023-3307-2.0	0.571 J
			SB-EU031-3308-2.0	0.725 J
			SB-EU032-3309-1.0	0.893 J
			SB-EU052-3313-1.5	0.885 J
			SB-EU061-3314-2.0	1.61
			SB-EU071-3316-2.0	1.86
			SB-EU081-3318-1.5	0.888 J
			SB-EU082-3319-1.5	2.26
			SB-EU092-3321-2.0	2.1
			SB-EU093-3322-2.0	1.14 J
			SB-EU101-3400-1.0	2.24
			SB-EU102-3323-2.0	2.29
			SB-EU103-3324-1.0	3.6
			SB-EU111-3325-1.5	2.65
			SB-EU121-3326-2.0	2.73
			SB-MW422-15.0-3609	0.515 J
			SB-MW861-38.0-3600	1.21 J
			SB-TWP831-15.0-3504	0.989 J
			SB-TWP833-10.0-3510	0.952 J
			SB-TWP836-15.0-3519	1.25 J
			SB-TWP837-19.0-3522	1.81
			SB-TWP839-14.0-3528	0.652 J
			SB-TWP844-11.0-3543	1.2 J
			SB-TWP848-11.0-3555	1.77
			SB-TWP849-11.0-3558	1.7
			SB-TWP850-17.0-3561	1.44 J
			SB-TWP851-18.0-3564	1.94

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDT	μg/Kg	--	SB-TWP858-16.0-3585	1.72
			SB-TWP859-18.0-3588	2.01
			SS311-035	18.9
			SS4F003-635	5.4
			SS4F004-636	7.3 P
			SS-DRUM01-3369	4.45
			SS-DRUM06-3395	13.1
			SS-EU011-3327	2.24
			SS-EU022-3329	2.06
			SS-EU031-3330	2.58
			SS-EU081-3339	1.29 J
			SS-EU093-3342	0.739 J
			SS-EU103-3345	2.16
			SS-EU121-3349	2.84
			SS-EU122-3350	2.28
			SS-MW229-3617	2.14
			SS-MW314-3593	1.88
			SS-MW861-3599	2.22
			SS-MW862-3602	1.93
			SS-MW863-3605	12.5
			SS-TWP833-3509	0.8 J
			SS-TWP834-3512	1.96
			SS-TWP835-3515	1.82
			SS-TWP836-3518	1.18 J
			SS-TWP837-3521	1.24 J
			SS-TWP838-3524	0.506 J
			SS-TWP839-3527	1.18 J
			SS-TWP843-3539	2.47
			SS-TWP846-3548	1.19 J
			SS-TWP847-3551	1.28 J
			SS-TWP851-3563	1.31 J
			SS-TWP853-3569	0.587 J
			SS-TWP856-3578	2.56
			SS-TWP859-3587	2.02
Radionuclides				

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Actinium-227	pCi/g	0.08	SB314-415-1.5	1.41
			SB3A017-2249-1.0	0.862
			SB3B015-2471-1.25	0.652
			SB3C014-2472-1.0	1.56
			SB3C015-2475-1.5	0.752
			SB4A013-2356	0.433
			SB5A016-2254-1.0	8.66
			SB5A016-2255-1.5	9.39
			SB5A016-2256-1.7	4.58
			SB6B005-2360	0.955
			SB826-416-1.3	0.478
			SB8D003-2236-1.0	0.565
			SB8D006-2232-0.8	5.83
			SB8D006-2237-1.5	0.86
			SB8D016-2231-2.0	3.33 J
			SB8E003-2235-1.5	3.4
			SB8F001-2242-1.0	0.687
			SD746-2150	8
			SD747-2152	2.22
			SD748-2153	3.6
			SD750-2155	4.29
			SD752-2241	0.906
			SS102-685	0.278
			SS218-400	2.71
			SS219-401	2.72
			SS220-402	1.95
			SS221-403	9.3
			SS314-404	2.28
			SS3A016-572	0.487
			SS3A021-2392	1.43
			SS3A023-2394	1.29
			SS3A024-2395	0.98
			SS3B011-2398	0.758
			SS3C014-2411	1.44
			SS3C015-2412	1.89
			SS3D001-2414	1.24
			SS3D004-2418	2.98
			SS3D006-2420	3.07
			SS4A014-2271	0.607
			SS4B009-2280	2.26
			SS4B021-2295	0.938
			SS4G002-2365	1.33
			SS5A016-2170	1.51
			SS606-698	18.9

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Actinium-227	pCi/g	0.08	SS6A001-2317	14.2
			SS6B005-2335	1.6
			SS816-703	5.11
			SS821-709	0.341
			SS826-405	0.97
			SS827-406	9.22
			SS829-409	7.34
			SS830-1036	132
			SS8A014-2181	3.6
			SS8B001-2430	1 J
			SS8D003-2190	3.3
			SS8D004-2191	3.5 J
			SS8D006-2193	0.782
			SS8D007-2195	1.32
			SS8D009-2197	24
			SS8F001-2201	3.77
			SS8F003-2203	1.51
			SS8F005-2206	1.26
			SS8H001-2443	0.629
			SS913-2105	1.08
			SS-EU061-3335	0.579
			SS-MW313-3590	0.507
			TB301-2811-01.0-029	1.7
			TB411-2837-01.5-052	0.455
			TB802-2902-04.0-018	0.487
			TB802A-2903-03.8-096	1.61

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SB206-090-9	19.6
			SB214-098-15	18.7
			SB217-101-13	15.6
			SB218-410-2.0	17.1
			SB219-411-2.0	17.3
			SB220-412-1.0	22.8
			SB221-413-2.0	23.7
			SB304-106-9	17.7
			SB312-117-15	15.6
			SB314-415-1.5	103
			SB401-118-20	16.5
			SB404-121-1.4	43.7
			SB406-123-18	15.8
			SB415-136-14	15.3
			SB417-138-8.9	25.1
			SB4A013-2356	57.1
			SB4A013-2357	69.9
			SB4A013-2358	46.7
			SB4A015-2355	49.9
			SB4B014-2353	20
			SB4C002-2352	16
			SB4D003-656-14.5	15.3
			SB4G002-2366	18.7
			SB4G002-2367	15.5
			SB501-144-12	18.3
			SB502-145-13	16.3
			SB602-151-15	16.3
			SB6A001-2362	416
			SB6A001-2363	404
			SB6B005-2359	513
			SB6B005-2360	168
			SB6B005-2361	40.2
			SB803-156-7.5	20.3
			SB804-157-7.5	15.8
			SB807-160-18.2	19.5
			SB812-165-10	16
			SB826-416-1.3	60.5
			SB827-417-2.0	75.7
			SB828-418-0.5	21
			SB829-419-1.3	21.3
			SB830-1037-2.0	48.5
			SB902-2082-2.0	16.9
			SB905-2090-2.0	17.3
			SB-BH223-3.0-3665	21.8

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SB-DRUM01-3370-1.0	15.6
			SB-DRUM07-3399-1.0	16.4
			SB-EU042-3311-1.0	16.2
			SB-EU101-3400-1.0	25.9
			SB-EU102-3323-2.0	35.8
			SB-MW228-11.0-3615	15.6
			SB-MW314-15.0-3594	17.9
			SD701-293	21.4
			SD703-297	68.2
			SD704-302	17.8
			SD711-317	66.4
			SD714-326	15.5
			SD719-341	19.6
			SD723-349	18.1
			SD724-351	20.2
			SD725-353	21.9
			SD737-381	16
			SD741-672	16.6
			SD743-675	26.5
			SD745-677	48.4
			SD911-2101	18.5
			SD912-2103	18.7
			SD914-2108	24.5
			SS201-001	29.8
			SS203-003	121
			SS205-008	38.9
			SS207-010	16.9
			SS208-011	19.1
			SS209-012	16.1
			SS211-015	34.1
			SS212-016	19.6
			SS213-017	16
			SS214-018	21.7
			SS215-019	19.2
			SS216-020	22.8
			SS218-400	284
			SS219-401	99.2
			SS220-402	60.3
			SS221-403	3030
			SS301-025	20.6
			SS302-026	15.4
			SS303-027	15.3
			SS304-028	20.9
			SS305-029	16.8

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SS306-030	20.8
			SS308-032	84.8
			SS309-033	32.9
			SS310-034	15.2
			SS311-035	56.3
			SS312-036	55.8
			SS314-404	172
			SS402-039	92.4
			SS403-040	20.7
			SS404-041	46.5
			SS405-042	19
			SS406-043	31.8
			SS411-048	23.4
			SS412-049	15.6
			SS413-050	21
			SS415-052	19.7
			SS417-054	20.2
			SS419-056	19.8
			SS420-057	15.6
			SS421-058	21
			SS4C003-2299	18.9
			SS502-060	23.2
			SS503-064	230
			SS603-068	15.8
			SS801-070	17.7
			SS802-071	16.9
			SS804-073	22.1
			SS805-074	21.8
			SS806-075	21.1
			SS807-076	19.8
			SS808-077	19.6
			SS826-405	42.8
			SS827-406	536
			SS829-409	1390
			SS830-1036	3840
			SS905-2089	17
			SS906-2091	15.7
			SS907-2093	17.9
			SS909-2097	16
			SS913-2105	83.3
			SS-DRUM01-3369	19.9
			SS-DRUM02-3372	26.1
			SS-EU031-3330	15.7
			SS-EU061-3335	26.4

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	15.1	SS-EU101-3343	19.3
			SS-EU121-3349	22.3
			SS-EU123-3351	17.1 J
			SS-MW313-3590	35.3
			SS-TWP832-3506	18.8
			SS-TWP833-3509	34.6
			SS-TWP844-3542	16.2
			SS-TWP848-3554	17.2
			SS-TWP857-3581	27.1
			TS812-2928-062	19000

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB202-086-10	34.4
			SB203-087-12	32.2
			SB206-090-9	32.3
			SB208-092-12	34.9
			SB212-096-12.5	34.7
			SB213-097-12.5	34.3
			SB216-100-10.5	36.5
			SB218-410-2.0	31.7
			SB220-412-1.0	30
			SB301-103-10	29
			SB304-106-9	32.2
			SB314-415-1.5	54.4
			SB403-120-18	33.9
			SB404-121-1.4	29.8
			SB406-123-18	29.7
			SB417-138-8.9	30.3
			SB4A013-2356	36
			SB4A013-2357	35.2
			SB4A015-2355	32.8
			SB4D003-656-14.5	35.4
			SB501-144-12	31.3
			SB502-145-13	32.9
			SB604-153-15	30.7
			SB6A001-2362	191
			SB6A001-2363	221
			SB6B005-2359	214
			SB6B005-2360	114
			SB6B005-2361	48.2
			SB802-155-17	30.1
			SB803-156-7.5	40.7
			SB805-158-7.5	32.4
			SB807-160-18.2	32.2
			SB826-416-1.3	44.2
			SB827-417-2.0	53.6
			SB830-1037-2.0	81.6
			SB902-2082-2.0	31.5
			SB903-2085-2.0	30.7
			SB913-2474-1.5	29.5
			SB-BH218-15.0-3660	31.2
			SB-BH220-20.0-3662	33
			SB-BH226-12.0-3668	32.6
			SB-EU102-3323-2.0	53.1
			SB-MH06-8.5-3650	30
			SB-MW228-11.0-3615	37.7

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB-MW229-11.0-3614	35.9
			SB-MW314-15.0-3594	40.8
			SB-TWP832-12.5-3507	30
			SB-TWP838-14.0-3525	30
			SB-TWP839-14.0-3528	33
			SB-TWP843-10.0-3540	30.1
			SB-TWP847-10.0-3552	30.3
			SD703-297	39.9
			SD711-317	38.3
			SD725-353	31.1
			SD731-368	32.4
			SD743-675	30.4
			SD744-676	29.1
			SD745-677	44.1
			SD911-2101	32.8
			SD914-2108	43.4
			SD-CD1-3401-0.67	29.6
			SS201-001	29.5
			SS203-003	70.1
			SS211-015	30.6
			SS212-016	32.9
			SS216-020	32
			SS218-400	153
			SS219-401	72
			SS220-402	50.4
			SS221-403	1180
			SS301-025	33.9
			SS308-032	47.6
			SS309-033	34.2
			SS311-035	37.6
			SS312-036	43.5
			SS314-404	94.2
			SS402-039	35
			SS404-041	31.8
			SS406-043	29.9
			SS411-048	35.4
			SS502-060	34.3
			SS503-064	219
			SS801-070	38.6
			SS826-405	39.3
			SS827-406	301
			SS829-409	739
			SS830-1036	1830
			SS905-2089	31.4

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SS907-2093	33.2
			SS909-2097	31.3
			SS913-2105	49.7
			SS-MW313-3590	36.1
			SS-TWP832-3506	29.1
			SS-TWP833-3509	43.5
			SS-TWP854-3572	31.1
			SS-TWP857-3581	38.5
			TS812-2928-062	15100

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SB310-115-8.5	0.633 J
			SB314-415-1.5	0.421
			SB3A017-2249-1.0	0.49
			SB3C015-2475-1.5	0.371
			SB3D001-2476-1.0	0.866
			SB4A013-2357	0.36
			SB5A016-2255-1.5	0.434
			SB804-157-7.5	0.473 J
			SB811-164-23	0.429 J
			SB8D003-2233-0.75	1.16
			SB8D003-2236-1.0	0.417
			SB8D016-2231-2.0	5.15 J
			SB-DRUM01-3370-1.0	0.467
			SB-DRUM06-3396-1.0	0.375
			SD714-326	0.399 J
			SD734-375	0.808 J
			SD737-381	0.607 J
			SD746-2150	0.49
			SD748-2153	0.428
			SD752-2241	0.472
			SS1A002-2158	0.35
			SS219-401	0.679
			SS2A006-2369	0.447
			SS2A008-2371	0.47
			SS2B002-534	0.438
			SS2B003-535	0.542
			SS2D001-547	0.572
			SS2D002-548	0.508
			SS2D003-549	0.484
			SS2D004-550	0.542
			SS2D005-551	0.424
			SS2D006-552	0.646
			SS2D008-554	0.433
			SS2D012-2384	0.739
			SS306-030	0.619 J
			SS313-687	0.456
			SS314-404	1.22
			SS3A001-555	0.602
			SS3A002-556	0.611
			SS3A003-557	0.52
			SS3A004-559	0.399
			SS3A005-560	0.474
			SS3A006-561	0.773
			SS3A007-562	0.852

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS3A013-569	0.579
			SS3A016-572	0.565
			SS3A017-2162	0.719
			SS3A020-2389	0.612
			SS3A021-2392	0.842
			SS3A023-2394	0.806
			SS3B002-575	0.458
			SS3B003-576	0.894
			SS3B004-577	0.557
			SS3B005-578	0.352
			SS3B007-580	0.414
			SS3B010-583	0.515
			SS3B011-2398	1.08
			SS3C001-584	0.466
			SS3C002-585	0.586
			SS3C003-586	0.4
			SS3C004-587	0.448
			SS3C005-588	0.47
			SS3C006-589	0.484
			SS3C007-590	0.903
			SS3C008-591	0.574
			SS3C014-2411	0.468
			SS3C015-2412	0.548
			SS3C016-2413	0.393
			SS3D001-2414	2.23
			SS3D002-2415	3
			SS3D009-2423	0.366
			SS414-051	1.92 J
			SS417-054	0.351 J
			SS418-055	0.493 J
			SS422-688	1.29
			SS4A002-600	0.429
			SS4A003-601	0.56
			SS4A004-602	0.408
			SS4A007-605	0.817
			SS4A013-2270	0.385
			SS4A016-2275	0.402
			SS4A019-2425	0.533
			SS4B003-614	0.384
			SS4B006-617	0.359
			SS4B008-2279	0.375
			SS4C001-618	0.379
			SS4C006-2303	0.383
			SS4D005-619	0.403

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS4D006-620	0.379
			SS4D008-623	0.413
			SS4D009-625	0.38
			SS4D010-626	0.431
			SS4D011-627	0.585
			SS4D012-628	0.35
			SS4D013-629	0.439
			SS4D015-631	0.431
			SS4D019-2308	0.347
			SS4D020-2309	0.396
			SS4F001-633	0.374
			SS4F002-634	0.389
			SS4F003-635	0.395
			SS4F005-2311	0.364
			SS4F007-2313	0.359
			SS504-692	0.864
			SS5A001-637	1.13
			SS5A004-640	1.07
			SS5A010-2164	0.417
			SS5A011-2165	0.402
			SS5A012-2166	0.423
			SS5A013-2167	0.391
			SS601-065	0.406 J
			SS6A003-2320	0.375
			SS6C001-2337	0.357
			SS6C003-2339	0.345
			SS811-080	0.377 J
			SS817-704	1.27
			SS818-705	0.469
			SS829-409	0.848
			SS8B003-2433	0.357
			SS8B006-2436	0.452
			SS8D001-2188	0.449
			SS8D003-2190	1.07
			SS8E002-2199	0.473 J
			SS8F001-2201	0.585
			SS8F005-2206	0.381
			SS8G002-2344	0.435
			SS8G005-2347	0.672
			SS8H001-2443	0.688
			SS8H002-2444	0.388
			SS-DRUM01-3369	0.669
			SS-DRUM02-3372	1.02
			SS-DRUM04-3378	0.377

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/g	0.343	SS-DRUM05-3381	0.522 J
			SS-DRUM06-3395	0.506
			SS-DRUM07-3398	0.42
			SS-EU021-3328	0.399
			SS-MW313-3590	0.443
			SS-MW314-3593	0.363
			TB301-2811-01.0-029	4.88
			TB414-2846-01.0-043	0.53
Plutonium-239/240	pCi/g	--	SB3D001-5.0-3632	0.322
			SB-CORE01-0.5-3731	0.536
			TS812-2928-062	0.129
Potassium-40	pCi/g	32.9	SB5A018-2211-2.0	48.7

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB219-411-2.0	1.61
			SB220-412-1.0	10.7
			SB221-413-2.0	1.48
			SB2A005-2220-1.7	1.69
			SB2A005-2240	3.41
			SB314-415-1.5	28.1
			SB3A017-2249-1.0	16.7
			SB3B015-2471-1.25	6.43
			SB3C014-2472-1.0	10.6
			SB3C015-2475-1.5	9.95
			SB3D001-2476-1.0	5.63
			SB404-121-1.4	7.72
			SB404-121-25	1.43
			SB4A013-2356	5.06
			SB4A013-2357	5.15
			SB4A013-2358	4.35
			SB4A014-2272-1.0	8.05
			SB4A015-2355	7.42
			SB4B009-2281-2.0	2.28
			SB4B014-2353	4.25
			SB4B021-2296-2.0	1.37
			SB4C002-2351	2.67
			SB4C002-2352	2.29
			SB5A010-2257-1.0	5.03
			SB5A013-2210-2.0	1.44
			SB5A016-2254-1.0	155
			SB5A016-2255-1.5	151
			SB5A016-2256-1.7	85.7
			SB5A018-2211-2.0	2.14
			SB6A001-2318-2.0	6.33
			SB6A001-2362	79.9
			SB6A001-2363	167
			SB6A006-2324-2.0	1.27
			SB6B005-2359	70.1
			SB6B005-2360	9.5
			SB752-2250-1.5	3.31
			SB752-2252-1.0	14.4
			SB804-157-7.5	1.31
			SB811-164-23	1.33
			SB826-416-1.3	5.99
			SB827-417-2.0	8.37
			SB828-418-0.5	8.33
			SB829-419-1.3	3.72
			SB830-1037-2.0	2.25

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SB8A003-2217-2.0	1.6
			SB8A009-2218-2.0	1.65
			SB8D003-2233-0.75	44.5
			SB8D003-2236-1.0	7.17
			SB8D004-2222-1.8	3.79
			SB8D006-2232-0.8	143
			SB8D006-2237-1.5	14.2
			SB8D006-2238-2.0	7.94
			SB8D007-2223-1.8	5.68
			SB8D009-2224-2.0	10
			SB8D016-2231-2.0	19.1 J
			SB8E003-2235-1.5	74.8
			SB8F001-2242-1.0	14.3
			SB8F001-2243-1.5	11.3
			SB8F005-2245-1.0	6.14
			SB8F006-2246-1.5	1.23
			SB8F006-2247-1.5	1.31
			SB8F006-2251-1.0	1.99
			SB905-2090-2.0	1.68
			SB-BH223-3.0-3665	1.24
			SB-DRUM01-3370-1.0	1.66
			SB-DRUM07-3399-1.0	1.36
			SB-EU042-3311-1.0	1.34
			SB-EU082-3319-1.5	1.51
			SB-EU101-3400-1.0	3.8
			SD703-297	8.52
			SD704-302	1.37
			SD711-317	16
			SD723-349	1.55
			SD732-370	1.21
			SD737-381	1.3
			SD741-672	1.64
			SD744-676	2.4
			SD745-677	1.52
			SD746-2150	184
			SD746-2244	3.34
			SD746-2248	50
			SD747-2152	37.1
			SD747-2253	2.57
			SD748-2153	58.6
			SD748-2239	10.5
			SD750-2155	75.7
			SD750-2216	3.42
			SD752-2241	25.7

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SEDC06-08-2146	5.95
			SS101-684	1.64
			SS1A002-2158	2.04
			SS201-001	1.66
			SS203-003	1140
			SS205-008	7.87
			SS206-009	1.72
			SS207-010	1.53
			SS209-012	1.42
			SS210-014	1.66
			SS211-015	3.92
			SS212-016	1.71
			SS213-017	1.36
			SS215-019	1.41
			SS216-020	1.52
			SS217-021	1.45
			SS218-400	29.6
			SS219-401	24.1
			SS220-402	33.4
			SS221-403	127
			SS2A004-2173	4.18
			SS2A006-2369	5.46
			SS2A008-2371	8.65
			SS2A009-2373	1.34
			SS2B001-532	1.41
			SS2B002-534	3.43
			SS2B003-535	1.81
			SS2B004-536	1.47
			SS2B007-540	1.56
			SS2B008-541	1.47
			SS2B014-2374	126
			SS2C002-2380	1.65
			SS2D001-547	1.47
			SS2D002-548	1.59
			SS2D003-549	2.13
			SS2D005-551	1.77
			SS2D006-552	1.57
			SS2D007-553	1.83
			SS2D008-554	1.46
			SS2D011-2383	1.37
			SS2D012-2384	10.7
			SS2D013-2385	5.92
			SS303-027	3.84
			SS304-028	1.61

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS305-029	1.27
			SS308-032	3.56
			SS309-033	2.58
			SS310-034	1.56
			SS311-035	6.58
			SS312-036	7.49
			SS313-687	1.52
			SS314-404	55.4
			SS3A001-555	2.57
			SS3A002-556	4.06
			SS3A003-557	3.2
			SS3A004-559	2.67
			SS3A005-560	3.87
			SS3A006-561	6.31
			SS3A007-562	5.5
			SS3A008-563	2.26
			SS3A009-565	2.86
			SS3A010-566	2.35
			SS3A011-567	1.77
			SS3A012-568	1.97
			SS3A013-569	5.51
			SS3A016-572	4.21
			SS3A017-2162	15.1
			SS3A020-2389	8.54
			SS3A021-2392	21
			SS3A022-2393	1.48
			SS3A023-2394	17.6
			SS3A024-2395	10.7
			SS3A025-2397	2.6
			SS3B002-575	2.05
			SS3B003-576	7.91
			SS3B004-577	4.16
			SS3B005-578	2.94
			SS3B007-580	2.96
			SS3B010-583	2.84
			SS3B011-2398	12.5
			SS3B012-2401	1.79
			SS3B013-2402	5.7
			SS3B014-2404	1.7
			SS3B015-2405	12.4
			SS3B016-2406	2.32
			SS3B017-2407	2.61
			SS3B018-2409	1.4
			SS3B019-2410	1.24

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS3C001-584	1.95
			SS3C002-585	2.31
			SS3C003-586	1.51
			SS3C004-587	1.86
			SS3C005-588	1.98
			SS3C006-589	2.65
			SS3C007-590	2.5
			SS3C008-591	1.8
			SS3C011-594	1.36
			SS3C012-596	2.19
			SS3C013-597	1.58
			SS3C014-2411	13.4
			SS3C015-2412	19.6
			SS3C016-2413	1.94
			SS3D001-2414	19.3
			SS3D002-2415	2.03
			SS3D004-2418	50.2
			SS3D006-2420	82.1
			SS3D007-2421	7.3
			SS3D008-2422	1.43 J
			SS3D009-2423	1.77
			SS401-037	1.39
			SS402-039	9.49
			SS403-040	1.58
			SS404-041	4.5
			SS405-042	1.62
			SS406-043	2.15
			SS407-044	1.98
			SS409-046	1.28
			SS410-047	1.27
			SS413-050	2.01
			SS414-051	1.64
			SS415-052	1.67
			SS417-054	4.45
			SS418-055	1.35
			SS420-057	2.35
			SS422-688	2.33
			SS423-689	1.92
			SS4A001-598	1.64
			SS4A002-600	1.41
			SS4A003-601	5.35
			SS4A004-602	1.87
			SS4A005-603	1.83
			SS4A006-604	1.69

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS4A007-605	3.27
			SS4A008-606	1.3
			SS4A010-608	1.34
			SS4A011-610	1.92
			SS4A013-2270	6
			SS4A014-2271	8.48
			SS4A015-2274	7.17
			SS4A019-2425	4.49
			SS4B001-612	3.09
			SS4B002-613	2.66
			SS4B003-614	2.14
			SS4B005-616	1.41
			SS4B006-617	1.72
			SS4B007-2278	1.4
			SS4B008-2279	1.71
			SS4B009-2280	37.5
			SS4B010-2282	7.31
			SS4B014-2288	15.2
			SS4B015-2289	2.05
			SS4B016-2290	2.36
			SS4B017-2291	7.14
			SS4B019-2293	1.44
			SS4B021-2295	17.6
			SS4C002-2298	5.83
			SS4C003-2299	1.78
			SS4C004-2300	3.72
			SS4C006-2303	1.33
			SS4D005-619	1.73
			SS4D006-620	1.21
			SS4D008-623	1.48
			SS4D010-626	1.95
			SS4D011-627	2.34
			SS4D012-628	2.69
			SS4D013-629	1.86
			SS4D014-630	1.51
			SS4D015-631	2.32
			SS4D017-2306	4.66
			SS4D019-2308	2.95
			SS4D020-2309	1.43
			SS4F003-635	1.23
			SS4F004-636	1.26
			SS4G002-2365	43.9
			SS504-692	6.07
			SS5A010-2164	5.36

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS5A011-2165	1.92
			SS5A012-2166	4.57
			SS5A013-2167	3.72
			SS5A014-2168	4.79
			SS5A016-2170	13.4
			SS5A021-2214	6.39
			SS606-698	103
			SS607-699	1.3
			SS6A001-2317	285
			SS6A003-2320	2.24
			SS6A005-2323	2.54
			SS6A006-2325	1.34
			SS6A010-2364	3.39
			SS6B001-2330	2.78
			SS6B005-2335	29.3
			SS6C006-2342	1.25
			SS801-070	1.81
			SS802-071	1.25
			SS805-074	1.5
			SS806-075	1.27
			SS807-076	1.7
			SS813-700	1.37
			SS814-701	2.71
			SS815-702	3.07
			SS816-703	299
			SS817-704	2.72
			SS818-705	1.66
			SS820-708	2.19
			SS826-405	13.2
			SS827-406	185
			SS829-409	182
			SS830-1036	386
			SS8A002-2174	3.01
			SS8A003-2175	47.9
			SS8A004-2176	6.2
			SS8A005-2177	2.12
			SS8A010-2182	1.24
			SS8A014-2181	67.9
			SS8B001-2430	16.8 J
			SS8B003-2433	1.21
			SS8B006-2436	1.33
			SS8B010-2442	1.83
			SS8C001-2184	1.86
			SS8D001-2188	3.78

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	SS8D003-2190	45.5
			SS8D004-2191	42.2 J
			SS8D006-2193	13.4
			SS8D007-2195	14.9
			SS8D009-2197	446
			SS8E001-2198	1.27
			SS8E002-2199	1.98 J
			SS8F001-2201	61.5
			SS8F003-2203	45.9
			SS8F005-2206	18.9
			SS8F006-2207	7.32
			SS8G001-2343	1.5
			SS8G002-2344	1.35
			SS8H001-2443	7.49
			SS8H002-2444	15.1 J
			SS905-2089	2.07
			SS906-2091	1.84
			SS913-2105	17.8
			SS-DRUM01-3369	2.38
			SS-DRUM02-3372	2.54
			SS-DRUM04-3378	1.41
			SS-DRUM07-3398	1.78
			SS-EU011-3327	1.49
			SS-EU021-3328	1.31
			SS-EU051-3334	3.56
			SS-EU061-3335	4.1
			SS-EU072-3338	1.46
			SS-EU101-3343	2.69
			SS-EU121-3349	1.46
			SS-EU123-3351	1.39
			SS-MW313-3590	4.51
			SS-MW314-3593	1.42
			SS-TWP844-3542	1.3
			SS-TWP848-3554	1.76
			TB203-2806-01.0-013	2.33
			TB301-2811-01.0-029	17.4
			TB302-2813-01.0-042	1.35
			TB303-2816-01.0-016	1.24
			TB403-2821-04.0-008	1.24
			TB406-2827-02.0-027	3.38
			TB408-2830-03.9-021	1.58
			TB411-2836-01.5-034	2.12
			TB411-2837-01.5-052	7.68
			TB802-2901-04.2-008	2.68 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	1.2	TB802-2902-04.0-018	7.83
			TB802A-2903-03.8-096	34.5
			TB808-2851-01.5-020	1.41
			TB808-2852-01.5-016	1.3
			TB809-2906-01.0-045	1.9
			TB810-2908-01.8-041	82.7
			TB811-2912-04.0-047	1.23
			TB813-2925-08.0-013	32.6
			TB813-2926-01.0-021	1.65
			TS203-2808-020	1.64
			TS809-2904-001	3.09
			TS809-2905-007	3.39
			TS812-2928-062	9.64
Radium-228	pCi/g	1.26	SB2A001-645-11.0	1.33
			SB2B001-648-16.0	1.31
			SB2B002-649-9.5	1.37
			SB4A014-2272-1.0	1.35
			SB4D004-657-14.5	1.39
			SB5A010-2257-1.0	1.75
			SB5A018-2211-2.0	2.53
			SB8E003-2235-1.5	1.37
			SB-MH07/08-11.0-3652	1.28
			SD911-2101	1.5
			SS2D011-2383	1.27
			SS4A015-2274	1.32
			SS5A006-642	1.44
			SS5A010-2164	1.61
			SS5A012-2166	1.5
			SS5A013-2167	1.41
			SS5A014-2168	2.08
			SS5A021-2214	2.43
			SS827-406	1.35
			SS8A014-2181	1.49
			SS8F003-2203	1.27
			SS8F006-2207	3.18
			SS903-2083	1.33

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SB220-412-1.0	2.1
			SB2B001-648-16.0	1.69
			SB2B002-649-9.5	1.66
			SB3D002-5.0-3633	1.81
			SB4A013-2357	2.09
			SB4A015-2355	1.8
			SB4B014-2353	1.8
			SB4B014-2354	2.34
			SB4D004-657-14.5	1.91
			SB4D005-658-15.5	4.66
			SB4G002-2366	1.83
			SB4G002-2367	1.75
			SB506-725-13.0	1.87
			SB5A010-2257-1.0	1.65
			SB6A001-2362	1.77
			SB819-736-9.0	1.95
			SB-BH219-6.0-3661	2.13
			SB-BH223-3.0-3665	1.7
			SB-BH225-10.0-3667	1.76
			SB-CORE09-0.5-3747	1.8
			SB-EU013-3302-1.0	1.67
			SB-EU032-3309-1.0	1.66
			SB-EU062-3315-2.0	1.71
			SB-EU071-3316-2.0	1.69
			SB-MH07-11.0-3651	2.53
			SB-MH41-8.0-3656	1.68
			SB-TWP838-14.0-3525	1.67
			SB-TWP841-10.0-3534	1.8
			SB-TWP843-10.0-3540	1.71
			SB-TWP848-11.0-3555	1.74
			SD742-674	1.66
			SD915-2109	1.76
			SS219-401	1.96
			SS313-687	1.72
			SS3A002-556	1.86
			SS4C003-2299	1.7
			SS4D005-619	1.68
			SS5A006-642	2.38
			SS5A010-2164	1.79
			SS5A021-2214	2.01
			SS605-697	1.69
			SS815-702	1.7
			SS827-406	1.74
			SS-EU113-3348	1.71

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/g	1.64	SS-EU123-3351	2.08 J
			SS-MW313-3590	1.66
			SS-MW424-3620	1.96
			SS-TWP851-3563	1.69
			SS-TWP852-3566	1.65
			TB202-2805-03.0-062	1.65
			TB408-2830-03.9-021	1.68

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB219-411-2.0	1.57
			SB220-412-1.0	2.01
			SB221-413-2.0	2.38
			SB2A005-2220-1.7	2.37
			SB2A005-2240	4.88
			SB2B001-648-16.0	1.64
			SB306-111-12.5	1.49 J
			SB314-415-1.5	8.12
			SB3A017-2249-1.0	6.18
			SB3A017-5.0-3635	1.56
			SB3B011-2399-2.0	1.8
			SB3B015-2471-1.25	5.02
			SB3B015-5.0-3637	1.88
			SB3C014-2472-1.0	9.46
			SB3C015-2475-1.5	22.3
			SB3D001-2476-1.0	4.99
			SB404-121-1.4	8.12
			SB421-143-16	1.51 J
			SB4A013-2356	7.84
			SB4A013-2357	9.7
			SB4A013-2358	4.95
			SB4A014-2272-1.0	5.64
			SB4A015-2355	6.31
			SB4B014-2353	3.09
			SB4C002-2351	1.65
			SB4C002-2352	1.72
			SB4D004-657-14.5	1.5
			SB505-723-17.0	1.97
			SB506-725-13.0	1.43
			SB5A010-2257-1.0	3.65
			SB5A013-2210-2.0	12.6
			SB5A016-2254-1.0	354
			SB5A016-2255-1.5	344
			SB5A016-2256-1.7	227
			SB5A019-2212-1.75	1.47
			SB6A001-2318-2.0	1.63
			SB6A001-2362	6.12
			SB6A001-2363	6.98
			SB6B005-2359	14.5
			SB6B005-2360	3.89
			SB752-2250-1.5	4.84
			SB752-2252-1.0	12.3
			SB814-731-19	1.41
			SB823-740-13.0	1.41

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB826-416-1.3	13.2
			SB827-417-2.0	3.35
			SB828-418-0.5	3.13
			SB830-1037-2.0	3.63
			SB8A001-2221-2.0	1.51
			SB8A003-2217-2.0	2.79
			SB8A009-2218-2.0	2.57
			SB8D003-2233-0.75	8.06
			SB8D003-2236-1.0	3.56
			SB8D006-2232-0.8	98.3
			SB8D006-2237-1.5	24.3
			SB8D006-2238-2.0	8.96
			SB8D007-2223-1.8	3.7
			SB8D009-2224-2.0	25.3
			SB8D016-2231-2.0	21.9 J
			SB8D016-3.5-3634	1.76
			SB8E003-2235-1.5	38.5
			SB8F001-2242-1.0	3.37
			SB8F001-2243-1.5	2.29
			SB8F005-2245-1.0	6.85
			SB8F006-2246-1.5	1.91
			SB8F006-2251-1.0	1.81
			SB905-2090-2.0	2.1
			SB-BH221-15.0-3663	1.48
			SB-BH223-3.0-3665	1.49
			SB-DRUM01-3370-1.0	2.58
			SB-DRUM04-3379-1.0	1.4
			SB-DRUM05-3382-1.0	2.64
			SB-DRUM06-3396-1.0	2.07
			SB-DRUM07-3399-1.0	2.86
			SB-EU012-3301-1.0	2.62
			SB-EU013-3302-1.0	1.81
			SB-EU023-3307-2.0	1.91
			SB-EU032-3309-1.0	2.03
			SB-EU042-3311-1.0	2.13
			SB-EU061-3314-2.0	1.49
			SB-EU072-3317-1.5	1.99
			SB-EU081-3318-1.5	1.65
			SB-EU082-3319-1.5	1.62
			SB-EU093-3322-2.0	1.51
			SB-EU101-3400-1.0	7.42
			SB-MH07-11.0-3651	1.62
			SB-MH41-8.0-3656	1.47
			SB-MH43-9.0-3655	1.46

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB-MH45-9.0-3654	1.5
			SB-MW229-11.0-3614	1.95 J
			SB-MW229-28.5-3618	1.47
			SB-MW314-15.0-3594	2.31
			SB-MW423-15.0-3612	1.82
			SB-MW862-11.5-3603	1.62
			SB-TWP838-14.0-3525	1.6
			SB-TWP841-10.0-3534	1.8
			SB-TWP843-10.0-3540	1.91
			SB-TWP847-10.0-3552	1.62 J
			SB-TWP848-11.0-3555	1.49
			SB-TWP858-16.0-3585	1.61 J
			SD703-297	10.1
			SD704-302	1.82 J
			SD711-317	11.4
			SD719-341	2.08 J
			SD723-349	2.1 J
			SD743-675	2.12
			SD745-677	8.96
			SD746-2150	230
			SD746-2244	4.82
			SD746-2248	55.7
			SD747-2152	48.1
			SD747-2253	3.53
			SD748-2153	71.4
			SD748-2239	17.8
			SD750-2155	109
			SD750-2216	7.04
			SD752-2241	18.2
			SD915-2109	1.65
			SD-WD1-3406-0.5	1.66
			SEDC06-08-2146	4.86
			SS101-684	1.94
			SS102-685	1.45
			SS1A001-2157	1.57
			SS1A002-2158	1.88
			SS201-001	3.48
			SS203-003	6.48
			SS204-004	2.17
			SS205-008	3.47
			SS206-009	1.65
			SS207-010	2.32
			SS208-011	1.79
			SS209-012	2.01

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS210-014	2.01
			SS211-015	7.39
			SS212-016	2.88
			SS213-017	1.69
			SS214-018	1.54
			SS216-020	3.13
			SS217-021	2.17
			SS218-400	69.6
			SS219-401	39.2
			SS220-402	8.24
			SS221-403	978
			SS2A002-530	1.57
			SS2A004-2173	6.31
			SS2A006-2369	8.04
			SS2A008-2371	14
			SS2A009-2373	2.93
			SS2B001-532	1.42
			SS2B002-534	2.54
			SS2B003-535	3.94
			SS2B007-540	2.81
			SS2B008-541	2.76
			SS2B009-542	1.99
			SS2B010-543	1.46
			SS2B014-2374	4.3
			SS2C002-2380	2.32
			SS2D001-547	2.75
			SS2D002-548	2.97
			SS2D003-549	3.26
			SS2D005-551	2.39
			SS2D006-552	1.91
			SS2D007-553	1.64
			SS2D008-554	2.84
			SS2D009-2381	1.73
			SS2D011-2383	2.29
			SS2D012-2384	4.2
			SS2D013-2385	3.36
			SS303-027	3.48 J
			SS304-028	1.8 J
			SS306-030	1.87 J
			SS308-032	14.2
			SS309-033	5.64
			SS310-034	1.92 J
			SS311-035	15.6
			SS312-036	10.3

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS313-687	1.87
			SS314-404	15.8
			SS3A001-555	2.45
			SS3A002-556	7.36
			SS3A003-557	4.18
			SS3A004-559	5.17
			SS3A005-560	7.79
			SS3A006-561	9.35
			SS3A007-562	8.82
			SS3A008-563	2.33
			SS3A009-565	3.21
			SS3A010-566	3.69
			SS3A011-567	2.61
			SS3A012-568	2.25
			SS3A013-569	7.3
			SS3A016-572	5.79
			SS3A017-2162	7.59
			SS3A021-2392	21.8
			SS3A022-2393	1.53
			SS3A023-2394	11.5
			SS3A024-2395	8.85
			SS3A025-2397	3.87
			SS3B001-573	2.15
			SS3B002-575	3.32
			SS3B003-576	8.65
			SS3B004-577	6.88
			SS3B005-578	3.24
			SS3B007-580	3.09
			SS3B008-581	1.43
			SS3B010-583	5.68
			SS3B011-2398	16.9
			SS3B012-2401	2.75
			SS3B013-2402	12.5
			SS3B014-2404	2.71
			SS3B015-2405	9.85
			SS3B016-2406	3.47
			SS3B017-2407	3.09
			SS3B018-2409	1.94
			SS3B019-2410	2.42
			SS3C001-584	3.61
			SS3C002-585	4.23
			SS3C003-586	2.94
			SS3C004-587	2.72
			SS3C005-588	5.23

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS3C006-589	10.7
			SS3C007-590	10.8
			SS3C008-591	1.83
			SS3C009-592	1.71
			SS3C011-594	1.86
			SS3C012-596	2.44
			SS3C013-597	2.9
			SS3C014-2411	10.1
			SS3C015-2412	87.9
			SS3C016-2413	3.12
			SS3D001-2414	11.2
			SS3D002-2415	2.24
			SS3D004-2418	7.87
			SS3D006-2420	32.9
			SS3D007-2421	7.54
			SS3D008-2422	2.05 J
			SS3D009-2423	2.25
			SS401-037	1.62
			SS402-039	10.8
			SS403-040	2.15
			SS404-041	9.54
			SS406-043	2.27
			SS407-044	1.54
			SS410-047	1.5 J
			SS412-049	2.05
			SS413-050	2.83
			SS414-051	2.09 J
			SS415-052	2.1 J
			SS417-054	2.63 J
			SS418-055	1.46 J
			SS419-056	1.42 J
			SS422-688	1.79
			SS4A001-598	2.67
			SS4A002-600	1.88
			SS4A003-601	3.62
			SS4A004-602	2.25
			SS4A005-603	2.18
			SS4A006-604	2.05
			SS4A007-605	6.29
			SS4A008-606	1.45
			SS4A010-608	1.43
			SS4A011-610	3.38
			SS4A012-611	2.72
			SS4A013-2270	11.2

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS4A014-2271	6.3
			SS4A015-2274	5.36
			SS4A016-2275	1.66
			SS4A018-2277	1.53
			SS4A019-2425	2.46
			SS4B001-612	4.47
			SS4B002-613	3.7
			SS4B003-614	2.37
			SS4B005-616	1.5
			SS4B006-617	1.94
			SS4B007-2278	2.37
			SS4B008-2279	2.14
			SS4B009-2280	8.46
			SS4B010-2282	12.1
			SS4B013-2285	2.22
			SS4B014-2288	2.96
			SS4B015-2289	2.56
			SS4B016-2290	3.32
			SS4B017-2291	1.55
			SS4B019-2293	1.65
			SS4B021-2295	3.76
			SS4C002-2298	4.21
			SS4C003-2299	1.62
			SS4C004-2300	3.52
			SS4C005-2302	2.55
			SS4C006-2303	1.66
			SS4D005-619	3.25
			SS4D006-620	2.34
			SS4D009-625	2.04
			SS4D010-626	2
			SS4D011-627	2.67
			SS4D012-628	1.87
			SS4D013-629	2.4
			SS4D014-630	2.11
			SS4D015-631	2.97
			SS4D017-2306	3.47
			SS4D019-2308	2.4
			SS4D020-2309	2.24
			SS4F003-635	1.59
			SS4F005-2311	1.7
			SS4F006-2312	1.89
			SS4F008-2314	1.46
			SS4F009-2315	1.77
			SS4G001-2316	1.92

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS4G002-2365	8.51
			SS505-694	1.97
			SS5A010-2164	4.56
			SS5A011-2165	1.88
			SS5A012-2166	3.37
			SS5A013-2167	3.42
			SS5A014-2168	2.21
			SS5A016-2170	31.3
			SS5A021-2214	4.53
			SS606-698	352
			SS6A001-2317	8.73
			SS6A010-2364	2.69 J
			SS6B001-2330	1.51
			SS6B005-2335	8.25
			SS801-070	1.49
			SS805-074	2.79
			SS806-075	1.92
			SS807-076	1.57
			SS813-700	2.02
			SS814-701	2.62
			SS815-702	4.47
			SS816-703	3.39
			SS818-705	1.8
			SS820-708	3.13
			SS826-405	11.9
			SS827-406	33.3
			SS829-409	5.29
			SS830-1036	304
			SS8A002-2174	3.68
			SS8A003-2175	87.6
			SS8A004-2176	9.79
			SS8A005-2177	3.03
			SS8A008-2180	1.4
			SS8A014-2181	68.5
			SS8B001-2430	4.11 J
			SS8B003-2433	1.44
			SS8B005-2435	1.78
			SS8B006-2436	2.71
			SS8B007-2437	2.01
			SS8B009-2441	2.83
			SS8B010-2442	2.33
			SS8C001-2184	1.98
			SS8D001-2188	3.73
			SS8D003-2190	8.94

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS8D004-2191	58.8 J
			SS8D006-2193	14.1
			SS8D007-2195	9.04
			SS8D008-2196	1.49
			SS8D009-2197	536
			SS8E001-2198	1.66
			SS8E002-2199	2.12 J
			SS8F001-2201	6.76
			SS8F003-2203	39.4
			SS8F005-2206	40.8
			SS8F006-2207	2.99
			SS8G002-2344	1.59
			SS8G005-2347	1.44
			SS8H001-2443	10
			SS8H002-2444	22.5 J
			SS904-2087	1.61 J
			SS905-2089	2.14
			SS906-2091	3.1
			SS913-2105	30.5
			SS-DRUM01-3369	2.69
			SS-DRUM02-3372	5.21
			SS-DRUM04-3378	2.26
			SS-DRUM05-3381	1.86 J
			SS-DRUM06-3395	1.73
			SS-DRUM07-3398	2.59
			SS-EU011-3327	2.14
			SS-EU021-3328	1.73
			SS-EU022-3329	1.48
			SS-EU031-3330	1.41
			SS-EU032-3331	1.58
			SS-EU051-3334	2.48
			SS-EU061-3335	8.02
			SS-EU071-3337	1.74
			SS-EU072-3338	2.52
			SS-EU081-3339	1.41
			SS-EU101-3343	6.86
			SS-EU102-3344	1.54
			SS-EU111-3346	1.44 J
			SS-EU113-3348	1.58
			SS-EU121-3349	2.51
			SS-EU122-3350	1.72
			SS-EU123-3351	2.59 J
			SS-EU141-3355	1.57
			SS-MW229-3617	1.61

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SS-MW313-3590	3.07
			SS-MW314-3593	2.89
			SS-MW422-3608	1.8 J
			SS-MW423-3611	1.92
			SS-MW861-3599	1.67
			SS-TWP835-3515	1.69
			SS-TWP836-3518	2.01
			SS-TWP837-3521	1.62
			SS-TWP838-3524	1.4
			SS-TWP841-3533	2.01
			SS-TWP842-3536	1.75
			SS-TWP844-3542	2.58
			SS-TWP845-3545	2.57
			SS-TWP847-3551	2
			SS-TWP848-3554	2.7
			SS-TWP849-3557	2.06 J
			SS-TWP850-3560	1.44
			SS-TWP851-3563	1.46
			SS-TWP852-3566	2.53
			SS-TWP853-3569	1.52
			SS-TWP855-3575	2.7
			SS-TWP856-3578	2.04 J
			TB201-2802-01.0-001	1.52
			TB203-2806-01.0-013	4.63
			TB301-2810-01.5-003	1.8
			TB301-2811-01.0-029	25.8
			TB302-2813-01.0-042	1.47
			TB303-2816-01.0-016	1.79
			TB305-2922-04.0-014	1.4
			TB305-2924-05.0-080	1.84
			TB403-2821-04.0-008	1.52
			TB403-2822-07.0-024	1.41 J
			TB404-2856-02.3-028	1.44
			TB406-2827-02.0-027	2.07
			TB410-2834-04.0-055	1.8
			TB411-2836-01.5-034	2.02
			TB411-2837-01.5-052	8.74
			TB412-2839-05.0-034	1.65
			TB414-2846-01.0-043	1.51
			TB501-2848-03.0-095	1.42
			TB802-2901-04.2-008	2.64 J
			TB802-2902-04.0-018	15.2
			TB802A-2903-03.8-096	39.2
			TB808-2851-01.5-020	2.52

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	TB808-2852-01.5-016	1.99
			TB809-2906-01.0-045	8.2
			TB810-2907-02.9-012	1.76
			TB810-2908-01.8-041	29.6
			TB811-2910-04.8-044	1.72
			TB811-2911-02.3-012	1.77
			TB811-2912-04.0-047	1.47
			TB812-2914-03.0-014	1.82
			TB813-2925-08.0-013	31.2
			TB813-2926-01.0-021	2.49
			TB813-2927-03.9-029	1.83
			TS203-2808-020	3.68
			TS809-2904-001	4.58
			TS809-2905-007	5.95
			TS812-2928-062	14.3

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/g	1.24	SB202-086-10	1.26
			SB208-092-12	1.41
			SB213-097-12.5	1.31
			SB218-410-2.0	1.44
			SB219-411-2.0	1.47
			SB2A002-646-11.0	1.37
			SB2B001-648-16.0	1.47
			SB413-131-19	1.28
			SB4B011-2283-2.0	1.38
			SB4D004-657-14.5	1.37
			SB502-145-13	1.38
			SB506-725-13.0	1.35
			SB5A018-2211-2.0	1.69
			SB803-156-7.5	1.27
			SB819-736-9.0	1.31
			SB913-2474-1.5	1.39
			SB-BH220-20.0-3662	1.3
			SB-BH221-15.0-3663	1.62
			SB-CORE07-0.5-3743	1.26
			SB-DRUM05-3382-1.0	1.36
			SB-EU011-3300-2.0	1.37
			SB-EU042-3311-1.0	1.38
			SB-EU071-3316-2.0	1.26
			SB-EU091-3320-2.0	1.69 J
			SB-EU103-3324-1.0	1.26
			SB-MH07/08-11.0-3652	1.72
			SB-MW228-11.0-3615	1.35
			SB-MW229-11.0-3614	1.4 J
			SB-TWP842-10.0-3537	1.33
			SB-TWP847-10.0-3552	1.27 J
			SB-TWP851-18.0-3564	1.57 J
			SD914-2108	1.46
			SS221-403	2.07
			SS2D003-549	1.46
			SS2D005-551	1.39
			SS2D008-554	1.29
			SS2D011-2383	1.33
			SS3B010-583	1.25
			SS402-039	1.25
			SS417-054	1.25 J
			SS4B016-2290	1.33
			SS4D017-2306	1.32
			SS504-692	1.36
			SS5A006-642	1.73

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/g	1.24	SS5A010-2164	1.31
			SS8D009-2197	1.7
			SS8F006-2207	1.33
			SS905-2089	1.52
			SS-DRUM06-3395	1.3
			SS-EU032-3331	1.27
			SS-EU123-3351	1.3 J
			SS-MW314-3593	1.48
			SS-MW424-3620	1.33
			SS-TWP835-3515	1.3
			SS-TWP841-3533	1.39
			SS-TWP842-3536	1.52
			SS-TWP843-3539	1.25
			SS-TWP848-3554	1.54
			SS-TWP849-3557	1.32 J
			SS-TWP852-3566	1.36
			SS-TWP853-3569	1.58
			SS-TWP856-3578	1.36 J
			TB809-2906-01.0-045	1.34
			TB813-2925-08.0-013	1.87
			TS809-2905-007	1.34

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB206-090-9	4.77
			SB215-099-7.5	3.61 J
			SB219-411-2.0	3.91
			SB220-412-1.0	15.1
			SB221-413-2.0	4.48
			SB3B015-2471-1.25	24.4
			SB3C014-2472-1.0	15.3
			SB3C014-2473-2.0	7.19
			SB3C015-2475-1.5	54.8
			SB404-121-1.4	24.5
			SB4A013-2356	4.17
			SB4A013-2357	4.55
			SB4A013-2358	5.05
			SB4A014-2272-1.0	13.9
			SB4A015-2355	11.2
			SB4B009-2281-2.0	4.39
			SB4B014-2353	3.82
			SB5A010-2257-1.0	6.56
			SB5A016-2254-1.0	16
			SB5A016-2255-1.5	13.6
			SB5A016-2256-1.7	10
			SB5A019-2212-1.75	4.12
			SB6A001-2363	4.46
			SB6B005-2359	29.8
			SB6B005-2360	79.2
			SB6B005-2361	27.7
			SB752-2252-1.0	3.71
			SB826-416-1.3	10.8
			SB827-417-2.0	6.51
			SB828-418-0.5	9.08
			SB830-1037-2.0	30.1
			SB8A009-2218-2.0	3.77
			SB8B008-2440-2.0	4.47
			SB8D003-2233-0.75	4.39
			SB8D003-2236-1.0	3.74
			SB8D006-2232-0.8	4.78
			SB8D016-2231-2.0	12.6
			SB8F006-2251-1.0	4.21
			SB905-2090-2.0	12.2
			SB913-2474-1.5	3.67
			SB-BH219-6.0-3661	4.37
			SB-EU014-3303-1.0	3.95
			SB-EU081-3318-1.5	5.32
			SB-EU082-3319-1.5	4.18

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SB-EU102-3323-2.0	69.4
			SB-EU103-3324-1.0	4.33
			SD703-297	5.6
			SD719-341	4.13 J
			SD725-353	5.06
			SD741-672	4.89
			SD746-2150	6.35
			SD746-2248	3.86
			SD748-2153	5.11
			SD750-2155	8.04
			SD911-2101	4.45
			SD912-2103	4.36
			SD-CD1-3401-0.67	4.69
			SS101-684	3.64
			SS103-686	3.9
			SS202-002	6.34
			SS203-003	5.06
			SS207-010	3.96
			SS208-011	3.61
			SS218-400	49.4
			SS219-401	20.9
			SS220-402	21.1
			SS221-403	44.8
			SS2B002-534	3.65
			SS2B003-535	9.59
			SS2B004-536	9.69
			SS2B006-539	6.21
			SS2B007-540	4.44
			SS2B008-541	5.62
			SS2B011-544	3.89
			SS2B014-2374	9.96
			SS2B015-2376	3.93
			SS2B016-2377	4.01
			SS2D009-2381	5.57
			SS2D010-2382	4.6
			SS2D011-2383	7.71
			SS303-027	4.81 J
			SS306-030	4.2 J
			SS308-032	10.4
			SS311-035	5.33
			SS314-404	5.77
			SS3A002-556	3.94
			SS3A003-557	4.24
			SS3A004-559	12.1

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SS3A005-560	9.12
			SS3A006-561	3.92
			SS3A007-562	4.26
			SS3A012-568	4.26
			SS3A013-569	3.95
			SS3A015-571	4.6
			SS3A016-572	5.36
			SS3A021-2392	4.8
			SS3A023-2394	3.73
			SS3A024-2395	4.63
			SS3B001-573	4.77
			SS3B003-576	6.25
			SS3B004-577	5.39
			SS3B005-578	5.44
			SS3B007-580	7.17
			SS3B008-581	3.89
			SS3B010-583	5.62
			SS3B011-2398	5.51
			SS3B014-2404	4.4
			SS3B015-2405	16.9
			SS3B016-2406	4.07
			SS3C002-585	4.19
			SS3C005-588	12.4
			SS3C006-589	5.71
			SS3C007-590	9.41
			SS3C010-593	20.9
			SS3C011-594	6.46
			SS3C012-596	3.81
			SS3C014-2411	15.4
			SS3C015-2412	330
			SS3C016-2413	3.6
			SS3D001-2414	6.02
			SS3D002-2415	3.61
			SS3D004-2418	4.31
			SS3D005-2419	6.72
			SS3D006-2420	1270
			SS3D007-2421	5630
			SS3D008-2422	15
			SS3D009-2423	20.2
			SS402-039	33.1
			SS407-044	3.69
			SS4A007-605	6.11
			SS4A011-610	3.6
			SS4A012-611	8.69

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SS4A013-2270	4.05
			SS4A014-2271	11.4
			SS4A015-2274	10.5
			SS4B001-612	8.97
			SS4B002-613	5.07
			SS4B009-2280	34.3
			SS4B010-2282	6.6
			SS4B014-2288	4.28
			SS4B015-2289	3.88
			SS4B016-2290	7.76
			SS4B021-2295	3.91
			SS4C002-2298	7.43
			SS4C003-2299	5.19
			SS4C004-2300	4.15
			SS4D011-627	3.68
			SS4D017-2306	3.97
			SS4G002-2365	4.09
			SS502-060	27.1
			SS503-064	366
			SS504-692	27.7
			SS5A001-637	8.97
			SS5A002-638	8.01
			SS5A006-642	7.6
			SS5A008-644	3.67
			SS5A010-2164	7.63
			SS5A012-2166	6
			SS5A013-2167	6.73
			SS5A014-2168	6.81
			SS5A016-2170	4.43
			SS5A021-2214	10
			SS606-698	287
			SS6B005-2335	6.55
			SS6C006-2342	3.69
			SS801-070	3.79
			SS804-073	4.41 J
			SS806-075	3.71
			SS813-700	3.65
			SS814-701	9.52
			SS815-702	9.23
			SS816-703	8.94
			SS817-704	4.79
			SS818-705	5.52
			SS819-706	55.8
			SS820-708	3.94

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	SS821-709	3.7
			SS826-405	9.87
			SS827-406	8.35
			SS830-1036	884
			SS8A003-2175	5.86
			SS8A004-2176	3.65
			SS8A006-2178	3.61
			SS8A014-2181	4.98
			SS8B005-2435	4.07
			SS8B007-2437	9.69
			SS8B008-2438	15.5
			SS8B010-2442	8.09
			SS8D002-2189	5.61
			SS8D003-2190	5.71
			SS8D004-2191	5.42
			SS8D007-2195	10.9
			SS8D009-2197	19
			SS8F001-2201	4.32
			SS8F003-2203	4.83
			SS8F005-2206	4.33
			SS8F006-2207	6.63
			SS8H001-2443	10.4
			SS8H002-2444	11.3
			SS903-2083	4.01
			SS905-2089	13.5
			SS913-2105	4.07
			SS-DRUM07-3398	4.18
			SS-EU051-3334	5
			SS-EU111-3346	4.14
			SS-EU121-3349	15.4
			SS-EU123-3351	3.64
			SS-EU141-3355	5.73
			SS-TWP833-3509	40.2
			SS-TWP857-3581	24.3
			TB202-2803-05.2-038	3.61
			TB203-2806-01.0-013	4.23
			TB203-2807-04.0-058	13.1
			TB204-2916-08.0-030	3.73
			TB205-2919-03.0-055	4.36
			TB301-2811-01.0-029	11.8
			TB302-2813-01.0-042	3.78
			TB304-2818-01.3-000	31.3
			TB305-2922-04.0-014	5.73
			TB305-2924-05.0-080	4.44

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/g}$	3.58	TB403-2821-04.0-008	3.67
			TB406-2827-02.0-027	5.75
			TB411-2836-01.5-034	4.82
			TB411-2837-01.5-052	6.1
			TB414-2844-05.5-004	3.78
			TB414-2845-08.0-040	5.94
			TB414-2846-01.0-043	4.53
			TB501-2847-01.5-130	5.6
			TB501-2849-02.7-068	18.2
			TB802-2902-04.0-018	7.29
			TB802A-2903-03.8-096	17.8
			TB809-2906-01.0-045	3.66
			TB810-2907-02.9-012	3.94
			TB810-2908-01.8-041	6.13
			TB811-2912-04.0-047	4.37
			TB813-2925-08.0-013	6.52
			TB813-2926-01.0-021	9.16
			TS812-2928-062	2860

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SB215-099-7.5	1.69
			SB219-411-2.0	1.95
			SB220-412-1.0	4.58
			SB3B015-2471-1.25	6.53
			SB3C014-2472-1.0	7.72
			SB3C014-2473-2.0	2.35
			SB3C015-2475-1.5	17.5
			SB404-121-1.4	7.15
			SB4A013-2356	3.65
			SB4A013-2357	2.3
			SB4A013-2358	3.65
			SB4A014-2272-1.0	4.7
			SB4A015-2355	6.57
			SB4B009-2281-2.0	1.68
			SB5A010-2257-1.0	2.54
			SB5A016-2254-1.0	6.8
			SB5A016-2255-1.5	7.05
			SB5A016-2256-1.7	4.29
			SB6A001-2363	4.25
			SB6B005-2359	14.3
			SB6B005-2360	40.7
			SB6B005-2361	13.7
			SB826-416-1.3	5.86
			SB827-417-2.0	3.59
			SB828-418-0.5	2.72
			SB830-1037-2.0	3.06
			SB8D003-2233-0.75	1.75
			SB8D006-2232-0.8	1.67
			SB8D016-2231-2.0	4.2 J
			SB913-2474-1.5	1.72
			SB-BH219-6.0-3661	2.36
			SB-BH223-3.0-3665	5.6
			SB-CORE06-0.5-3741	2.39
			SB-EU081-3318-1.5	2.11
			SB-EU102-3323-2.0	25.5
			SD703-297	1.94
			SD719-341	1.75
			SD741-672	2.05
			SD746-2150	4.14
			SD746-2248	1.71
			SD748-2153	2.73
			SD748-2239	1.7
			SD750-2155	4.01
			SD-CD1-3401-0.67	2.09

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SEDC06-08-2146	2.04
			SS202-002	1.93
			SS218-400	12.1
			SS219-401	7.71
			SS220-402	8.43
			SS221-403	29.7
			SS2A006-2369	1.96
			SS2A008-2371	1.77
			SS2B002-534	1.81
			SS2B003-535	4.44
			SS2B004-536	2.08
			SS2B006-539	2.02
			SS2B007-540	2.41
			SS2B010-543	1.9
			SS2B014-2374	3.68
			SS2D006-552	1.76
			SS2D009-2381	2.23
			SS2D011-2383	3.08
			SS303-027	2.72
			SS308-032	3.66
			SS311-035	1.9
			SS312-036	2.25
			SS314-404	2.98
			SS3A002-556	2.34
			SS3A004-559	2.93
			SS3A005-560	9.03
			SS3A006-561	1.78
			SS3A007-562	1.68
			SS3A013-569	2.36
			SS3A016-572	2.01
			SS3B001-573	2.39
			SS3B003-576	2.23
			SS3B004-577	2.59
			SS3B005-578	2.15
			SS3B007-580	2.9
			SS3B010-583	3.42
			SS3B011-2398	2.16
			SS3B013-2402	2.35
			SS3B014-2404	3.67
			SS3B015-2405	7.19
			SS3C002-585	2.09
			SS3C005-588	1.83
			SS3C006-589	2.25
			SS3C007-590	3.89

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SS3C012-596	1.67
			SS3C014-2411	8.5
			SS3C015-2412	64.6
			SS3C016-2413	1.98
			SS3D001-2414	2.4
			SS3D002-2415	2.14
			SS3D005-2419	3.45
			SS3D006-2420	371
			SS3D007-2421	1420
			SS3D008-2422	5.02 J
			SS3D009-2423	7.83
			SS402-039	10.1
			SS4A011-610	1.76
			SS4A012-611	2.82
			SS4A013-2270	1.94
			SS4A014-2271	5.31
			SS4A015-2274	4.64
			SS4B001-612	3.63
			SS4B009-2280	11.5
			SS4B010-2282	3.03
			SS4B015-2289	2.09
			SS4B016-2290	3.39
			SS4B021-2295	2.08
			SS4C002-2298	2.46
			SS4C003-2299	2.92
			SS4D012-628	1.69
			SS4D017-2306	1.85
			SS502-060	7.09
			SS503-064	119
			SS504-692	7.66
			SS505-694	1.79
			SS5A001-637	2.51
			SS5A002-638	4.07
			SS5A006-642	2.26
			SS5A010-2164	2.37
			SS5A012-2166	3.4
			SS5A013-2167	3.79
			SS5A016-2170	2.11
			SS5A021-2214	3.4
			SS606-698	42.5
			SS6B005-2335	2.42
			SS804-073	2.11
			SS806-075	1.77
			SS814-701	3.77

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	SS815-702	3.71
			SS816-703	2.28
			SS817-704	2.07
			SS818-705	2.63
			SS819-706	15.6
			SS820-708	1.95
			SS826-405	4.05
			SS827-406	3.34
			SS830-1036	89.9
			SS8A003-2175	4.19
			SS8A014-2181	2.38
			SS8B007-2437	4.02
			SS8B010-2442	2.94
			SS8D003-2190	1.75
			SS8D004-2191	2.31 J
			SS8D007-2195	2.34
			SS8D009-2197	9.68
			SS8F001-2201	2.79
			SS8F003-2203	1.86
			SS8F005-2206	1.74
			SS8F006-2207	2.4
			SS8H001-2443	2.89
			SS8H002-2444	3.8 J
			SS905-2089	2.95
			SS-EU051-3334	2.37
			SS-EU121-3349	6
			SS-EU123-3351	1.96 J
			SS-EU141-3355	2.38
			SS-MW313-3590	2.59
			SS-MW314-3593	2.02
			SS-TWP833-3509	18.9
			SS-TWP841-3533	1.85
			SS-TWP845-3545	1.73
			SS-TWP848-3554	2.1
			SS-TWP852-3566	1.92
			SS-TWP855-3575	2.75
			SS-TWP857-3581	11
			TB203-2807-04.0-058	4.02
			TB301-2811-01.0-029	3.36
			TB304-2818-01.3-000	9.95
			TB305-2924-05.0-080	1.71
			TB403-2821-04.0-008	1.91
			TB406-2827-02.0-027	1.95
			TB411-2836-01.5-034	1.7

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	1.66	TB411-2837-01.5-052	3.22
			TB414-2844-05.5-004	15.2
			TB414-2845-08.0-040	1.99
			TB414-2846-01.0-043	1.91
			TB501-2847-01.5-130	2.35
			TB501-2849-02.7-068	5.61
			TB802-2902-04.0-018	2.08
			TB802A-2903-03.8-096	5.51
			TB811-2912-04.0-047	1.8
			TB813-2925-08.0-013	2.17
			TB813-2926-01.0-021	1.92
			TS812-2928-062	8340

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SB205-089-12.5	0.0866 J
			SB215-099-7.5	0.111 J
			SB303-105-8	0.0894 J
			SB3B015-2471-1.25	0.239
			SB3C014-2472-1.0	0.461
			SB3C014-2473-2.0	0.244
			SB3C015-2475-1.5	0.879
			SB3D001-2476-1.0	0.153
			SB3D002-5.0-3633	0.12
			SB404-121-1.4	0.124 J
			SB413-131-19	0.0893 J
			SB4D001-653-14.5	0.151
			SB4G002-2368	0.461
			SB503-149-13	0.115 J
			SB5A016-2254-1.0	1.18
			SB5A016-2255-1.5	0.248
			SB5A016-2256-1.7	0.173
			SB5A019-2212-1.75	0.119
			SB6B005-2359	0.874
			SB6B005-2360	3.63
			SB8B002-2432-2.0	0.12
			SB8D006-2232-0.8	0.0851
			SB8D006-2238-2.0	0.0866
			SB8D016-2231-2.0	0.247 J
			SB908-2096-2.5	0.15
			SB-BH223-3.0-3665	0.898
			SB-BH225-10.0-3667	0.099
			SB-CORE06-0.5-3741	0.324
			SB-EU032-3309-1.0	0.164
			SB-EU102-3323-2.0	1.69
			SB-EU111-3325-1.5	0.153
			SB-MH06-8.5-3650	0.22
			SB-TWP837-19.0-3522	0.374
			SB-TWP851-18.0-3564	0.106 J
			SD703-297	0.124 J
			SD712-319	0.109 J
			SD746-2150	0.257
			SD747-2253	0.411
			SD749-2154	0.17
			SD750-2155	0.152
			SD750-2216	0.161
			SD917-2115	0.154
			SD-WD1-3406-0.5	0.404
			SS1A001-2157	0.15

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS1B002-2160	0.229
			SS202-002	0.14 J
			SS208-011	0.17 J
			SS218-400	0.409
			SS220-402	0.452
			SS221-403	1.2
			SS2B014-2374	0.321
			SS2D011-2383	0.179
			SS2D013-2385	0.269
			SS303-027	0.214 J
			SS306-030	0.124 J
			SS308-032	0.102 J
			SS311-035	0.0862 J
			SS3A005-560	0.329
			SS3A006-561	0.186
			SS3A007-562	0.206
			SS3A021-2392	0.209
			SS3A022-2393	0.168
			SS3B012-2401	0.152
			SS3B015-2405	0.403
			SS3B019-2410	0.26
			SS3C013-597	0.363
			SS3C014-2411	0.433
			SS3C015-2412	2.94
			SS3D001-2414	0.233
			SS3D002-2415	0.283
			SS3D004-2418	0.25
			SS3D005-2419	0.237
			SS3D006-2420	21.1
			SS3D007-2421	96.2
			SS3D008-2422	0.697 J
			SS3D009-2423	0.44
			SS402-039	0.302 J
			SS408-045	0.163 J
			SS4A014-2271	0.252
			SS4A015-2274	0.184
			SS4B009-2280	0.309
			SS4B010-2282	0.158
			SS4B014-2288	0.15
			SS4B016-2290	0.229
			SS4B019-2293	0.119
			SS502-060	0.264 J
			SS503-064	6.15
			SS504-692	0.338

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS5A006-642	0.262
			SS5A011-2165	0.177
			SS5A012-2166	0.507
			SS5A013-2167	0.367
			SS5A014-2168	0.129
			SS5A021-2214	0.221
			SS604-069	0.13 J
			SS606-698	2.13
			SS6A001-2317	0.203
			SS6A009-2329	0.189
			SS6A010-2364	0.148 J
			SS6B001-2330	0.139
			SS6B005-2335	0.252
			SS815-702	0.243
			SS817-704	0.132
			SS819-706	0.625
			SS827-406	0.381
			SS830-1036	3.43
			SS8A003-2175	0.285
			SS8A004-2176	0.154
			SS8A014-2181	0.115
			SS8B001-2430	0.107 J
			SS8B007-2437	0.234
			SS8B010-2442	0.239
			SS8C002-2185	0.106
			SS8D003-2190	0.15
			SS8D007-2195	0.142
			SS8D009-2197	0.394
			SS8F003-2203	0.0978
			SS8F006-2207	0.167
			SS8H001-2443	0.197
			SS8H002-2444	0.404 J
			SS905-2089	0.214
			SS-EU032-3331	0.167
			SS-EU051-3334	0.447
			SS-EU121-3349	0.251
			SS-EU141-3355	0.224
			SS-MW314-3593	0.39
			SS-MW424-3620	0.221
			SS-MW861-3599	0.101
			SS-TWP833-3509	0.935
			SS-TWP841-3533	0.293
			SS-TWP845-3545	0.236
			SS-TWP846-3548	0.226

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SS-TWP847-3551	0.473
			SS-TWP848-3554	0.094
			SS-TWP857-3581	0.842
			TB205-2919-03.0-055	0.0962
			TB301-2811-01.0-029	0.277
			TB304-2818-01.3-000	0.83
			TB305-2922-04.0-014	0.316
			TB305-2924-05.0-080	0.249
			TB403-2822-07.0-024	0.191 J
			TB406-2828-01.0-010	0.115 J
			TB411-2836-01.5-034	0.133
			TB413-2843-03.0-015	0.117
			TB414-2844-05.5-004	0.64
			TB414-2846-01.0-043	0.155
			TB501-2847-01.5-130	0.214
			TB802A-2903-03.8-096	0.322
			TB811-2910-04.8-044	0.423
			TB811-2911-02.3-012	0.335
			TB812-2914-03.0-014	0.157
			TB813-2925-08.0-013	0.186
			TB813-2926-01.0-021	0.214
			TS809-2904-001	0.0981
			TS812-2928-062	886

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB215-099-7.5	1.61
			SB218-410-2.0	1.41
			SB220-412-1.0	4.36
			SB221-413-2.0	1.84
			SB313-717-13.5	1.44
			SB314-415-1.5	1.39
			SB3A017-2249-1.0	1.52
			SB3B011-2399-2.0	1.4
			SB3B015-2471-1.25	5.66
			SB3C014-2472-1.0	7.64
			SB3C014-2473-2.0	2.22
			SB3C015-2475-1.5	16.5
			SB404-121-1.4	6.69
			SB4A013-2356	2.85
			SB4A013-2357	2.87
			SB4A013-2358	3.57
			SB4A014-2272-1.0	5.56
			SB4A015-2355	5.31
			SB4B009-2281-2.0	1.86
			SB4B014-2353	2.25
			SB4C002-2351	1.66
			SB5A010-2257-1.0	3.01
			SB5A013-2210-2.0	1.47
			SB5A016-2254-1.0	5.09
			SB5A016-2255-1.5	4.7
			SB5A016-2256-1.7	3.12
			SB5A019-2212-1.75	1.48
			SB6A001-2363	4.12
			SB6B005-2359	13.4
			SB6B005-2360	39.7
			SB6B005-2361	14
			SB826-416-1.3	6.53
			SB827-417-2.0	1.46
			SB828-418-0.5	3.04
			SB830-1037-2.0	2.66
			SB8D003-2233-0.75	1.46
			SB8D016-2231-2.0	4.14 J
			SB913-2474-1.5	1.77
			SB-BH219-6.0-3661	1.82
			SB-BH223-3.0-3665	3.44
			SB-CORE06-0.5-3741	2.08
			SB-EU012-3301-1.0	1.72
			SB-EU081-3318-1.5	2.01
			SB-EU093-3322-2.0	1.39

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SB-EU102-3323-2.0	23.4
			SB-EU103-3324-1.0	1.42
			SB-MH06-8.5-3650	1.77
			SD703-297	1.72
			SD719-341	1.49
			SD725-353	1.49
			SD743-675	1.49
			SD746-2150	3.01
			SD748-2153	1.9
			SD748-2239	1.36
			SD750-2155	2.58
			SD912-2103	1.39
			SD914-2108	1.5
			SD-CD1-3401-0.67	2.01
			SEDC06-08-2146	3.52
			SS103-686	1.44
			SS201-001	1.37
			SS202-002	1.91
			SS203-003	1.8
			SS207-010	2.15
			SS218-400	12.1
			SS219-401	7.51
			SS220-402	6.8
			SS221-403	26.2
			SS2A004-2173	1.74
			SS2A006-2369	1.95
			SS2A008-2371	1.64
			SS2B002-534	1.78
			SS2B003-535	2.23
			SS2B004-536	2.25
			SS2B006-539	2.26
			SS2B007-540	1.61
			SS2B008-541	1.42
			SS2B014-2374	3.82
			SS2B016-2377	1.52
			SS2D009-2381	2.5
			SS2D011-2383	3.05
			SS303-027	2.42
			SS306-030	1.48
			SS308-032	3.42
			SS311-035	1.75
			SS312-036	2.09
			SS313-687	1.4
			SS314-404	2.37

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SS3A002-556	1.62
			SS3A004-559	4
			SS3A005-560	9.23
			SS3A006-561	1.85
			SS3A007-562	1.52
			SS3A013-569	1.42
			SS3A015-571	1.41
			SS3A020-2389	1.89
			SS3A021-2392	1.47
			SS3A022-2393	1.37
			SS3A024-2395	1.92
			SS3B001-573	2.46
			SS3B003-576	2.49
			SS3B004-577	2.17
			SS3B005-578	1.78
			SS3B007-580	2.49
			SS3B008-581	1.51
			SS3B010-583	2.46
			SS3B011-2398	1.81
			SS3B012-2401	1.65
			SS3B013-2402	2.33
			SS3B014-2404	3.34
			SS3B015-2405	7.86
			SS3B016-2406	1.98
			SS3C001-584	1.36
			SS3C002-585	1.56
			SS3C005-588	1.96
			SS3C006-589	2.44
			SS3C007-590	4.03
			SS3C008-591	1.94
			SS3C011-594	1.5
			SS3C014-2411	7.69
			SS3C015-2412	65.9
			SS3C016-2413	1.71
			SS3D001-2414	2.37
			SS3D005-2419	3.77
			SS3D006-2420	373
			SS3D007-2421	1420
			SS3D008-2422	4.7 J
			SS3D009-2423	7.52
			SS402-039	10.1
			SS407-044	1.62
			SS422-688	1.7
			SS4A007-605	1.84

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SS4A009-607	1.72
			SS4A011-610	1.36
			SS4A012-611	3.02
			SS4A013-2270	1.87
			SS4A014-2271	4.56
			SS4A015-2274	4.63
			SS4B001-612	2.72
			SS4B009-2280	11
			SS4B010-2282	3.46
			SS4B012-2284	1.47
			SS4B014-2288	1.69
			SS4B015-2289	1.91
			SS4B016-2290	3
			SS4B021-2295	1.89
			SS4C002-2298	2.47
			SS4C003-2299	2.2
			SS4C004-2300	1.74
			SS4D011-627	1.37
			SS4D017-2306	1.35
			SS4G002-2365	1.77
			SS502-060	6.5
			SS503-064	120
			SS504-692	7.52
			SS505-694	2.17
			SS5A001-637	2.73
			SS5A002-638	4.13
			SS5A004-640	1.42
			SS5A006-642	2.69
			SS5A010-2164	2.5
			SS5A012-2166	2.55
			SS5A013-2167	2.72
			SS5A014-2168	1.82
			SS5A016-2170	1.81
			SS5A021-2214	3.72
			SS606-698	41.5
			SS6A001-2317	1.38
			SS6A009-2329	1.83
			SS6B005-2335	2.62
			SS6C006-2342	1.61
			SS801-070	1.58
			SS804-073	1.79
			SS813-700	1.61
			SS814-701	3.31
			SS815-702	3.13

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SS816-703	2.78
			SS817-704	1.77
			SS818-705	1.84
			SS819-706	14.7
			SS820-708	1.65
			SS821-709	1.38
			SS826-405	3.76
			SS827-406	2.36
			SS830-1036	88.6
			SS8A003-2175	3.18
			SS8A004-2176	1.38
			SS8A014-2181	1.75
			SS8B007-2437	3.7
			SS8B010-2442	2.92
			SS8D003-2190	1.63
			SS8D004-2191	1.85 J
			SS8D007-2195	2.11
			SS8D009-2197	7.1
			SS8F001-2201	1.9
			SS8F003-2203	1.65
			SS8F005-2206	1.51
			SS8F006-2207	1.73
			SS8H001-2443	2.83
			SS8H002-2444	4.04 J
			SS905-2089	2.95
			SS913-2105	1.66
			SS-EU051-3334	2.45
			SS-EU071-3337	1.66
			SS-EU081-3339	1.73
			SS-EU121-3349	5.66
			SS-EU123-3351	1.52 J
			SS-EU141-3355	1.75
			SS-MW313-3590	2.3
			SS-MW314-3593	1.52
			SS-TWP833-3509	21
			SS-TWP834-3512	1.41
			SS-TWP841-3533	1.82
			SS-TWP845-3545	1.66
			SS-TWP848-3554	1.93
			SS-TWP849-3557	1.43
			SS-TWP852-3566	1.67
			SS-TWP854-3572	1.65
			SS-TWP855-3575	2.75
			SS-TWP857-3581	12.2

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	1.34	SS-TWP858-3584	1.55
			TB203-2807-04.0-058	4.38
			TB204-2916-08.0-030	1.35
			TB204-2918-07.0-070	1.36
			TB301-2811-01.0-029	2.91
			TB304-2818-01.3-000	10.3
			TB305-2924-05.0-080	1.9
			TB403-2821-04.0-008	1.57
			TB406-2827-02.0-027	1.56
			TB411-2836-01.5-034	1.57
			TB411-2837-01.5-052	2.97
			TB414-2845-08.0-040	2.73
			TB414-2846-01.0-043	1.58
			TB501-2847-01.5-130	2.25
			TB501-2849-02.7-068	6.27
			TB802-2901-04.2-008	1.46 J
			TB802-2902-04.0-018	2.39
			TB802A-2903-03.8-096	5.61
			TB811-2912-04.0-047	1.91
			TB813-2925-08.0-013	1.95
			TB813-2926-01.0-021	1.86
			TS812-2928-062	8830
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/Kg	5130	SS4A004-602	7900
Volatile Organics				

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
1,1-Dichloroethene	$\mu\text{g/Kg}$	--	SB4D003-656-14.5	0.69
			SB505-723-17.0	2.2
			SB-BH218-15.0-3660	1.9
			SB-BH224-10.0-3666	1.54
			SB-BH226-12.0-3668	1.46
			SB-BH227-15.0-3669	3.2
			SB-CORE03-1.5-3735	1.14
			SB-DRUM06-3396-1.0	0.539 J
			SB-EU102-3323-2.0	4.97
			SB-MW229-11.0-3614	0.999 J
			SB-MW229-28.5-3618	1.35
			SB-MW313-11.0-3591	0.823
			SB-MW860-15.0-3597	0.384 J
			SB-MW861-34.5-3596	0.728 J
			SB-MW862-11.5-3603	0.542 J
			SB-MW863-32.0-3606	0.392 J
			SB-TWP835-15.0-3516	0.704 J
			SB-TWP836-15.0-3519	0.899
			SB-TWP838-14.0-3525	1.1
			SB-TWP840-12.0-3531	0.638 J
			SB-TWP842-10.0-3537	1.13
			SB-TWP850-17.0-3561	0.577 J
			SB-TWP855-15.0-3576	1.02
			SS505-694	1.5
			SS910-2099	8.4
			SS-DRUM07-3398	1.12 J
			SS-EU051-3334	0.648 J
			SS-MW314-3593	1.4
			SS-MW861-3599	0.82 J
			SS-MW862-3602	0.666 J
			SS-TWP835-3515	0.714 J
			SS-TWP837-3521	0.9 J
			SS-TWP840-3530	1.02
			SS-TWP844-3542	0.555 J
			SS-TWP850-3560	0.669 J
			SS-TWP851-3563	0.867 J
			TB201-2800-05.0-036	0.85
			TB205-2921-08.0-001	1
			TB301-2809-03.5-034	11
			TB301-2811-01.0-029	32.2
			TB302-2812-08.0-004	14.3
			TB302-2814-06.0-074	0.56
			TB303-2817-05.0-033	0.48 J
			TB403-2822-07.0-024	0.95 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
1,1-Dichloroethene	$\mu\text{g/Kg}$	--	TB406-2828-01.0-010	0.81
			TB410-2833-02.0-035	1.1
			TB811-2910-04.8-044	1.3
2-Butanone	$\mu\text{g/Kg}$	--	SB404-121-4	125
			SB-BH219-6.0-3661	17.7
			SB-BH222-6.0-3664	6.98
			SB-BH223-3.0-3665	54.9
			SB-TWP832-12.5-3507	9.24
			SB-TWP848-11.0-3555	18.5
			SB-TWP856-11.0-3579	88.8 J
			SS215-019	5.4 J
			SS401-037	6.7
			SS420-057	5.1 J
			SS501-059	6
			SS502-060	6.5
			SS503-064	5.1
			SS602-066	2.6 J
			SS603-068	12
			SS801-070	36.5
			SS805-074	45.9
			SS809-078	9
			SS-TWP830-3500	63.2
			SS-TWP831-3503	86.4
			SS-TWP832-3506	307
			SS-TWP834-3512	6.27
			SS-TWP838-3524	71.9
			SS-TWP839-3527	8.02
			SS-TWP840-3530	9.19
			SS-TWP842-3536	6.19
			SS-TWP845-3545	13.9
			SS-TWP848-3554	8.22
			SS-TWP854-3572	11.7
			SS-TWP856-3578	4.48 J
			TB202-2805-03.0-062	8.2
			TB301-2809-03.5-034	8.1
			TB301-2811-01.0-029	3.3 J
			TB406-2827-02.0-027	4.4
			TB406-2828-01.0-010	13.5
			TB802A-2903-03.8-096	22

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	C5-SO-SO-D800-10	870 J
			SB202-086-10	2.2 J
			SB2B006-651-13.0	4.3
			SB2C001-652-17.0	2.3 J
			SB310-115-8.5	3.7 J
			SB313-717-13.5	7
			SB404-121-25	12.2 J
			SB404-121-4	406 E
			SB409-126-7.5	3 J
			SB4D002-655-12.0	10100 E
			SB4D005-658-15.5	3.1 J
			SB4D006-659-15.0	2.6 J
			SB505-723-17.0	12.6
			SB603-152-15	4.1 J
			SB607-728-17.0	4.2
			SB811-164-23	4.4 J
			SB819-736-9.0	4 J
			SB-BH218-15.0-3660	11
			SB-BH219-6.0-3661	81.9
			SB-BH220-20.0-3662	14
			SB-BH221-15.0-3663	11.9
			SB-BH222-6.0-3664	31.3
			SB-BH223-3.0-3665	234
			SB-BH224-10.0-3666	15.6
			SB-BH225-10.0-3667	5.61
			SB-BH226-12.0-3668	27.8
			SB-BH227-15.0-3669	32.2
			SB-CORE06-0.5-3741	7.94
			SB-DRUM04-3379-1.0	4.12 J
			SB-EU012-3301-1.0	4.22 J
			SB-EU042-3311-1.0	9.07
			SB-MW228-11.0-3615	14.9
			SB-MW229-11.0-3614	9.87
			SB-MW229-28.5-3618	8.29
			SB-MW313-11.0-3591	3.86
			SB-MW314-15.0-3594	12.4
			SB-MW422-15.0-3609	13.9
			SB-MW423-15.0-3612	11.8
			SB-MW860-15.0-3597	5.66
			SB-MW861-34.5-3596	6.15
			SB-MW861-38.0-3600	3.32 J
			SB-MW863-32.0-3606	2.88 J
			SB-OTFL11-13.0-3658	80.2 J
			SB-OTFL12-13.5-3659	8.38

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SB-TWP830-15.0-3501	68.3 J
			SB-TWP831-15.0-3504	6.61
			SB-TWP832-12.5-3507	6.58
			SB-TWP834-14.0-3513	8.35
			SB-TWP835-15.0-3516	5.1
			SB-TWP836-15.0-3519	6.02
			SB-TWP837-19.0-3522	2.78 J
			SB-TWP838-14.0-3525	9.02
			SB-TWP839-14.0-3528	12.4
			SB-TWP840-12.0-3531	10.9
			SB-TWP841-10.0-3534	8.33
			SB-TWP842-10.0-3537	7.68
			SB-TWP843-10.0-3540	6.74
			SB-TWP846-16.0-3549	5.81
			SB-TWP848-11.0-3555	11.2
			SB-TWP849-11.0-3558	8.27
			SB-TWP850-17.0-3561	6.41
			SB-TWP851-18.0-3564	4.18 J
			SB-TWP853-16.5-3570	13.8
			SB-TWP854-13.0-3573	8.59
			SB-TWP855-15.0-3576	7.29
			SB-TWP858-16.0-3585	7.31
			SB-TWP859-18.0-3588	5.84
			SD714-326	8 J
			SD731-368	3.2 J
			SD737-381	1.5 J
			SS215-019	6.7
			SS401-037	63.1 B
			SS404-041	23.9
			SS420-057	51.7
			SS501-059	50.2
			SS502-060	65.6
			SS503-064	56.8
			SS602-066	27.2
			SS603-068	98.1
			SS805-074	29.6
			SS806-075	69.4
			SS809-078	71.3
			SS-DRUM01-3369	8.6
			SS-DRUM06-3395	2.46 J
			SS-DRUM07-3398	6.56
			SS-EU022-3329	8.84
			SS-EU112-3347	6.08 J
			SS-MW314-3593	13.7

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SS-MW422-3608	6.92
			SS-MW424-3620	4.21 J
			SS-TWP830-3500	35.5
			SS-TWP831-3503	19.6
			SS-TWP832-3506	21.3
			SS-TWP834-3512	7.3
			SS-TWP838-3524	8.22
			SS-TWP840-3530	16.2
			SS-TWP845-3545	4.19 J
			SS-TWP847-3551	3.93 J
			SS-TWP848-3554	4.21 J
			SS-TWP854-3572	14
			SS-TWP856-3578	9.03
			SS-TWP857-3581	302
			TB202-2805-03.0-062	59.9
			TB203-2806-01.0-013	10.3
			TB203-2807-04.0-058	11.3
			TB205-2919-03.0-055	36.3
			TB205-2920-06.5-060	27.3
			TB205-2921-08.0-001	13
			TB301-2809-03.5-034	80 B
			TB303-2815-05.0-009	4.8
			TB303-2816-01.0-016	4.9
			TB303-2817-05.0-033	14.9
			TB403-2822-07.0-024	11.5
			TB403-2823-08.0-045	9.6
			TB406-2826-07.0-043	3.6
			TB406-2827-02.0-027	30.7
			TB406-2828-01.0-010	95.1
			TB408-2829-02.7-005	6.2
			TB408-2830-03.9-021	5.7
			TB408-2831-04.7-054	7.4
			TB802A-2903-03.8-096	183
			TB808-2850-04.5-016	3.8 J
			TB808-2852-01.5-016	4 J
			TB810-2907-02.9-012	3.7 J
			TB810-2909-05.8-045	4 J
			TB811-2910-04.8-044	3.7 J
			TS203-2808-020	9.8

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzene	$\mu\text{g/Kg}$	--	SB302-104-11	1.1
			SB311-116-13	0.83
			SB402-119-23	0.81
			SB403-120-18	0.59 J
			SB404-121-25	1.1
			SB404-121-4	0.38 J
			SB418-140-19	0.078 J
			SB420-142-7	3
			SB501-144-12	0.98
			SB502-145-13	0.88 J
			SB503-149-13	1.4
			SB603-152-15	4.1
			SB806-159-18.9	0.76
			SS401-037	2.6
			SS403-040	1.6
			SS404-041	1.5
			SS405-042	1.8
			SS420-057	1.2
			SS502-060	0.54 J
			SS602-066	1.3
			SS603-068	1.4
			SS801-070	2.3
			SS805-074	2.6
			SS806-075	2
			SS807-076	2.6
			SS901-2079	0.15 J
			SS905-2089	0.52 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Carbon disulfide	$\mu\text{g/Kg}$	--	SB212-096-12.5	2.1 J
			SB213-097-12.5	1.5 J
			SB2A001-645-11.0	1.4 J
			SB2C001-652-17.0	0.89 J
			SB313-717-13.5	1.6 J
			SB404-121-25	0.95 J
			SB404-121-4	60
			SB415-136-12.5	1.5 J
			SB415-136-14	5.9 J
			SB418-140-19	0.79 J
			SB4D002-655-12.0	123 J
			SB4D006-659-15.0	0.6 J
			SB505-723-17.0	0.67 J
			SB819-736-9.0	1.8 J
			SB-BH222-6.0-3664	8.36
			SB-BH223-3.0-3665	4.21 J
			SS402-039	9.1
			SS403-040	1.4 J
			SS404-041	4
			SS420-057	2.4 J
			SS501-059	1.2 J
			SS503-064	1.8 J
			SS602-066	2 J
			SS603-068	2.4 J
			SS806-075	1.6 J
			TB406-2827-02.0-027	3.9

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Methylene chloride	$\mu\text{g/Kg}$	--	C5-AC-SO-BP3-14	220 J
			C5-AC-SO-F200-1	140 J
			C5-SO-SO-D800-1	150 J
			C5-SO-SO-D800-10	150 J
			SB205-089-12.5	22.9
			SB206-090-9	9.6
			SB209-093-10	4.1 J
			SB210-094-13	18
			SD731-368	7.1 JB
			SS205-008	18.2
			SS206-009	18.5
			SS208-011	6.2
			SS210-014	15.2
			TB202-2805-03.0-062	1.6 J
			TB203-2807-04.0-058	1.7 J
			TB303-2815-05.0-009	1.2 J
			TB303-2816-01.0-016	1.1 J
			TB303-2817-05.0-033	1.2 J
			TB406-2826-07.0-043	0.82 J
			TB406-2827-02.0-027	1 J
			TB408-2829-02.7-005	1.4 J
			TB408-2830-03.9-021	1.7 J
			TB408-2831-04.7-054	1.1 J
			TB808-2851-01.5-020	1.5 J
			TS203-2808-020	1.3 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Tetrachloroethene	$\mu\text{g/Kg}$	--	SB303-105-8	1.1 J
			SB415-136-12.5	12400 D
			SB415-136-14	63000 D
			SB415-136-9.2	2200 D
			SB418-140-19	1.9
			SB-BH224-10.0-3666	0.734 J
			SB-CORE01-0.5-3731	0.711 J
			SB-CORE02-0.5-3733	1.15
			SB-CORE04-0.5-3737	12.9
			SB-CORE08-0.5-3745	1.73
			SB-CORE09-0.5-3747	0.962
			SB-CORE10-0.5-3749	5.47
			SB-DRUM05-3382-1.0	1630
			SS216-020	2.7
			SS303-027	0.84 J
			SS415-052	39.1
			SS418-055	10.8
			SS811-080	1.3
			SS-DRUM02-3372	10
			SS-DRUM05-3381	1410
			SS-MW424-3620	3.92
			TB203-2806-01.0-013	13.1
			TB205-2919-03.0-055	0.83 J
			TS203-2808-020	14.3

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SB201-085-10	2.5
			SB204-088-9	1.1 J
			SB209-093-10	4.7
			SB210-094-13	1.1 J
			SB217-101-13	4.7
			SB302-104-11	0.8
			SB306-111-12.5	0.63 J
			SB309-114-19	1.6
			SB310-115-8.5	8.5
			SB311-116-13	0.54 J
			SB402-119-23	0.51 J
			SB403-120-18	0.55 J
			SB404-121-25	0.87
			SB404-121-4	6.4
			SB411-129-20	1.5
			SB415-136-12.5	2.7
			SB415-136-9.2	1.1 J
			SB418-140-19	1.1 J
			SB420-142-7	2.2
			SB501-144-12	1.4
			SB502-145-13	0.82 J
			SB503-149-13	1.5
			SB603-152-15	1.4
			SB801-154-18	0.3 J
			SB806-159-18.9	0.47 J
			SB807-160-18.2	0.73 J
			SB901-2080-2.0	0.25 J
			SB904-2088-3.0	0.58 J
			SB905-2090-2.0	0.37 J
			SB909-2098-2.0	0.2 J
			SB-BH223-3.0-3665	1.35
			SB-CORE02-0.5-3733	0.495 J
			SB-MW424-14.0-3621	0.355 J
			SD723-349	0.21 J
			SD731-368	0.25 J
			SD737-381	0.27 J
			SS201-001	3.7
			SS310-034	5.7
			SS311-035	0.33 J
			SS401-037	3.9
			SS402-039	0.37 J
			SS403-040	1.1
			SS404-041	2.3
			SS405-042	1.6

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SS420-057	2.8
			SS501-059	0.74
			SS503-064	1.5
			SS602-066	1.2
			SS603-068	1.3
			SS801-070	1.8
			SS805-074	1.9
			SS806-075	3.2
			SS807-076	3.4
			SS811-080	2.1
			SS905-2089	0.38 J
			SS-MW424-3620	0.46 J
			SS-TWP831-3503	0.589 J
			SS-TWP832-3506	0.465 J
			SS-TWP848-3554	0.799 J
			SS-TWP849-3557	0.405 J
			SS-TWP850-3560	0.485 J
			TB201-2800-05.0-036	0.44 J
			TB201-2801-01.0-013	0.58 J
			TB201-2802-01.0-001	0.62 J
			TB202-2805-03.0-062	0.58 J
			TB203-2806-01.0-013	0.34 J
			TB203-2807-04.0-058	0.61 J
			TB205-2919-03.0-055	0.65 J
			TB301-2809-03.5-034	0.33 J
			TB301-2810-01.5-003	0.41 J
			TB301-2811-01.0-029	0.41 J
			TB302-2812-08.0-004	0.2 J
			TB302-2814-06.0-074	0.19 J
			TB303-2815-05.0-009	0.37 J
			TB303-2816-01.0-016	0.32 J
			TB303-2817-05.0-033	0.34 J
			TB403-2821-04.0-008	0.4 J
			TB403-2822-07.0-024	1.1
			TB403-2823-08.0-045	1.1
			TB406-2826-07.0-043	0.27 J
			TB406-2827-02.0-027	0.32 J
			TB406-2828-01.0-010	0.39 J
			TB408-2829-02.7-005	0.52 J
			TB408-2830-03.9-021	0.54 J
			TB408-2831-04.7-054	0.28 J
			TB410-2832-06.0-008	0.31 J
			TB410-2833-02.0-035	0.38 J
			TB410-2834-04.0-055	0.39 J

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	TB802A-2903-03.8-096	1.8 J
			TB808-2850-04.5-016	0.5 J
			TB810-2907-02.9-012	0.71 J
			TB810-2908-01.8-041	0.55 J
			TB810-2909-05.8-045	0.82 J
			TS203-2808-020	0.39 J
Trichloroethene	$\mu\text{g/Kg}$	--	SB201-085-10	6700 D
			SB415-136-12.5	188 JD
			SB415-136-14	3050 D
			SB415-136-9.2	23.6
			SB4D003-656-14.5	3.4
			SB-BH224-10.0-3666	2.85
			SB-CORE01-0.5-3731	2.22
			SB-CORE03-1.5-3735	3.35
			SB-CORE04-0.5-3737	227
			SB-CORE05-0.5-3739	0.437 J
			SB-CORE06-0.5-3741	2.09
			SB-CORE08-0.5-3745	1.09
			SB-CORE09-0.5-3747	0.459 J
			SB-CORE10-0.5-3749	1.78
			SB-DRUM05-3382-1.0	75.6 J
			SS201-001	1 J
			SS415-052	11.4
			SS811-080	1 J
			SS-DRUM05-3381	71.4 J
			SS-MW424-3620	0.571 J
			TB203-2806-01.0-013	0.77 J
			TB205-2919-03.0-055	0.56 J
			TB406-2827-02.0-027	7.9 B
			TB406-2828-01.0-010	4.6

* Data qualifier included with concentration value

Table 4-63
Exposure Unit 17
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Xylenes (total)	$\mu\text{g/Kg}$	--	SB217-101-13	1.1 J
			SB302-104-11	0.41 J
			SB403-120-18	0.34 J
			SB404-121-25	0.34 J
			SB404-121-4	0.51 J
			SB415-136-12.5	16.2
			SB420-142-7	1.5 J
			SB502-145-13	0.58 J
			SB603-152-15	0.91 J
			SB801-154-18	0.32 J
			SS401-037	1.8 J
			SS404-041	0.99 J
			SS420-057	1 J
			SS503-064	0.39 J
			SS505-694	1.3 J
			SS602-066	0.76 J
			SS801-070	1.1 J
			SS811-080	0.8 J
			TB301-2810-01.5-003	0.32 J

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB414-135-21	23300
			SB-BH218-15.0-3660	20900
			SB-BH220-20.0-3662	20800
			SB-MW228-11.0-3615	23200
			SB-MW229-11.0-3614	23200
			SB-MW314-15.0-3594	22600 *
			SB-OTFL11-13.0-3658	25000
			SB-TWP835-15.0-3516	19200 *
			SB-TWP846-16.0-3549	19400
			SB-TWP848-11.0-3555	19500
			SB-TWP849-11.0-3558	19400
Antimony	mg/Kg	0.94	SB-BH221-15.0-3663	1.41 BN
			SB-MW228-11.0-3615	1.63 BN*
			SB-MW424-14.0-3621	1.63 BN
			SB-MW860-15.0-3597	1.41 BN
			SB-MW861-34.5-3596	2.88 BN
			SB-MW862-11.5-3603	1.92 BN
			SB-OTFL12-13.5-3659	1.08 BN
			SB-TWP831-15.0-3504	1.65 BN
			SB-TWP832-12.5-3507	1.54 N
			SB-TWP835-15.0-3516	2.19 BN
			SB-TWP836-15.0-3519	1.64 BN
			SB-TWP837-19.0-3522	1.96 BN*
			SB-TWP839-14.0-3528	1.49 BN
			SB-TWP845-13.0-3546	2.57 BN*
			SB-TWP848-11.0-3555	3.24 N
			SB-TWP849-11.0-3558	2.6 BN*
			SB-TWP850-17.0-3561	1.9 BN
Arsenic	mg/Kg	8.73	SB-TWP851-18.0-3564	3 J
			SB-TWP852-15.0-3567	1 BN
			SB-TWP856-11.0-3579	1.34 BN
Beryllium	mg/Kg	1	SB816-733-12.0	20.6
			SB414-135-21	1.2
			SB816-733-12.0	1.06
			SB-BH220-20.0-3662	1.03 B
			SB-MW228-11.0-3615	1.09 B
			SB-MW229-11.0-3614	1.11
			SB-MW314-15.0-3594	1.07
			SB-OTFL11-13.0-3658	1.12 B

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	10.1	SB208-092-12	11.1
			SB213-097-12.5	14.8 N
			SB406-123-18	11.1
			SB411-129-20	12.3
			SB414-135-21	16
			SB418-140-19	12.1
			SB502-145-13	12.5
			SB811-164-23	11
			SB816-733-12.0	11.1
			SB-BH218-15.0-3660	16.9 B
			SB-BH220-20.0-3662	19.6
			SB-BH221-15.0-3663	15.3 B
			SB-BH226-12.0-3668	23.5
			SB-BH227-15.0-3669	22.3
			SB-MW228-11.0-3615	30.9 N
			SB-MW229-11.0-3614	51.5
			SB-MW313-11.0-3591	14 N
			SB-MW314-15.0-3594	20.2 N
			SB-MW422-15.0-3609	13.2 N
			SB-MW423-15.0-3612	15.1 N
			SB-MW862-11.5-3603	13.1 B
			SB-OTFL11-13.0-3658	19.8
			SB-OTFL12-13.5-3659	14.9
			SB-TWP830-15.0-3501	13.7 N*
			SB-TWP832-12.5-3507	16.8 N*
			SB-TWP834-14.0-3513	15.4
			SB-TWP835-15.0-3516	14.1 B
			SB-TWP836-15.0-3519	13.3 B
			SB-TWP837-19.0-3522	13 BN
			SB-TWP838-14.0-3525	16.3
			SB-TWP839-14.0-3528	15
			SB-TWP840-12.0-3531	14.5
			SB-TWP846-16.0-3549	14.3 BN
			SB-TWP848-11.0-3555	15.2 B
			SB-TWP849-11.0-3558	13.7 N
			SB-TWP851-18.0-3564	10.2 J
			SB-TWP853-16.5-3570	15.5
			SB-TWP854-13.0-3573	14.9 B
			SB-TWP859-18.0-3588	16.4

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cadmium	mg/Kg	0.53	SB306-111-12.5	0.63
			SB414-135-21	2
			SB416-137-21	0.6
			SB418-140-19	0.55
			SB419-141-17	0.66
			SB421-143-16	0.69
			SB601-150-13	0.93
			SB607-728-17.0	0.665
			SB811-164-23	0.76
Calcium	mg/Kg	58900	C5-SO-SO-D800-10	60800
			SB414-135-21	98400
			SB-MW863-32.0-3606	82200
			SB-OTFL11-13.0-3658	69200
			SB-TWP837-19.0-3522	63300 *
			SB-TWP844-11.0-3543	71700 *
			SB-TWP850-17.0-3561	60100
Chromium	mg/Kg	25.8	SB208-092-12	27.9
			SB213-097-12.5	27.4
			SB411-129-20	26.2 *
			SB414-135-21	35.3
			SB415-136-12.5	26.1 *
			SB418-140-19	61.7 *
			SB502-145-13	27.6 *
			SB816-733-12.0	27.1
			SB-BH218-15.0-3660	29.8
			SB-BH220-20.0-3662	30.1
			SB-BH221-15.0-3663	26.8
			SB-MW228-11.0-3615	31.5
			SB-MW229-11.0-3614	28.6
			SB-MW314-15.0-3594	26.7
			SB-OTFL11-13.0-3658	36.2
			SB-OTFL12-13.5-3659	27.2
			SB-TWP832-12.5-3507	27.8 *N
			SB-TWP835-15.0-3516	27.7
			SB-TWP846-16.0-3549	26.7
			SB-TWP848-11.0-3555	28.3
			SB-TWP849-11.0-3558	26.8
			SB-TWP853-16.5-3570	26.1
			SB-TWP854-13.0-3573	27.3
Copper	mg/Kg	49.3	SB414-135-21	63.3
			SB418-140-19	61.9
Iron	mg/Kg	36400	SB414-135-21	42800
			SB816-733-12.0	44000
Lead	mg/Kg	37.6	SB801-154-18	50.5

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lithium	mg/Kg	36.8	SB402-119-23	106
			SB411-129-20	38.9 EN
			SB-BH218-15.0-3660	37.6 E
			SB-BH220-20.0-3662	37.3 E
			SB-MW228-11.0-3615	41.6 E
			SB-MW314-15.0-3594	40.9
			SB-OTFL11-13.0-3658	39.4 N
Magnesium	mg/Kg	14800	SB208-092-12	15100
			SB414-135-21	22600
			SB-MW228-11.0-3615	15200
			SB-OTFL11-13.0-3658	17200
			SB-TWP834-14.0-3513	15000
			SB-TWP837-19.0-3522	19100
			SB-TWP848-11.0-3555	16600 *
Nickel	mg/Kg	38	SB414-135-21	44.5
			SB502-145-13	40

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	mg/Kg	2860	SB208-092-12	3120
			SB213-097-12.5	5180 E
			SB406-123-18	2970 N
			SB411-129-20	2920
			SB414-135-21	3700
			SB502-145-13	2910
			SB816-733-12.0	3190
			SB-BH218-15.0-3660	3900
			SB-BH220-20.0-3662	4060
			SB-BH221-15.0-3663	3450
			SB-BH226-12.0-3668	4120 EN
			SB-BH227-15.0-3669	2870 EN
			SB-MW228-11.0-3615	5090
			SB-MW229-11.0-3614	5080 J
			SB-MW313-11.0-3591	3730 *
			SB-MW314-15.0-3594	5030 *
			SB-MW422-15.0-3609	3140 *
			SB-MW423-15.0-3612	3550 *
			SB-MW862-11.5-3603	3590 *
			SB-OTFL11-13.0-3658	5590
			SB-OTFL12-13.5-3659	3750
			SB-TWP830-15.0-3501	3000 *
			SB-TWP832-12.5-3507	3700 *
			SB-TWP834-14.0-3513	3790
			SB-TWP835-15.0-3516	4070 *
			SB-TWP836-15.0-3519	3710 *
			SB-TWP837-19.0-3522	3760
			SB-TWP838-14.0-3525	3730
			SB-TWP839-14.0-3528	3520
			SB-TWP840-12.0-3531	3360 E
			SB-TWP846-16.0-3549	4180
			SB-TWP848-11.0-3555	3840
			SB-TWP849-11.0-3558	4020
			SB-TWP853-16.5-3570	3750
			SB-TWP854-13.0-3573	3710
			SB-TWP859-18.0-3588	4340

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB103-716-10.5	1 B
			SB207-091-14	0.88
			SB208-092-12	0.74 B
			SB213-097-12.5	0.69 BN
			SB217-101-13	1.2
			SB302-104-11	0.91 B
			SB306-111-12.5	0.54 B
			SB308-113-19	0.85 B
			SB309-114-19	0.61 BN
			SB311-116-13	1.1
			SB401-118-20	0.39 BN
			SB402-119-23	3.2 B
			SB403-120-18	1 B
			SB404-121-25	1.1
			SB405-122-25	1.2
			SB407-124-20	0.92 B
			SB408-125-20	0.9
			SB410-128-11	0.79 B
			SB411-129-20	1.1
			SB412-130-15	0.48 B
			SB413-131-19	1.4 B
			SB414-135-21	0.38 B
			SB415-136-12.5	0.76 B
			SB415-136-14	0.79 B
			SB416-137-21	0.45 B
			SB418-140-19	0.85 B
			SB419-141-17	0.7 BN
			SB421-143-16	0.81 BN
			SB501-144-12	1 B
			SB502-145-13	1.2
			SB503-149-13	1.2
			SB504-722-14.0	0.768 B
			SB505-723-17.0	0.531 B
			SB601-150-13	0.67 B
			SB604-153-15	0.57 B
			SB605-726-16.5	0.415 B
			SB607-728-17.0	0.611 B
			SB801-154-18	1.5
			SB802-155-17	0.59 B
			SB806-159-18.9	0.71 B
			SB807-160-18.2	1.6 B
			SB808-161-15	2.1 B
			SB809-162-18	0.45 BN
			SB810-163-12.0	0.46 B

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB813-730-10.5	0.738 B
			SB816-733-12.0	1.07 B
			SB822-739-11.0	0.775 B
			SB-BH226-12.0-3668	0.448 B
			SB-BH227-15.0-3669	0.39 B
			SB-MW228-11.0-3615	1.81
			SB-MW229-11.0-3614	1.25 J
			SB-MW229-28.5-3618	0.538 BN
			SB-MW424-14.0-3621	1.28 N
			SB-MW860-15.0-3597	0.918 BN
			SB-MW861-34.5-3596	1.27 N
			SB-MW861-38.0-3600	0.405 BN
			SB-MW862-11.5-3603	2.01 N
			SB-MW863-32.0-3606	1.3 N
			SB-OTFL12-13.5-3659	0.477 B
			SB-TWP831-15.0-3504	0.408 B
			SB-TWP834-14.0-3513	0.449 B
			SB-TWP835-15.0-3516	2.24 N
			SB-TWP836-15.0-3519	2.28 N
			SB-TWP837-19.0-3522	2.18
			SB-TWP840-12.0-3531	0.922 BN
			SB-TWP844-11.0-3543	1.53
			SB-TWP845-13.0-3546	1.05 B
			SB-TWP846-16.0-3549	1.53
			SB-TWP848-11.0-3555	1.68 N
			SB-TWP849-11.0-3558	1.79
			SB-TWP850-17.0-3561	1.22 BN
			SB-TWP851-18.0-3564	1.28 J
			SB-TWP852-15.0-3567	0.578 B
			SB-TWP857-11.0-3582	0.443 B
Silver	mg/Kg	0.27	SB505-723-17.0	0.411 B
			SB801-154-18	0.29 N
Sodium	mg/Kg	331	C5-AC-SO-BP3-14	753
			C5-VS-SO-D300-14	423
			SB411-129-20	452 E
			SB414-135-21	486
			SB-MW229-11.0-3614	346
			SB-OTFL11-13.0-3658	403

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB103-716-10.5	0.149 B
			SB207-091-14	0.04 B
			SB208-092-12	0.16
			SB213-097-12.5	0.15
			SB217-101-13	0.12 B
			SB302-104-11	0.1 B
			SB306-111-12.5	0.13
			SB308-113-19	0.12 B
			SB309-114-19	0.03 B
			SB311-116-13	0.11 B
			SB401-118-20	0.09 B
			SB402-119-23	0.07 B
			SB403-120-18	0.13 B
			SB404-121-25	0.1 B
			SB405-122-25	0.04 B
			SB406-123-18	0.12 B
			SB407-124-20	0.02 B
			SB408-125-20	0.05 B
			SB410-128-11	0.14
			SB411-129-20	0.21
			SB412-130-15	0.05 B
			SB413-131-19	0.1 B
			SB414-135-21	0.11 B
			SB415-136-12.5	0.14
			SB415-136-14	0.13
			SB416-137-21	0.077 B
			SB418-140-19	0.13
			SB419-141-17	0.2
			SB421-143-16	0.16
			SB501-144-12	0.18
			SB502-145-13	0.18
			SB503-149-13	0.07 B
			SB504-722-14.0	0.174 B
			SB505-723-17.0	0.124 B
			SB601-150-13	0.13
			SB602-151-15	0.08 B
			SB604-153-15	0.11 B
			SB801-154-18	0.1 B
			SB802-155-17	0.02 B
			SB806-159-18.9	0.13
			SB807-160-18.2	0.12 B
			SB808-161-15	0.04 B
			SB809-162-18	0.02 B
			SB810-163-12.0	0.05 B

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB811-164-23	0.13
			SB813-730-10.5	0.173 B
			SB816-733-12.0	0.157
			SB822-739-11.0	0.248 B
			SB-BH218-15.0-3660	0.17
			SB-BH220-20.0-3662	0.172
			SB-BH221-15.0-3663	0.155
			SB-BH226-12.0-3668	0.151
			SB-BH227-15.0-3669	0.12 B
			SB-MW228-11.0-3615	0.398 E
			SB-MW229-11.0-3614	0.192
			SB-MW229-28.5-3618	0.146
			SB-MW313-11.0-3591	0.284 E
			SB-MW314-15.0-3594	0.226 E
			SB-MW422-15.0-3609	0.138 E
			SB-MW423-15.0-3612	0.173 E
			SB-MW424-14.0-3621	0.067 B
			SB-MW860-15.0-3597	0.046 B
			SB-MW861-34.5-3596	0.083 B
			SB-MW861-38.0-3600	0.064 B
			SB-MW862-11.5-3603	0.138
			SB-MW863-32.0-3606	0.073 B
			SB-OTFL11-13.0-3658	0.221
			SB-OTFL12-13.5-3659	0.18
			SB-TWP830-15.0-3501	0.127
			SB-TWP831-15.0-3504	0.093 B
			SB-TWP832-12.5-3507	0.213
			SB-TWP834-14.0-3513	0.26 E
			SB-TWP835-15.0-3516	0.171
			SB-TWP836-15.0-3519	0.206
			SB-TWP837-19.0-3522	0.162 E
			SB-TWP838-14.0-3525	0.153
			SB-TWP839-14.0-3528	0.137
			SB-TWP840-12.0-3531	0.117 B
			SB-TWP844-11.0-3543	0.118 BE
			SB-TWP845-13.0-3546	0.053 BE
			SB-TWP846-16.0-3549	0.12 BE
			SB-TWP848-11.0-3555	0.174
			SB-TWP849-11.0-3558	0.186 E
			SB-TWP850-17.0-3561	0.207
			SB-TWP851-18.0-3564	0.098 J
			SB-TWP852-15.0-3567	0.05 B
			SB-TWP853-16.5-3570	0.145
			SB-TWP854-13.0-3573	0.155

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB-TWP855-15.0-3576	0.129
			SB-TWP856-11.0-3579	0.07 B
			SB-TWP857-11.0-3582	0.057 B
			SB-TWP858-16.0-3585	0.054 J
			SB-TWP859-18.0-3588	0.156
Vanadium	mg/Kg	35.2	SB213-097-12.5	36.3
			SB414-135-21	44.5
			SB816-733-12.0	38.1
			SB-BH218-15.0-3660	41.8
			SB-BH220-20.0-3662	41.7
			SB-BH221-15.0-3663	37.3
			SB-MW228-11.0-3615	41.6 N
			SB-MW229-11.0-3614	39.4
			SB-MW314-15.0-3594	38.5 *
			SB-OTFL11-13.0-3658	49.4
			SB-OTFL12-13.5-3659	37.2
			SB-TWP832-12.5-3507	37.1 *N
			SB-TWP834-14.0-3513	36.2
			SB-TWP835-15.0-3516	37.7
			SB-TWP838-14.0-3525	36.8
			SB-TWP839-14.0-3528	35.8
			SB-TWP846-16.0-3549	35.9 N
			SB-TWP848-11.0-3555	36.5 *N
			SB-TWP853-16.5-3570	36.8
			SB-TWP854-13.0-3573	36.6
			SB-TWP859-18.0-3588	36.5
PAHs				
Benzo(g,h,i)perylene	µg/Kg	16	C5-SO-SO-D800-10	100
			SB412-130-15	34.8 J
PCBs				
Aroclor-1254	µg/Kg	--	SB-TWP834-14.0-3513	124
			SB-TWP840-12.0-3531	21.2
			SB-TWP844-11.0-3543	2.4 J
			SB-TWP856-11.0-3579	2.3 J
Pesticides				
4,4'-DDE	µg/Kg	--	SB-BH221-15.0-3663	1.1 J
			SB-MW422-15.0-3609	0.589 J
			SB-TWP831-15.0-3504	1.35 J
			SB-TWP844-11.0-3543	0.645 J
			SB-TWP858-16.0-3585	0.321 J

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
4,4'-DDT	μg/Kg	--	SB-BH221-15.0-3663	0.932 J
			SB-BH226-12.0-3668	1.75 J
			SB-MW422-15.0-3609	0.515 J
			SB-MW861-38.0-3600	1.21 J
			SB-TWP831-15.0-3504	0.989 J
			SB-TWP836-15.0-3519	1.25 J
			SB-TWP837-19.0-3522	1.81
			SB-TWP839-14.0-3528	0.652 J
			SB-TWP844-11.0-3543	1.2 J
			SB-TWP848-11.0-3555	1.77
			SB-TWP849-11.0-3558	1.7
			SB-TWP850-17.0-3561	1.44 J
			SB-TWP851-18.0-3564	1.94
			SB-TWP858-16.0-3585	1.72
			SB-TWP859-18.0-3588	2.01
Radionuclides				
Alpha	pCi/g	15.1	SB214-098-15	18.7
			SB217-101-13	15.6
			SB312-117-15	15.6
			SB401-118-20	16.5
			SB406-123-18	15.8
			SB415-136-14	15.3
			SB4D003-656-14.5	15.3
			SB501-144-12	18.3
			SB502-145-13	16.3
			SB602-151-15	16.3
			SB807-160-18.2	19.5
			SB-MW228-11.0-3615	15.6
			SB-MW314-15.0-3594	17.9

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB203-087-12	32.2
			SB208-092-12	34.9
			SB212-096-12.5	34.7
			SB213-097-12.5	34.3
			SB216-100-10.5	36.5
			SB403-120-18	33.9
			SB406-123-18	29.7
			SB4D003-656-14.5	35.4
			SB501-144-12	31.3
			SB502-145-13	32.9
			SB604-153-15	30.7
			SB802-155-17	30.1
			SB807-160-18.2	32.2
			SB-BH218-15.0-3660	31.2
			SB-BH220-20.0-3662	33
			SB-BH226-12.0-3668	32.6
			SB-MW228-11.0-3615	37.7
			SB-MW229-11.0-3614	35.9
			SB-MW314-15.0-3594	40.8
			SB-TWP832-12.5-3507	30
			SB-TWP838-14.0-3525	30
			SB-TWP839-14.0-3528	33
Radium-226	pCi/g	1.2	SB404-121-25	1.43
			SB811-164-23	1.33
Radium-228	pCi/g	1.26	SB2A001-645-11.0	1.33
			SB2B001-648-16.0	1.31
			SB4D004-657-14.5	1.39
			SB-MH07/08-11.0-3652	1.28
Thorium-228	pCi/g	1.64	SB2B001-648-16.0	1.69
			SB4D004-657-14.5	1.91
			SB4D005-658-15.5	4.66
			SB506-725-13.0	1.87
			SB-MH07-11.0-3651	2.53
			SB-TWP838-14.0-3525	1.67
			SB-TWP848-11.0-3555	1.74

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/g	1.39	SB2B001-648-16.0	1.64
			SB306-111-12.5	1.49 J
			SB421-143-16	1.51 J
			SB4D004-657-14.5	1.5
			SB505-723-17.0	1.97
			SB506-725-13.0	1.43
			SB814-731-19	1.41
			SB823-740-13.0	1.41
			SB-BH221-15.0-3663	1.48
			SB-MH07-11.0-3651	1.62
			SB-MW229-11.0-3614	1.95 J
			SB-MW229-28.5-3618	1.47
			SB-MW314-15.0-3594	2.31
			SB-MW423-15.0-3612	1.82
			SB-MW862-11.5-3603	1.62
			SB-TWP838-14.0-3525	1.6
			SB-TWP848-11.0-3555	1.49
			SB-TWP858-16.0-3585	1.61 J
Thorium-232	pCi/g	1.24	SB208-092-12	1.41
			SB213-097-12.5	1.31
			SB2A002-646-11.0	1.37
			SB2B001-648-16.0	1.47
			SB413-131-19	1.28
			SB4D004-657-14.5	1.37
			SB502-145-13	1.38
			SB506-725-13.0	1.35
			SB-BH220-20.0-3662	1.3
			SB-BH221-15.0-3663	1.62
			SB-MH07/08-11.0-3652	1.72
			SB-MW228-11.0-3615	1.35
			SB-MW229-11.0-3614	1.4 J
			SB-TWP851-18.0-3564	1.57 J
			Uranium-235	pCi/g
SB413-131-19	0.0893 J			
SB4D001-653-14.5	0.151			
SB503-149-13	0.115 J			
SB-TWP837-19.0-3522	0.374			
SB-TWP851-18.0-3564	0.106 J			
Volatile Organics				

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
1,1-Dichloroethene	$\mu\text{g/Kg}$	--	SB4D003-656-14.5	0.69
			SB505-723-17.0	2.2
			SB-BH218-15.0-3660	1.9
			SB-BH226-12.0-3668	1.46
			SB-BH227-15.0-3669	3.2
			SB-MW229-11.0-3614	0.999 J
			SB-MW229-28.5-3618	1.35
			SB-MW313-11.0-3591	0.823
			SB-MW860-15.0-3597	0.384 J
			SB-MW861-34.5-3596	0.728 J
			SB-MW862-11.5-3603	0.542 J
			SB-MW863-32.0-3606	0.392 J
			SB-TWP835-15.0-3516	0.704 J
			SB-TWP836-15.0-3519	0.899
			SB-TWP838-14.0-3525	1.1
			SB-TWP840-12.0-3531	0.638 J
			SB-TWP850-17.0-3561	0.577 J
			SB-TWP855-15.0-3576	1.02

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	C5-SO-SO-D800-10	870 J
			SB2B006-651-13.0	4.3
			SB2C001-652-17.0	2.3 J
			SB313-717-13.5	7
			SB404-121-25	12.2 J
			SB4D002-655-12.0	10100 E
			SB4D005-658-15.5	3.1 J
			SB4D006-659-15.0	2.6 J
			SB505-723-17.0	12.6
			SB603-152-15	4.1 J
			SB607-728-17.0	4.2
			SB811-164-23	4.4 J
			SB-BH218-15.0-3660	11
			SB-BH220-20.0-3662	14
			SB-BH221-15.0-3663	11.9
			SB-BH226-12.0-3668	27.8
			SB-BH227-15.0-3669	32.2
			SB-MW228-11.0-3615	14.9
			SB-MW229-11.0-3614	9.87
			SB-MW229-28.5-3618	8.29
			SB-MW313-11.0-3591	3.86
			SB-MW314-15.0-3594	12.4
			SB-MW422-15.0-3609	13.9
			SB-MW423-15.0-3612	11.8
			SB-MW860-15.0-3597	5.66
			SB-MW861-34.5-3596	6.15
			SB-MW861-38.0-3600	3.32 J
			SB-MW863-32.0-3606	2.88 J
			SB-OTFL11-13.0-3658	80.2 J
			SB-OTFL12-13.5-3659	8.38
			SB-TWP830-15.0-3501	68.3 J
			SB-TWP831-15.0-3504	6.61
			SB-TWP832-12.5-3507	6.58
			SB-TWP834-14.0-3513	8.35
			SB-TWP835-15.0-3516	5.1
			SB-TWP836-15.0-3519	6.02
			SB-TWP837-19.0-3522	2.78 J
			SB-TWP838-14.0-3525	9.02
			SB-TWP839-14.0-3528	12.4
			SB-TWP840-12.0-3531	10.9
			SB-TWP846-16.0-3549	5.81
			SB-TWP848-11.0-3555	11.2
			SB-TWP849-11.0-3558	8.27
			SB-TWP850-17.0-3561	6.41

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	--	SB-TWP851-18.0-3564	4.18 J
			SB-TWP853-16.5-3570	13.8
			SB-TWP854-13.0-3573	8.59
			SB-TWP855-15.0-3576	7.29
			SB-TWP858-16.0-3585	7.31
			SB-TWP859-18.0-3588	5.84
Benzene	$\mu\text{g/Kg}$	--	SB302-104-11	1.1
			SB311-116-13	0.83
			SB402-119-23	0.81
			SB403-120-18	0.59 J
			SB404-121-25	1.1
			SB418-140-19	0.078 J
			SB501-144-12	0.98
			SB502-145-13	0.88 J
			SB503-149-13	1.4
Carbon disulfide	$\mu\text{g/Kg}$	--	SB603-152-15	4.1
			SB806-159-18.9	0.76
			SB212-096-12.5	2.1 J
			SB213-097-12.5	1.5 J
			SB2A001-645-11.0	1.4 J
			SB2C001-652-17.0	0.89 J
			SB313-717-13.5	1.6 J
			SB404-121-25	0.95 J
			SB415-136-12.5	1.5 J
			SB415-136-14	5.9 J
			SB418-140-19	0.79 J
			SB4D002-655-12.0	123 J
			SB4D006-659-15.0	0.6 J
			SB505-723-17.0	0.67 J

* Data qualifier included with concentration value

Table 4-64
Exposure Unit 17D (Deep Soils)
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	--	SB210-094-13	1.1 J
			SB217-101-13	4.7
			SB302-104-11	0.8
			SB306-111-12.5	0.63 J
			SB309-114-19	1.6
			SB311-116-13	0.54 J
			SB402-119-23	0.51 J
			SB403-120-18	0.55 J
			SB404-121-25	0.87
			SB411-129-20	1.5
			SB415-136-12.5	2.7
			SB418-140-19	1.1 J
			SB501-144-12	1.4
			SB502-145-13	0.82 J
			SB503-149-13	1.5
			SB603-152-15	1.4
			SB801-154-18	0.3 J
			SB806-159-18.9	0.47 J
			SB807-160-18.2	0.73 J
			SB-MW424-14.0-3621	0.355 J
Xylenes (total)	$\mu\text{g/Kg}$	--	SB217-101-13	1.1 J
			SB302-104-11	0.41 J
			SB403-120-18	0.34 J
			SB404-121-25	0.34 J
			SB415-136-12.5	16.2
			SB502-145-13	0.58 J
			SB603-152-15	0.91 J
			SB801-154-18	0.32 J

* Data qualifier included with concentration value

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Nitroaromatics							
1,3,5-Trinitrobenzene	µg/L	1/ 10	0.02	0.02	0.02	0.02	D
2,4,6-Trinitrotoluene	µg/L	1/ 10	0.08	0.08	0.08	0.08	D
2,4-Dinitrotoluene	µg/L	1/ 10	0.03	0.03	0.03	0.03	D
2,6-Dinitrotoluene	µg/L	1/ 10	0.05	0.05	0.05	0.05	D
2-Amino-4,6-dinitrotoluene	µg/L	1/ 10	0.08	0.08	0.08	0.08	D
2-Nitrotoluene	µg/L	1/ 10	0.06	0.06	0.06	0.06	D
3-Nitrotoluene	µg/L	1/ 10	0.06	0.06	0.06	0.06	D
4-Amino-2,6-dinitrotoluene	µg/L	1/ 10	0.04	0.04	0.04	0.04	D
4-Nitrotoluene	µg/L	1/ 10	0.06	0.06	0.06	0.06	D
HMX	µg/L	1/ 10	0.08	0.08	0.08	0.08	D
m-Dinitrobenzene	µg/L	1/ 9	0.03	0.03	0.03	0.03	D
Nitrobenzene	µg/L	1/ 10	0.01	0.01	0.01	0.01	D
RDX	µg/L	1/ 10	0.05	0.05	0.05	0.05	D
Tetryl	µg/L	1/ 10	0.03	0.03	0.03	0.03	D
Metals							
Aluminum	µg/L	10/ 10	23.6	5030	56000	5030	G
Aluminum, Dissolved	µg/L	8/ 10	4.43	31.2	51.9	31.2	N
Antimony	µg/L	7/ 10	0.08	2.33	2.33	2.33	D
Antimony, Dissolved	µg/L	10/ 10	0.12	0.65	0.82	0.65	N
Arsenic	µg/L	9/ 10	2.58	6.33	10.60	6.33	G
Arsenic, Dissolved	µg/L	8/ 10	1.24	3.76	5.60	3.76	N
Barium	µg/L	10/ 10	24.40	117.00	141.00	117	N
Barium, Dissolved	µg/L	10/ 10	25.80	115.00	134	115	N
Beryllium	µg/L	2/ 10	0.22	0.25	0.25	0.25	D
Beryllium, Dissolved	µg/L	0/ 10					O
Boron	µg/L	10/ 10	26.70	244.00	347	244	N
Boron, Dissolved	µg/L	10/ 10	23.90	239.00	341	239	N
Cadmium	µg/L	0/ 10					O
Cadmium, Dissolved	µg/L	4/ 10	0.73	1.19	1.19	1.19	D
Calcium	µg/L	10/ 10	37200	141000	174000	141000	N
Calcium, Dissolved	µg/L	10/ 10	40900	141000	171000	141000	N
Chromium	µg/L		1.57	7.52	7.52	7.52	D
Chromium, Dissolved	µg/L	3/ 10	1.2	6.69	6.69	6.69	D
Cobalt	µg/L	1/ 10	1.08	1.08	1.08	1.08	D
Cobalt, Dissolved	µg/L	1/ 10	2.01	2.01	2.01	2.01	D
Copper	µg/L	9/ 10	2.3	15	18.4	15	N
Copper, Dissolved	µg/L	10/ 10	2.08	8.39	10.7	8.39	N
Iron	µg/L	10/ 10	114	4740	30400	4740	G
Iron, Dissolved	µg/L	10/ 10	32.9	1360	5630	1360	G
Lead	µg/L	10/ 10	0.14	11.1	75.6	11.1	G
Lead, Dissolved	µg/L	10/ 10	0.05	0.92	1.9	0.92	L
Lithium	µg/L	10/ 10	0.94	13.2	20.3	13.2	N
Lithium, Dissolved	µg/L	10/ 10	0.84	13.4	17.3	13.4	N
Magnesium	µg/L	10/ 10	9730	30200	40200	30200	N
Magnesium, Dissolved	µg/L	10/ 10	10200	30300	39700	30300	N
Manganese	µg/L	10/ 10	24.3	951	1210	951	N

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Metals (continued)							
Manganese, Dissolved	µg/L	10/ 10	30.2	821	6010	821	G
Mercury	µg/L	0/ 10					O
Mercury, Dissolved	µg/L	0/ 10					O
Nickel	µg/L	5/ 10	1.4	7.74	7.74	7.74	D
Nickel, Dissolved	µg/L	2/ 10	0.56	1.81	1.81	1.81	D
Potassium	µg/L	10/ 10	1850	9540	17700	9540	G
Potassium, Dissolved	µg/L	10/ 10	1630	7700	15200	7700	G
Selenium	µg/L	5/ 10	0.34	4.24	4.24	4.24	D
Selenium, Dissolved	µg/L	10/ 10	0.51	2.41	4.32	2.41	L
Silver	µg/L	7/ 10	0.01	0.03	0.03	0.03	D
Silver, Dissolved	µg/L	3/ 10	0.01	0.01	0.011	0.01	D
Sodium	µg/L	10/ 10	3300	179000	1470000	179000	L
Sodium, Dissolved	µg/L	10/ 10	3370	172000	1360000	172000	L
Thallium	µg/L	3/ 10	0.01	0.03	0.03	0.03	D
Thallium, Dissolved	µg/L	7/ 10	0.01	0.24	0.24	0.24	D
Vanadium	µg/L	8/ 10	0.25	8.52	30.4	8.52	G
Vanadium, Dissolved	µg/L	8/ 10	0.26	1.26	1.65	1.26	N
Zinc	µg/L	9/ 10	1.36	70.5	278	70.5	L
Zinc, Dissolved	µg/L	10/ 10	3.99	54.5	54.5	54.5	X
PAHs							
Acenaphthene	µg/L	0/ 10					O
Acenaphthylene	µg/L	0/ 10					O
Anthracene	µg/L	0/ 10					O
Benzo(a)anthracene	µg/L	2/ 10	0.10	0.11	0.108	0.11	D
Benzo(a)pyrene	µg/L	0/ 10					O
Benzo(b)fluoranthene	µg/L	0/ 10					O
Benzo(g,h,i)perylene	µg/L	0/ 10					O
Benzo(k)fluoranthene	µg/L	0/ 10					O
Chrysene	µg/L	2/ 10	0.14	0.15	0.151	0.15	D
Dibenzo(a,h)anthracene	µg/L	0/ 10					O
Fluoranthene	µg/L	2/ 10	0.42	0.52	0.522	0.52	D
Fluorene	µg/L	0/ 10					O
Indeno(1,2,3-cd)pyrene	µg/L	0/ 10					O
Naphthalene	µg/L	0/ 10					O
Phenanthrene	µg/L	1/ 10	0.22	0.22	0.223	0.22	D
Pyrene	µg/L	2/ 10	0.23	0.30	0.302	0.30	D
PCBs							
Aroclor-1016	µg/L	0/ 10					O
Aroclor-1221	µg/L	0/ 10					O
Aroclor-1232	µg/L	0/ 10					O
Aroclor-1242	µg/L	0/ 10					O
Aroclor-1248	µg/L	0/ 10					O
Aroclor-1254	µg/L	0/ 10					O
Aroclor-1260	µg/L	0/ 10					O

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Pesticides							
4,4'-DDD	µg/L	0/ 10					O
4,4'-DDE	µg/L	3/ 10	0.01	0.05	0.0461	0.05	D
4,4'-DDT	µg/L	3/ 10	0.01	0.03	0.0318	0.03	D
Aldrin	µg/L	0/ 10					O
alpha-BHC	µg/L	0/ 10					O
alpha-Chlordane	µg/L	0/ 10					O
beta-BHC	µg/L	0/ 10					O
delta-BHC	µg/L	0/ 10					O
Dieldrin	µg/L	0/ 10					O
Endosulfan I	µg/L	0/ 10					O
Endosulfan II	µg/L	0/ 10					O
Endosulfan sulfate	µg/L	0/ 10					O
Endrin	µg/L	0/ 10					O
Endrin aldehyde	µg/L	0/ 10					O
Endrin ketone	µg/L	0/ 10					O
gamma-BHC (Lindane)	µg/L	0/ 10					O
gamma-Chlordane	µg/L	0/ 10					O
Heptachlor	µg/L	0/ 10					O
Heptachlor epoxide	µg/L	0/ 10					O
Methoxychlor	µg/L	0/ 10					O
Toxaphene	µg/L	0/ 10					O
Radionuclides							
Actinium-227	pCi/L	0/ 10					O
Actinium-227, Dissolved	pCi/L	0/ 10					O
Alpha	pCi/L	6/ 8	2.74	12.2	12.2	12.2	D
Alpha, Dissolved	pCi/L	5/ 8	1.59	16.7	16.7	16.7	D
Americium-241	pCi/L	0/ 10					O
Americium-241, Dissolved	pCi/L	0/ 10					O
Beta	pCi/L	7/ 8	2.33	12.3	12.3	12.3	D
Beta, Dissolved	pCi/L	7/ 8	1.17	9.87	9.87	9.87	D
Cesium-137	pCi/L	0/ 10					O
Cesium-137, Dissolved	pCi/L	0/ 10					O
Cobalt-60	pCi/L	0/ 10					O
Cobalt-60, Dissolved	pCi/L	0/ 10					O
Protactinium-231	pCi/L	0/ 10					O
Protactinium-231, Dissolved	pCi/L	0/ 10					O
Radium-226	pCi/L	2/ 10	0.45	0.49	0.49	0.49	D
Radium-226, Dissolved	pCi/L	2/ 10	0.72	1.37	1.37	1.37	D
Radium-228	pCi/L	6/ 10	0.54	1.43	1.43	1.43	D
Radium-228, Dissolved	pCi/L	4/ 10	0.92	1.09	1.09	1.09	D
Thorium-228	pCi/L	0/ 10				0.41*	O
Thorium-228, Dissolved	pCi/L	1/ 10	0.41	0.41	0.41	0.41	D
Thorium-230	pCi/L	6/ 10	0.29	0.61	0.61	0.61	D
Thorium-230, Dissolved	pCi/L	3/ 10	0.19	0.29	0.29	0.29	D
Thorium-232	pCi/L	0/ 10					O
Thorium-232, Dissolved	pCi/L	0/ 10					O

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Radionuclides (continued)							
Total Uranium	ug/L	8/ 8	0.44	12.50	55.2	12.5	G
Total Uranium, Dissolved	ug/L	8/ 8	0.41	12.40	62.9	12.4	G
Uranium-234	pCi/L	8/ 8	0.25	5.78	19.1	5.78	G
Uranium-234, Dissolved	pCi/L	8/ 8	0.31	6.07	23	6.07	G
Uranium-235	pCi/L	2/ 8	0.30	0.53	0.53	0.53	D
Uranium-235, Dissolved	pCi/L	2/ 8	0.43	0.63	0.63	0.63	D
Uranium-238	pCi/L	7/ 8	0.56	4.81	4.81	4.81	D
Uranium-238, Dissolved	pCi/L	7/ 8	0.62	5.23	5.23	5.23	D
Semivolatile Organics							
1,2,4-Trichlorobenzene	µg/L	0/ 10					O
1,2-Dichlorobenzene	µg/L	0/ 10					O
1,3-Dichlorobenzene	µg/L	0/ 10					O
1,4-Dichlorobenzene	µg/L	0/ 10					O
2,4,5-Trichlorophenol	µg/L	0/ 10					O
2,4,6-Trichlorophenol	µg/L	0/ 10					O
2,4-Dichlorophenol	µg/L	0/ 10					O
2,4-Dimethylphenol	µg/L	0/ 10					O
2,4-Dinitrophenol	µg/L	0/ 10					O
2-Chloronaphthalene	µg/L	0/ 10					O
2-Chlorophenol	µg/L	0/ 10					O
2-Methyl-4,6-dinitrophenol	µg/L	0/ 10					O
2-Methylnaphthalene	µg/L	0/ 10					O
2-Nitroaniline	µg/L	0/ 10					O
2-Nitrophenol	µg/L	0/ 10					O
3,3'-Dichlorobenzidine	µg/L	0/ 10					O
3-Nitroaniline	µg/L	0/ 10					O
4-Bromophenylphenylether	µg/L	0/ 10					O
4-Chloro-3-methylphenol	µg/L	0/ 10					O
4-Chloroaniline	µg/L	0/ 10					O
4-Chlorophenylphenylether	µg/L	0/ 10					O
4-Nitroaniline	µg/L	0/ 10					O
4-Nitrophenol	µg/L	0/ 10					O
bis(2-Chloroethoxy)methane	µg/L	0/ 10					O
bis(2-Chloroethyl)ether	µg/L	0/ 10					O
bis(2-Chloroisopropyl)ether	µg/L	0/ 10					O
bis(2-Ethylhexyl)phthalate	µg/L	0/ 10					O
Butylbenzylphthalate	µg/L	0/ 10					O
Carbazole	µg/L	0/ 10					O
Dibenzofuran	µg/L	0/ 10					O
Diethylphthalate	µg/L	0/ 10					O
Dimethylphthalate	µg/L	0/ 10					O
Di-n-butylphthalate	µg/L	0/ 10					O
Di-n-octylphthalate	µg/L	0/ 10					O
Hexachlorobenzene	µg/L	0/ 10					O
Hexachlorobutadiene	µg/L	0/ 10					O
Hexachlorocyclopentadiene	µg/L	0/ 10					O

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Semivolatile Organics (continued)							
Hexachloroethane	µg/L	0/ 10					O
Isophorone	µg/L	0/ 10					O
m,p-Cresols	µg/L	0/ 10					O
N-Nitroso-di-n-propylamine	µg/L	0/ 10					O
N-Nitrosodiphenylamine	µg/L	0/ 10					O
o-Cresol	µg/L	0/ 10					O
Pentachlorophenol	µg/L	0/ 10					O
Phenol	µg/L	0/ 10					O
Volatile Organics							
1,1,1-Trichloroethane	µg/L	0/ 10					O
1,1,2,2-Tetrachloroethane	µg/L	0/ 10					O
1,1,2-Trichloroethane	µg/L	0/ 10					O
1,1-Dichloroethane	µg/L	0/ 10					O
1,1-Dichloroethene	µg/L	0/ 10					O
1,2-Dichloroethane	µg/L	0/ 10					O
1,2-Dichloropropane	µg/L	1/ 10	1.72	1.72	1.72	1.72	D
2-Butanone	µg/L	1/ 10	15.8	15.8	15.8	15.8	D
2-Hexanone	µg/L	0/ 10					O
4-Methyl-2-pentanone	µg/L	0/ 10					O
Acetone	µg/L	4/ 10	4.2	16.4	16.4	16.4	D
Benzene	µg/L	0/ 10					O
Bromodichloromethane	µg/L	1/ 10	3.25	3.25	3.25	3.25	D
Bromoform	µg/L	0/ 10					O
Bromomethane	µg/L	0/ 10					O
Carbon disulfide	µg/L	0/ 10					O
Carbon tetrachloride	µg/L	0/ 10					O
Chlorobenzene	µg/L	0/ 10					O
Chloroethane	µg/L	0/ 10					O
Chloroform	µg/L	1/ 10	5.3	5.3	5.3	5.3	D
Chloromethane	µg/L	0/ 10					O
cis-1,2-Dichloroethene	µg/L	0/ 10					O
cis-1,3-Dichloropropene	µg/L	0/ 10					O
Dibromochloromethane	µg/L	1/ 10	1.59	1.59	1.59	1.59	D
Ethylbenzene	µg/L	0/ 10					O
Methylene chloride	µg/L	0/ 10					O
Styrene	µg/L	0/ 10					O
Tetrachloroethene	µg/L	1/ 10	0.55	0.55	0.55	0.55	D
Toluene	µg/L	0/ 10					O
trans-1,2-Dichloroethene	µg/L	0/ 10					O
trans-1,3-Dichloropropene	µg/L	0/ 10					O

Table 4-65
Background Surface Water Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Volatile Organics (continued)							
Trichloroethene	µg/L	0/ 10					O
Vinyl chloride	µg/L	0/ 10					O
Xylenes (total)	µg/L	0/ 10					O

¹Background values based on removal of the following data:

Removal of SW outliers; uranium component and alpha/beta from SWBKG-03 and SWBKG-07

Substitutions:

*0.41 Thorium-228 (Dissolved) SW UTL substituted for Thorium-228 in SW

Dist Codes:

L - Distribution most similar to lognormal

N - Distribution most similar to normal

G - Distribution most similar to gamma

O - No detects, no UTL calculated

X - Distribution significantly different from normal and lognormal

D - Distribution not determined because less than 50% detects or less than 8 detects

Z - Distribution with negative results and therefore treated as normal

Table 4-66
Exposure Unit 1
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	3	34.8 BN	86.6	3
Antimony, Dissolved	μg/L	2	--	--	0
Arsenic, Dissolved	μg/L	3	0.54 B	0.54 B	1
Barium, Dissolved	μg/L	3	24.7	48.7	3
Beryllium, Dissolved	μg/L	3	--	--	0
Boron, Dissolved	μg/L	3	16.4 B	63.7	3
Cadmium, Dissolved	μg/L	3	0.26 B	0.26 B	1
Calcium, Dissolved	μg/L	3	27400	74800	3
Chromium, Dissolved	μg/L	3	--	--	0
Cobalt, Dissolved	μg/L	3	--	--	0
Copper, Dissolved	μg/L	3	1.4 B	2.1 B	3
Iron, Dissolved	μg/L	3	30.1 BE	171	3
Lead, Dissolved	μg/L	3	0.06 BE	0.13 BE	2
Lithium, Dissolved	μg/L	3	1.1 BE	5.4 E	3
Magnesium, Dissolved	μg/L	3	7240	21500	3
Manganese, Dissolved	μg/L	3	4.4 B	9.9 B	3
Mercury, Dissolved	μg/L	3	--	--	0
Nickel, Dissolved	μg/L	3	1.9 B	1.9 B	1
Potassium, Dissolved	μg/L	3	4430	6240 NE	3
Selenium, Dissolved	μg/L	3	0.39 B	1.8 B	3
Silver, Dissolved	μg/L	3	0.06 B	0.1 B	3
Sodium, Dissolved	μg/L	3	2240 E	22800 E	3
Thallium, Dissolved	μg/L	3	0.45 B	0.45 B	1
Vanadium, Dissolved	μg/L	3	--	--	0
Zinc, Dissolved	μg/L	3	3.3 BE	5.3	3
Metals, Total					
Aluminum	μg/L	3	402 N	1280	3
Antimony	μg/L	3	--	--	0
Arsenic	μg/L	3	--	--	0
Barium	μg/L	3	46.6	53.8	3
Beryllium	μg/L	3	--	--	0
Boron	μg/L	3	29.1 B	69	3
Cadmium	μg/L	3	--	--	0
Calcium	μg/L	3	29400	82900	3
Chromium	μg/L	3	2 B	2.3 B	3
Cobalt	μg/L	3	1.2 B	1.2 B	1
Copper	μg/L	3	--	--	0
Iron	μg/L	3	373 EN	2150	3
Lead	μg/L	3	0.07 BE	2.1 E	2
Lithium	μg/L	3	2.9 E	7.2 E	3
Magnesium	μg/L	3	7850	24800	3
Manganese	μg/L	3	11.4	183	3
Mercury	μg/L	3	0.06 B	0.06 B	1

* Data qualifier included with concentration value

Table 4-66
Exposure Unit 1
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	3	--	--	0
Potassium	μg/L	3	4550	5790 NE	3
Selenium	μg/L	3	0.65 B	1.1 B	2
Silver	μg/L	3	--	--	0
Sodium	μg/L	3	2370 E	23400 E	3
Thallium	μg/L	3	0.76	0.76	1
Vanadium	μg/L	3	1.8 B	2.9 B	3
Zinc	μg/L	3	43.7	43.7	1
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	3	--	--	0
2,4,6-Trinitrotoluene	μg/L	3	--	--	0
2,4-Dinitrotoluene	μg/L	3	--	--	0
2,6-Dinitrotoluene	μg/L	3	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	3	--	--	0
2-Nitrotoluene	μg/L	3	--	--	0
3-Dinitrobenzene	μg/L	3	--	--	0
3-Nitrotoluene	μg/L	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	3	--	--	0
4-Nitrotoluene	μg/L	3	--	--	0
HMX	μg/L	3	--	--	0
Nitrobenzene	μg/L	3	--	--	0
RDX	μg/L	3	--	--	0
Tetryl	μg/L	3	--	--	0
PAHs					
Acenaphthene	μg/L	3	--	--	0
Acenaphthylene	μg/L	3	--	--	0
Anthracene	μg/L	3	--	--	0
Benzo(a)anthracene	μg/L	3	--	--	0
Benzo(a)pyrene	μg/L	3	--	--	0
Benzo(b)fluoranthene	μg/L	3	--	--	0
Benzo(g,h,i)perylene	μg/L	3	--	--	0
Benzo(k)fluoranthene	μg/L	3	--	--	0
Chrysene	μg/L	3	--	--	0
Dibenzo(a,h)anthracene	μg/L	3	--	--	0
Fluoranthene	μg/L	3	--	--	0
Fluorene	μg/L	3	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	3	--	--	0
Naphthalene	μg/L	3	--	--	0
Phenanthrene	μg/L	3	--	--	0
Pyrene	μg/L	3	--	--	0
PCBs					
Aroclor-1016	μg/L	3	--	--	0
Aroclor-1221	μg/L	3	--	--	0
Aroclor-1232	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-66
Exposure Unit 1
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	3	--	--	0
Aroclor-1248	μg/L	3	--	--	0
Aroclor-1254	μg/L	3	--	--	0
Aroclor-1260	μg/L	3	--	--	0
Pesticides					
4,4'-DDD	μg/L	3	--	--	0
4,4'-DDE	μg/L	3	--	--	0
4,4'-DDT	μg/L	3	--	--	0
Aldrin	μg/L	3	--	--	0
alpha-BHC	μg/L	3	--	--	0
alpha-Chlordane	μg/L	3	--	--	0
beta-BHC	μg/L	3	--	--	0
delta-BHC	μg/L	3	--	--	0
Dieldrin	μg/L	3	--	--	0
Endosulfan I	μg/L	3	--	--	0
Endosulfan II	μg/L	3	--	--	0
Endosulfan sulfate	μg/L	3	--	--	0
Endrin	μg/L	3	--	--	0
Endrin aldehyde	μg/L	3	--	--	0
Endrin ketone	μg/L	3	--	--	0
gamma-BHC (Lindane)	μg/L	3	--	--	0
gamma-Chlordane	μg/L	3	--	--	0
Heptachlor	μg/L	3	--	--	0
Heptachlor epoxide	μg/L	3	--	--	0
Methoxychlor	μg/L	3	--	--	0
Toxaphene	μg/L	3	--	--	0
Radionuclides, Total					
Alpha	pCi/L	3	4.39	6.88	3
Beta	pCi/L	3	7.66	8.31	3
Radium-226	pCi/L	3	0.422 J	0.954 J	3
Thorium-228	pCi/L	3	--	--	0
Thorium-230	pCi/L	3	--	--	0
Thorium-232	pCi/L	3	--	--	0
Total Uranium	μg/L	3	1.12 J	7.67 J	3
Uranium-234	pCi/L	3	2.7	3.15	2
Uranium-235	pCi/L	3	--	--	0
Uranium-238	pCi/L	3	2.53	2.81	2
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	3	--	--	0
1,2-Dichlorobenzene	μg/L	3	--	--	0
1,3-Dichlorobenzene	μg/L	3	--	--	0
1,4-Dichlorobenzene	μg/L	3	--	--	0
2,4,5-Trichlorophenol	μg/L	3	--	--	0
2,4,6-Trichlorophenol	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-66
Exposure Unit 1
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dichlorophenol	μg/L	3	--	--	0
2,4-Dimethylphenol	μg/L	3	--	--	0
2,4-Dinitrophenol	μg/L	3	--	--	0
2-Chloronaphthalene	μg/L	3	--	--	0
2-Chlorophenol	μg/L	3	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	3	--	--	0
2-Methylnaphthalene	μg/L	3	--	--	0
2-Nitroaniline	μg/L	3	--	--	0
2-Nitrophenol	μg/L	3	--	--	0
3,3'-Dichlorobenzidine	μg/L	3	--	--	0
3-Nitroaniline	μg/L	3	--	--	0
4-Bromophenylphenylether	μg/L	3	--	--	0
4-Chloro-3-methylphenol	μg/L	3	--	--	0
4-Chloroaniline	μg/L	3	--	--	0
4-Chlorophenylphenylether	μg/L	3	--	--	0
4-Nitroaniline	μg/L	3	--	--	0
4-Nitrophenol	μg/L	3	--	--	0
bis(2-Chloroethoxy)methane	μg/L	3	--	--	0
bis(2-Chloroethyl)ether	μg/L	3	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	3	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	3	--	--	0
Butylbenzylphthalate	μg/L	3	--	--	0
Carbazole	μg/L	3	--	--	0
Dibenzofuran	μg/L	3	--	--	0
Diethylphthalate	μg/L	3	--	--	0
Dimethylphthalate	μg/L	3	--	--	0
Di-n-butylphthalate	μg/L	3	--	--	0
Di-n-octylphthalate	μg/L	3	--	--	0
Diphenylamine	μg/L	3	--	--	0
Hexachlorobenzene	μg/L	3	--	--	0
Hexachlorobutadiene	μg/L	3	--	--	0
Hexachlorocyclopentadiene	μg/L	3	--	--	0
Hexachloroethane	μg/L	3	--	--	0
Isophorone	μg/L	3	--	--	0
m,p-Cresols	μg/L	3	--	--	0
N-Nitroso-di-n-propylamine	μg/L	3	--	--	0
o-Cresol	μg/L	3	--	--	0
Pentachlorophenol	μg/L	3	--	--	0
Phenol	μg/L	3	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	3	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	3	--	--	0
1,1,2-Trichloroethane	μg/L	3	--	--	0
1,1-Dichloroethane	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-66
Exposure Unit 1
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,1-Dichloroethene	μg/L	3	--	--	0
1,2-Dichloroethane	μg/L	3	--	--	0
1,2-Dichloropropane	μg/L	3	--	--	0
2-Butanone	μg/L	3	--	--	0
2-Hexanone	μg/L	3	--	--	0
4-Methyl-2-pentanone	μg/L	3	--	--	0
Acetone	μg/L	3	--	--	0
Benzene	μg/L	3	--	--	0
Bromodichloromethane	μg/L	3	--	--	0
Bromoform	μg/L	3	--	--	0
Bromomethane	μg/L	3	--	--	0
Carbon disulfide	μg/L	3	--	--	0
Carbon tetrachloride	μg/L	3	--	--	0
Chlorobenzene	μg/L	3	--	--	0
Chloroethane	μg/L	3	--	--	0
Chloroform	μg/L	3	--	--	0
Chloromethane	μg/L	3	--	--	0
cis-1,2-Dichloroethene	μg/L	3	--	--	0
cis-1,3-Dichloropropene	μg/L	3	--	--	0
Dibromochloromethane	μg/L	3	--	--	0
Ethylbenzene	μg/L	3	--	--	0
Methylene chloride	μg/L	3	--	--	0
Styrene	μg/L	3	--	--	0
Tetrachloroethene	μg/L	3	--	--	0
Toluene	μg/L	3	--	--	0
trans-1,2-Dichloroethene	μg/L	3	--	--	0
trans-1,3-Dichloropropene	μg/L	3	--	--	0
Trichloroethene	μg/L	3	--	--	0
Vinyl chloride	μg/L	3	--	--	0
Xylenes (total)	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-67
Exposure Unit 4
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Total					
Aluminum	μg/L	1	11100	11100	1
Antimony	μg/L	1	4.4 B	4.4 B	1
Arsenic	μg/L	1	3.9 B	3.9 B	1
Barium	μg/L	1	358	358	1
Beryllium	μg/L	1	0.53 B	0.53 B	1
Boron	μg/L	1	627	627	1
Cadmium	μg/L	1	5.1	5.1	1
Calcium	μg/L	1	157000	157000	1
Chromium	μg/L	1	19.6	19.6	1
Cobalt	μg/L	1	14.2	14.2	1
Copper	μg/L	1	118	118	1
Iron	μg/L	1	22000	22000	1
Lead	μg/L	1	151	151	1
Lithium	μg/L	1	26.8	26.8	1
Magnesium	μg/L	1	27800	27800	1
Manganese	μg/L	1	920	920	1
Mercury	μg/L	1	0.94	0.94	1
Nickel	μg/L	1	33.5	33.5	1
Potassium	μg/L	1	40000	40000	1
Selenium	μg/L	1	10.5 B	10.5 B	1
Silver	μg/L	1	0.29 B	0.29 B	1
Sodium	μg/L	1	3830	3830	1
Thallium	μg/L	1	--	--	0
Vanadium	μg/L	1	20	20	1
Zinc	μg/L	1	1200	1200	1

* Data qualifier included with concentration value

Table 4-68
Exposure Unit 5
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	7	59	233	7
Antimony, Dissolved	μg/L	6	--	--	0
Arsenic, Dissolved	μg/L	7	1.6 B	2.5 B	4
Barium, Dissolved	μg/L	7	16.5	32.7 E	7
Beryllium, Dissolved	μg/L	7	--	--	0
Boron, Dissolved	μg/L	7	6.1 B	132	7
Cadmium, Dissolved	μg/L	7	--	--	0
Calcium, Dissolved	μg/L	7	18400	51100	7
Chromium, Dissolved	μg/L	7	0.75 B	0.75 B	1
Cobalt, Dissolved	μg/L	7	0.76 B	0.76 B	1
Copper, Dissolved	μg/L	7	1.5 B	9.1	5
Iron, Dissolved	μg/L	7	61.3	255	7
Lead, Dissolved	μg/L	7	0.13 BE	0.45 B	7
Lithium, Dissolved	μg/L	7	0.65 BE	3.3	7
Magnesium, Dissolved	μg/L	7	4760	11000	7
Manganese, Dissolved	μg/L	7	5 B	46.9	7
Mercury, Dissolved	μg/L	7	--	--	0
Nickel, Dissolved	μg/L	7	1.7 B	3.4 B	4
Potassium, Dissolved	μg/L	7	2170	5560	7
Selenium, Dissolved	μg/L	7	0.44 B	1.5 B	7
Silver, Dissolved	μg/L	7	0.05 B	0.26 B	7
Sodium, Dissolved	μg/L	7	1120 E	19200 N	7
Thallium, Dissolved	μg/L	7	0.08 B	0.75	2
Vanadium, Dissolved	μg/L	7	0.69 B	1.2 B	3
Zinc, Dissolved	μg/L	7	2.8 B	7.3	7
Metals, Total					
Aluminum	μg/L	7	716	9160	7
Antimony	μg/L	7	2.8 B	3.6 B	3
Arsenic	μg/L	7	3.1 B	5.3 B	4
Barium	μg/L	7	22.5	92.7 E	7
Beryllium	μg/L	7	0.41 B	0.45 B	3
Boron	μg/L	7	20.4 B	154	7
Cadmium	μg/L	7	0.26 B	0.36 B	3
Calcium	μg/L	7	18900	64600	7
Chromium	μg/L	7	0.94 B	11.5	7
Cobalt	μg/L	7	0.73 B	4 B	4
Copper	μg/L	7	23.5	29.1	3
Iron	μg/L	7	812	11600	7
Lead	μg/L	7	0.57 BE	9.9	7
Lithium	μg/L	7	1.4 BE	15.6	7
Magnesium	μg/L	7	5090	16200	7
Manganese	μg/L	7	19.2	207	7
Mercury	μg/L	7	0.06 B	0.08 B	2

* Data qualifier included with concentration value

Table 4-68
Exposure Unit 5
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	7	11.1	13.2	3
Potassium	μg/L	7	2330	7670	7
Selenium	μg/L	7	0.5 B	1.8 B	7
Silver	μg/L	7	0.3 B	0.3 B	3
Sodium	μg/L	7	1150 E	24100 N	7
Thallium	μg/L	7	0.82	0.82	1
Vanadium	μg/L	7	1.6 B	17.1	7
Zinc	μg/L	7	18.1	58.8	5
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	3	--	--	0
2,4,6-Trinitrotoluene	μg/L	3	--	--	0
2,4-Dinitrotoluene	μg/L	8	--	--	0
2,6-Dinitrotoluene	μg/L	8	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	3	--	--	0
2-Nitrotoluene	μg/L	3	--	--	0
3-Dinitrobenzene	μg/L	3	--	--	0
3-Nitrotoluene	μg/L	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	3	--	--	0
4-Nitrotoluene	μg/L	3	--	--	0
HMX	μg/L	3	--	--	0
Nitrobenzene	μg/L	8	--	--	0
RDX	μg/L	3	--	--	0
Tetryl	μg/L	3	--	--	0
PAHs					
Acenaphthene	μg/L	8	--	--	0
Acenaphthylene	μg/L	8	--	--	0
Anthracene	μg/L	8	0.14 J	0.14 J	1
Benzo(a)anthracene	μg/L	8	0.54 J	0.54 J	1
Benzo(a)pyrene	μg/L	8	--	--	0
Benzo(b)fluoranthene	μg/L	8	--	--	0
Benzo(g,h,i)perylene	μg/L	8	--	--	0
Benzo(k)fluoranthene	μg/L	8	--	--	0
Chrysene	μg/L	8	0.51 J	0.51 J	1
Dibenzo(a,h)anthracene	μg/L	8	--	--	0
Fluoranthene	μg/L	8	--	--	0
Fluorene	μg/L	8	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	8	--	--	0
Naphthalene	μg/L	8	--	--	0
Phenanthrene	μg/L	8	--	--	0
Pyrene	μg/L	8	0.59 J	0.59 J	1
PCBs					
Aroclor-1016	μg/L	5	--	--	0
Aroclor-1221	μg/L	5	--	--	0
Aroclor-1232	μg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-68
Exposure Unit 5
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	5	--	--	0
Aroclor-1248	μg/L	5	--	--	0
Aroclor-1254	μg/L	5	--	--	0
Aroclor-1260	μg/L	5	--	--	0
Pesticides					
4,4'-DDD	μg/L	5	--	--	0
4,4'-DDE	μg/L	5	--	--	0
4,4'-DDT	μg/L	5	--	--	0
Aldrin	μg/L	5	--	--	0
alpha-BHC	μg/L	5	--	--	0
alpha-Chlordane	μg/L	5	--	--	0
beta-BHC	μg/L	5	--	--	0
delta-BHC	μg/L	5	--	--	0
Dieldrin	μg/L	5	--	--	0
Endosulfan I	μg/L	5	--	--	0
Endosulfan II	μg/L	5	--	--	0
Endosulfan sulfate	μg/L	5	--	--	0
Endrin	μg/L	5	--	--	0
Endrin aldehyde	μg/L	5	--	--	0
Endrin ketone	μg/L	5	--	--	0
gamma-BHC (Lindane)	μg/L	5	--	--	0
gamma-Chlordane	μg/L	5	--	--	0
Heptachlor	μg/L	5	--	--	0
Heptachlor epoxide	μg/L	5	--	--	0
Methoxychlor	μg/L	5	--	--	0
Toxaphene	μg/L	5	--	--	0
Radionuclides, Total					
Alpha	pCi/L	10	1.81	13.1	10
Beta	pCi/L	10	3.49	23.5	10
Radium-226	pCi/L	10	--	--	0
Thorium-228	pCi/L	10	0.3 J	0.3 J	1
Thorium-230	pCi/L	10	0.0694 J	0.176 J	4
Thorium-232	pCi/L	10	0.0835 J	0.0835 J	1
Total Uranium	μg/L	10	0.475 J	5.15 J	10
Uranium-234	pCi/L	10	0.56 J	1.48	9
Uranium-235	pCi/L	10	--	--	0
Uranium-238	pCi/L	10	0.483 J	1.93	8
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	8	--	--	0
1,2-Dichlorobenzene	μg/L	8	--	--	0
1,3-Dichlorobenzene	μg/L	8	--	--	0
1,4-Dichlorobenzene	μg/L	8	--	--	0
2,4,5-Trichlorophenol	μg/L	8	--	--	0
2,4,6-Trichlorophenol	μg/L	8	--	--	0

* Data qualifier included with concentration value

Table 4-68
Exposure Unit 5
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dichlorophenol	μg/L	8	--	--	0
2,4-Dimethylphenol	μg/L	8	--	--	0
2,4-Dinitrophenol	μg/L	8	--	--	0
2-Chloronaphthalene	μg/L	8	--	--	0
2-Chlorophenol	μg/L	8	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	8	--	--	0
2-Methylnaphthalene	μg/L	8	--	--	0
2-Nitroaniline	μg/L	8	--	--	0
2-Nitrophenol	μg/L	8	--	--	0
3,3'-Dichlorobenzidine	μg/L	8	--	--	0
3-Nitroaniline	μg/L	8	--	--	0
4-Bromophenylphenylether	μg/L	8	--	--	0
4-Chloro-3-methylphenol	μg/L	8	--	--	0
4-Chloroaniline	μg/L	8	--	--	0
4-Chlorophenylphenylether	μg/L	8	--	--	0
4-Nitroaniline	μg/L	8	--	--	0
4-Nitrophenol	μg/L	8	--	--	0
bis(2-Chloroethoxy)methane	μg/L	8	--	--	0
bis(2-Chloroethyl)ether	μg/L	8	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	8	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	8	--	--	0
Butylbenzylphthalate	μg/L	8	--	--	0
Carbazole	μg/L	8	--	--	0
Dibenzofuran	μg/L	8	--	--	0
Diethylphthalate	μg/L	8	--	--	0
Dimethylphthalate	μg/L	8	--	--	0
Di-n-butylphthalate	μg/L	8	--	--	0
Di-n-octylphthalate	μg/L	8	--	--	0
Diphenylamine	μg/L	8	--	--	0
Hexachlorobenzene	μg/L	8	--	--	0
Hexachlorobutadiene	μg/L	8	--	--	0
Hexachlorocyclopentadiene	μg/L	8	--	--	0
Hexachloroethane	μg/L	8	--	--	0
Isophorone	μg/L	8	--	--	0
m,p-Cresols	μg/L	8	--	--	0
N-Nitroso-di-n-propylamine	μg/L	8	--	--	0
o-Cresol	μg/L	8	--	--	0
Pentachlorophenol	μg/L	8	--	--	0
Phenol	μg/L	8	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	5	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	5	--	--	0
1,1,2-Trichloroethane	μg/L	5	--	--	0
1,1-Dichloroethane	μg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-68
Exposure Unit 5
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,1-Dichloroethene	μg/L	5	--	--	0
1,2-Dichloroethane	μg/L	5	--	--	0
1,2-Dichloropropane	μg/L	5	--	--	0
2-Butanone	μg/L	5	--	--	0
2-Hexanone	μg/L	5	--	--	0
4-Methyl-2-pentanone	μg/L	5	--	--	0
Acetone	μg/L	5	--	--	0
Benzene	μg/L	5	--	--	0
Bromodichloromethane	μg/L	5	--	--	0
Bromoform	μg/L	5	--	--	0
Bromomethane	μg/L	5	--	--	0
Carbon disulfide	μg/L	5	--	--	0
Carbon tetrachloride	μg/L	5	--	--	0
Chlorobenzene	μg/L	5	--	--	0
Chloroethane	μg/L	5	--	--	0
Chloroform	μg/L	5	--	--	0
Chloromethane	μg/L	5	--	--	0
cis-1,2-Dichloroethene	μg/L	5	--	--	0
cis-1,3-Dichloropropene	μg/L	5	--	--	0
Dibromochloromethane	μg/L	5	--	--	0
Ethylbenzene	μg/L	5	--	--	0
Methylene chloride	μg/L	5	--	--	0
Styrene	μg/L	5	--	--	0
Tetrachloroethene	μg/L	5	--	--	0
Toluene	μg/L	5	--	--	0
trans-1,2-Dichloroethene	μg/L	5	--	--	0
trans-1,3-Dichloropropene	μg/L	5	--	--	0
Trichloroethene	μg/L	5	--	--	0
Vinyl chloride	μg/L	5	--	--	0
Xylenes (total)	μg/L	5	0.14 J	0.14 J	1

* Data qualifier included with concentration value

Table 4-69
Exposure Unit 6
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	4	40.9 B	91.7	4
Arsenic, Dissolved	μg/L	4	--	--	0
Barium, Dissolved	μg/L	4	13.5	34.5	4
Beryllium, Dissolved	μg/L	4	--	--	0
Boron, Dissolved	μg/L	4	22.4 B	125	4
Cadmium, Dissolved	μg/L	4	--	--	0
Calcium, Dissolved	μg/L	4	19600	52900	4
Chromium, Dissolved	μg/L	4	--	--	0
Cobalt, Dissolved	μg/L	4	--	--	0
Copper, Dissolved	μg/L	4	2 B	8.8	3
Iron, Dissolved	μg/L	4	30.3 B	79	4
Lead, Dissolved	μg/L	4	0.22 BE	2.8 E	4
Lithium, Dissolved	μg/L	4	0.41 BE	2.7 E	4
Magnesium, Dissolved	μg/L	4	5520	11400	4
Manganese, Dissolved	μg/L	4	6.3 B	98.9	4
Mercury, Dissolved	μg/L	4	--	--	0
Nickel, Dissolved	μg/L	4	1.8 B	1.8 B	1
Potassium, Dissolved	μg/L	4	2300	5860	4
Selenium, Dissolved	μg/L	4	0.61 B	1.1 B	3
Silver, Dissolved	μg/L	4	0.05 B	0.11 B	4
Sodium, Dissolved	μg/L	4	1140 E	20100 E	4
Thallium, Dissolved	μg/L	4	--	--	0
Vanadium, Dissolved	μg/L	4	0.7 B	0.7 B	1
Zinc, Dissolved	μg/L	4	3.1 B	63.4	4
Metals, Total					
Aluminum	μg/L	4	531	6420	4
Antimony	μg/L	3	--	--	0
Arsenic	μg/L	4	2.1 B	3.1 B	3
Barium	μg/L	4	21.7	89.3	4
Beryllium	μg/L	3	0.25 B	0.25 B	1
Boron	μg/L	4	34.6 B	157	4
Cadmium	μg/L	3	0.31 B	0.31 B	1
Calcium	μg/L	4	20600	67100	4
Chromium	μg/L	4	0.89 B	8.9	4
Cobalt	μg/L	3	0.68 B	3.3 B	2
Copper	μg/L	4	29.5	29.5	1
Iron	μg/L	4	521	9180	4
Lead	μg/L	4	1.5 BE	9 E	4
Lithium	μg/L	4	1 BE	9.8 E	4
Magnesium	μg/L	4	6100	13500	4
Manganese	μg/L	4	18.7	253	4
Mercury	μg/L	4	0.06 B	0.07 B	3
Nickel	μg/L	4	10.8	10.8	1

* Data qualifier included with concentration value

Table 4-69
Exposure Unit 6
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Potassium	μg/L	4	2340	6980	4
Selenium	μg/L	4	0.34 B	1.3 B	4
Silver	μg/L	4	--	--	0
Sodium	μg/L	4	1260 E	21200 E	4
Thallium	μg/L	4	--	--	0
Vanadium	μg/L	4	1.1 B	12.7	4
Zinc	μg/L	4	16.4	111	4
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	4	0.34	0.34	1
2,4,6-Trinitrotoluene	μg/L	4	--	--	0
2,4-Dinitrotoluene	μg/L	4	--	--	0
2,6-Dinitrotoluene	μg/L	4	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	4	0.16	0.16	1
2-Nitrotoluene	μg/L	4	--	--	0
3-Dinitrobenzene	μg/L	4	--	--	0
3-Nitrotoluene	μg/L	4	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	4	--	--	0
4-Nitrotoluene	μg/L	4	--	--	0
HMX	μg/L	4	--	--	0
Nitrobenzene	μg/L	4	--	--	0
RDX	μg/L	4	--	--	0
Tetryl	μg/L	4	--	--	0
PAHs					
Acenaphthene	μg/L	4	--	--	0
Acenaphthylene	μg/L	4	--	--	0
Anthracene	μg/L	4	--	--	0
Benzo(a)anthracene	μg/L	4	--	--	0
Benzo(a)pyrene	μg/L	4	--	--	0
Benzo(b)fluoranthene	μg/L	4	--	--	0
Benzo(g,h,i)perylene	μg/L	4	--	--	0
Benzo(k)fluoranthene	μg/L	4	--	--	0
Chrysene	μg/L	4	--	--	0
Dibenzo(a,h)anthracene	μg/L	4	--	--	0
Fluoranthene	μg/L	4	--	--	0
Fluorene	μg/L	4	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	4	--	--	0
Naphthalene	μg/L	4	--	--	0
Phenanthrene	μg/L	4	--	--	0
Pyrene	μg/L	4	--	--	0
PCBs					
Aroclor-1016	μg/L	4	--	--	0
Aroclor-1221	μg/L	4	--	--	0
Aroclor-1232	μg/L	4	--	--	0
Aroclor-1242	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-69
Exposure Unit 6
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1248	μg/L	4	--	--	0
Aroclor-1254	μg/L	4	--	--	0
Aroclor-1260	μg/L	4	0.086 J	0.086 J	1
Pesticides					
4,4'-DDD	μg/L	4	--	--	0
4,4'-DDE	μg/L	4	--	--	0
4,4'-DDT	μg/L	4	--	--	0
Aldrin	μg/L	4	--	--	0
alpha-BHC	μg/L	4	--	--	0
alpha-Chlordane	μg/L	4	--	--	0
beta-BHC	μg/L	4	--	--	0
delta-BHC	μg/L	4	--	--	0
Dieldrin	μg/L	4	--	--	0
Endosulfan I	μg/L	4	--	--	0
Endosulfan II	μg/L	4	--	--	0
Endosulfan sulfate	μg/L	4	--	--	0
Endrin	μg/L	4	--	--	0
Endrin aldehyde	μg/L	4	--	--	0
Endrin ketone	μg/L	4	--	--	0
gamma-BHC (Lindane)	μg/L	4	--	--	0
gamma-Chlordane	μg/L	4	--	--	0
Heptachlor	μg/L	4	--	--	0
Heptachlor epoxide	μg/L	4	--	--	0
Methoxychlor	μg/L	4	--	--	0
Toxaphene	μg/L	4	--	--	0
Radionuclides, Total					
Alpha	pCi/L	4	1.89	11.6	4
Beta	pCi/L	4	3.23	18.8	4
Radium-226	pCi/L	4	1.09	1.47	2
Thorium-228	pCi/L	4	--	--	0
Thorium-230	pCi/L	4	0.106 J	0.106 J	1
Thorium-232	pCi/L	4	0.0772 J	0.0772 J	1
Total Uranium	μg/L	4	0.502 J	2.78 J	3
Uranium-234	pCi/L	4	0.288 J	0.932 J	3
Uranium-235	pCi/L	4	--	--	0
Uranium-238	pCi/L	4	0.234 J	0.947 J	3
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	4	--	--	0
1,2-Dichlorobenzene	μg/L	4	--	--	0
1,3-Dichlorobenzene	μg/L	4	--	--	0
1,4-Dichlorobenzene	μg/L	4	--	--	0
2,4,5-Trichlorophenol	μg/L	4	--	--	0
2,4,6-Trichlorophenol	μg/L	4	--	--	0
2,4-Dichlorophenol	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-69
Exposure Unit 6
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dimethylphenol	μg/L	4	--	--	0
2,4-Dinitrophenol	μg/L	4	--	--	0
2-Chloronaphthalene	μg/L	4	--	--	0
2-Chlorophenol	μg/L	4	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	4	--	--	0
2-Methylnaphthalene	μg/L	4	--	--	0
2-Nitroaniline	μg/L	4	--	--	0
2-Nitrophenol	μg/L	4	--	--	0
3,3'-Dichlorobenzidine	μg/L	4	--	--	0
3-Nitroaniline	μg/L	4	--	--	0
4-Bromophenylphenylether	μg/L	4	--	--	0
4-Chloro-3-methylphenol	μg/L	4	--	--	0
4-Chloroaniline	μg/L	4	--	--	0
4-Chlorophenylphenylether	μg/L	4	--	--	0
4-Nitroaniline	μg/L	4	--	--	0
4-Nitrophenol	μg/L	4	--	--	0
bis(2-Chloroethoxy)methane	μg/L	4	--	--	0
bis(2-Chloroethyl)ether	μg/L	4	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	4	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	4	--	--	0
Butylbenzylphthalate	μg/L	4	--	--	0
Carbazole	μg/L	4	--	--	0
Dibenzofuran	μg/L	4	--	--	0
Diethylphthalate	μg/L	4	--	--	0
Dimethylphthalate	μg/L	4	--	--	0
Di-n-butylphthalate	μg/L	4	--	--	0
Di-n-octylphthalate	μg/L	4	--	--	0
Diphenylamine	μg/L	4	--	--	0
Hexachlorobenzene	μg/L	4	--	--	0
Hexachlorobutadiene	μg/L	4	--	--	0
Hexachlorocyclopentadiene	μg/L	4	--	--	0
Hexachloroethane	μg/L	4	--	--	0
Isophorone	μg/L	4	--	--	0
m,p-Cresols	μg/L	4	--	--	0
N-Nitroso-di-n-propylamine	μg/L	4	--	--	0
o-Cresol	μg/L	4	--	--	0
Pentachlorophenol	μg/L	4	--	--	0
Phenol	μg/L	4	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	4	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	4	--	--	0
1,1,2-Trichloroethane	μg/L	4	--	--	0
1,1-Dichloroethane	μg/L	4	--	--	0
1,1-Dichloroethene	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-69
Exposure Unit 6
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,2-Dichloroethane	μg/L	4	--	--	0
1,2-Dichloropropane	μg/L	4	--	--	0
2-Butanone	μg/L	4	--	--	0
2-Hexanone	μg/L	4	--	--	0
4-Methyl-2-pentanone	μg/L	4	--	--	0
Acetone	μg/L	4	--	--	0
Benzene	μg/L	4	--	--	0
Bromodichloromethane	μg/L	4	--	--	0
Bromoform	μg/L	4	--	--	0
Bromomethane	μg/L	4	--	--	0
Carbon disulfide	μg/L	4	--	--	0
Carbon tetrachloride	μg/L	4	--	--	0
Chlorobenzene	μg/L	4	--	--	0
Chloroethane	μg/L	4	--	--	0
Chloroform	μg/L	4	--	--	0
Chloromethane	μg/L	4	--	--	0
cis-1,2-Dichloroethene	μg/L	4	--	--	0
cis-1,3-Dichloropropene	μg/L	4	--	--	0
Dibromochloromethane	μg/L	4	--	--	0
Ethylbenzene	μg/L	4	--	--	0
Methylene chloride	μg/L	4	--	--	0
Styrene	μg/L	4	--	--	0
Tetrachloroethene	μg/L	4	--	--	0
Toluene	μg/L	4	--	--	0
trans-1,2-Dichloroethene	μg/L	4	--	--	0
trans-1,3-Dichloropropene	μg/L	4	--	--	0
Trichloroethene	μg/L	4	--	--	0
Vinyl chloride	μg/L	4	--	--	0
Xylenes (total)	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-70
Exposure Unit 7
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	1	27.2 B	27.2 B	1
Antimony, Dissolved	μg/L	1	--	--	0
Arsenic, Dissolved	μg/L	1	2.3 B	2.3 B	1
Barium, Dissolved	μg/L	1	34.2 E	34.2 E	1
Beryllium, Dissolved	μg/L	1	--	--	0
Boron, Dissolved	μg/L	1	120	120	1
Cadmium, Dissolved	μg/L	1	--	--	0
Calcium, Dissolved	μg/L	1	59300	59300	1
Chromium, Dissolved	μg/L	1	--	--	0
Cobalt, Dissolved	μg/L	1	--	--	0
Copper, Dissolved	μg/L	1	3.1 B	3.1 B	1
Iron, Dissolved	μg/L	1	42.1 B	42.1 B	1
Lead, Dissolved	μg/L	1	0.24 B	0.24 B	1
Lithium, Dissolved	μg/L	1	3	3	1
Magnesium, Dissolved	μg/L	1	9570	9570	1
Manganese, Dissolved	μg/L	1	9.7 B	9.7 B	1
Mercury, Dissolved	μg/L	1	--	--	0
Nickel, Dissolved	μg/L	1	1.8 B	1.8 B	1
Potassium, Dissolved	μg/L	1	3030	3030	1
Selenium, Dissolved	μg/L	1	1.6 B	1.6 B	1
Silver, Dissolved	μg/L	1	0.23 B	0.23 B	1
Sodium, Dissolved	μg/L	1	1370 N	1370 N	1
Thallium, Dissolved	μg/L	1	0.13 B	0.13 B	1
Vanadium, Dissolved	μg/L	1	--	--	0
Zinc, Dissolved	μg/L	1	2.5 B	2.5 B	1
Metals, Total					
Aluminum	μg/L	1	933	933	1
Antimony	μg/L	1	--	--	0
Arsenic	μg/L	1	1.9 B	1.9 B	1
Barium	μg/L	1	43.1 E	43.1 E	1
Beryllium	μg/L	1	--	--	0
Boron	μg/L	1	132	132	1
Cadmium	μg/L	1	--	--	0
Calcium	μg/L	1	69600	69600	1
Chromium	μg/L	1	0.74 B	0.74 B	1
Cobalt	μg/L	1	--	--	0
Copper	μg/L	1	--	--	0
Iron	μg/L	1	933	933	1
Lead	μg/L	1	0.62 B	0.62 B	1
Lithium	μg/L	1	4.1	4.1	1
Magnesium	μg/L	1	11400	11400	1
Manganese	μg/L	1	19.1	19.1	1
Mercury	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-70
Exposure Unit 7
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	1	--	--	0
Potassium	μg/L	1	3170	3170	1
Selenium	μg/L	1	1.8 B	1.8 B	1
Silver	μg/L	1	--	--	0
Sodium	μg/L	1	1490 N	1490 N	1
Thallium	μg/L	1	--	--	0
Vanadium	μg/L	1	2 B	2 B	1
Zinc	μg/L	1	--	--	0
Radionuclides, Total					
Actinium-227	pCi/L	1	--	--	0
Alpha	pCi/L	2	3.15	15.6	2
Americium-241	pCi/L	1	--	--	0
Beta	pCi/L	2	3.95	17.5	2
Cesium-137	pCi/L	1	--	--	0
Cobalt-60	pCi/L	1	--	--	0
Protactinium-231	pCi/L	1	--	--	0
Radium-226	pCi/L	2	0.725	0.729 J	2
Radium-228	pCi/L	1	--	--	0
Thorium-228	pCi/L	2	17.7	17.7	1
Thorium-230	pCi/L	2	24	24	1
Thorium-232	pCi/L	2	12.5	12.5	1
Total Uranium	μg/L	2	2.02 J	6.78	2
Uranium-234	pCi/L	2	0.874 J	6.81	2
Uranium-235	pCi/L	2	0.397	0.397	1
Uranium-238	pCi/L	2	0.69 J	6.32	2

* Data qualifier included with concentration value

Table 4-71
Exposure Unit 8
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	3	11.2 B	58.1	3
Antimony, Dissolved	μg/L	3	--	--	0
Arsenic, Dissolved	μg/L	3	2.8 B	3.5 B	3
Barium, Dissolved	μg/L	3	42.1 E	51 E	3
Beryllium, Dissolved	μg/L	3	--	--	0
Boron, Dissolved	μg/L	3	177	389	3
Cadmium, Dissolved	μg/L	3	0.5 B	0.5 B	1
Calcium, Dissolved	μg/L	3	77700	83200	3
Chromium, Dissolved	μg/L	3	--	--	0
Cobalt, Dissolved	μg/L	3	0.85 B	0.85 B	1
Copper, Dissolved	μg/L	3	4.7 B	8.4	3
Iron, Dissolved	μg/L	3	31.3 B	356	3
Lead, Dissolved	μg/L	3	0.11 B	0.68 B	3
Lithium, Dissolved	μg/L	3	2.5	7.9	3
Magnesium, Dissolved	μg/L	3	15500	25400	3
Manganese, Dissolved	μg/L	3	29.7	398	3
Mercury, Dissolved	μg/L	3	--	--	0
Nickel, Dissolved	μg/L	3	2.8 B	4 B	3
Potassium, Dissolved	μg/L	3	4570	6330	3
Selenium, Dissolved	μg/L	3	1.2 B	1.8 B	3
Silver, Dissolved	μg/L	3	0.22 B	0.28 B	3
Sodium, Dissolved	μg/L	3	5400 N	31500 N	3
Thallium, Dissolved	μg/L	3	--	--	0
Vanadium, Dissolved	μg/L	3	0.76 B	1.4 B	2
Zinc, Dissolved	μg/L	3	32.6	292	3
Metals, Total					
Aluminum	μg/L	3	1620	4560	3
Antimony	μg/L	3	3.2 B	3.9 B	3
Arsenic	μg/L	3	1.9 B	5 B	3
Barium	μg/L	3	56.3 E	73.5 E	3
Beryllium	μg/L	3	0.18 B	0.23 B	2
Boron	μg/L	3	194	211	3
Cadmium	μg/L	3	0.34 B	0.71 B	2
Calcium	μg/L	3	71400	105000	3
Chromium	μg/L	3	1.9 B	6.8	3
Cobalt	μg/L	3	0.86 B	1.8 B	2
Copper	μg/L	3	10.1	19.9	3
Iron	μg/L	3	1820	5540	3
Lead	μg/L	3	1.1 B	4.6	3
Lithium	μg/L	3	3.7	12.4	3
Magnesium	μg/L	3	14200	32200	3
Manganese	μg/L	3	143	514	3
Mercury	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-71
Exposure Unit 8
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	3	8.7	8.7	1
Potassium	μg/L	3	5160	6400	3
Selenium	μg/L	3	1.7 B	2 B	2
Silver	μg/L	3	0.26 B	0.32 B	2
Sodium	μg/L	3	4150 N	36900 N	3
Thallium	μg/L	3	--	--	0
Vanadium	μg/L	3	2.7 B	9.4	3
Zinc	μg/L	3	99.3	218	3
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	1	--	--	0
2,4,6-Trinitrotoluene	μg/L	1	--	--	0
2,4-Dinitrotoluene	μg/L	2	--	--	0
2,6-Dinitrotoluene	μg/L	2	0.34	0.34	1
2-Amino-4,6-dinitrotoluene	μg/L	1	0.28	0.28	1
2-Nitrotoluene	μg/L	1	--	--	0
3-Dinitrobenzene	μg/L	1	--	--	0
3-Nitrotoluene	μg/L	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	1	--	--	0
4-Nitrotoluene	μg/L	1	--	--	0
HMX	μg/L	1	--	--	0
Nitrobenzene	μg/L	2	--	--	0
RDX	μg/L	1	--	--	0
Tetryl	μg/L	1	--	--	0
PAHs					
Acenaphthene	μg/L	2	--	--	0
Acenaphthylene	μg/L	2	--	--	0
Anthracene	μg/L	2	--	--	0
Benzo(a)anthracene	μg/L	2	--	--	0
Benzo(a)pyrene	μg/L	2	--	--	0
Benzo(b)fluoranthene	μg/L	2	--	--	0
Benzo(g,h,i)perylene	μg/L	2	--	--	0
Benzo(k)fluoranthene	μg/L	2	--	--	0
Chrysene	μg/L	2	--	--	0
Dibenzo(a,h)anthracene	μg/L	2	--	--	0
Fluoranthene	μg/L	2	--	--	0
Fluorene	μg/L	2	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	2	--	--	0
Naphthalene	μg/L	2	--	--	0
Phenanthrene	μg/L	2	--	--	0
Pyrene	μg/L	2	--	--	0
PCBs					
Aroclor-1016	μg/L	2	--	--	0
Aroclor-1221	μg/L	2	--	--	0
Aroclor-1232	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-71
Exposure Unit 8
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	2	--	--	0
Aroclor-1248	μg/L	2	--	--	0
Aroclor-1254	μg/L	2	--	--	0
Aroclor-1260	μg/L	2	--	--	0
Pesticides					
4,4'-DDD	μg/L	2	--	--	0
4,4'-DDE	μg/L	2	--	--	0
4,4'-DDT	μg/L	2	--	--	0
Aldrin	μg/L	2	--	--	0
alpha-BHC	μg/L	2	--	--	0
alpha-Chlordane	μg/L	2	--	--	0
beta-BHC	μg/L	2	--	--	0
delta-BHC	μg/L	2	--	--	0
Dieldrin	μg/L	2	--	--	0
Endosulfan I	μg/L	2	--	--	0
Endosulfan II	μg/L	2	--	--	0
Endosulfan sulfate	μg/L	2	--	--	0
Endrin	μg/L	2	--	--	0
Endrin aldehyde	μg/L	2	--	--	0
Endrin ketone	μg/L	2	--	--	0
gamma-BHC (Lindane)	μg/L	2	--	--	0
gamma-Chlordane	μg/L	2	--	--	0
Heptachlor	μg/L	2	--	--	0
Heptachlor epoxide	μg/L	2	--	--	0
Methoxychlor	μg/L	2	--	--	0
Toxaphene	μg/L	2	--	--	0
Radionuclides, Total					
Alpha	pCi/L	3	5	10.6	3
Beta	pCi/L	3	8.4	9.73	3
Radium-226	pCi/L	2	--	--	0
Thorium-228	pCi/L	2	--	--	0
Thorium-230	pCi/L	2	0.228 J	0.228 J	1
Thorium-232	pCi/L	2	--	--	0
Total Uranium	μg/L	2	7.74 J	12.1	2
Uranium-234	pCi/L	2	3.24	4.22	2
Uranium-235	pCi/L	2	--	--	0
Uranium-238	pCi/L	2	2.72	3.5	2
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	2	--	--	0
1,2-Dichlorobenzene	μg/L	2	--	--	0
1,3-Dichlorobenzene	μg/L	2	--	--	0
1,4-Dichlorobenzene	μg/L	2	--	--	0
2,4,5-Trichlorophenol	μg/L	2	--	--	0
2,4,6-Trichlorophenol	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-71
Exposure Unit 8
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dichlorophenol	μg/L	2	--	--	0
2,4-Dimethylphenol	μg/L	2	--	--	0
2,4-Dinitrophenol	μg/L	2	--	--	0
2-Chloronaphthalene	μg/L	2	--	--	0
2-Chlorophenol	μg/L	2	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	2	--	--	0
2-Methylnaphthalene	μg/L	2	--	--	0
2-Nitroaniline	μg/L	2	--	--	0
2-Nitrophenol	μg/L	2	--	--	0
3,3'-Dichlorobenzidine	μg/L	2	--	--	0
3-Nitroaniline	μg/L	2	--	--	0
4-Bromophenylphenylether	μg/L	2	--	--	0
4-Chloro-3-methylphenol	μg/L	2	--	--	0
4-Chloroaniline	μg/L	2	--	--	0
4-Chlorophenylphenylether	μg/L	2	--	--	0
4-Nitroaniline	μg/L	2	--	--	0
4-Nitrophenol	μg/L	2	--	--	0
bis(2-Chloroethoxy)methane	μg/L	2	--	--	0
bis(2-Chloroethyl)ether	μg/L	2	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	2	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	2	--	--	0
Butylbenzylphthalate	μg/L	2	--	--	0
Carbazole	μg/L	2	--	--	0
Dibenzofuran	μg/L	2	--	--	0
Diethylphthalate	μg/L	2	--	--	0
Dimethylphthalate	μg/L	2	--	--	0
Di-n-butylphthalate	μg/L	2	--	--	0
Di-n-octylphthalate	μg/L	2	--	--	0
Diphenylamine	μg/L	2	--	--	0
Hexachlorobenzene	μg/L	2	--	--	0
Hexachlorobutadiene	μg/L	2	--	--	0
Hexachlorocyclopentadiene	μg/L	2	--	--	0
Hexachloroethane	μg/L	2	--	--	0
Isophorone	μg/L	2	--	--	0
m,p-Cresols	μg/L	2	--	--	0
N-Nitroso-di-n-propylamine	μg/L	2	--	--	0
o-Cresol	μg/L	2	--	--	0
Pentachlorophenol	μg/L	2	--	--	0
Phenol	μg/L	2	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	1	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	1	--	--	0
1,1,2-Trichloroethane	μg/L	1	--	--	0
1,1-Dichloroethane	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-71
Exposure Unit 8
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,1-Dichloroethene	μg/L	1	--	--	0
1,2-Dichloroethane	μg/L	1	--	--	0
1,2-Dichloropropane	μg/L	1	--	--	0
2-Butanone	μg/L	1	--	--	0
2-Hexanone	μg/L	1	--	--	0
4-Methyl-2-pentanone	μg/L	1	--	--	0
Acetone	μg/L	1	--	--	0
Benzene	μg/L	1	--	--	0
Bromodichloromethane	μg/L	1	--	--	0
Bromoform	μg/L	1	--	--	0
Bromomethane	μg/L	1	--	--	0
Carbon disulfide	μg/L	1	--	--	0
Carbon tetrachloride	μg/L	1	--	--	0
Chlorobenzene	μg/L	1	--	--	0
Chloroethane	μg/L	1	--	--	0
Chloroform	μg/L	1	--	--	0
Chloromethane	μg/L	1	--	--	0
cis-1,2-Dichloroethene	μg/L	1	--	--	0
cis-1,3-Dichloropropene	μg/L	1	--	--	0
Dibromochloromethane	μg/L	1	--	--	0
Ethylbenzene	μg/L	1	--	--	0
Methylene chloride	μg/L	1	--	--	0
Styrene	μg/L	1	--	--	0
Tetrachloroethene	μg/L	1	--	--	0
Toluene	μg/L	1	--	--	0
trans-1,2-Dichloroethene	μg/L	1	--	--	0
trans-1,3-Dichloropropene	μg/L	1	--	--	0
Trichloroethene	μg/L	1	--	--	0
Vinyl chloride	μg/L	1	--	--	0
Xylenes (total)	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-72
Exposure Unit 10
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	3	10.2 B	16.2 B	2
Antimony, Dissolved	μg/L	3	--	--	0
Arsenic, Dissolved	μg/L	3	--	--	0
Barium, Dissolved	μg/L	3	51.5	56.7	3
Beryllium, Dissolved	μg/L	3	--	--	0
Boron, Dissolved	μg/L	3	8 B	29.6 B	3
Cadmium, Dissolved	μg/L	3	--	--	0
Calcium, Dissolved	μg/L	3	79000	140000	3
Chromium, Dissolved	μg/L	3	--	--	0
Cobalt, Dissolved	μg/L	3	--	--	0
Copper, Dissolved	μg/L	3	1.8 B	5.1	3
Iron, Dissolved	μg/L	3	14.6 B	31.7 B	3
Lead, Dissolved	μg/L	3	0.09 BE	1.4 BE	3
Lithium, Dissolved	μg/L	3	0.4 BE	1.7 BE	3
Magnesium, Dissolved	μg/L	3	17500	27900	3
Manganese, Dissolved	μg/L	3	2.3 B	6.9 B	3
Mercury, Dissolved	μg/L	3	--	--	0
Nickel, Dissolved	μg/L	3	1.8 B	1.8 B	1
Potassium, Dissolved	μg/L	3	648	6370	3
Selenium, Dissolved	μg/L	3	0.54 B	1.2 B	3
Silver, Dissolved	μg/L	3	0.05 B	0.1 B	3
Sodium, Dissolved	μg/L	3	4350 E	4620 E	3
Thallium, Dissolved	μg/L	3	--	--	0
Vanadium, Dissolved	μg/L	3	--	--	0
Zinc, Dissolved	μg/L	3	18.7	932	3
Metals, Total					
Aluminum	μg/L	3	264	1630	3
Antimony	μg/L	3	--	--	0
Arsenic	μg/L	3	2.6 B	2.6 B	1
Barium	μg/L	3	56.4	74.7	3
Beryllium	μg/L	3	--	--	0
Boron	μg/L	3	20.5 B	34.3 B	3
Cadmium	μg/L	3	0.26 B	0.26 B	1
Calcium	μg/L	3	79200	167000	3
Chromium	μg/L	3	0.62 B	2 B	3
Cobalt	μg/L	3	0.77 B	0.77 B	1
Copper	μg/L	3	9.4	9.4	1
Iron	μg/L	3	285	2100	3
Lead	μg/L	3	0.31 BE	6.7 E	3
Lithium	μg/L	3	0.79 BE	3.1 E	3
Magnesium	μg/L	3	17700	34100	3
Manganese	μg/L	3	10.4	83.5	3
Mercury	μg/L	3	0.05 B	0.05 B	1

* Data qualifier included with concentration value

Table 4-72
Exposure Unit 10
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	3	--	--	0
Potassium	μg/L	3	1480	6550	3
Selenium	μg/L	3	0.72 B	1.8 B	3
Silver	μg/L	3	--	--	0
Sodium	μg/L	3	4380 E	4830 E	3
Thallium	μg/L	3	--	--	0
Vanadium	μg/L	3	0.82 B	3.1 B	3
Zinc	μg/L	3	50.8	1460	3
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	3	--	--	0
2,4,6-Trinitrotoluene	μg/L	3	--	--	0
2,4-Dinitrotoluene	μg/L	3	--	--	0
2,6-Dinitrotoluene	μg/L	3	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	3	--	--	0
2-Nitrotoluene	μg/L	3	--	--	0
3-Dinitrobenzene	μg/L	3	--	--	0
3-Nitrotoluene	μg/L	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	3	--	--	0
4-Nitrotoluene	μg/L	3	--	--	0
HMX	μg/L	3	--	--	0
Nitrobenzene	μg/L	3	--	--	0
RDX	μg/L	3	--	--	0
Tetryl	μg/L	3	--	--	0
PAHs					
Acenaphthene	μg/L	3	--	--	0
Acenaphthylene	μg/L	3	--	--	0
Anthracene	μg/L	3	--	--	0
Benzo(a)anthracene	μg/L	3	--	--	0
Benzo(a)pyrene	μg/L	3	--	--	0
Benzo(b)fluoranthene	μg/L	3	--	--	0
Benzo(g,h,i)perylene	μg/L	3	--	--	0
Benzo(k)fluoranthene	μg/L	3	--	--	0
Chrysene	μg/L	3	--	--	0
Dibenzo(a,h)anthracene	μg/L	3	--	--	0
Fluoranthene	μg/L	3	--	--	0
Fluorene	μg/L	3	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	3	--	--	0
Naphthalene	μg/L	3	--	--	0
Phenanthrene	μg/L	3	--	--	0
Pyrene	μg/L	3	--	--	0
PCBs					
Aroclor-1016	μg/L	3	--	--	0
Aroclor-1221	μg/L	3	--	--	0
Aroclor-1232	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-72
Exposure Unit 10
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	3	--	--	0
Aroclor-1248	μg/L	3	--	--	0
Aroclor-1254	μg/L	3	--	--	0
Aroclor-1260	μg/L	3	--	--	0
Pesticides					
4,4'-DDD	μg/L	3	--	--	0
4,4'-DDE	μg/L	3	--	--	0
4,4'-DDT	μg/L	3	--	--	0
Aldrin	μg/L	3	--	--	0
alpha-BHC	μg/L	3	--	--	0
alpha-Chlordane	μg/L	3	--	--	0
beta-BHC	μg/L	3	--	--	0
delta-BHC	μg/L	3	--	--	0
Dieldrin	μg/L	3	--	--	0
Endosulfan I	μg/L	3	--	--	0
Endosulfan II	μg/L	3	--	--	0
Endosulfan sulfate	μg/L	3	--	--	0
Endrin	μg/L	3	--	--	0
Endrin aldehyde	μg/L	3	--	--	0
Endrin ketone	μg/L	3	--	--	0
gamma-BHC (Lindane)	μg/L	3	--	--	0
gamma-Chlordane	μg/L	3	--	--	0
Heptachlor	μg/L	3	--	--	0
Heptachlor epoxide	μg/L	3	--	--	0
Methoxychlor	μg/L	3	--	--	0
Toxaphene	μg/L	3	--	--	0
Radionuclides, Total					
Actinium-227	pCi/L	1	--	--	0
Alpha	pCi/L	4	7.76	10.3	4
Americium-241	pCi/L	1	--	--	0
Beta	pCi/L	4	5.07	12.4	4
Cesium-137	pCi/L	1	--	--	0
Cobalt-60	pCi/L	1	--	--	0
Protactinium-231	pCi/L	1	--	--	0
Radium-226	pCi/L	4	0.428 J	3.66	2
Radium-228	pCi/L	1	--	--	0
Thorium-228	pCi/L	4	0.17	0.202 J	2
Thorium-230	pCi/L	4	0.0848 J	0.255	2
Thorium-232	pCi/L	4	--	--	0
Total Uranium	μg/L	4	6.87 J	10.4	4
Uranium-234	pCi/L	4	2.19	5.29	4
Uranium-235	pCi/L	4	0.246	0.246	1
Uranium-238	pCi/L	4	2.34	4.43	4
Semivolatile Organics					

* Data qualifier included with concentration value

Table 4-72
Exposure Unit 10
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,2,4-Trichlorobenzene	µg/L	3	--	--	0
1,2-Dichlorobenzene	µg/L	3	--	--	0
1,3-Dichlorobenzene	µg/L	3	--	--	0
1,4-Dichlorobenzene	µg/L	3	--	--	0
2,4,5-Trichlorophenol	µg/L	3	--	--	0
2,4,6-Trichlorophenol	µg/L	3	--	--	0
2,4-Dichlorophenol	µg/L	3	--	--	0
2,4-Dimethylphenol	µg/L	3	--	--	0
2,4-Dinitrophenol	µg/L	3	--	--	0
2-Chloronaphthalene	µg/L	3	--	--	0
2-Chlorophenol	µg/L	3	--	--	0
2-Methyl-4,6-dinitrophenol	µg/L	3	--	--	0
2-Methylnaphthalene	µg/L	3	--	--	0
2-Nitroaniline	µg/L	3	--	--	0
2-Nitrophenol	µg/L	3	--	--	0
3,3'-Dichlorobenzidine	µg/L	3	--	--	0
3-Nitroaniline	µg/L	3	--	--	0
4-Bromophenylphenylether	µg/L	3	--	--	0
4-Chloro-3-methylphenol	µg/L	3	--	--	0
4-Chloroaniline	µg/L	3	--	--	0
4-Chlorophenylphenylether	µg/L	3	--	--	0
4-Nitroaniline	µg/L	3	--	--	0
4-Nitrophenol	µg/L	3	--	--	0
bis(2-Chloroethoxy)methane	µg/L	3	--	--	0
bis(2-Chloroethyl)ether	µg/L	3	--	--	0
bis(2-Chloroisopropyl)ether	µg/L	3	--	--	0
bis(2-Ethylhexyl)phthalate	µg/L	3	--	--	0
Butylbenzylphthalate	µg/L	3	--	--	0
Carbazole	µg/L	3	--	--	0
Dibenzofuran	µg/L	3	--	--	0
Diethylphthalate	µg/L	3	--	--	0
Dimethylphthalate	µg/L	3	--	--	0
Di-n-butylphthalate	µg/L	3	--	--	0
Di-n-octylphthalate	µg/L	3	--	--	0
Diphenylamine	µg/L	3	--	--	0
Hexachlorobenzene	µg/L	3	--	--	0
Hexachlorobutadiene	µg/L	3	--	--	0
Hexachlorocyclopentadiene	µg/L	3	--	--	0
Hexachloroethane	µg/L	3	--	--	0
Isophorone	µg/L	3	--	--	0
m,p-Cresols	µg/L	3	--	--	0
N-Nitroso-di-n-propylamine	µg/L	3	--	--	0
o-Cresol	µg/L	3	--	--	0
Pentachlorophenol	µg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-72
Exposure Unit 10
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Phenol	μg/L	3	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	3	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	3	--	--	0
1,1,2-Trichloroethane	μg/L	3	--	--	0
1,1-Dichloroethane	μg/L	3	--	--	0
1,1-Dichloroethene	μg/L	3	--	--	0
1,2-Dichloroethane	μg/L	3	--	--	0
1,2-Dichloropropane	μg/L	3	--	--	0
2-Butanone	μg/L	3	--	--	0
2-Hexanone	μg/L	3	--	--	0
4-Methyl-2-pentanone	μg/L	3	--	--	0
Acetone	μg/L	3	--	--	0
Benzene	μg/L	3	--	--	0
Bromodichloromethane	μg/L	3	--	--	0
Bromoform	μg/L	3	--	--	0
Bromomethane	μg/L	3	--	--	0
Carbon disulfide	μg/L	3	--	--	0
Carbon tetrachloride	μg/L	3	--	--	0
Chlorobenzene	μg/L	3	--	--	0
Chloroethane	μg/L	3	--	--	0
Chloroform	μg/L	3	--	--	0
Chloromethane	μg/L	3	--	--	0
cis-1,2-Dichloroethene	μg/L	3	--	--	0
cis-1,3-Dichloropropene	μg/L	3	--	--	0
Dibromochloromethane	μg/L	3	--	--	0
Ethylbenzene	μg/L	3	--	--	0
Methylene chloride	μg/L	3	--	--	0
Styrene	μg/L	3	--	--	0
Tetrachloroethene	μg/L	3	--	--	0
Toluene	μg/L	3	--	--	0
trans-1,2-Dichloroethene	μg/L	3	--	--	0
trans-1,3-Dichloropropene	μg/L	3	--	--	0
Trichloroethene	μg/L	3	--	--	0
Vinyl chloride	μg/L	3	--	--	0
Xylenes (total)	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-73
Exposure Unit 11
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	1	35.8 B	35.8 B	1
Antimony, Dissolved	μg/L	1	--	--	0
Arsenic, Dissolved	μg/L	1	0.19 B	0.19 B	1
Barium, Dissolved	μg/L	1	38.6 E	38.6 E	1
Beryllium, Dissolved	μg/L	1	--	--	0
Boron, Dissolved	μg/L	1	43.6 B	43.6 B	1
Cadmium, Dissolved	μg/L	1	--	--	0
Calcium, Dissolved	μg/L	1	61900	61900	1
Chromium, Dissolved	μg/L	1	21.4	21.4	1
Cobalt, Dissolved	μg/L	1	--	--	0
Copper, Dissolved	μg/L	1	2.1 B	2.1 B	1
Iron, Dissolved	μg/L	1	51.5	51.5	1
Lead, Dissolved	μg/L	1	0.03 B	0.03 B	1
Lithium, Dissolved	μg/L	1	0.16 B	0.16 B	1
Magnesium, Dissolved	μg/L	1	14500	14500	1
Manganese, Dissolved	μg/L	1	41.3	41.3	1
Mercury, Dissolved	μg/L	1	--	--	0
Nickel, Dissolved	μg/L	1	1.8 B	1.8 B	1
Potassium, Dissolved	μg/L	1	3920	3920	1
Selenium, Dissolved	μg/L	1	0.6 B	0.6 B	1
Silver, Dissolved	μg/L	1	0.21 B	0.21 B	1
Sodium, Dissolved	μg/L	1	9210 N	9210 N	1
Thallium, Dissolved	μg/L	1	0.05 B	0.05 B	1
Vanadium, Dissolved	μg/L	1	--	--	0
Zinc, Dissolved	μg/L	1	4.9 B	4.9 B	1
Metals, Total					
Aluminum	μg/L	1	1250	1250	1
Antimony	μg/L	1	--	--	0
Arsenic	μg/L	1	3 B	3 B	1
Barium	μg/L	1	48.3 E	48.3 E	1
Beryllium	μg/L	1	--	--	0
Boron	μg/L	1	56	56	1
Cadmium	μg/L	1	--	--	0
Calcium	μg/L	1	113000	113000	1
Chromium	μg/L	1	58.8	58.8	1
Cobalt	μg/L	1	--	--	0
Copper	μg/L	1	--	--	0
Iron	μg/L	1	1180	1180	1
Lead	μg/L	1	0.45 B	0.45 B	1
Lithium	μg/L	1	9	9	1
Magnesium	μg/L	1	30900	30900	1
Manganese	μg/L	1	105	105	1
Mercury	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-73
Exposure Unit 11
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	1	--	--	0
Potassium	μg/L	1	3080	3080	1
Selenium	μg/L	1	1.8 B	1.8 B	1
Silver	μg/L	1	--	--	0
Sodium	μg/L	1	15900 N	15900 N	1
Thallium	μg/L	1	--	--	0
Vanadium	μg/L	1	3.4 B	3.4 B	1
Zinc	μg/L	1	--	--	0
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	1	--	--	0
2,4,6-Trinitrotoluene	μg/L	1	--	--	0
2,4-Dinitrotoluene	μg/L	1	--	--	0
2,6-Dinitrotoluene	μg/L	1	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	1	--	--	0
2-Nitrotoluene	μg/L	1	--	--	0
3-Dinitrobenzene	μg/L	1	--	--	0
3-Nitrotoluene	μg/L	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	1	--	--	0
4-Nitrotoluene	μg/L	1	--	--	0
HMX	μg/L	1	--	--	0
RDX	μg/L	1	--	--	0
Tetryl	μg/L	1	--	--	0
PAHs					
Acenaphthene	μg/L	1	--	--	0
Acenaphthylene	μg/L	1	--	--	0
Anthracene	μg/L	1	--	--	0
Benzo(a)anthracene	μg/L	1	--	--	0
Benzo(a)pyrene	μg/L	1	--	--	0
Benzo(b)fluoranthene	μg/L	1	--	--	0
Benzo(g,h,i)perylene	μg/L	1	--	--	0
Benzo(k)fluoranthene	μg/L	1	--	--	0
Chrysene	μg/L	1	--	--	0
Dibenzo(a,h)anthracene	μg/L	1	--	--	0
Fluoranthene	μg/L	1	--	--	0
Fluorene	μg/L	1	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	1	--	--	0
Naphthalene	μg/L	1	--	--	0
Phenanthrene	μg/L	1	--	--	0
Pyrene	μg/L	1	--	--	0
PCBs					
Aroclor-1016	μg/L	1	--	--	0
Aroclor-1221	μg/L	1	--	--	0
Aroclor-1232	μg/L	1	--	--	0
Aroclor-1242	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-73
Exposure Unit 11
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1248	μg/L	1	--	--	0
Aroclor-1254	μg/L	1	--	--	0
Aroclor-1260	μg/L	1	--	--	0
Pesticides					
4,4'-DDD	μg/L	1	--	--	0
4,4'-DDE	μg/L	1	--	--	0
4,4'-DDT	μg/L	1	--	--	0
Aldrin	μg/L	1	--	--	0
alpha-BHC	μg/L	1	--	--	0
alpha-Chlordane	μg/L	1	--	--	0
beta-BHC	μg/L	1	--	--	0
delta-BHC	μg/L	1	--	--	0
Dieldrin	μg/L	1	--	--	0
Endosulfan I	μg/L	1	--	--	0
Endosulfan II	μg/L	1	--	--	0
Endosulfan sulfate	μg/L	1	--	--	0
Endrin	μg/L	1	--	--	0
Endrin aldehyde	μg/L	1	--	--	0
Endrin ketone	μg/L	1	--	--	0
gamma-BHC (Lindane)	μg/L	1	--	--	0
gamma-Chlordane	μg/L	1	--	--	0
Heptachlor	μg/L	1	--	--	0
Heptachlor epoxide	μg/L	1	--	--	0
Methoxychlor	μg/L	1	--	--	0
Toxaphene	μg/L	1	--	--	0
Radionuclides, Total					
Alpha	pCi/L	1	13.3	13.3	1
Beta	pCi/L	1	9.04	9.04	1
Radium-226	pCi/L	1	--	--	0
Thorium-228	pCi/L	1	--	--	0
Thorium-230	pCi/L	1	--	--	0
Thorium-232	pCi/L	1	--	--	0
Total Uranium	μg/L	1	14.5	14.5	1
Uranium-234	pCi/L	1	1.94	1.94	1
Uranium-235	pCi/L	1	--	--	0
Uranium-238	pCi/L	1	1.95	1.95	1
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	1	--	--	0
1,2-Dichlorobenzene	μg/L	1	--	--	0
1,3-Dichlorobenzene	μg/L	1	--	--	0
1,4-Dichlorobenzene	μg/L	1	--	--	0
2,4,5-Trichlorophenol	μg/L	1	--	--	0
2,4,6-Trichlorophenol	μg/L	1	--	--	0
2,4-Dichlorophenol	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-73
Exposure Unit 11
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dimethylphenol	μg/L	1	--	--	0
2,4-Dinitrophenol	μg/L	1	--	--	0
2-Chloronaphthalene	μg/L	1	--	--	0
2-Chlorophenol	μg/L	1	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	1	--	--	0
2-Methylnaphthalene	μg/L	1	--	--	0
2-Nitroaniline	μg/L	1	--	--	0
2-Nitrophenol	μg/L	1	--	--	0
3,3'-Dichlorobenzidine	μg/L	1	--	--	0
3-Nitroaniline	μg/L	1	--	--	0
4-Bromophenylphenylether	μg/L	1	--	--	0
4-Chloro-3-methylphenol	μg/L	1	--	--	0
4-Chloroaniline	μg/L	1	--	--	0
4-Chlorophenylphenylether	μg/L	1	--	--	0
4-Nitroaniline	μg/L	1	--	--	0
4-Nitrophenol	μg/L	1	--	--	0
bis(2-Chloroethoxy)methane	μg/L	1	--	--	0
bis(2-Chloroethyl)ether	μg/L	1	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	1	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	1	--	--	0
Butylbenzylphthalate	μg/L	1	--	--	0
Carbazole	μg/L	1	--	--	0
Dibenzofuran	μg/L	1	--	--	0
Diethylphthalate	μg/L	1	--	--	0
Dimethylphthalate	μg/L	1	--	--	0
Di-n-butylphthalate	μg/L	1	--	--	0
Di-n-octylphthalate	μg/L	1	--	--	0
Diphenylamine	μg/L	1	--	--	0
Hexachlorobenzene	μg/L	1	--	--	0
Hexachlorobutadiene	μg/L	1	--	--	0
Hexachlorocyclopentadiene	μg/L	1	--	--	0
Hexachloroethane	μg/L	1	--	--	0
Isophorone	μg/L	1	--	--	0
m,p-Cresols	μg/L	1	--	--	0
N-Nitroso-di-n-propylamine	μg/L	1	--	--	0
o-Cresol	μg/L	1	--	--	0
Pentachlorophenol	μg/L	1	--	--	0
Phenol	μg/L	1	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	1	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	1	--	--	0
1,1,2-Trichloroethane	μg/L	1	--	--	0
1,1-Dichloroethane	μg/L	1	--	--	0
1,1-Dichloroethene	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-73
Exposure Unit 11
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,2-Dichloroethane	μg/L	1	--	--	0
1,2-Dichloropropane	μg/L	1	--	--	0
2-Butanone	μg/L	1	--	--	0
2-Hexanone	μg/L	1	--	--	0
4-Methyl-2-pentanone	μg/L	1	--	--	0
Acetone	μg/L	1	--	--	0
Benzene	μg/L	1	--	--	0
Bromodichloromethane	μg/L	1	--	--	0
Bromoform	μg/L	1	--	--	0
Bromomethane	μg/L	1	--	--	0
Carbon disulfide	μg/L	1	--	--	0
Carbon tetrachloride	μg/L	1	--	--	0
Chlorobenzene	μg/L	1	--	--	0
Chloroethane	μg/L	1	--	--	0
Chloroform	μg/L	1	--	--	0
Chloromethane	μg/L	1	--	--	0
cis-1,2-Dichloroethene	μg/L	1	--	--	0
cis-1,3-Dichloropropene	μg/L	1	--	--	0
Dibromochloromethane	μg/L	1	--	--	0
Ethylbenzene	μg/L	1	--	--	0
Methylene chloride	μg/L	1	--	--	0
Styrene	μg/L	1	--	--	0
Tetrachloroethene	μg/L	1	--	--	0
Toluene	μg/L	1	--	--	0
trans-1,2-Dichloroethene	μg/L	1	--	--	0
trans-1,3-Dichloropropene	μg/L	1	--	--	0
Trichloroethene	μg/L	1	--	--	0
Vinyl chloride	μg/L	1	--	--	0
Xylenes (total)	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-74
Exposure Unit 12
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nitroaromatics					
2,4-Dinitrotoluene	μg/L	1	--	--	0
2,6-Dinitrotoluene	μg/L	1	--	--	0
Nitrobenzene	μg/L	1	--	--	0
PAHs					
Acenaphthene	μg/L	1	--	--	0
Acenaphthylene	μg/L	1	--	--	0
Anthracene	μg/L	1	--	--	0
Benzo(a)anthracene	μg/L	1	--	--	0
Benzo(a)pyrene	μg/L	1	--	--	0
Benzo(b)fluoranthene	μg/L	1	--	--	0
Benzo(g,h,i)perylene	μg/L	1	--	--	0
Benzo(k)fluoranthene	μg/L	1	--	--	0
Chrysene	μg/L	1	--	--	0
Dibenzo(a,h)anthracene	μg/L	1	--	--	0
Fluoranthene	μg/L	1	--	--	0
Fluorene	μg/L	1	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	1	--	--	0
Naphthalene	μg/L	1	--	--	0
Phenanthrene	μg/L	1	--	--	0
Pyrene	μg/L	1	--	--	0
Radionuclides, Total					
Alpha	pCi/L	1	1.41 J	1.41 J	1
Beta	pCi/L	1	9.36	9.36	1
Radium-226	pCi/L	1	0.4 J	0.4 J	1
Thorium-228	pCi/L	1	0.216 J	0.216 J	1
Thorium-230	pCi/L	1	--	--	0
Thorium-232	pCi/L	1	--	--	0
Total Uranium	μg/L	1	0.815 J	0.815 J	1
Uranium-234	pCi/L	1	0.42 J	0.42 J	1
Uranium-235	pCi/L	1	--	--	0
Uranium-238	pCi/L	1	0.387 J	0.387 J	1
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	1	--	--	0
1,2-Dichlorobenzene	μg/L	1	--	--	0
1,3-Dichlorobenzene	μg/L	1	--	--	0
1,4-Dichlorobenzene	μg/L	1	--	--	0
2,4,5-Trichlorophenol	μg/L	1	--	--	0
2,4,6-Trichlorophenol	μg/L	1	--	--	0
2,4-Dichlorophenol	μg/L	1	--	--	0
2,4-Dimethylphenol	μg/L	1	--	--	0
2,4-Dinitrophenol	μg/L	1	--	--	0
2-Chloronaphthalene	μg/L	1	--	--	0
2-Chlorophenol	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-74
Exposure Unit 12
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2-Methyl-4,6-dinitrophenol	μg/L	1	--	--	0
2-Methylnaphthalene	μg/L	1	--	--	0
2-Nitroaniline	μg/L	1	--	--	0
2-Nitrophenol	μg/L	1	--	--	0
3,3'-Dichlorobenzidine	μg/L	1	--	--	0
3-Nitroaniline	μg/L	1	--	--	0
4-Bromophenylphenylether	μg/L	1	--	--	0
4-Chloro-3-methylphenol	μg/L	1	--	--	0
4-Chloroaniline	μg/L	1	--	--	0
4-Chlorophenylphenylether	μg/L	1	--	--	0
4-Nitroaniline	μg/L	1	--	--	0
4-Nitrophenol	μg/L	1	--	--	0
bis(2-Chloroethoxy)methane	μg/L	1	--	--	0
bis(2-Chloroethyl)ether	μg/L	1	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	1	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	1	--	--	0
Butylbenzylphthalate	μg/L	1	--	--	0
Carbazole	μg/L	1	--	--	0
Dibenzofuran	μg/L	1	--	--	0
Diethylphthalate	μg/L	1	--	--	0
Dimethylphthalate	μg/L	1	--	--	0
Di-n-butylphthalate	μg/L	1	--	--	0
Di-n-octylphthalate	μg/L	1	--	--	0
Diphenylamine	μg/L	1	--	--	0
Hexachlorobenzene	μg/L	1	--	--	0
Hexachlorobutadiene	μg/L	1	--	--	0
Hexachlorocyclopentadiene	μg/L	1	--	--	0
Hexachloroethane	μg/L	1	--	--	0
Isophorone	μg/L	1	--	--	0
m,p-Cresols	μg/L	1	--	--	0
N-Nitroso-di-n-propylamine	μg/L	1	--	--	0
o-Cresol	μg/L	1	1.7 J	1.7 J	1
Pentachlorophenol	μg/L	1	--	--	0
Phenol	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-75
Exposure Unit 15
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	13	7.2 B	219	11
Antimony, Dissolved	μg/L	10	2.8 B	2.8 B	2
Arsenic, Dissolved	μg/L	12	0.65 B	3.5 B	8
Barium, Dissolved	μg/L	13	24.7 E	88.9 E	13
Beryllium, Dissolved	μg/L	12	--	--	0
Boron, Dissolved	μg/L	12	77.5	628	12
Cadmium, Dissolved	μg/L	13	--	--	0
Calcium, Dissolved	μg/L	13	58800	98900	13
Chromium, Dissolved	μg/L	13	0.67 B	14.7	7
Cobalt, Dissolved	μg/L	12	0.81 B	0.81 B	1
Copper, Dissolved	μg/L	12	1.7 B	6.3	11
Iron, Dissolved	μg/L	13	13.5 B	1020	13
Lead, Dissolved	μg/L	13	0.08 B	0.63 B	13
Lithium, Dissolved	μg/L	12	1.8 B	28.1	12
Magnesium, Dissolved	μg/L	13	14400	28300	13
Manganese, Dissolved	μg/L	13	11	315	13
Mercury, Dissolved	μg/L	12	0.06 B	0.06 B	1
Nickel, Dissolved	μg/L	12	1.3 B	6.1	8
Potassium, Dissolved	μg/L	13	2610	11100	13
Selenium, Dissolved	μg/L	12	0.74 B	3.2 B	12
Silver, Dissolved	μg/L	12	0.06 B	0.27 B	12
Sodium, Dissolved	μg/L	13	11800 E	45500 N	13
Thallium, Dissolved	μg/L	12	0.03 B	0.26 B	3
Vanadium, Dissolved	μg/L	13	0.63 B	1 B	9
Zinc, Dissolved	μg/L	13	1.2 B	63.8	13
Metals, Total					
Aluminum	μg/L	12	345	21000	12
Antimony	μg/L	12	2.8 B	5.5 B	3
Arsenic	μg/L	12	2.1 B	8.3	12
Barium	μg/L	12	48.4 E	233 E	12
Beryllium	μg/L	12	0.37 B	0.95 B	8
Boron	μg/L	16	81.2	1150	16
Cadmium	μg/L	13	0.37 B	0.54 B	2
Calcium	μg/L	12	76600	157000	12
Chromium	μg/L	12	1.1 B	43	11
Cobalt	μg/L	12	3.9 B	10.7	8
Copper	μg/L	12	11.3	132	9
Iron	μg/L	12	404	29300	12
Lead	μg/L	13	0.68 B	88.9	13
Lithium	μg/L	15	6.3	155	15
Magnesium	μg/L	12	16400	50300	12
Manganese	μg/L	12	14.8	1040	12
Mercury	μg/L	13	0.05 B	0.09 B	5

* Data qualifier included with concentration value

Table 4-75
Exposure Unit 15
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	13	12.1	29.9	9
Potassium	μg/L	12	2630	11900	12
Selenium	μg/L	12	1.1 B	3.1 B	12
Silver	μg/L	12	0.25 B	0.53 B	5
Sodium	μg/L	12	14500 N	50100 N	12
Thallium	μg/L	12	--	--	0
Vanadium	μg/L	12	2.1 B	38.4	12
Zinc	μg/L	13	38.5	765	10
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	7	--	--	0
2,4,6-Trinitrotoluene	μg/L	8	--	--	0
2,4-Dinitrotoluene	μg/L	13	--	--	0
2,6-Dinitrotoluene	μg/L	13	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	8	--	--	0
2-Nitrotoluene	μg/L	8	--	--	0
3-Dinitrobenzene	μg/L	8	--	--	0
3-Nitrotoluene	μg/L	8	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	7	--	--	0
4-Nitrotoluene	μg/L	8	--	--	0
HMX	μg/L	7	--	--	0
Nitrobenzene	μg/L	12	--	--	0
RDX	μg/L	7	--	--	0
Tetryl	μg/L	7	--	--	0
PAHs					
Acenaphthene	μg/L	10	--	--	0
Acenaphthylene	μg/L	10	--	--	0
Anthracene	μg/L	10	--	--	0
Benzo(a)anthracene	μg/L	10	--	--	0
Benzo(a)pyrene	μg/L	10	--	--	0
Benzo(b)fluoranthene	μg/L	10	--	--	0
Benzo(g,h,i)perylene	μg/L	10	--	--	0
Benzo(k)fluoranthene	μg/L	10	--	--	0
Chrysene	μg/L	10	--	--	0
Dibenzo(a,h)anthracene	μg/L	10	--	--	0
Fluoranthene	μg/L	10	--	--	0
Fluorene	μg/L	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	10	--	--	0
Naphthalene	μg/L	10	--	--	0
Phenanthrene	μg/L	10	--	--	0
Pyrene	μg/L	10	--	--	0
PCBs					
Aroclor-1016	μg/L	9	--	--	0
Aroclor-1221	μg/L	9	--	--	0
Aroclor-1232	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-75
Exposure Unit 15
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	8	--	--	0
Aroclor-1248	μg/L	8	--	--	0
Aroclor-1254	μg/L	8	--	--	0
Aroclor-1260	μg/L	8	--	--	0
Pesticides					
4,4'-DDD	μg/L	8	--	--	0
4,4'-DDE	μg/L	8	--	--	0
4,4'-DDT	μg/L	8	--	--	0
Aldrin	μg/L	8	--	--	0
alpha-BHC	μg/L	8	--	--	0
alpha-Chlordane	μg/L	8	--	--	0
beta-BHC	μg/L	8	--	--	0
delta-BHC	μg/L	8	--	--	0
Dieldrin	μg/L	9	--	--	0
Endosulfan I	μg/L	9	--	--	0
Endosulfan II	μg/L	9	--	--	0
Endosulfan sulfate	μg/L	9	--	--	0
Endrin	μg/L	9	--	--	0
Endrin aldehyde	μg/L	9	--	--	0
Endrin ketone	μg/L	9	--	--	0
gamma-BHC (Lindane)	μg/L	8	--	--	0
gamma-Chlordane	μg/L	8	--	--	0
Heptachlor	μg/L	8	--	--	0
Heptachlor epoxide	μg/L	8	--	--	0
Methoxychlor	μg/L	8	--	--	0
Toxaphene	μg/L	8	--	--	0
Radionuclides, Total					
Alpha	pCi/L	13	2.26	39.9	13
Beta	pCi/L	13	4.46	65.1	13
Radium-226	pCi/L	13	0.231 J	0.805 J	4
Thorium-228	pCi/L	13	0.198 J	0.347 J	7
Thorium-230	pCi/L	13	0.104 J	0.268 J	5
Thorium-232	pCi/L	13	0.0726 J	0.132 J	5
Total Uranium	μg/L	13	2.88 J	10.6	13
Uranium-234	pCi/L	13	0.669 J	3.98	13
Uranium-235	pCi/L	13	--	--	0
Uranium-238	pCi/L	13	0.76 J	3.12	13
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	10	--	--	0
1,2-Dichlorobenzene	μg/L	10	--	--	0
1,3-Dichlorobenzene	μg/L	10	--	--	0
1,4-Dichlorobenzene	μg/L	10	--	--	0
2,4,5-Trichlorophenol	μg/L	10	--	--	0
2,4,6-Trichlorophenol	μg/L	10	--	--	0

* Data qualifier included with concentration value

Table 4-75
Exposure Unit 15
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dichlorophenol	μg/L	10	--	--	0
2,4-Dimethylphenol	μg/L	10	--	--	0
2,4-Dinitrophenol	μg/L	10	--	--	0
2-Chloronaphthalene	μg/L	10	--	--	0
2-Chlorophenol	μg/L	10	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	10	--	--	0
2-Methylnaphthalene	μg/L	10	--	--	0
2-Nitroaniline	μg/L	10	--	--	0
2-Nitrophenol	μg/L	10	--	--	0
3,3'-Dichlorobenzidine	μg/L	10	--	--	0
3-Nitroaniline	μg/L	10	--	--	0
4-Bromophenylphenylether	μg/L	10	--	--	0
4-Chloro-3-methylphenol	μg/L	10	--	--	0
4-Chloroaniline	μg/L	10	--	--	0
4-Chlorophenylphenylether	μg/L	10	--	--	0
4-Nitroaniline	μg/L	10	--	--	0
4-Nitrophenol	μg/L	10	--	--	0
bis(2-Chloroethoxy)methane	μg/L	10	--	--	0
bis(2-Chloroethyl)ether	μg/L	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	10	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	10	--	--	0
Butylbenzylphthalate	μg/L	10	--	--	0
Carbazole	μg/L	10	--	--	0
Dibenzofuran	μg/L	10	--	--	0
Diethylphthalate	μg/L	10	--	--	0
Dimethylphthalate	μg/L	10	--	--	0
Di-n-butylphthalate	μg/L	10	--	--	0
Di-n-octylphthalate	μg/L	10	--	--	0
Diphenylamine	μg/L	10	--	--	0
Hexachlorobenzene	μg/L	10	--	--	0
Hexachlorobutadiene	μg/L	10	--	--	0
Hexachlorocyclopentadiene	μg/L	10	--	--	0
Hexachloroethane	μg/L	10	--	--	0
Isophorone	μg/L	10	--	--	0
m,p-Cresols	μg/L	10	--	--	0
N-Nitroso-di-n-propylamine	μg/L	10	--	--	0
o-Cresol	μg/L	10	--	--	0
Pentachlorophenol	μg/L	10	--	--	0
Phenol	μg/L	10	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	7	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	7	--	--	0
1,1,2-Trichloroethane	μg/L	7	--	--	0
1,1-Dichloroethane	μg/L	8	--	--	0

* Data qualifier included with concentration value

Table 4-75
Exposure Unit 15
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,1-Dichloroethene	μg/L	8	--	--	0
1,2-Dichloroethane	μg/L	8	--	--	0
1,2-Dichloropropane	μg/L	8	--	--	0
2-Butanone	μg/L	7	--	--	0
2-Hexanone	μg/L	7	--	--	0
4-Methyl-2-pentanone	μg/L	7	16.6	16.6	1
Acetone	μg/L	7	--	--	0
Benzene	μg/L	8	2.5	2.5	1
Bromodichloromethane	μg/L	8	--	--	0
Bromoform	μg/L	8	--	--	0
Bromomethane	μg/L	8	--	--	0
Carbon disulfide	μg/L	7	--	--	0
Carbon tetrachloride	μg/L	7	--	--	0
Chlorobenzene	μg/L	7	--	--	0
Chloroethane	μg/L	7	--	--	0
Chloroform	μg/L	7	--	--	0
Chloromethane	μg/L	7	--	--	0
cis-1,2-Dichloroethene	μg/L	8	--	--	0
cis-1,3-Dichloropropene	μg/L	8	--	--	0
Dibromochloromethane	μg/L	8	--	--	0
Ethylbenzene	μg/L	7	--	--	0
Methylene chloride	μg/L	7	--	--	0
Styrene	μg/L	7	--	--	0
Tetrachloroethene	μg/L	7	0.25 J	0.51 J	2
Toluene	μg/L	7	--	--	0
trans-1,2-Dichloroethene	μg/L	7	--	--	0
trans-1,3-Dichloropropene	μg/L	7	--	--	0
Trichloroethene	μg/L	7	--	--	0
Vinyl chloride	μg/L	7	--	--	0
Xylenes (total)	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	35	7.2 B	233	32
Antimony, Dissolved	μg/L	26	2.8 B	2.8 B	2
Arsenic, Dissolved	μg/L	34	0.19 B	3.5 B	18
Barium, Dissolved	μg/L	35	13.5	88.9 E	35
Beryllium, Dissolved	μg/L	34	--	--	0
Boron, Dissolved	μg/L	34	6.1 B	628	34
Cadmium, Dissolved	μg/L	35	0.26 B	0.5 B	2
Calcium, Dissolved	μg/L	35	18400	140000	35
Chromium, Dissolved	μg/L	35	0.67 B	21.4	9
Cobalt, Dissolved	μg/L	34	0.76 B	0.85 B	3
Copper, Dissolved	μg/L	34	1.4 B	9.1	30
Iron, Dissolved	μg/L	35	13.5 B	1020	35
Lead, Dissolved	μg/L	35	0.03 B	2.8 E	34
Lithium, Dissolved	μg/L	34	0.16 B	28.1	34
Magnesium, Dissolved	μg/L	35	4760	28300	35
Manganese, Dissolved	μg/L	35	2.3 B	398	35
Mercury, Dissolved	μg/L	34	0.06 B	0.06 B	1
Nickel, Dissolved	μg/L	34	1.3 B	6.1	20
Potassium, Dissolved	μg/L	35	648	11100	35
Selenium, Dissolved	μg/L	34	0.39 B	3.2 B	33
Silver, Dissolved	μg/L	34	0.05 B	0.28 B	34
Sodium, Dissolved	μg/L	35	1120 E	45500 N	35
Thallium, Dissolved	μg/L	34	0.03 B	0.75	8
Vanadium, Dissolved	μg/L	35	0.63 B	1.4 B	15
Zinc, Dissolved	μg/L	35	1.2 B	932	35
Metals, Total					
Aluminum	μg/L	35	264	21000	35
Antimony	μg/L	34	2.8 B	5.5 B	10
Arsenic	μg/L	35	1.9 B	8.3	26
Barium	μg/L	35	21.7	358	35
Beryllium	μg/L	34	0.18 B	0.95 B	15
Boron	μg/L	39	20.4 B	1150	39
Cadmium	μg/L	35	0.26 B	5.1	10
Calcium	μg/L	35	18900	167000	35
Chromium	μg/L	35	0.62 B	58.8	34
Cobalt	μg/L	34	0.68 B	14.2	19
Copper	μg/L	35	9.4	132	18
Iron	μg/L	35	285	29300	35
Lead	μg/L	36	0.07 BE	151	35
Lithium	μg/L	38	0.79 BE	155	38
Magnesium	μg/L	35	5090	50300	35
Manganese	μg/L	35	10.4	1040	35
Mercury	μg/L	36	0.05 B	0.94	13

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	36	8.7	33.5	15
Potassium	μg/L	35	1480	40000	35
Selenium	μg/L	35	0.34 B	10.5 B	33
Silver	μg/L	35	0.25 B	0.53 B	11
Sodium	μg/L	35	1150 E	50100 N	35
Thallium	μg/L	35	0.76	0.82	2
Vanadium	μg/L	35	0.82 B	38.4	35
Zinc	μg/L	36	16.4	1460	27
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	22	0.34	0.34	1
2,4,6-Trinitrotoluene	μg/L	23	--	--	0
2,4-Dinitrotoluene	μg/L	35	--	--	0
2,6-Dinitrotoluene	μg/L	35	0.34	0.34	1
2-Amino-4,6-dinitrotoluene	μg/L	23	0.16	0.28	2
2-Nitrotoluene	μg/L	23	--	--	0
3-Dinitrobenzene	μg/L	23	--	--	0
3-Nitrotoluene	μg/L	23	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	22	--	--	0
4-Nitrotoluene	μg/L	23	--	--	0
HMX	μg/L	22	--	--	0
Nitrobenzene	μg/L	33	--	--	0
RDX	μg/L	22	--	--	0
Tetryl	μg/L	22	--	--	0
PAHs					
Acenaphthene	μg/L	32	--	--	0
Acenaphthylene	μg/L	32	--	--	0
Anthracene	μg/L	32	0.14 J	0.14 J	1
Benzo(a)anthracene	μg/L	32	0.54 J	0.54 J	1
Benzo(a)pyrene	μg/L	32	--	--	0
Benzo(b)fluoranthene	μg/L	32	--	--	0
Benzo(g,h,i)perylene	μg/L	32	--	--	0
Benzo(k)fluoranthene	μg/L	32	--	--	0
Chrysene	μg/L	32	0.51 J	0.51 J	1
Dibenzo(a,h)anthracene	μg/L	32	--	--	0
Fluoranthene	μg/L	32	--	--	0
Fluorene	μg/L	32	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	32	--	--	0
Naphthalene	μg/L	32	--	--	0
Phenanthrene	μg/L	32	--	--	0
Pyrene	μg/L	32	0.59 J	0.59 J	1
PCBs					
Aroclor-1016	μg/L	27	--	--	0
Aroclor-1221	μg/L	27	--	--	0
Aroclor-1232	μg/L	27	--	--	0

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	26	--	--	0
Aroclor-1248	μg/L	26	--	--	0
Aroclor-1254	μg/L	26	--	--	0
Aroclor-1260	μg/L	26	0.086 J	0.086 J	1
Pesticides					
4,4'-DDD	μg/L	26	--	--	0
4,4'-DDE	μg/L	26	--	--	0
4,4'-DDT	μg/L	26	--	--	0
Aldrin	μg/L	26	--	--	0
alpha-BHC	μg/L	26	--	--	0
alpha-Chlordane	μg/L	26	--	--	0
beta-BHC	μg/L	26	--	--	0
delta-BHC	μg/L	26	--	--	0
Dieldrin	μg/L	27	--	--	0
Endosulfan I	μg/L	27	--	--	0
Endosulfan II	μg/L	27	--	--	0
Endosulfan sulfate	μg/L	27	--	--	0
Endrin	μg/L	27	--	--	0
Endrin aldehyde	μg/L	27	--	--	0
Endrin ketone	μg/L	27	--	--	0
gamma-BHC (Lindane)	μg/L	26	--	--	0
gamma-Chlordane	μg/L	26	--	--	0
Heptachlor	μg/L	26	--	--	0
Heptachlor epoxide	μg/L	26	--	--	0
Methoxychlor	μg/L	26	--	--	0
Toxaphene	μg/L	26	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	10	--	--	0
Americium-241, Dissolved	pCi/L	10	16.9	16.9	1
Cesium-137, Dissolved	pCi/L	10	--	--	0
Cobalt-60, Dissolved	pCi/L	10	--	--	0
Protactinium-231, Dissolved	pCi/L	10	--	--	0
Radium-226, Dissolved	pCi/L	10	0.404	0.752	6
Radium-228, Dissolved	pCi/L	10	--	--	0
Thorium-228, Dissolved	pCi/L	10	0.441	0.441	1
Thorium-230, Dissolved	pCi/L	10	0.063 J	0.263	6
Thorium-232, Dissolved	pCi/L	10	--	--	0
Uranium-234, Dissolved	pCi/L	10	4.77	19 J	10
Uranium-235, Dissolved	pCi/L	10	0.409	0.978 J	6
Uranium-238, Dissolved	pCi/L	10	4.96	18.2 J	10
Radionuclides, Total					
Actinium-227	pCi/L	12	--	--	0
Alpha	pCi/L	51	1.41 J	53.7 J	51
Americium-241	pCi/L	12	--	--	0

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Beta	pCi/L	51	3.23	65.1	51
Cesium-137	pCi/L	12	--	--	0
Cobalt-60	pCi/L	12	--	--	0
Protactinium-231	pCi/L	12	--	--	0
Radium-226	pCi/L	50	0.231 J	3.66	23
Radium-228	pCi/L	12	--	--	0
Thorium-228	pCi/L	50	0.0823	17.7	16
Thorium-230	pCi/L	50	0.0694 J	24	19
Thorium-232	pCi/L	50	0.0726 J	12.5	11
Total Uranium	μg/L	50	0.475 J	48.3	49
Uranium-234	pCi/L	50	0.288 J	17.7 J	47
Uranium-235	pCi/L	50	0.202	0.964	10
Uranium-238	pCi/L	50	0.234 J	16.5 J	46
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	32	--	--	0
1,2-Dichlorobenzene	μg/L	32	--	--	0
1,3-Dichlorobenzene	μg/L	32	--	--	0
1,4-Dichlorobenzene	μg/L	32	--	--	0
2,4,5-Trichlorophenol	μg/L	32	--	--	0
2,4,6-Trichlorophenol	μg/L	32	--	--	0
2,4-Dichlorophenol	μg/L	32	--	--	0
2,4-Dimethylphenol	μg/L	32	--	--	0
2,4-Dinitrophenol	μg/L	32	--	--	0
2-Chloronaphthalene	μg/L	32	--	--	0
2-Chlorophenol	μg/L	32	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	32	--	--	0
2-Methylnaphthalene	μg/L	32	--	--	0
2-Nitroaniline	μg/L	32	--	--	0
2-Nitrophenol	μg/L	32	--	--	0
3,3'-Dichlorobenzidine	μg/L	32	--	--	0
3-Nitroaniline	μg/L	32	--	--	0
4-Bromophenylphenylether	μg/L	32	--	--	0
4-Chloro-3-methylphenol	μg/L	32	--	--	0
4-Chloroaniline	μg/L	32	--	--	0
4-Chlorophenylphenylether	μg/L	32	--	--	0
4-Nitroaniline	μg/L	32	--	--	0
4-Nitrophenol	μg/L	32	--	--	0
bis(2-Chloroethoxy)methane	μg/L	32	--	--	0
bis(2-Chloroethyl)ether	μg/L	32	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	32	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	32	--	--	0
Butylbenzylphthalate	μg/L	32	--	--	0
Carbazole	μg/L	32	--	--	0
Dibenzofuran	μg/L	32	--	--	0

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Diethylphthalate	μg/L	32	--	--	0
Dimethylphthalate	μg/L	32	--	--	0
Di-n-butylphthalate	μg/L	32	--	--	0
Di-n-octylphthalate	μg/L	32	--	--	0
Diphenylamine	μg/L	32	--	--	0
Hexachlorobenzene	μg/L	32	--	--	0
Hexachlorobutadiene	μg/L	32	--	--	0
Hexachlorocyclopentadiene	μg/L	32	--	--	0
Hexachloroethane	μg/L	32	--	--	0
Isophorone	μg/L	32	--	--	0
m,p-Cresols	μg/L	32	--	--	0
N-Nitroso-di-n-propylamine	μg/L	32	--	--	0
o-Cresol	μg/L	32	1.7 J	1.7 J	1
Pentachlorophenol	μg/L	32	--	--	0
Phenol	μg/L	32	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	24	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	24	--	--	0
1,1,2-Trichloroethane	μg/L	24	--	--	0
1,1-Dichloroethane	μg/L	25	--	--	0
1,1-Dichloroethene	μg/L	25	--	--	0
1,2-Dichloroethane	μg/L	25	--	--	0
1,2-Dichloropropane	μg/L	25	--	--	0
2-Butanone	μg/L	24	--	--	0
2-Hexanone	μg/L	24	--	--	0
4-Methyl-2-pentanone	μg/L	24	16.6	16.6	1
Acetone	μg/L	24	--	--	0
Benzene	μg/L	25	2.5	2.5	1
Bromodichloromethane	μg/L	25	--	--	0
Bromoform	μg/L	25	--	--	0
Bromomethane	μg/L	25	--	--	0
Carbon disulfide	μg/L	24	--	--	0
Carbon tetrachloride	μg/L	24	--	--	0
Chlorobenzene	μg/L	24	--	--	0
Chloroethane	μg/L	24	--	--	0
Chloroform	μg/L	24	--	--	0
Chloromethane	μg/L	24	--	--	0
cis-1,2-Dichloroethene	μg/L	25	--	--	0
cis-1,3-Dichloropropene	μg/L	25	--	--	0
Dibromochloromethane	μg/L	25	--	--	0
Ethylbenzene	μg/L	24	--	--	0
Methylene chloride	μg/L	24	--	--	0
Styrene	μg/L	24	--	--	0
Tetrachloroethene	μg/L	24	0.25 J	0.51 J	2

* Data qualifier included with concentration value

Table 4-76
Exposure Unit 17
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Toluene	µg/L	24	--	--	0
trans-1,2-Dichloroethene	µg/L	24	--	--	0
trans-1,3-Dichloropropene	µg/L	24	--	--	0
Trichloroethene	µg/L	24	--	--	0
Vinyl chloride	µg/L	24	--	--	0
Xylenes (total)	µg/L	24	0.14 J	0.14 J	1

* Data qualifier included with concentration value

Table 4-77
Exposure Unit 1
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	SW712-318	42.5 BN
			SW713-323	34.8 BN
			SW714-325	86.6
Nickel, Dissolved	$\mu\text{g/L}$	1.81	SW713-323	1.9 B
Silver, Dissolved	$\mu\text{g/L}$	0.011	SW712-318	0.1 B
			SW713-323	0.1 B
			SW714-325	0.06 B
Thallium, Dissolved	$\mu\text{g/L}$	0.24	SW714-325	0.45 B
Metals, Total				
Cobalt	$\mu\text{g/L}$	1.08	SW714-325	1.2 B
Mercury	$\mu\text{g/L}$	--	SW714-325	0.06 B
Thallium	$\mu\text{g/L}$	0.026	SW714-325	0.76
Radionuclides, Total				
Radium-226	pCi/L	0.487	SW712-318	0.935 J
			SW714-325	0.954 J

* Data qualifier included with concentration value

Table 4-78
Exposure Unit 4
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Total				
Aluminum	μg/L	5030	SW740-390	11100
Antimony	μg/L	2.33	SW740-390	4.4 B
Barium	μg/L	117	SW740-390	358
Beryllium	μg/L	0.253	SW740-390	0.53 B
Boron	μg/L	244	SW740-390	627
Cadmium	μg/L	--	SW740-390	5.1
Calcium	μg/L	141000	SW740-390	157000
Chromium	μg/L	7.52	SW740-390	19.6
Cobalt	μg/L	1.08	SW740-390	14.2
Copper	μg/L	15	SW740-390	118
Iron	μg/L	4740	SW740-390	22000
Lead	μg/L	11.1	SW740-390	151
Lithium	μg/L	13.2	SW740-390	26.8
Mercury	μg/L	--	SW740-390	0.94
Nickel	μg/L	7.74	SW740-390	33.5
Potassium	μg/L	9540	SW740-390	40000
Selenium	μg/L	4.24	SW740-390	10.5 B
Silver	μg/L	0.03	SW740-390	0.29 B
Vanadium	μg/L	8.52	SW740-390	20
Zinc	μg/L	70.5	SW740-390	1200

* Data qualifier included with concentration value

Table 4-79
Exposure Unit 5
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	SW726-354	233
			SW728-358	134
			SW729-363	59
			SW735-376	88.8
			SW736-378	140
			SW738-382	119
			SW739-384	134
Copper, Dissolved	$\mu\text{g/L}$	8.39	SW728-358	9.1
			SW729-363	8.7
Nickel, Dissolved	$\mu\text{g/L}$	1.81	SW726-354	2.7 B
			SW728-358	2.5 B
			SW729-363	3.4 B
Silver, Dissolved	$\mu\text{g/L}$	0.011	SW726-354	0.26 B
			SW728-358	0.23 B
			SW729-363	0.23 B
			SW735-376	0.05 B
			SW736-378	0.23 B
			SW738-382	0.05 B
			SW739-384	0.05 B
Thallium, Dissolved	$\mu\text{g/L}$	0.24	SW726-354	0.75
Metals, Total				
Aluminum	$\mu\text{g/L}$	5030	SW726-354	7710
			SW728-358	8150
			SW729-363	9160
Antimony	$\mu\text{g/L}$	2.33	SW726-354	3.3 B
			SW728-358	2.8 B
			SW736-378	3.6 B
Beryllium	$\mu\text{g/L}$	0.253	SW726-354	0.41 B
			SW728-358	0.41 B
			SW729-363	0.45 B
Cadmium	$\mu\text{g/L}$	--	SW726-354	0.36 B
			SW735-376	0.36 B
			SW736-378	0.26 B
Chromium	$\mu\text{g/L}$	7.52	SW726-354	9.8
			SW728-358	10.4
			SW729-363	11.5
Cobalt	$\mu\text{g/L}$	1.08	SW726-354	3.3 B
			SW728-358	3.5 B
			SW729-363	4 B
Copper	$\mu\text{g/L}$	15	SW726-354	23.5
			SW728-358	29.1
			SW729-363	28.2

* Data qualifier included with concentration value

Table 4-79
Exposure Unit 5
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Iron	μg/L	4740	SW726-354	8890
			SW728-358	9860
			SW729-363	11600
Lithium	μg/L	13.2	SW726-354	13.3
			SW728-358	13.7
			SW729-363	15.6
Mercury	μg/L	--	SW735-376	0.06 B
			SW739-384	0.08 B
Nickel	μg/L	7.74	SW726-354	11.1
			SW728-358	11.4
			SW729-363	13.2
Silver	μg/L	0.03	SW726-354	0.3 B
			SW728-358	0.3 B
			SW729-363	0.3 B
Thallium	μg/L	0.026	SW726-354	0.82
Vanadium	μg/L	8.52	SW726-354	14.5
			SW728-358	15.2
			SW729-363	17.1
PAHs				
Anthracene	μg/L	--	SW730-365	0.14 J
Benzo(a)anthracene	μg/L	0.108	SW730-365	0.54 J
Chrysene	μg/L	0.151	SW730-365	0.51 J
Pyrene	μg/L	0.302	SW730-365	0.59 J
Radionuclides, Total				
Alpha	pCi/L	12.2	SW728-358	13.1
Beta	pCi/L	12.3	SW726-354	16.6
			SW727-356	19
			SW728-358	23.5
			SW729-363	16.4
			SW730-365	14
Thorium-232	pCi/L	--	SW730-365	0.0835 J
Volatile Organics				
Xylenes (total)	μg/L	--	SW737-380	0.14 J

* Data qualifier included with concentration value

Table 4-80
Exposure Unit 6
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	SW731-367	91.7
			SW732-369	40.9 B
			SW733-371	73.6
			SW734-374	84.9
Copper, Dissolved	$\mu\text{g/L}$	8.39	SW731-367	8.8
Lead, Dissolved	$\mu\text{g/L}$	0.919	SW733-371	2.5 E
			SW734-374	2.8 E
Silver, Dissolved	$\mu\text{g/L}$	0.011	SW731-367	0.11 B
			SW732-369	0.05 B
			SW733-371	0.05 B
			SW734-374	0.07 B
Zinc, Dissolved	$\mu\text{g/L}$	54.5	SW734-374	63.4
Metals, Total				
Aluminum	$\mu\text{g/L}$	5030	SW731-367	6420
Cadmium	$\mu\text{g/L}$	--	SW734-374	0.31 B
Chromium	$\mu\text{g/L}$	7.52	SW731-367	8.9
Cobalt	$\mu\text{g/L}$	1.08	SW731-367	3.3 B
Copper	$\mu\text{g/L}$	15	SW731-367	29.5
Iron	$\mu\text{g/L}$	4740	SW731-367	9180
Mercury	$\mu\text{g/L}$	--	SW732-369	0.06 B
			SW733-371	0.07 B
			SW734-374	0.06 B
Nickel	$\mu\text{g/L}$	7.74	SW731-367	10.8
Vanadium	$\mu\text{g/L}$	8.52	SW731-367	12.7
Zinc	$\mu\text{g/L}$	70.5	SW734-374	111
Nitroaromatics				
1,3,5-Trinitrobenzene	$\mu\text{g/L}$	0.0249	SW733-371	0.34
2-Amino-4,6-dinitrotoluene	$\mu\text{g/L}$	0.0779	SW734-374	0.16
PCBs				
Aroclor-1260	$\mu\text{g/L}$	--	SW732-369	0.086 J
Radionuclides, Total				
Beta	pCi/L	12.3	SW731-367	18.8
Radium-226	pCi/L	0.487	SW733-371	1.47
			SW734-374	1.09
Thorium-232	pCi/L	--	SW731-367	0.0772 J

* Data qualifier included with concentration value

Table 4-81
Exposure Unit 7
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Silver, Dissolved	μg/L	0.011	SW711-316	0.23 B
Radionuclides, Total				
Alpha	pCi/L	12.2	SW744-681	15.6
Beta	pCi/L	12.3	SW744-681	17.5
Radium-226	pCi/L	0.487	SW711-316	0.729 J
			SW744-681	0.725
Thorium-228	pCi/L	0.41	SW744-681	17.7
Thorium-230	pCi/L	0.606	SW744-681	24
Thorium-232	pCi/L	--	SW744-681	12.5
Uranium-234	pCi/L	5.78	SW744-681	6.81
Uranium-238	pCi/L	4.81	SW744-681	6.32

* Data qualifier included with concentration value

Table 4-82
Exposure Unit 8
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	31.2	SW723-348	58.1
Boron, Dissolved	μg/L	239	SW723-348	389
Copper, Dissolved	μg/L	8.39	SW725-352	8.4
Nickel, Dissolved	μg/L	1.81	SW723-348	2.8 B
			SW724-350	3 B
			SW725-352	4 B
Silver, Dissolved	μg/L	0.011	SW723-348	0.22 B
			SW724-350	0.24 B
			SW725-352	0.28 B
Vanadium, Dissolved	μg/L	1.26	SW725-352	1.4 B
Zinc, Dissolved	μg/L	54.5	SW723-348	292
Metals, Total				
Antimony	μg/L	2.33	SW723-348	3.7 B
			SW724-350	3.2 B
			SW725-352	3.9 B
Cadmium	μg/L	--	SW723-348	0.71 B
			SW724-350	0.34 B
Cobalt	μg/L	1.08	SW725-352	1.8 B
Copper	μg/L	15	SW725-352	19.9
Iron	μg/L	4740	SW725-352	5540
Magnesium	μg/L	30200	SW724-350	32200
Nickel	μg/L	7.74	SW725-352	8.7
Silver	μg/L	0.03	SW724-350	0.26 B
			SW725-352	0.32 B
Vanadium	μg/L	8.52	SW725-352	9.4
Zinc	μg/L	70.5	SW723-348	218
			SW724-350	99.3
			SW725-352	108
Nitroaromatics				
2,6-Dinitrotoluene	μg/L	0.0501	SW723-348	0.34
2-Amino-4,6-dinitrotoluene	μg/L	0.0779	SW723-348	0.28

* Data qualifier included with concentration value

Table 4-83
Exposure Unit 10
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Lead, Dissolved	μg/L	0.919	SW701-292	1.4 BE
Silver, Dissolved	μg/L	0.011	SW701-292	0.1 B
			SW702-294	0.06 B
			SW703-296	0.05 B
Zinc, Dissolved	μg/L	54.5	SW701-292	932
			SW703-296	114
Metals, Total				
Cadmium	μg/L	--	SW701-292	0.26 B
Calcium	μg/L	141000	SW701-292	167000
Magnesium	μg/L	30200	SW701-292	34100
Mercury	μg/L	--	SW701-292	0.05 B
Zinc	μg/L	70.5	SW701-292	1460
			SW703-296	121
Radionuclides, Total				
Beta	pCi/L	12.3	SW741-678	12.4
Radium-226	pCi/L	0.487	SW701-292	3.66

* Data qualifier included with concentration value

Table 4-84
Exposure Unit 11
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	31.2	SW704-301	35.8 B
Chromium, Dissolved	μg/L	6.69	SW704-301	21.4
Silver, Dissolved	μg/L	0.011	SW704-301	0.21 B
Metals, Total				
Chromium	μg/L	7.52	SW704-301	58.8
Magnesium	μg/L	30200	SW704-301	30900
Radionuclides, Total				
Alpha	pCi/L	12.2	SW704-301	13.3
Total Uranium	μg/L	12.5	SW704-301	14.5

* Data qualifier included with concentration value

Table 4-85
Exposure Unit 12
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Semivolatile Organics				
o-Cresol	µg/L	--	SW719-339	1.7 J

* Data qualifier included with concentration value

Table 4-86
Exposure Unit 15
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	SW705-303	77.7
			SW706-305	105
			SW708-309	89.8
			SW709-312	107
			SW710-314	97.6
			SW715-327	36.9 B
			SW716-329	31.9 B
			SW718-334	219
Antimony, Dissolved	$\mu\text{g/L}$	0.648	SW716-329	2.8 B
			SW717-332	2.8 B
Boron, Dissolved	$\mu\text{g/L}$	239	SW716-329	628
Chromium, Dissolved	$\mu\text{g/L}$	6.69	SW705-303	7.8
			SW706-305	7
			SW707-307	14.5
			SW709-312	14.7
			SW710-314	9.7
Lithium, Dissolved	$\mu\text{g/L}$	13.4	SW716-329	15.4
			SW717-332	28.1
Mercury, Dissolved	$\mu\text{g/L}$	--	SW710-314	0.06 B
Nickel, Dissolved	$\mu\text{g/L}$	1.81	SW705-303	2.2 B
			SW716-329	2.3 B
			SW717-332	6.1
			SW720-342	2.3 B
Potassium, Dissolved	$\mu\text{g/L}$	7700	SW717-332	11100
Selenium, Dissolved	$\mu\text{g/L}$	2.41	SW717-332	3.2 B
Silver, Dissolved	$\mu\text{g/L}$	0.011	SW705-303	0.23 B
			SW706-305	0.09 B
			SW707-307	0.08 B
			SW708-309	0.06 B
			SW709-312	0.26 B
			SW710-314	0.1 B
			SW715-327	0.23 B
			SW716-329	0.27 B
			SW717-332	0.22 B
			SW720-342	0.22 B
			SW721-344	0.21 B
			SW722-346	0.23 B
Thallium, Dissolved	$\mu\text{g/L}$	0.24	SW705-303	0.26 B
Zinc, Dissolved	$\mu\text{g/L}$	54.5	SW717-332	63.8
Metals, Total				

* Data qualifier included with concentration value

Table 4-86
Exposure Unit 15
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	$\mu\text{g/L}$	5030	SW705-303	21000
			SW706-305	10800
			SW707-307	11800
			SW708-309	10700
			SW709-312	10000
			SW710-314	8420
			SW716-329	9110
			SW717-332	14100
Antimony	$\mu\text{g/L}$	2.33	SW709-312	3.6 B
			SW717-332	5.5 B
			SW721-344	2.8 B
Arsenic	$\mu\text{g/L}$	6.33	SW705-303	7
			SW717-332	8.3
Barium	$\mu\text{g/L}$	117	SW705-303	162 E
			SW717-332	233 E
			SW722-346	119 E
Beryllium	$\mu\text{g/L}$	0.253	SW705-303	0.95 B
			SW706-305	0.62 B
			SW707-307	0.57 B
			SW708-309	0.47 B
			SW709-312	0.47 B
			SW710-314	0.37 B
			SW716-329	0.38 B
			SW717-332	0.6 B
Boron	$\mu\text{g/L}$	244	C9-4-SW-1	484
			C9-4-SW-2	814
			C9-4-SW-3	1150
			SW707-307	351
			SW716-329	587
Cadmium	$\mu\text{g/L}$	--	SW715-327	0.37 B
			SW717-332	0.54 B
Calcium	$\mu\text{g/L}$	141000	SW717-332	157000
Chromium	$\mu\text{g/L}$	7.52	SW705-303	43
			SW706-305	22
			SW707-307	24.3
			SW708-309	21.2
			SW709-312	28.7
			SW710-314	22.3
			SW716-329	11.6
			SW717-332	26

* Data qualifier included with concentration value

Table 4-86
Exposure Unit 15
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	1.08	SW705-303	10.7
			SW706-305	6
			SW707-307	6.7
			SW708-309	5.8
			SW709-312	4.8 B
			SW710-314	4.8 B
			SW716-329	3.9 B
			SW717-332	10
Copper	$\mu\text{g/L}$	15	SW705-303	54.7
			SW706-305	22.7
			SW707-307	27.7
			SW708-309	22.7
			SW709-312	21.5
			SW710-314	19.3
			SW716-329	21.8
			SW717-332	132
Iron	$\mu\text{g/L}$	4740	SW705-303	29300
			SW706-305	14300
			SW707-307	16300
			SW708-309	14200
			SW709-312	12900
			SW710-314	11200
			SW716-329	11700
			SW717-332	25600
Lead	$\mu\text{g/L}$	11.1	SW705-303	37.2
			SW706-305	11.5 E
			SW707-307	16.5 E
			SW708-309	11.7 E
			SW716-329	12.7
			SW717-332	88.9
			SW718-334	11.2 E
Lithium	$\mu\text{g/L}$	13.2	C9-4-SW-1	32.3
			C9-4-SW-2	88.9
			C9-4-SW-3	155
			SW705-303	41.7
			SW706-305	18.8 E
			SW707-307	20.7 E
			SW708-309	18.1 E
			SW709-312	23
			SW710-314	16.1 E
			SW716-329	23.8
			SW717-332	40.1

* Data qualifier included with concentration value

Table 4-86
Exposure Unit 15
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Magnesium	$\mu\text{g/L}$	30200	SW715-327	35100
			SW716-329	32900
			SW717-332	50300
Mercury	$\mu\text{g/L}$	--	SW706-305	0.05 B
			SW707-307	0.06 B
			SW708-309	0.05 B
			SW710-314	0.08 B
			SW718-334	0.09 B
Nickel	$\mu\text{g/L}$	7.74	SW705-303	29.9
			SW706-305	15.5
			SW707-307	17.7
			SW708-309	16.1
			SW709-312	13.5
			SW710-314	12.6
			SW716-329	12.1
			SW717-332	27.9
Potassium	$\mu\text{g/L}$	9540	SW717-332	11900
Silver	$\mu\text{g/L}$	0.03	SW705-303	0.37 B
			SW709-312	0.26 B
			SW716-329	0.28 B
			SW717-332	0.53 B
			SW721-344	0.25 B
Vanadium	$\mu\text{g/L}$	8.52	SW705-303	38.4
			SW706-305	20.2
			SW707-307	22
			SW708-309	20
			SW709-312	18.4
			SW710-314	16.1
			SW716-329	16.8
Zinc	$\mu\text{g/L}$	70.5	SW717-332	27.2
			SW705-303	197
			SW707-307	93.9
			SW716-329	110
Radionuclides, Total	pCi/L	12.2	SW717-332	765
			SW718-334	72
Alpha	pCi/L	12.2	SW705-303	13.2
			SW706-305	14.7
			SW707-307	17.5
			SW708-309	16.1
			SW710-314	14.8
			SW716-329	39.9
			SW718-334	12.7

* Data qualifier included with concentration value

Table 4-86
Exposure Unit 15
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/L	12.3	SW705-303	28.8
			SW706-305	21.3
			SW707-307	19.4
			SW708-309	20.9
			SW709-312	17.3
			SW710-314	17.8
			SW716-329	65.1
			SW717-332	15.4
			SW718-334	19.4
Radium-226	pCi/L	0.487	SW705-303	0.579 J
			SW707-307	0.805 J
Thorium-232	pCi/L	--	SW705-303	0.0726 J
			SW707-307	0.132 J
			SW708-309	0.0742 J
			SW709-312	0.102 J
			SW716-329	0.112 J
Volatile Organics				
4-Methyl-2-pentanone	μg/L	--	SW717-332	16.6
Benzene	μg/L	--	SW717-332	2.5

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	SW704-301	35.8 B
			SW705-303	77.7
			SW706-305	105
			SW708-309	89.8
			SW709-312	107
			SW710-314	97.6
			SW712-318	42.5 BN
			SW713-323	34.8 BN
			SW714-325	86.6
			SW715-327	36.9 B
			SW716-329	31.9 B
			SW718-334	219
			SW723-348	58.1
			SW726-354	233
			SW728-358	134
			SW729-363	59
			SW731-367	91.7
			SW732-369	40.9 B
			SW733-371	73.6
			SW734-374	84.9
Antimony, Dissolved	$\mu\text{g/L}$	0.648	SW716-329	2.8 B
			SW717-332	2.8 B
Boron, Dissolved	$\mu\text{g/L}$	239	SW716-329	628
			SW723-348	389
Chromium, Dissolved	$\mu\text{g/L}$	6.69	SW704-301	21.4
			SW705-303	7.8
			SW706-305	7
			SW707-307	14.5
			SW709-312	14.7
			SW710-314	9.7
Lead, Dissolved	$\mu\text{g/L}$	0.919	SW701-292	1.4 BE
			SW733-371	2.5 E
			SW734-374	2.8 E
Lithium, Dissolved	$\mu\text{g/L}$	13.4	SW716-329	15.4
			SW717-332	28.1

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel, Dissolved	$\mu\text{g/L}$	1.81	SW705-303	2.2 B
			SW713-323	1.9 B
			SW716-329	2.3 B
			SW717-332	6.1
			SW720-342	2.3 B
			SW723-348	2.8 B
			SW724-350	3 B
			SW725-352	4 B
			SW726-354	2.7 B
			SW728-358	2.5 B
			SW729-363	3.4 B
Potassium, Dissolved	$\mu\text{g/L}$	7700	SW717-332	11100
Selenium, Dissolved	$\mu\text{g/L}$	2.41	SW717-332	3.2 B

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver, Dissolved	μg/L	0.011	SW701-292	0.1 B
			SW702-294	0.06 B
			SW703-296	0.05 B
			SW704-301	0.21 B
			SW705-303	0.23 B
			SW706-305	0.09 B
			SW707-307	0.08 B
			SW708-309	0.06 B
			SW709-312	0.26 B
			SW710-314	0.1 B
			SW711-316	0.23 B
			SW712-318	0.1 B
			SW713-323	0.1 B
			SW714-325	0.06 B
			SW715-327	0.23 B
			SW716-329	0.27 B
			SW717-332	0.22 B
			SW720-342	0.22 B
			SW721-344	0.21 B
			SW722-346	0.23 B
			SW723-348	0.22 B
			SW724-350	0.24 B
			SW725-352	0.28 B
			SW726-354	0.26 B
			SW728-358	0.23 B
			SW729-363	0.23 B
			SW731-367	0.11 B
			SW732-369	0.05 B
			SW733-371	0.05 B
			SW734-374	0.07 B
			SW735-376	0.05 B
			SW736-378	0.23 B
			SW738-382	0.05 B
			SW739-384	0.05 B
Thallium, Dissolved	μg/L	0.24	SW705-303	0.26 B
			SW714-325	0.45 B
			SW726-354	0.75
Vanadium, Dissolved	μg/L	1.26	SW725-352	1.4 B
Zinc, Dissolved	μg/L	54.5	SW701-292	932
			SW703-296	114
			SW717-332	63.8
			SW723-348	292
			SW734-374	63.4
Metals, Total				

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	$\mu\text{g/L}$	5030	SW705-303	21000
			SW706-305	10800
			SW707-307	11800
			SW708-309	10700
			SW709-312	10000
			SW710-314	8420
			SW716-329	9110
			SW717-332	14100
			SW726-354	7710
			SW728-358	8150
			SW729-363	9160
			SW731-367	6420
			SW740-390	11100
Antimony	$\mu\text{g/L}$	2.33	SW709-312	3.6 B
			SW717-332	5.5 B
			SW721-344	2.8 B
			SW723-348	3.7 B
			SW724-350	3.2 B
			SW725-352	3.9 B
			SW726-354	3.3 B
			SW728-358	2.8 B
			SW736-378	3.6 B
			SW740-390	4.4 B
Arsenic	$\mu\text{g/L}$	6.33	SW705-303	7
			SW717-332	8.3
Barium	$\mu\text{g/L}$	117	SW705-303	162 E
			SW717-332	233 E
			SW722-346	119 E
			SW740-390	358
Beryllium	$\mu\text{g/L}$	0.253	SW705-303	0.95 B
			SW706-305	0.62 B
			SW707-307	0.57 B
			SW708-309	0.47 B
			SW709-312	0.47 B
			SW710-314	0.37 B
			SW716-329	0.38 B
			SW717-332	0.6 B
			SW726-354	0.41 B
			SW728-358	0.41 B
			SW729-363	0.45 B
			SW740-390	0.53 B

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	$\mu\text{g/L}$	244	C9-4-SW-1	484
			C9-4-SW-2	814
			C9-4-SW-3	1150
			SW707-307	351
			SW716-329	587
			SW740-390	627
Cadmium	$\mu\text{g/L}$	--	SW701-292	0.26 B
			SW715-327	0.37 B
			SW717-332	0.54 B
			SW723-348	0.71 B
			SW724-350	0.34 B
			SW726-354	0.36 B
			SW734-374	0.31 B
			SW735-376	0.36 B
			SW736-378	0.26 B
Calcium	$\mu\text{g/L}$	141000	SW740-390	5.1
			SW701-292	167000
			SW717-332	157000
Chromium	$\mu\text{g/L}$	7.52	SW740-390	157000
			SW704-301	58.8
			SW705-303	43
			SW706-305	22
			SW707-307	24.3
			SW708-309	21.2
			SW709-312	28.7
			SW710-314	22.3
			SW716-329	11.6
			SW717-332	26
			SW726-354	9.8
			SW728-358	10.4
			SW729-363	11.5
			SW731-367	8.9
			SW740-390	19.6

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	1.08	SW705-303	10.7
			SW706-305	6
			SW707-307	6.7
			SW708-309	5.8
			SW709-312	4.8 B
			SW710-314	4.8 B
			SW714-325	1.2 B
			SW716-329	3.9 B
			SW717-332	10
			SW725-352	1.8 B
			SW726-354	3.3 B
			SW728-358	3.5 B
			SW729-363	4 B
			SW731-367	3.3 B
			SW740-390	14.2
Copper	$\mu\text{g/L}$	15	SW705-303	54.7
			SW706-305	22.7
			SW707-307	27.7
			SW708-309	22.7
			SW709-312	21.5
			SW710-314	19.3
			SW716-329	21.8
			SW717-332	132
			SW725-352	19.9
			SW726-354	23.5
			SW728-358	29.1
			SW729-363	28.2
			SW731-367	29.5
			SW740-390	118
Iron	$\mu\text{g/L}$	4740	SW705-303	29300
			SW706-305	14300
			SW707-307	16300
			SW708-309	14200
			SW709-312	12900
			SW710-314	11200
			SW716-329	11700
			SW717-332	25600
			SW725-352	5540
			SW726-354	8890
			SW728-358	9860
			SW729-363	11600
			SW731-367	9180
			SW740-390	22000

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lead	$\mu\text{g/L}$	11.1	SW705-303	37.2
			SW706-305	11.5 E
			SW707-307	16.5 E
			SW708-309	11.7 E
			SW716-329	12.7
			SW717-332	88.9
			SW718-334	11.2 E
			SW740-390	151
Lithium	$\mu\text{g/L}$	13.2	C9-4-SW-1	32.3
			C9-4-SW-2	88.9
			C9-4-SW-3	155
			SW705-303	41.7
			SW706-305	18.8 E
			SW707-307	20.7 E
			SW708-309	18.1 E
			SW709-312	23
			SW710-314	16.1 E
			SW716-329	23.8
			SW717-332	40.1
			SW726-354	13.3
			SW728-358	13.7
			SW729-363	15.6
			SW740-390	26.8
Magnesium	$\mu\text{g/L}$	30200	SW701-292	34100
			SW704-301	30900
			SW715-327	35100
			SW716-329	32900
			SW717-332	50300
			SW724-350	32200
Mercury	$\mu\text{g/L}$	--	SW701-292	0.05 B
			SW706-305	0.05 B
			SW707-307	0.06 B
			SW708-309	0.05 B
			SW710-314	0.08 B
			SW714-325	0.06 B
			SW718-334	0.09 B
			SW732-369	0.06 B
			SW733-371	0.07 B
			SW734-374	0.06 B
			SW735-376	0.06 B
			SW739-384	0.08 B
			SW740-390	0.94

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	$\mu\text{g/L}$	7.74	SW705-303	29.9
			SW706-305	15.5
			SW707-307	17.7
			SW708-309	16.1
			SW709-312	13.5
			SW710-314	12.6
			SW716-329	12.1
			SW717-332	27.9
			SW718-334	16.4
			SW725-352	8.7
			SW726-354	11.1
			SW728-358	11.4
			SW729-363	13.2
			SW731-367	10.8
			SW740-390	33.5
Potassium	$\mu\text{g/L}$	9540	SW717-332	11900
			SW740-390	40000
Selenium	$\mu\text{g/L}$	4.24	SW740-390	10.5 B
Silver	$\mu\text{g/L}$	0.03	SW705-303	0.37 B
			SW709-312	0.26 B
			SW716-329	0.28 B
			SW717-332	0.53 B
			SW721-344	0.25 B
			SW724-350	0.26 B
			SW725-352	0.32 B
			SW726-354	0.3 B
			SW728-358	0.3 B
			SW729-363	0.3 B
Thallium	$\mu\text{g/L}$	0.026	SW714-325	0.76
			SW726-354	0.82

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	μg/L	8.52	SW705-303	38.4
			SW706-305	20.2
			SW707-307	22
			SW708-309	20
			SW709-312	18.4
			SW710-314	16.1
			SW716-329	16.8
			SW717-332	27.2
			SW725-352	9.4
			SW726-354	14.5
			SW728-358	15.2
			SW729-363	17.1
			SW731-367	12.7
			SW740-390	20
Zinc	μg/L	70.5	SW701-292	1460
			SW703-296	121
			SW705-303	197
			SW707-307	93.9
			SW716-329	110
			SW717-332	765
			SW718-334	72
			SW723-348	218
			SW724-350	99.3
			SW725-352	108
			SW734-374	111
			SW740-390	1200
Nitroaromatics				
2-Amino-4,6-dinitrotoluene	μg/L	0.0779	SW723-348	0.28
			SW734-374	0.16
Radionuclides, Dissolved				
Americium-241, Dissolved	pCi/L	--	SW920-2122	16.9
Thorium-228, Dissolved	pCi/L	0.405	SW912-2104	0.441
Uranium-234, Dissolved	pCi/L	6.07	SW911-2102	9.18
			SW911-2105	8.07
			SW912-2104	18.1
			SW914-2109	11.7
			SW915-2112	10.1
			SW916-2114	8.9
			SW919-2120	19 J
			SW920-2122	6.43
Uranium-235, Dissolved	pCi/L	0.634	SW912-2104	0.774
			SW919-2120	0.978 J

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238, Dissolved	pCi/L	5.23	SW911-2102	8.23
			SW911-2105	7.11
			SW912-2104	16.7
			SW914-2109	10.2
			SW915-2112	9.03
			SW916-2114	7.73
			SW919-2120	18.2 J
			SW920-2122	6.54
Radionuclides, Total				
Alpha	pCi/L	12.2	SW704-301	13.3
			SW705-303	13.2
			SW706-305	14.7
			SW707-307	17.5
			SW708-309	16.1
			SW710-314	14.8
			SW716-329	39.9
			SW718-334	12.7
			SW728-358	13.1
			SW744-681	15.6
			SW911-2102	14.9
			SW911-2105	18.2
			SW912-2104	20.9
			SW914-2109	25.5
			SW915-2112	24
			SW916-2114	16.9
			SW918-2118	14.2
			SW919-2120	53.7 J
			SW920-2122	17.4

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/L	12.3	SW705-303	28.8
			SW706-305	21.3
			SW707-307	19.4
			SW708-309	20.9
			SW709-312	17.3
			SW710-314	17.8
			SW716-329	65.1
			SW717-332	15.4
			SW718-334	19.4
			SW726-354	16.6
			SW727-356	19
			SW728-358	23.5
			SW729-363	16.4
			SW730-365	14
			SW731-367	18.8
			SW741-678	12.4
			SW744-681	17.5
			SW911-2102	19.4
			SW911-2105	16.2
			SW912-2104	50.2
			SW914-2109	16.3
			SW915-2112	15.8
			SW916-2114	15.3
			SW917-2116	14.5
			SW918-2118	17.9
			SW919-2120	39 J
			SW920-2122	18.2
Radium-226	pCi/L	0.487	SW701-292	3.66
			SW705-303	0.579 J
			SW707-307	0.805 J
			SW711-316	0.729 J
			SW712-318	0.935 J
			SW714-325	0.954 J
			SW733-371	1.47
			SW734-374	1.09
			SW744-681	0.725
			SW911-2102	0.652
			SW912-2104	2.21
			SW915-2112	0.685
			SW916-2114	0.686
			SW917-2116	0.607
			SW918-2118	0.899
			SW919-2120	0.924
Thorium-228	pCi/L	0.41	SW744-681	17.7

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/L	0.606	SW744-681	24
Thorium-232	pCi/L	--	SW705-303	0.0726 J
			SW707-307	0.132 J
			SW708-309	0.0742 J
			SW709-312	0.102 J
			SW716-329	0.112 J
			SW730-365	0.0835 J
			SW731-367	0.0772 J
			SW744-681	12.5
			SW914-2109	0.087
			SW918-2118	0.111
			SW919-2120	0.0957 J
Total Uranium	µg/L	12.5	SW704-301	14.5
			SW911-2102	24
			SW911-2105	21.9
			SW912-2104	16.4
			SW914-2109	28.9
			SW915-2112	46.9
			SW916-2114	20.2
			SW919-2120	48.3
			SW920-2122	18
Uranium-234	pCi/L	5.78	SW744-681	6.81
			SW911-2102	12.4
			SW911-2105	10.5
			SW912-2104	16
			SW914-2109	15.1
			SW915-2112	8.08
			SW916-2114	11.4
			SW919-2120	17.7 J
			SW920-2122	7.62
Uranium-235	pCi/L	0.529	SW911-2105	0.964
			SW912-2104	0.778
			SW914-2109	0.756
			SW918-2118	0.567
			SW919-2120	0.91 J

* Data qualifier included with concentration value

Table 4-87
Exposure Unit 17
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	4.81	SW744-681	6.32
			SW911-2102	8.98
			SW911-2105	8.51
			SW912-2104	15.9
			SW914-2109	12.3
			SW915-2112	7.32
			SW916-2114	10.4
			SW918-2118	4.91
			SW919-2120	16.5 J
			SW920-2122	6.65

* Data qualifier included with concentration value

Table 4-88
Background Sediment Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Nitroaromatics							
1,3,5-Trinitrobenzene	µg/Kg	0/ 10					O
2,4,6-Trinitrotoluene	µg/Kg	0/ 10					O
2,4-Dinitrotoluene	µg/Kg	0/ 10					O
2,6-Dinitrotoluene	µg/Kg	0/ 10					O
2-Amino-4,6-dinitrotoluene	µg/Kg	0/ 10					O
2-Nitrotoluene	µg/Kg	0/ 10					O
3-Nitrotoluene	µg/Kg	0/ 10					O
4-Amino-2,6-dinitrotoluene	µg/Kg	0/ 10					O
4-Nitrotoluene	µg/Kg	0/ 10					O
HMX	µg/Kg	1/ 10	99.6	99.6	99.6	99.6	D
m-Dinitrobenzene	µg/Kg	0/ 10					O
Nitrobenzene	µg/Kg	0/ 10					O
RDX	µg/Kg	0/ 10					O
Tetryl	µg/Kg	0/ 10					O
Metals							
Aluminum	mg/Kg	10/ 10	9710	30400	34900	30400	N
Antimony	mg/Kg	6/ 10	0.52	5.03	5.03	5.03	D
Arsenic	mg/Kg	10/ 10	1.42	7.14	8.79	7.14	N
Barium	mg/Kg	10/ 10	78.8	246	293	246	N
Beryllium	mg/Kg	10/ 10	0.41	1.44	1.7	1.44	N
Boron	mg/Kg	10/ 10	7.26	31.4	37	31.4	N
Cadmium	mg/Kg	10/ 10	0.14	1.89	2.93	1.89	G
Calcium	mg/Kg	10/ 10	3960	59400	84400	59400	N
Chromium	mg/Kg	10/ 10	14.2	472	472	472	X
Cobalt	mg/Kg	10/ 10	4.55	21.3	24.5	21.3	N
Copper	mg/Kg	10/ 10	16.6	184	284	184	L
Iron	mg/Kg	10/ 10	12200	37800	47800	37800	N
Lead	mg/Kg	10/ 10	9.42	121	121	121	X
Lithium	mg/Kg	10/ 10	14.4	47	52.3	47	N
Magnesium	mg/Kg	10/ 10	2730	27300	33200	27300	N
Manganese	mg/Kg	10/ 10	165	814	1190	814	N
Mercury	mg/Kg	10/ 10	0.01	0.47	1.22	0.47	G
Nickel	mg/Kg	10/ 10	12	51.9	60.7	51.9	N
Potassium	mg/Kg	10/ 10	1510	5070	6790	5070	N
Selenium	mg/Kg	10/ 10	0.59	1.87	2.27	1.87	N
Silver	mg/Kg	10/ 10	0.05	0.74	1.75	0.74	G
Sodium	mg/Kg	10/ 10	56.4	679	1650	679	G
Thallium	mg/Kg	10/ 10	0.12	0.36	0.40	0.36	N
Vanadium	mg/Kg	10/ 10	19	60.6	72	60.6	N
Zinc	mg/Kg	10/ 10	64.4	405	800	405	L
PAHs							
Acenaphthene	µg/Kg	0/ 10					O
Acenaphthylene	µg/Kg	1/ 10	134	134	134	134	D
Anthracene	µg/Kg	0/ 10					O
Benzo(a)anthracene	µg/Kg	6/ 10	2.3	399	399	399	D
Benzo(a)pyrene	µg/Kg	3/ 10	148	618	618	618	D

Table 4-88
Background Sediment Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
PAHs (continued)							
Benzo(b)fluoranthene	µg/Kg	6/ 10	27.9	1090	1090	1090	D
Benzo(g,h,i)perylene	µg/Kg	2/ 10	68.4	179	179	179	D
Benzo(k)fluoranthene	µg/Kg	3/ 10	250	381	381	381	D
Chrysene	µg/Kg	4/ 10	57.3	470	470	470	D
Dibenzo(a,h)anthracene	µg/Kg	0/ 10					O
Fluoranthene	µg/Kg	5/ 10	42.6	696	696	696	D
Fluorene	µg/Kg	0/ 10					O
Indeno(1,2,3-cd)pyrene	µg/Kg	2/ 10	140	265	265	265	D
Naphthalene	µg/Kg	0/ 10					O
Phenanthrene	µg/Kg	3/ 10	99.1	169	169	169	D
Pyrene	µg/Kg	5/ 10	7.64	1000	1000	1000	D
PCBs							
Aroclor-1016	µg/Kg	0/ 10					O
Aroclor-1221	µg/Kg	0/ 10					O
Aroclor-1232	µg/Kg	0/ 10					O
Aroclor-1242	µg/Kg	3/ 10	9.61	66.3	66.3	66.3	D
Aroclor-1248	µg/Kg	0/ 10					O
Aroclor-1254	µg/Kg	6/ 10	3.59	58.3	58.3	58.3	D
Aroclor-1260	µg/Kg	6/ 10	1.8	21.7	21.7	21.7	D
Pesticides							
4,4'-DDD	µg/Kg	0/ 10					O
4,4'-DDE	µg/Kg	4/ 10	0.51	1.38	1.78	1.38	D
4,4'-DDT	µg/Kg	3/ 10	1.12	2.26	3.75	2.26	D
Aldrin	µg/Kg	0/ 10					O
alpha-BHC	µg/Kg	0/ 10					O
alpha-Chlordane	µg/Kg	0/ 10					O
beta-BHC	µg/Kg	0/ 10					O
delta-BHC	µg/Kg	0/ 10					O
Dieldrin	µg/Kg	2/ 10	0.34	0.64	1.69	0.64	D
Endosulfan I	µg/Kg	0/ 10					O
Endosulfan II	µg/Kg	0/ 10					O
Endosulfan sulfate	µg/Kg	0/ 10					O
Endrin	µg/Kg	0/ 10					O
Endrin aldehyde	µg/Kg	0/ 10					O
Endrin ketone	µg/Kg	0/ 10					O
gamma-BHC (Lindane)	µg/Kg	0/ 10					O
gamma-Chlordane	µg/Kg	0/ 10					O
Heptachlor	µg/Kg	0/ 10					O
Heptachlor epoxide	µg/Kg	0/ 10					O
Methoxychlor	µg/Kg	0/ 10					O
Toxaphene	µg/Kg	0/ 10					O
Radionuclides							
Actinium-227	pCi/g	0/ 10				0.31*	O
Alpha	pCi/g	10/ 10	10.7	22.4	28.6	22.4	N
Americium-241	pCi/g	0/ 10					O
Beta	pCi/g	10/ 10	20.7	38.6	43	38.6	L

Table 4-88
Background Sediment Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Radionuclides (continued)							
Cesium-137	pCi/g	7/ 10	0.03	0.39	0.389	0.39	D
Cobalt-60	pCi/g	0/ 10					O
Plutonium-238	pCi/g	0/ 1					O
Plutonium-239/240	pCi/g	0/ 1					O
Protactinium-231	pCi/g	0/ 10				0.31*	O
Radium-226	pCi/g	10/ 10	0.71	2.43	2.43	2.43	X
Radium-228	pCi/g	10/ 10	0.8	1.14	1.32	1.14	N
Strontium-90	pCi/g	0/ 1					O
Thorium-228	pCi/g	10/ 10	0.70	1.31	1.74	1.31	N
Thorium-230	pCi/g	6/ 10	0.96	5.58	5.58	5.58	D
Thorium-232	pCi/g	10/ 10	0.64	1.23	1.5	1.23	N
Total Activity	pCi/g	0/ 5					O
Total Uranium	µg/g	10/ 10	1.7	6.47	9.14	6.47	G
Uranium-234	pCi/g	10/ 10	0.84	3.57	3.57	3.57	X
Uranium-235	pCi/g	2/ 10	0.19	0.31	0.31	0.31	D
Uranium-238	pCi/g	10/ 10	0.49	3.08	5.01	3.08	G
Semivolatile Organics							
1,2,4-Trichlorobenzene	µg/Kg	0/ 10					O
1,2-Dichlorobenzene	µg/Kg	0/ 10					O
1,3-Dichlorobenzene	µg/Kg	0/ 10					O
1,4-Dichlorobenzene	µg/Kg	0/ 10					O
2,4,5-Trichlorophenol	µg/Kg	0/ 10					O
2,4,6-Trichlorophenol	µg/Kg	0/ 10					O
2,4-Dichlorophenol	µg/Kg	0/ 10					O
2,4-Dimethylphenol	µg/Kg	0/ 10					O
2,4-Dinitrophenol	µg/Kg	0/ 10					O
2-Chloronaphthalene	µg/Kg	0/ 10					O
2-Chlorophenol	µg/Kg	0/ 10					O
2-Methyl-4,6-dinitrophenol	µg/Kg	0/ 10					O
2-Methylnaphthalene	µg/Kg	0/ 10					O
2-Nitroaniline	µg/Kg	0/ 10					O
2-Nitrophenol	µg/Kg	0/ 10					O
3,3'-Dichlorobenzidine	µg/Kg	0/ 10					O
3-Nitroaniline	µg/Kg	0/ 10					O
4-Bromophenylphenylether	µg/Kg	0/ 10					O
4-Chloro-3-methylphenol	µg/Kg	0/ 10					O
4-Chloroaniline	µg/Kg	0/ 10					O
4-Chlorophenylphenylether	µg/Kg	0/ 10					O
4-Nitroaniline	µg/Kg	0/ 10					O
4-Nitrophenol	µg/Kg	0/ 10					O
Benzoic Acid	µg/Kg	0/ 10					O
bis(2-Chloroethoxy)methane	µg/Kg	0/ 10					O
bis(2-Chloroethyl)ether	µg/Kg	0/ 10					O
bis(2-Chloroisopropyl)ether	µg/Kg	0/ 10					O
bis(2-Ethylhexyl)phthalate	µg/Kg	5/ 10	99.5	31300	31300	31300	D
Butylbenzylphthalate	µg/Kg	0/ 10					O

Table 4-88
Background Sediment Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Semivolatile Organics (continued)							
Carbazole	µg/Kg	0/ 10					O
Dibenzofuran	µg/Kg	0/ 10					O
Diethylphthalate	µg/Kg	0/ 10					O
Dimethylphthalate	µg/Kg	0/ 10					O
Di-n-butylphthalate	µg/Kg	0/ 10					O
Di-n-octylphthalate	µg/Kg	0/ 10					O
Hexachlorobenzene	µg/Kg	0/ 10					O
Hexachlorobutadiene	µg/Kg	0/ 10					O
Hexachlorocyclopentadiene	µg/Kg	0/ 10					O
Hexachloroethane	µg/Kg	0/ 10					O
Isophorone	µg/Kg	0/ 10					O
m,p-Cresols	µg/Kg	0/ 10					O
N-Nitroso-di-n-propylamine	µg/Kg	0/ 10					O
N-Nitrosodiphenylamine	µg/Kg	0/ 10					O
o-Cresol	µg/Kg	0/ 10					O
Pentachlorophenol	µg/Kg	0/ 10					O
Phenol	µg/Kg	0/ 10					O
Volatile Organics							
1,1,1-Trichloroethane	µg/Kg	0/ 10					O
1,1,2,2-Tetrachloroethane	µg/Kg	0/ 10					O
1,1,2-Trichloroethane	µg/Kg	0/ 10					O
1,1-Dichloroethane	µg/Kg	0/ 10					O
1,1-Dichloroethene	µg/Kg	6/ 10	0.92	3.46	3.46	3.46	D
1,2-Dichloroethane	µg/Kg	0/ 10					O
1,2-Dichloropropane	µg/Kg	0/ 10					O
2-Butanone	µg/Kg	1/ 10	49.3	49.3	49.3	49.3	D
2-Hexanone	µg/Kg	0/ 10					O
4-Methyl-2-pentanone	µg/Kg	0/ 10					O
Acetone	µg/Kg	5/ 10	23.5	206	206	206	D
Benzene	µg/Kg	0/ 10					O
Bromodichloromethane	µg/Kg	0/ 10					O
Bromoform	µg/Kg	0/ 10					O
Bromomethane	µg/Kg	0/ 10					O
Carbon disulfide	µg/Kg	0/ 10					O
Carbon tetrachloride	µg/Kg	0/ 10					O
Chlorobenzene	µg/Kg	0/ 10					O
Chloroethane	µg/Kg	0/ 10					O
Chloroform	µg/Kg	0/ 10					O
Chloromethane	µg/Kg	0/ 10					O
cis-1,2-Dichloroethene	µg/Kg	0/ 10					O
cis-1,3-Dichloropropene	µg/Kg	0/ 10					O
Dibromochloromethane	µg/Kg	0/ 10					O
Ethylbenzene	µg/Kg	0/ 10					O
Methylene chloride	µg/Kg	0/ 10					O
Styrene	µg/Kg	0/ 10					O
Tetrachloroethene	µg/Kg	0/ 10					O

Table 4-88
Background Sediment Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Volatile Organics (continued)							
Toluene	µg/Kg	3/ 10	0.92	8.89	8.89	8.89	D
trans-1,2-Dichloroethene	µg/Kg	0/ 10					O
trans-1,3-Dichloropropene	µg/Kg	0/ 10					O
Trichloroethene	µg/Kg	0/ 10					O
Vinyl chloride	µg/Kg	0/ 10					O
Xylenes (total)	µg/Kg	0/ 10					O

Substitutions:

*0.31 Uranium-235 SD UTL substituted for Actinium-227 and Protactinium-231 in SD

Dist Codes:

L - Distribution most similar to lognormal

N - Distribution most similar to normal

G - Distribution most similar to gamma

O - No detects, no UTL calculated

X - Distribution significantly different from normal and lognormal

D - Distribution not determined because less than 50% detects or less than 8 detects

Z - Distribution with negative results and therefore treated as normal

Table 4-89
Exposure Unit 5
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	7	11400 E*	13200	7
Antimony	mg/Kg	7	--	--	0
Arsenic	mg/Kg	7	1.8	4	7
Barium	mg/Kg	7	101 N	190	7
Beryllium	mg/Kg	7	0.53 B	0.74	7
Boron	mg/Kg	7	2.2 B	7.5	7
Cadmium	mg/Kg	7	0.28 B	0.75	7
Calcium	mg/Kg	7	2420 E*	54400 E	7
Chromium	mg/Kg	7	16.1 *	20.1 E	7
Cobalt	mg/Kg	7	6.3 E*	11.5 E	7
Copper	mg/Kg	7	18.6 *N	29.9 E	7
Iron	mg/Kg	7	18100	24100 E	7
Lead	mg/Kg	7	6.3 E*	14.3	7
Lithium	mg/Kg	7	17.7 E*	26	7
Magnesium	mg/Kg	7	2450 *	10800 E	7
Manganese	mg/Kg	7	271	737 E	7
Mercury	mg/Kg	7	0.014 B	0.13	7
Nickel	mg/Kg	7	13.5	26.4 E	7
Potassium	mg/Kg	7	641 E	1480 EN	7
Selenium	mg/Kg	7	0.48 B	1.4 B	5
Silver	mg/Kg	7	0.02 B	0.16 B	7
Sodium	mg/Kg	7	68.3	120 E	7
Thallium	mg/Kg	7	0.02 B	0.14 B	4
Vanadium	mg/Kg	7	23	26.2 E	7
Zinc	mg/Kg	7	39.5 E*	246	7
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	3	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	3	--	--	0
2,4-Dinitrotoluene	μg/Kg	8	--	--	0
2,6-Dinitrotoluene	μg/Kg	8	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	3	--	--	0
2-Nitrotoluene	μg/Kg	3	--	--	0
3-Dinitrobenzene	μg/Kg	3	--	--	0
3-Nitrotoluene	μg/Kg	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	3	--	--	0
4-Nitrotoluene	μg/Kg	3	--	--	0
HMX	μg/Kg	3	--	--	0
Nitrobenzene	μg/Kg	8	--	--	0
RDX	μg/Kg	3	--	--	0
Tetryl	μg/Kg	3	--	--	0
PAHs					
Acenaphthene	μg/Kg	8	--	--	0
Acenaphthylene	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-89
Exposure Unit 5
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	8	--	--	0
Benzo(a)anthracene	μg/Kg	8	--	--	0
Benzo(a)pyrene	μg/Kg	8	--	--	0
Benzo(b)fluoranthene	μg/Kg	8	--	--	0
Benzo(g,h,i)perylene	μg/Kg	8	--	--	0
Benzo(k)fluoranthene	μg/Kg	8	--	--	0
Chrysene	μg/Kg	8	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	8	--	--	0
Fluoranthene	μg/Kg	8	--	--	0
Fluorene	μg/Kg	8	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	8	--	--	0
Naphthalene	μg/Kg	8	--	--	0
Phenanthrene	μg/Kg	8	--	--	0
Pyrene	μg/Kg	8	--	--	0
PCBs					
Aroclor-1016	μg/Kg	4	--	--	0
Aroclor-1221	μg/Kg	4	--	--	0
Aroclor-1232	μg/Kg	4	--	--	0
Aroclor-1242	μg/Kg	4	--	--	0
Aroclor-1248	μg/Kg	4	--	--	0
Aroclor-1254	μg/Kg	4	--	--	0
Aroclor-1260	μg/Kg	4	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	4	--	--	0
4,4'-DDE	μg/Kg	4	--	--	0
4,4'-DDT	μg/Kg	4	--	--	0
Aldrin	μg/Kg	4	--	--	0
alpha-BHC	μg/Kg	4	--	--	0
alpha-Chlordane	μg/Kg	4	--	--	0
beta-BHC	μg/Kg	4	--	--	0
delta-BHC	μg/Kg	4	--	--	0
Dieldrin	μg/Kg	4	--	--	0
Endosulfan I	μg/Kg	4	--	--	0
Endosulfan II	μg/Kg	4	--	--	0
Endosulfan sulfate	μg/Kg	4	--	--	0
Endrin	μg/Kg	4	--	--	0
Endrin aldehyde	μg/Kg	4	--	--	0
Endrin ketone	μg/Kg	4	--	--	0
gamma-BHC (Lindane)	μg/Kg	4	--	--	0
gamma-Chlordane	μg/Kg	4	--	--	0
Heptachlor	μg/Kg	4	--	--	0
Heptachlor epoxide	μg/Kg	4	--	--	0
Methoxychlor	μg/Kg	4	--	--	0
Toxaphene	μg/Kg	4	--	--	0

* Data qualifier included with concentration value

Table 4-89
Exposure Unit 5
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	3	--	--	0
Alpha	pCi/g	12	10.4	19.7	12
Americium-241	pCi/g	3	--	--	0
Beta	pCi/g	12	19.7	45.7	12
Cesium-137	pCi/g	12	0.0657 J	0.451 J	5
Cobalt-60	pCi/g	3	--	--	0
Potassium-40	pCi/g	3	16.4	17.1	3
Protactinium-231	pCi/g	3	--	--	0
Radium-226	pCi/g	12	0.643	1.31	12
Radium-228	pCi/g	3	0.814	1.05	3
Thorium-228	pCi/g	12	0.556	1.31 J	12
Thorium-230	pCi/g	12	0.784 J	1.1 J	12
Thorium-232	pCi/g	12	0.624 J	1.11 J	12
Total Uranium	μg/g	12	1.92	7.73 J	12
Uranium-234	pCi/g	12	0.694	3.25	12
Uranium-235	pCi/g	12	0.0849	0.146 J	2
Uranium-238	pCi/g	12	0.725	3.08	12
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	8	--	--	0
1,2-Dichlorobenzene	μg/Kg	8	--	--	0
1,3-Dichlorobenzene	μg/Kg	8	--	--	0
1,4-Dichlorobenzene	μg/Kg	8	--	--	0
2,4,5-Trichlorophenol	μg/Kg	8	--	--	0
2,4,6-Trichlorophenol	μg/Kg	8	--	--	0
2,4-Dichlorophenol	μg/Kg	8	--	--	0
2,4-Dimethylphenol	μg/Kg	8	--	--	0
2,4-Dinitrophenol	μg/Kg	8	--	--	0
2-Chloronaphthalene	μg/Kg	8	--	--	0
2-Chlorophenol	μg/Kg	8	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	8	--	--	0
2-Methylnaphthalene	μg/Kg	8	--	--	0
2-Nitroaniline	μg/Kg	8	--	--	0
2-Nitrophenol	μg/Kg	8	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	8	--	--	0
3-Nitroaniline	μg/Kg	8	--	--	0
4-Bromophenylphenylether	μg/Kg	8	--	--	0
4-Chloro-3-methylphenol	μg/Kg	8	--	--	0
4-Chloroaniline	μg/Kg	8	--	--	0
4-Chlorophenylphenylether	μg/Kg	8	--	--	0
4-Nitroaniline	μg/Kg	8	--	--	0
4-Nitrophenol	μg/Kg	8	--	--	0
Benzoic Acid	μg/Kg	8	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	8	--	--	0

* Data qualifier included with concentration value

Table 4-89
Exposure Unit 5
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	8	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	8	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	8	--	--	0
Butylbenzylphthalate	μg/Kg	8	--	--	0
Carbazole	μg/Kg	8	--	--	0
Dibenzofuran	μg/Kg	8	--	--	0
Diethylphthalate	μg/Kg	8	--	--	0
Dimethylphthalate	μg/Kg	8	--	--	0
Di-n-butylphthalate	μg/Kg	8	--	--	0
Di-n-octylphthalate	μg/Kg	8	--	--	0
Diphenylamine	μg/Kg	8	--	--	0
Hexachlorobenzene	μg/Kg	8	--	--	0
Hexachlorobutadiene	μg/Kg	8	--	--	0
Hexachlorocyclopentadiene	μg/Kg	8	--	--	0
Hexachloroethane	μg/Kg	8	--	--	0
Isophorone	μg/Kg	8	--	--	0
m,p-Cresols	μg/Kg	8	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	8	--	--	0
o-Cresol	μg/Kg	8	--	--	0
Pentachlorophenol	μg/Kg	8	--	--	0
Phenol	μg/Kg	8	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	11	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	11	--	--	0
1,1,2-Trichloroethane	μg/Kg	11	--	--	0
1,1-Dichloroethane	μg/Kg	11	--	--	0
1,1-Dichloroethene	μg/Kg	11	--	--	0
1,2-Dichloroethane	μg/Kg	11	--	--	0
1,2-Dichloropropane	μg/Kg	11	--	--	0
2-Butanone	μg/Kg	11	7.6 J	7.6 J	1
2-Hexanone	μg/Kg	11	--	--	0
4-Methyl-2-pentanone	μg/Kg	11	--	--	0
Acetone	μg/Kg	11	1.6 J	7.9 J	2
Benzene	μg/Kg	11	--	--	0
Bromodichloromethane	μg/Kg	11	--	--	0
Bromoform	μg/Kg	11	--	--	0
Bromomethane	μg/Kg	11	--	--	0
Carbon disulfide	μg/Kg	11	--	--	0
Carbon tetrachloride	μg/Kg	11	--	--	0
Chlorobenzene	μg/Kg	11	--	--	0
Chloroethane	μg/Kg	11	--	--	0
Chloroform	μg/Kg	11	--	--	0
Chloromethane	μg/Kg	11	--	--	0
cis-1,2-Dichloroethene	μg/Kg	11	--	--	0

* Data qualifier included with concentration value

Table 4-89
Exposure Unit 5
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	11	--	--	0
Dibromochloromethane	μg/Kg	11	--	--	0
Ethylbenzene	μg/Kg	11	--	--	0
Methylene chloride	μg/Kg	11	6.8 B	9 B	2
Styrene	μg/Kg	11	--	--	0
Tetrachloroethene	μg/Kg	11	--	--	0
Toluene	μg/Kg	11	0.14 J	0.24 J	4
trans-1,2-Dichloroethene	μg/Kg	11	--	--	0
trans-1,3-Dichloropropene	μg/Kg	11	--	--	0
Trichloroethene	μg/Kg	11	--	--	0
Vinyl chloride	μg/Kg	11	--	--	0
Xylenes (total)	μg/Kg	11	--	--	0

* Data qualifier included with concentration value

Table 4-90
Exposure Unit 15
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	14	9470	23700	14
Antimony	mg/Kg	14	--	--	0
Arsenic	mg/Kg	14	2.1	9.8	14
Barium	mg/Kg	14	90.5 E	249 E	14
Beryllium	mg/Kg	14	0.445 B	1.4	14
Boron	mg/Kg	17	5.5 B	43.8 J	17
Cadmium	mg/Kg	14	0.53 B	2.1	10
Calcium	mg/Kg	14	6280 E*	56900 E	14
Chromium	mg/Kg	14	14.4	63	14
Cobalt	mg/Kg	14	5.9 E*	19.6 E	14
Copper	mg/Kg	14	27.9 E	87.4 E	14
Iron	mg/Kg	14	12000 *	41900	14
Lead	mg/Kg	14	7.82	144	14
Lithium	mg/Kg	17	15.7 E	43.1	17
Magnesium	mg/Kg	14	3560 *	17900	14
Manganese	mg/Kg	14	144 E	2190 *	14
Mercury	mg/Kg	14	0.016 B	0.95	14
Nickel	mg/Kg	14	19.2 E	74.6 E	14
Potassium	mg/Kg	14	1220 E	3790	14
Selenium	mg/Kg	14	0.58 BN	2.6 B	13
Silver	mg/Kg	14	0.053 B	0.41	14
Sodium	mg/Kg	14	56.7 *	558 E	14
Thallium	mg/Kg	14	0.073 B	0.53	11
Vanadium	mg/Kg	14	19.5	46.6 E	14
Zinc	mg/Kg	14	39.4 N	416	14
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	9	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	9	--	--	0
2,4-Dinitrotoluene	μg/Kg	14	--	--	0
2,6-Dinitrotoluene	μg/Kg	14	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	9	--	--	0
2-Nitrotoluene	μg/Kg	9	--	--	0
3-Dinitrobenzene	μg/Kg	9	--	--	0
3-Nitrotoluene	μg/Kg	9	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	9	--	--	0
4-Nitrotoluene	μg/Kg	9	--	--	0
HMX	μg/Kg	9	--	--	0
Nitrobenzene	μg/Kg	14	--	--	0
RDX	μg/Kg	9	--	--	0
Tetryl	μg/Kg	9	--	--	0
PAHs					
Acenaphthene	μg/Kg	11	--	--	0
Acenaphthylene	μg/Kg	11	--	--	0

* Data qualifier included with concentration value

Table 4-90
Exposure Unit 15
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	11	--	--	0
Benzo(a)anthracene	μg/Kg	11	--	--	0
Benzo(a)pyrene	μg/Kg	11	--	--	0
Benzo(b)fluoranthene	μg/Kg	11	--	--	0
Benzo(g,h,i)perylene	μg/Kg	11	--	--	0
Benzo(k)fluoranthene	μg/Kg	11	--	--	0
Chrysene	μg/Kg	11	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	11	--	--	0
Fluoranthene	μg/Kg	11	57.4 J	57.4 J	1
Fluorene	μg/Kg	11	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	11	--	--	0
Naphthalene	μg/Kg	11	--	--	0
Phenanthrene	μg/Kg	11	--	--	0
Pyrene	μg/Kg	11	58 J	58 J	1
PCBs					
Aroclor-1016	μg/Kg	10	--	--	0
Aroclor-1221	μg/Kg	10	--	--	0
Aroclor-1232	μg/Kg	10	--	--	0
Aroclor-1242	μg/Kg	10	--	--	0
Aroclor-1248	μg/Kg	10	--	--	0
Aroclor-1254	μg/Kg	10	24.4 J	43.3 J	3
Aroclor-1260	μg/Kg	10	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	10	--	--	0
4,4'-DDE	μg/Kg	10	--	--	0
4,4'-DDT	μg/Kg	10	--	--	0
Aldrin	μg/Kg	10	--	--	0
alpha-BHC	μg/Kg	10	--	--	0
alpha-Chlordane	μg/Kg	10	--	--	0
beta-BHC	μg/Kg	10	--	--	0
delta-BHC	μg/Kg	10	--	--	0
Dieldrin	μg/Kg	10	--	--	0
Endosulfan I	μg/Kg	10	--	--	0
Endosulfan II	μg/Kg	10	--	--	0
Endosulfan sulfate	μg/Kg	10	--	--	0
Endrin	μg/Kg	10	--	--	0
Endrin aldehyde	μg/Kg	10	--	--	0
Endrin ketone	μg/Kg	10	--	--	0
gamma-BHC (Lindane)	μg/Kg	10	--	--	0
gamma-Chlordane	μg/Kg	10	--	--	0
Heptachlor	μg/Kg	10	--	--	0
Heptachlor epoxide	μg/Kg	10	--	--	0
Methoxychlor	μg/Kg	10	--	--	0
Toxaphene	μg/Kg	10	--	--	0

* Data qualifier included with concentration value

Table 4-90
Exposure Unit 15
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	5	--	--	0
Alpha	pCi/g	18	6.72	23	18
Americium-241	pCi/g	5	--	--	0
Beta	pCi/g	18	14.4	37.9	18
Cesium-137	pCi/g	16	0.0357 J	0.49 J	8
Cobalt-60	pCi/g	5	--	--	0
Plutonium-238	pCi/g	4	--	--	0
Plutonium-239/240	pCi/g	4	--	--	0
Protactinium-231	pCi/g	5	--	--	0
Radium-226	pCi/g	18	0.643	2.05	18
Radium-228	pCi/g	5	0.794	1.14	5
Thorium-228	pCi/g	18	0.724	1.68	18
Thorium-230	pCi/g	18	0.775 J	1.89 J	18
Thorium-232	pCi/g	18	0.651	1.15 J	18
Total Activity	pCi/g	5	--	--	0
Total Uranium	μg/g	18	1.4	4.96 J	18
Uranium-234	pCi/g	18	0.735	2.05	18
Uranium-235	pCi/g	18	0.0801	0.118 J	6
Uranium-238	pCi/g	18	0.674 J	2.1	18
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	11	--	--	0
1,2-Dichlorobenzene	μg/Kg	11	--	--	0
1,3-Dichlorobenzene	μg/Kg	11	--	--	0
1,4-Dichlorobenzene	μg/Kg	11	--	--	0
2,4,5-Trichlorophenol	μg/Kg	11	--	--	0
2,4,6-Trichlorophenol	μg/Kg	11	--	--	0
2,4-Dichlorophenol	μg/Kg	11	--	--	0
2,4-Dimethylphenol	μg/Kg	11	--	--	0
2,4-Dinitrophenol	μg/Kg	11	--	--	0
2-Chloronaphthalene	μg/Kg	11	--	--	0
2-Chlorophenol	μg/Kg	11	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	11	--	--	0
2-Methylnaphthalene	μg/Kg	11	--	--	0
2-Nitroaniline	μg/Kg	11	--	--	0
2-Nitrophenol	μg/Kg	11	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	11	--	--	0
3-Nitroaniline	μg/Kg	11	--	--	0
4-Bromophenylphenylether	μg/Kg	11	--	--	0
4-Chloro-3-methylphenol	μg/Kg	11	--	--	0
4-Chloroaniline	μg/Kg	11	--	--	0
4-Chlorophenylphenylether	μg/Kg	11	--	--	0
4-Nitroaniline	μg/Kg	11	--	--	0
4-Nitrophenol	μg/Kg	11	--	--	0

* Data qualifier included with concentration value

Table 4-90
Exposure Unit 15
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Benzoic Acid	μg/Kg	11	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	11	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	11	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	11	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	11	--	--	0
Butylbenzylphthalate	μg/Kg	11	--	--	0
Carbazole	μg/Kg	11	--	--	0
Dibenzofuran	μg/Kg	11	--	--	0
Diethylphthalate	μg/Kg	11	--	--	0
Dimethylphthalate	μg/Kg	11	--	--	0
Di-n-butylphthalate	μg/Kg	11	--	--	0
Di-n-octylphthalate	μg/Kg	11	--	--	0
Diphenylamine	μg/Kg	10	--	--	0
Hexachlorobenzene	μg/Kg	11	--	--	0
Hexachlorobutadiene	μg/Kg	11	--	--	0
Hexachlorocyclopentadiene	μg/Kg	11	--	--	0
Hexachloroethane	μg/Kg	11	--	--	0
Isophorone	μg/Kg	11	--	--	0
m,p-Cresols	μg/Kg	11	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	11	--	--	0
N-Nitrosodiphenylamine	μg/Kg	1	--	--	0
o-Cresol	μg/Kg	11	--	--	0
Pentachlorophenol	μg/Kg	11	--	--	0
Phenol	μg/Kg	11	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	9	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	9	--	--	0
1,1,2-Trichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethane	μg/Kg	9	--	--	0
1,1-Dichloroethene	μg/Kg	9	--	--	0
1,2-Dichloroethane	μg/Kg	9	--	--	0
1,2-Dichloropropane	μg/Kg	9	--	--	0
2-Butanone	μg/Kg	9	6.1 J	14	2
2-Hexanone	μg/Kg	9	--	--	0
4-Methyl-2-pentanone	μg/Kg	9	--	--	0
Acetone	μg/Kg	9	3.4 J	31.2	6
Benzene	μg/Kg	9	--	--	0
Bromodichloromethane	μg/Kg	9	--	--	0
Bromoform	μg/Kg	9	--	--	0
Bromomethane	μg/Kg	9	--	--	0
Carbon disulfide	μg/Kg	9	--	--	0
Carbon tetrachloride	μg/Kg	9	--	--	0
Chlorobenzene	μg/Kg	9	--	--	0
Chloroethane	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-90
Exposure Unit 15
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroform	μg/Kg	9	--	--	0
Chloromethane	μg/Kg	9	--	--	0
cis-1,2-Dichloroethene	μg/Kg	9	--	--	0
cis-1,3-Dichloropropene	μg/Kg	9	--	--	0
Dibromochloromethane	μg/Kg	9	--	--	0
Ethylbenzene	μg/Kg	9	--	--	0
Methylene chloride	μg/Kg	9	16.1 B	16.1 B	1
Styrene	μg/Kg	9	--	--	0
Tetrachloroethene	μg/Kg	9	--	--	0
Toluene	μg/Kg	9	0.26 J	0.9 J	2
trans-1,2-Dichloroethene	μg/Kg	9	--	--	0
trans-1,3-Dichloropropene	μg/Kg	9	--	--	0
Trichloroethene	μg/Kg	9	--	--	0
Vinyl chloride	μg/Kg	9	--	--	0
Xylenes (total)	μg/Kg	9	--	--	0

* Data qualifier included with concentration value

Table 4-91
Exposure Unit 17
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	21	9470	23700	21
Antimony	mg/Kg	21	--	--	0
Arsenic	mg/Kg	21	1.8	9.8	21
Barium	mg/Kg	21	90.5 E	249 E	21
Beryllium	mg/Kg	21	0.445 B	1.4	21
Boron	mg/Kg	24	2.2 B	43.8 J	24
Cadmium	mg/Kg	21	0.28 B	2.1	17
Calcium	mg/Kg	21	2420 E*	56900 E	21
Chromium	mg/Kg	21	14.4	63	21
Cobalt	mg/Kg	21	5.9 E*	19.6 E	21
Copper	mg/Kg	21	18.6 *N	87.4 E	21
Iron	mg/Kg	21	12000 *	41900	21
Lead	mg/Kg	21	6.3 E*	144	21
Lithium	mg/Kg	24	15.7 E	43.1	24
Magnesium	mg/Kg	21	2450 *	17900	21
Manganese	mg/Kg	21	144 E	2190 *	21
Mercury	mg/Kg	21	0.014 B	0.95	21
Nickel	mg/Kg	21	13.5	74.6 E	21
Potassium	mg/Kg	21	641 E	3790	21
Selenium	mg/Kg	21	0.48 B	2.6 B	18
Silver	mg/Kg	21	0.02 B	0.41	21
Sodium	mg/Kg	21	56.7 *	558 E	21
Thallium	mg/Kg	21	0.02 B	0.53	15
Vanadium	mg/Kg	21	19.5	46.6 E	21
Zinc	mg/Kg	21	39.4 N	416	21
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	12	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	12	--	--	0
2,4-Dinitrotoluene	μg/Kg	22	--	--	0
2,6-Dinitrotoluene	μg/Kg	22	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	12	--	--	0
2-Nitrotoluene	μg/Kg	12	--	--	0
3-Dinitrobenzene	μg/Kg	12	--	--	0
3-Nitrotoluene	μg/Kg	12	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	12	--	--	0
4-Nitrotoluene	μg/Kg	12	--	--	0
HMX	μg/Kg	12	--	--	0
Nitrobenzene	μg/Kg	22	--	--	0
RDX	μg/Kg	12	--	--	0
Tetryl	μg/Kg	12	--	--	0
PAHs					
Acenaphthene	μg/Kg	19	--	--	0
Acenaphthylene	μg/Kg	19	--	--	0

* Data qualifier included with concentration value

Table 4-91
Exposure Unit 17
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	19	--	--	0
Benzo(a)anthracene	μg/Kg	19	--	--	0
Benzo(a)pyrene	μg/Kg	19	--	--	0
Benzo(b)fluoranthene	μg/Kg	19	--	--	0
Benzo(g,h,i)perylene	μg/Kg	19	--	--	0
Benzo(k)fluoranthene	μg/Kg	19	--	--	0
Chrysene	μg/Kg	19	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	19	--	--	0
Fluoranthene	μg/Kg	19	57.4 J	57.4 J	1
Fluorene	μg/Kg	19	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	19	--	--	0
Naphthalene	μg/Kg	19	--	--	0
Phenanthrene	μg/Kg	19	--	--	0
Pyrene	μg/Kg	19	58 J	58 J	1
PCBs					
Aroclor-1016	μg/Kg	14	--	--	0
Aroclor-1221	μg/Kg	14	--	--	0
Aroclor-1232	μg/Kg	14	--	--	0
Aroclor-1242	μg/Kg	14	--	--	0
Aroclor-1248	μg/Kg	14	--	--	0
Aroclor-1254	μg/Kg	14	24.4 J	43.3 J	3
Aroclor-1260	μg/Kg	14	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	14	--	--	0
4,4'-DDE	μg/Kg	14	--	--	0
4,4'-DDT	μg/Kg	14	--	--	0
Aldrin	μg/Kg	14	--	--	0
alpha-BHC	μg/Kg	14	--	--	0
alpha-Chlordane	μg/Kg	14	--	--	0
beta-BHC	μg/Kg	14	--	--	0
delta-BHC	μg/Kg	14	--	--	0
Dieldrin	μg/Kg	14	--	--	0
Endosulfan I	μg/Kg	14	--	--	0
Endosulfan II	μg/Kg	14	--	--	0
Endosulfan sulfate	μg/Kg	14	--	--	0
Endrin	μg/Kg	14	--	--	0
Endrin aldehyde	μg/Kg	14	--	--	0
Endrin ketone	μg/Kg	14	--	--	0
gamma-BHC (Lindane)	μg/Kg	14	--	--	0
gamma-Chlordane	μg/Kg	14	--	--	0
Heptachlor	μg/Kg	14	--	--	0
Heptachlor epoxide	μg/Kg	14	--	--	0
Methoxychlor	μg/Kg	14	--	--	0
Toxaphene	μg/Kg	14	--	--	0

* Data qualifier included with concentration value

Table 4-91
Exposure Unit 17
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	10	--	--	0
Alpha	pCi/g	32	6.72	23	32
Americium-241	pCi/g	10	--	--	0
Beta	pCi/g	32	14.4	45.7	32
Cesium-137	pCi/g	30	0.0357 J	0.49 J	15
Cobalt-60	pCi/g	10	--	--	0
Plutonium-238	pCi/g	4	--	--	0
Plutonium-239/240	pCi/g	4	--	--	0
Potassium-40	pCi/g	5	16.4	22.5	5
Protactinium-231	pCi/g	10	--	--	0
Radium-226	pCi/g	32	0.643	2.05	32
Radium-228	pCi/g	10	0.794	1.16	10
Thorium-228	pCi/g	32	0.556	1.68	32
Thorium-230	pCi/g	32	0.775 J	1.89 J	32
Thorium-232	pCi/g	32	0.624 J	1.15 J	32
Total Activity	pCi/g	5	--	--	0
Total Uranium	μg/g	32	1.4	7.73 J	32
Uranium-234	pCi/g	32	0.694	3.25	32
Uranium-235	pCi/g	32	0.0801	0.146 J	9
Uranium-238	pCi/g	32	0.674 J	3.08	32
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	19	--	--	0
1,2-Dichlorobenzene	μg/Kg	19	--	--	0
1,3-Dichlorobenzene	μg/Kg	19	--	--	0
1,4-Dichlorobenzene	μg/Kg	19	--	--	0
2,4,5-Trichlorophenol	μg/Kg	19	--	--	0
2,4,6-Trichlorophenol	μg/Kg	19	--	--	0
2,4-Dichlorophenol	μg/Kg	19	--	--	0
2,4-Dimethylphenol	μg/Kg	19	--	--	0
2,4-Dinitrophenol	μg/Kg	19	--	--	0
2-Chloronaphthalene	μg/Kg	19	--	--	0
2-Chlorophenol	μg/Kg	19	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	19	--	--	0
2-Methylnaphthalene	μg/Kg	19	--	--	0
2-Nitroaniline	μg/Kg	19	--	--	0
2-Nitrophenol	μg/Kg	19	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	19	--	--	0
3-Nitroaniline	μg/Kg	19	--	--	0
4-Bromophenylphenylether	μg/Kg	19	--	--	0
4-Chloro-3-methylphenol	μg/Kg	19	--	--	0
4-Chloroaniline	μg/Kg	19	--	--	0
4-Chlorophenylphenylether	μg/Kg	19	--	--	0
4-Nitroaniline	μg/Kg	19	--	--	0

* Data qualifier included with concentration value

Table 4-91
Exposure Unit 17
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitrophenol	µg/Kg	19	--	--	0
Benzoic Acid	µg/Kg	19	--	--	0
bis(2-Chloroethoxy)methane	µg/Kg	19	--	--	0
bis(2-Chloroethyl)ether	µg/Kg	19	--	--	0
bis(2-Chloroisopropyl)ether	µg/Kg	19	--	--	0
bis(2-Ethylhexyl)phthalate	µg/Kg	19	--	--	0
Butylbenzylphthalate	µg/Kg	19	--	--	0
Carbazole	µg/Kg	19	--	--	0
Dibenzofuran	µg/Kg	19	--	--	0
Diethylphthalate	µg/Kg	19	--	--	0
Dimethylphthalate	µg/Kg	19	--	--	0
Di-n-butylphthalate	µg/Kg	19	--	--	0
Di-n-octylphthalate	µg/Kg	19	--	--	0
Diphenylamine	µg/Kg	18	--	--	0
Hexachlorobenzene	µg/Kg	19	--	--	0
Hexachlorobutadiene	µg/Kg	19	--	--	0
Hexachlorocyclopentadiene	µg/Kg	19	--	--	0
Hexachloroethane	µg/Kg	19	--	--	0
Isophorone	µg/Kg	19	--	--	0
m,p-Cresols	µg/Kg	19	--	--	0
N-Nitroso-di-n-propylamine	µg/Kg	19	--	--	0
N-Nitrosodiphenylamine	µg/Kg	1	--	--	0
o-Cresol	µg/Kg	19	--	--	0
Pentachlorophenol	µg/Kg	19	--	--	0
Phenol	µg/Kg	19	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	µg/Kg	20	--	--	0
1,1,2,2-Tetrachloroethane	µg/Kg	20	--	--	0
1,1,2-Trichloroethane	µg/Kg	20	--	--	0
1,1-Dichloroethane	µg/Kg	20	--	--	0
1,1-Dichloroethene	µg/Kg	20	--	--	0
1,2-Dichloroethane	µg/Kg	20	--	--	0
1,2-Dichloropropane	µg/Kg	20	--	--	0
2-Butanone	µg/Kg	20	6.1 J	14	3
2-Hexanone	µg/Kg	20	--	--	0
4-Methyl-2-pentanone	µg/Kg	20	--	--	0
Acetone	µg/Kg	20	1.6 J	31.2	8
Benzene	µg/Kg	20	--	--	0
Bromodichloromethane	µg/Kg	20	--	--	0
Bromoform	µg/Kg	20	--	--	0
Bromomethane	µg/Kg	20	--	--	0
Carbon disulfide	µg/Kg	20	--	--	0
Carbon tetrachloride	µg/Kg	20	--	--	0
Chlorobenzene	µg/Kg	20	--	--	0

* Data qualifier included with concentration value

Table 4-91
Exposure Unit 17
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroethane	μg/Kg	20	--	--	0
Chloroform	μg/Kg	20	--	--	0
Chloromethane	μg/Kg	20	--	--	0
cis-1,2-Dichloroethene	μg/Kg	20	--	--	0
cis-1,3-Dichloropropene	μg/Kg	20	--	--	0
Dibromochloromethane	μg/Kg	20	--	--	0
Ethylbenzene	μg/Kg	20	--	--	0
Methylene chloride	μg/Kg	20	6.8 B	16.1 B	3
Styrene	μg/Kg	20	--	--	0
Tetrachloroethene	μg/Kg	20	--	--	0
Toluene	μg/Kg	20	0.14 J	0.9 J	6
trans-1,2-Dichloroethene	μg/Kg	20	--	--	0
trans-1,3-Dichloropropene	μg/Kg	20	--	--	0
Trichloroethene	μg/Kg	20	--	--	0
Vinyl chloride	μg/Kg	20	--	--	0
Xylenes (total)	μg/Kg	20	--	--	0

* Data qualifier included with concentration value

Table 4-92
Exposure Unit 5
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides				
Beta	pCi/g	38.6	SD727-357	45.7
Cesium-137	pCi/g	0.389	SD735-377	0.451 J
Potassium-40	pCi/g	--	SEDC01-08-2125	17.1
			SEDC03-10-2133	17.1
			SEDC04-10-2138	16.4
Total Uranium	µg/g	6.47	SD735-377	7.73 J
Volatile Organics				
Methylene chloride	µg/Kg	--	SD729-364	6.8 B
			SD739-385	9 B

* Data qualifier included with concentration value

Table 4-93
Exposure Unit 15
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Arsenic	mg/Kg	7.14	SD718-338	9.8
Boron	mg/Kg	31.4	C9-4-SD-1	43.8 J
			C9-4-SD-2	36.9 J
			C9-4-SD-3	35.4 J
Cadmium	mg/Kg	1.89	SD720-343	2.1
Iron	mg/Kg	37800	SD707-308	41900
			SD720-343	38200 E
Lead	mg/Kg	121	SD718-338	144
Manganese	mg/Kg	814	OTFL2-S-3694	2190 *
			SD706-306	1120 E*
			SD709-313	1200
			SD710-315	818
			SD718-338	859 E*
Mercury	mg/Kg	0.47	SD717-333	0.51
			SD718-338	0.58
			SD720-343	0.95
Nickel	mg/Kg	51.9	SD720-343	74.6 E
Selenium	mg/Kg	1.87	OTFL2-S-3694	1.94 N
			SD718-338	2.4 N
			SD720-343	2.6 B
Thallium	mg/Kg	0.356	SD717-333	0.53
			SD718-338	0.38
Radionuclides				
Cesium-137	pCi/g	0.389	SD718-338	0.49 J
Thorium-228	pCi/g	1.31	SD-CD5-3405-0.67	1.68
Volatile Organics				
Methylene chloride	μg/Kg	--	SD722-347	16.1 B

* Data qualifier included with concentration value

Table 4-94
Exposure Unit 17
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Arsenic	mg/Kg	7.14	SD718-338	9.8
Boron	mg/Kg	31.4	C9-4-SD-1	43.8 J
			C9-4-SD-2	36.9 J
			C9-4-SD-3	35.4 J
Cadmium	mg/Kg	1.89	SD720-343	2.1
Iron	mg/Kg	37800	SD707-308	41900
			SD720-343	38200 E
Lead	mg/Kg	121	SD718-338	144
Manganese	mg/Kg	814	OTFL2-S-3694	2190 *
			SD706-306	1120 E*
			SD709-313	1200
			SD710-315	818
			SD718-338	859 E*
Mercury	mg/Kg	0.47	SD717-333	0.51
			SD718-338	0.58
			SD720-343	0.95
Nickel	mg/Kg	51.9	SD720-343	74.6 E
Selenium	mg/Kg	1.87	OTFL2-S-3694	1.94 N
			SD718-338	2.4 N
			SD720-343	2.6 B
Thallium	mg/Kg	0.356	SD717-333	0.53
			SD718-338	0.38
Zinc	mg/Kg	405	SD709-313	416
Radionuclides				
Beta	pCi/g	38.6	SD727-357	45.7
Cesium-137	pCi/g	0.389	SD718-338	0.49 J
			SD735-377	0.451 J
Potassium-40	pCi/g	--	SD919-2119	22.5
			SD920-2121	22.2
			SEDC01-08-2125	17.1
			SEDC03-10-2133	17.1
			SEDC04-10-2138	16.4
Thorium-228	pCi/g	1.31	SD920-2121	1.38
			SD-CD5-3405-0.67	1.68
Total Uranium	µg/g	6.47	SD735-377	7.73 J
Volatile Organics				
Methylene chloride	µg/Kg	--	SD722-347	16.1 B
			SD729-364	6.8 B
			SD739-385	9 B

* Data qualifier included with concentration value

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Nitroaromatics							
1,3,5-Trinitrobenzene	µg/L	0/ 24					O
2,4,6-Trinitrotoluene	µg/L	0/ 24					O
2,4-Dinitrotoluene	µg/L	0/ 24					O
2,6-Dinitrotoluene	µg/L	0/ 24					O
2-Amino-4,6-dinitrotoluene	µg/L	0/ 24					O
2-Nitrotoluene	µg/L	0/ 24					O
3-Nitrotoluene	µg/L	0/ 24					O
4-Amino-2,6-dinitrotoluene	µg/L	0/ 24					O
4-Nitrotoluene	µg/L	0/ 24					O
HMX	µg/L	0/ 24					O
m-Dinitrobenzene	µg/L	0/ 24					O
Nitrobenzene	µg/L	0/ 24					O
RDX	µg/L	0/ 24					O
Tetryl	µg/L	0/ 24					O
Metals							
Aluminum	µg/L	23/ 28	3.94	979	1180	979	L
Aluminum, Dissolved	µg/L	11/ 28	9.99	616	616	616	D
Antimony	µg/L	13/ 28	0.10	2.34	2.34	2.34	D
Antimony, Dissolved	µg/L	6/ 28	0.06	2.4	2.4	2.4	D
Arsenic	µg/L	23/ 28	3.3	30.6	30.6	30.6	X
Arsenic, Dissolved	µg/L	13/ 28	3.6	25.7	25.7	25.7	D
Barium	µg/L	28/ 28	5.69	46.8	46.8	46.8	X
Barium, Dissolved	µg/L	28/ 28	4.13	42.8	42.8	42.8	X
Beryllium	µg/L	0/ 28					O
Beryllium, Dissolved	µg/L	2/ 28	0.16	0.19	0.19	0.19	D
Boron	µg/L	28/ 28	67.9	3820	3820	3820	X
Boron, Dissolved	µg/L	28/ 28	63.2	4750	4750	4750	X
Cadmium	µg/L	26/ 28	0.9	2.51	2.51	2.51	X
Cadmium, Dissolved	µg/L	16/ 28	0.27	2.32	2.32	2.32	X
Calcium	µg/L	28/ 28	50400	620000	639000	620000	N
Calcium, Dissolved	µg/L	28/ 28	49400	603000	673000	603000	N
Chromium	µg/L		1.03	3.19	3.19	3.19	X
Chromium, Dissolved	µg/L	9/ 28	1.1	16	16	16	D
Cobalt	µg/L	6/ 28	0.47	2.8	2.8	2.8	D
Cobalt, Dissolved	µg/L	4/ 28	0.55	3	3	3	D
Copper	µg/L	18/ 28	1.66	204	204	204	X
Copper, Dissolved	µg/L	11/ 28	2.42	90.9	90.9	90.9	D
Iron	µg/L	26/ 27	28.1	8810	8810	8810	X
Iron, Dissolved	µg/L	24/ 26	7.62	9280	9280	9280	X
Lead	µg/L	24/ 28	0.02	5.99	10.80	5.99	G
Lead, Dissolved	µg/L	6/ 28	0.01	0.94	0.935	0.94	D
Lithium	µg/L	27/ 28	3.5	1130	1130	1130	X
Lithium, Dissolved	µg/L	27/ 28	3.9	978	972	972	N
Magnesium	µg/L	28/ 28	25900	580000	580000	580000	X
Magnesium, Dissolved	µg/L	28/ 28	25100	618000	618000	618000	X
Manganese	µg/L	28/ 28	2.97	722	722	722	X

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Metals (continued)							
Manganese, Dissolved	µg/L	27/ 28	5.86	966	966	966	X
Mercury	µg/L	2/ 28	0.15	0.17	0.17	0.17	D
Mercury, Dissolved	µg/L	2/ 28	0.15	0.15	0.15	0.15	D
Nickel	µg/L	4/ 28	0.83	6.48	6.48	6.48	D
Nickel, Dissolved	µg/L	12/ 28	0.73	6.15	6.15	6.15	D
Potassium	µg/L	28/ 28	712	63600	62100	62100	N
Potassium, Dissolved	µg/L	28/ 28	715	52400	57700	52400	N
Selenium	µg/L	23/ 28	1.79	4.24	4.62	4.24	N
Selenium, Dissolved	µg/L	15/ 28	2.27	10.3	10.3	10.3	X
Silver	µg/L	9/ 28	0.01	0.02	1.10	0.02	D
Silver, Dissolved	µg/L	4/ 28	0.00	2.50	2.5	2.5	D
Sodium	µg/L	28/ 28	17700	1200000	1200000	1200000	X
Sodium, Dissolved	µg/L	28/ 28	17600	1540000	1540000	1540000	X
Thallium	µg/L	16/ 28	0.01	1.72	1.72	1.72	X
Thallium, Dissolved	µg/L	3/ 28	0.06	0.22	1.20	0.22	D
Vanadium	µg/L	9/ 28	0.32	2.80	2.80	2.8	D
Vanadium, Dissolved	µg/L	3/ 28	0.31	2.60	2.60	2.6	D
Zinc	µg/L	20/ 28	0.35	131	131	131	X
Zinc, Dissolved	µg/L	11/ 28	0.85	108	108	108	D
PAHs							
Acenaphthene	µg/L	0/ 24					O
Acenaphthylene	µg/L	0/ 24					O
Anthracene	µg/L	0/ 24					O
Benzo(a)anthracene	µg/L	0/ 24					O
Benzo(a)pyrene	µg/L	0/ 24					O
Benzo(b)fluoranthene	µg/L	0/ 24					O
Benzo(g,h,i)perylene	µg/L	0/ 24					O
Benzo(k)fluoranthene	µg/L	1/ 24	0.03	0.03	0.03	0.03	D
Chrysene	µg/L	0/ 24					O
Dibenzo(a,h)anthracene	µg/L	0/ 24					O
Fluoranthene	µg/L	0/ 24					O
Fluorene	µg/L	0/ 24					O
Indeno(1,2,3-cd)pyrene	µg/L	0/ 24					O
Naphthalene	µg/L	0/ 24					O
Phenanthrene	µg/L	0/ 24					O
Pyrene	µg/L	0/ 24					O
PCBs							
Aroclor-1016	µg/L	0/ 24					O
Aroclor-1221	µg/L	0/ 24					O
Aroclor-1232	µg/L	0/ 24					O
Aroclor-1242	µg/L	0/ 24					O
Aroclor-1248	µg/L	0/ 24					O
Aroclor-1254	µg/L	0/ 24					O
Aroclor-1260	µg/L	0/ 24					O

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Pesticides							
4,4'-DDD	µg/L	0/ 24					O
4,4'-DDE	µg/L	7/ 24	0.004	0.01	0.01	0.01	D
4,4'-DDT	µg/L	9/ 24	0.01	0.04	0.04	0.04	D
Aldrin	µg/L	0/ 24					O
alpha-BHC	µg/L	0/ 24					O
alpha-Chlordane	µg/L	0/ 24					O
beta-BHC	µg/L	0/ 24					O
delta-BHC	µg/L	0/ 24					O
Dieldrin	µg/L	0/ 24					O
Endosulfan I	µg/L	0/ 24					O
Endosulfan II	µg/L	0/ 24					O
Endosulfan sulfate	µg/L	0/ 24					O
Endrin	µg/L	0/ 24					O
Endrin aldehyde	µg/L	0/ 24					O
Endrin ketone	µg/L	0/ 24					O
gamma-BHC (Lindane)	µg/L	0/ 24					O
gamma-Chlordane	µg/L	0/ 24					O
Heptachlor	µg/L	0/ 24					O
Heptachlor epoxide	µg/L	0/ 24					O
Methoxychlor	µg/L	0/ 24					O
Toxaphene	µg/L	0/ 24					O
Radionuclides							
Actinium-227	pCi/L	0/ 24					O
Actinium-227, Dissolved	pCi/L	0/ 23					O
Alpha	pCi/L	6/ 24	5.91	59.2	59.2	15**	D
Alpha, Dissolved	pCi/L	6/ 24	9.29	63.6	63.6	15**	D
Americium-241 ²	pCi/L	1/ 24	12.2	12.2	13.6	12.2	D
Americium-241, Dissolved	pCi/L	0/ 23					O
Beta	pCi/L	23/ 24	11.3	2340	2340	50**	X
Beta, Dissolved	pCi/L	23/ 24	6.5	617	617	50**	X
Cesium-137	pCi/L	0/ 24					O
Cesium-137, Dissolved	pCi/L	0/ 23					O
Cobalt-60	pCi/L	0/ 24					O
Cobalt-60, Dissolved	pCi/L	0/ 23					O
Protactinium-231	pCi/L	0/ 24					O
Protactinium-231, Dissolved	pCi/L	0/ 23					O
Radium-226	pCi/L	20/ 24	0.31	1.76	1.76	1.76	X
Radium-226, Dissolved	pCi/L	14/ 23	0.36	1.55	1.31	1.31	N
Radium-228	pCi/L	11/ 24	0.57	1.67	1.67	1.67	D
Radium-228, Dissolved	pCi/L	14/ 23	0.89	1.6	1.83	1.6	N
Thorium-228	pCi/L	1/ 24	0.25	0.25	0.32	0.25	D
Thorium-228, Dissolved	pCi/L	2/ 23	0.15	0.16	0.16	0.16	D
Thorium-230	pCi/L	23/ 24	0.29	0.88	0.88	0.88	N
Thorium-230, Dissolved	pCi/L	16/ 23	0.17	0.39	0.42	0.39	N
Thorium-232	pCi/L	9/ 24	0.05	0.23	0.26	0.23	D
Thorium-232, Dissolved	pCi/L	0/ 23				0.23*	O

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific	Dist
		>Detection Limit				UTL Criteria	
Radionuclides (continued)							
Total Uranium	µg/L	24/ 24	0.30	15.6	50	15.6	G
Total Uranium, Dissolved	µg/L	24/ 24	0.24	16.7	57.9	16.7	G
Uranium-234	pCi/L	23/ 24	0.21	8.73	21.3	8.73	G
Uranium-234, Dissolved	pCi/L	23/ 23	0.18	8.94	25.6	8.94	G
Uranium-235	pCi/L	5/ 24	0.19	0.72	0.72	0.72	D
Uranium-235, Dissolved	pCi/L	10/ 23	0.08	0.51	0.51	0.51	D
Uranium-238	pCi/L	19/ 24	0.12	5.79	28.2	5.79	G
Uranium-238, Dissolved	pCi/L	21/ 23	0.11	6.32	23	6.32	G
Semivolatile Organics							
1,2,4-Trichlorobenzene	µg/L	0/ 24					O
1,2-Dichlorobenzene	µg/L	0/ 24					O
1,3-Dichlorobenzene	µg/L	0/ 24					O
1,4-Dichlorobenzene	µg/L	0/ 24					O
2,4,5-Trichlorophenol	µg/L	0/ 24					O
2,4,6-Trichlorophenol	µg/L	0/ 24					O
2,4-Dichlorophenol	µg/L	0/ 24					O
2,4-Dimethylphenol	µg/L	0/ 24					O
2,4-Dinitrophenol	µg/L	0/ 24					O
2-Chloronaphthalene	µg/L	0/ 24					O
2-Chlorophenol	µg/L	0/ 24					O
2-Methyl-4,6-dinitrophenol	µg/L	0/ 24					O
2-Methylnaphthalene	µg/L	0/ 24					O
2-Nitroaniline	µg/L	0/ 24					O
2-Nitrophenol	µg/L	0/ 24					O
3,3'-Dichlorobenzidine	µg/L	0/ 24					O
3-Nitroaniline	µg/L	0/ 24					O
4-Bromophenylphenylether	µg/L	0/ 24					O
4-Chloro-3-methylphenol	µg/L	0/ 24					O
4-Chloroaniline	µg/L	0/ 24					O
4-Chlorophenylphenylether	µg/L	0/ 24					O
4-Nitroaniline	µg/L	0/ 24					O
4-Nitrophenol	µg/L	0/ 24					O
bis(2-Chloroethoxy)methane	µg/L	0/ 24					O
bis(2-Chloroethyl)ether	µg/L	0/ 24					O
bis(2-Chloroisopropyl)ether	µg/L	0/ 24					O
bis(2-Ethylhexyl)phthalate	µg/L	0/ 24					O
Butylbenzylphthalate	µg/L	0/ 24					O
Carbazole	µg/L	0/ 24					O
Dibenzofuran	µg/L	0/ 24					O
Diethylphthalate	µg/L	0/ 24					O
Dimethylphthalate	µg/L	0/ 24					O
Di-n-butylphthalate	µg/L	0/ 24					O
Di-n-octylphthalate	µg/L	0/ 24					O
Hexachlorobenzene	µg/L	0/ 24					O
Hexachlorobutadiene	µg/L	0/ 24					O
Hexachlorocyclopentadiene	µg/L	0/ 24					O

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results >Detection Limit	Minimum Detect	Maximum Detect	95% UTL	Site-specific UTL Criteria	Dist
Semivolatile Organics (continued)							
Hexachloroethane	µg/L	0/ 24					O
Isophorone	µg/L	0/ 24					O
m,p-Cresols	µg/L	0/ 24					O
N-Nitroso-di-n-propylamine	µg/L	0/ 24					O
N-Nitrosodiphenylamine	µg/L	0/ 24					O
o-Cresol	µg/L	0/ 24					O
Pentachlorophenol	µg/L	0/ 24					O
Phenol	µg/L	0/ 24					O
Volatile Organics							
1,1,1-Trichloroethane	µg/L	1/ 24	0.44	0.44	0.435	0.44	D
1,1,2,2-Tetrachloroethane	µg/L	0/ 24					O
1,1,2-Trichloroethane	µg/L	0/ 24					O
1,1-Dichloroethane	µg/L	0/ 24					O
1,1-Dichloroethene	µg/L	0/ 24					O
1,2-Dichloroethane	µg/L	0/ 24					O
1,2-Dichloropropane	µg/L	0/ 24					O
2-Butanone	µg/L	1/ 24	4.49	4.49	4.49	4.49	D
2-Hexanone	µg/L	0/ 24					O
4-Methyl-2-pentanone	µg/L	0/ 24					O
Acetone	µg/L	4/ 24	3.96	30.5	30.5	30.5	D
Benzene	µg/L	1/ 24	0.37	0.37	0.37	0.37	D
Bromodichloromethane	µg/L	0/ 24					O
Bromoform	µg/L	0/ 24					O
Bromomethane	µg/L	0/ 24					O
Carbon disulfide	µg/L	0/ 24					O
Carbon tetrachloride	µg/L	0/ 24					O
Chlorobenzene	µg/L	1/ 24	0.39	0.39	0.39	0.39	D
Chloroethane	µg/L	0/ 24					O
Chloroform	µg/L	0/ 24					O
Chloromethane	µg/L	0/ 24					O
cis-1,2-Dichloroethene	µg/L	0/ 24					O
cis-1,3-Dichloropropene	µg/L	0/ 24					O
Dibromochloromethane	µg/L	0/ 24					O
Ethylbenzene	µg/L	1/ 24	0.30	0.30	0.30	0.30	D
Methylene chloride	µg/L	0/ 24					O
Styrene	µg/L	0/ 24					O
Tetrachloroethene	µg/L	0/ 24					O
Toluene	µg/L	2/ 24	0.44	4.45	4.45	4.45	D
trans-1,2-Dichloroethene	µg/L	0/ 24					O
trans-1,3-Dichloropropene	µg/L	1/ 24	0.50	0.50	0.50	0.50	D

Table 4-95
Background Groundwater Summary Statistics
Niagara Falls Storage Site Remedial Investigation

Analyte	Units	Results	Minimum Detect	Maximum Detect	95% UTL	Site-specific	Dist
		>Detection Limit				UTL Criteria	
Volatile Organics (continued)							
Trichloroethene	µg/L	0/ 24					O
Vinyl chloride	µg/L	1/ 24	1.48	1.48	1.48	1.48	D
Xylenes (total)	µg/L	1/ 24	0.96	0.96	0.96	0.96	D

¹Background values based on removal of the following data:

Removal of GW outliers; all data from GW wells PZ21S-U-3108 and PZ25S-U-3107

² The detection of Americium-241 in GW had no effect on the BRA since there were no detections of Americium-241 in RI GW samples

Substitutions:

*0.23 Thorium-232 GW UTL substituted for Thorium-232 (Dissolved) in GW

**15,50 GW MCLs for alpha,beta substituted in GW

Dist Codes:

L - Distribution most similar to lognormal

N - Distribution most similar to normal

G - Distribution most similar to gamma

O - No detects, no UTL calculated

X - Distribution significantly different from normal and lognormal

D - Distribution not determined because less than 50% detects or less than 8 detects

Z - Distribution with negative results and therefore treated as normal

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	10	19.7 B	411	6
Antimony, Dissolved	μg/L	10	0.131 B	11.7	4
Arsenic, Dissolved	μg/L	10	0.59 B	10.7 B	10
Barium, Dissolved	μg/L	10	0.31 B	31.2	10
Beryllium, Dissolved	μg/L	10	0.45 B	0.45 B	1
Boron, Dissolved	μg/L	10	82.5	3530	10
Cadmium, Dissolved	μg/L	10	0.31 B	2 B	2
Calcium, Dissolved	μg/L	10	78500	471000	10
Chromium, Dissolved	μg/L	10	1.4 B	2.7 B	2
Cobalt, Dissolved	μg/L	10	1.07 B	4.29 B	3
Copper, Dissolved	μg/L	10	1.6 B	14.8	6
Iron, Dissolved	μg/L	10	37.5 B	5200	5
Lead, Dissolved	μg/L	10	0.071 B	0.554 B	5
Lithium, Dissolved	μg/L	10	58.9	800 NE	10
Magnesium, Dissolved	μg/L	10	64200	1300000	10
Manganese, Dissolved	μg/L	10	13.2	684	10
Mercury, Dissolved	μg/L	10	0.07 B	0.12 J	2
Nickel, Dissolved	μg/L	10	2.06 B	9.89	5
Potassium, Dissolved	μg/L	10	4010 EN	49000	10
Selenium, Dissolved	μg/L	10	0.758 B	6.1	9
Silver, Dissolved	μg/L	10	0.01 B	0.79 B	8
Sodium, Dissolved	μg/L	10	46400	817000	10
Thallium, Dissolved	μg/L	10	0.017 B	0.04 B	2
Vanadium, Dissolved	μg/L	10	0.89 B	2.12 B	4
Zinc, Dissolved	μg/L	10	1.5 B	41.2	2
Metals, Total					
Aluminum	μg/L	10	31.4 B	19100	9
Antimony	μg/L	10	0.08 B	6	6
Arsenic	μg/L	10	3.4 B	13.6 B	9
Barium	μg/L	10	4.9 B	103	10
Beryllium	μg/L	10	0.82 B	0.82 B	1
Boron	μg/L	10	82.5	3510 E	10
Cadmium	μg/L	10	--	--	0
Calcium	μg/L	10	78900	488000	10
Chromium	μg/L	10	0.67 B	21.9	6
Cobalt	μg/L	10	9.3	9.3	1
Copper	μg/L	10	2.03 B	52.7	6
Iron	μg/L	10	119	23500	10
Lead	μg/L	10	0.155 B	8.4 B	5
Lithium	μg/L	10	39.1	716 E	10
Magnesium	μg/L	10	67400	1360000	10
Manganese	μg/L	10	36.1	719	10
Mercury	μg/L	10	0.072 BN	0.15 J	3

* Data qualifier included with concentration value

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	10	2.8 B	25.1	3
Potassium	μg/L	10	3800	39800	10
Selenium	μg/L	10	1.02 B	10 B	9
Silver	μg/L	10	0.008 B	0.31 B	5
Sodium	μg/L	10	47900	851000	10
Thallium	μg/L	10	0.109 BN	0.109 BN	1
Vanadium	μg/L	10	2.3 B	34.6	5
Zinc	μg/L	10	2.1 B	460	4
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	9	0.084 J	1.4 J	2
2,4,6-Trinitrotoluene	μg/L	9	--	--	0
2,4-Dinitrotoluene	μg/L	10	--	--	0
2,6-Dinitrotoluene	μg/L	10	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	9	--	--	0
2-Nitrotoluene	μg/L	9	--	--	0
3-Dinitrobenzene	μg/L	9	--	--	0
3-Nitrotoluene	μg/L	9	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	9	--	--	0
4-Nitrotoluene	μg/L	9	--	--	0
HMX	μg/L	9	0.42 J	0.42 J	1
Nitrobenzene	μg/L	10	--	--	0
RDX	μg/L	9	--	--	0
Tetryl	μg/L	9	--	--	0
PAHs					
Acenaphthene	μg/L	10	--	--	0
Acenaphthylene	μg/L	10	--	--	0
Anthracene	μg/L	10	--	--	0
Benzo(a)anthracene	μg/L	10	--	--	0
Benzo(a)pyrene	μg/L	10	--	--	0
Benzo(b)fluoranthene	μg/L	10	--	--	0
Benzo(g,h,i)perylene	μg/L	10	--	--	0
Benzo(k)fluoranthene	μg/L	10	--	--	0
Chrysene	μg/L	10	--	--	0
Dibenzo(a,h)anthracene	μg/L	10	--	--	0
Fluoranthene	μg/L	10	--	--	0
Fluorene	μg/L	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	10	--	--	0
Naphthalene	μg/L	10	--	--	0
Phenanthrene	μg/L	10	--	--	0
Pyrene	μg/L	10	--	--	0
PCBs					
Aroclor-1016	μg/L	9	--	--	0
Aroclor-1221	μg/L	9	--	--	0
Aroclor-1232	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	9	--	--	0
Aroclor-1248	μg/L	9	--	--	0
Aroclor-1254	μg/L	9	--	--	0
Aroclor-1260	μg/L	9	--	--	0
Pesticides					
4,4'-DDD	μg/L	9	0.0279 J	0.0279 J	1
4,4'-DDE	μg/L	9	--	--	0
4,4'-DDT	μg/L	9	0.0263 J	0.0263 J	1
Aldrin	μg/L	9	--	--	0
alpha-BHC	μg/L	9	--	--	0
alpha-Chlordane	μg/L	9	--	--	0
beta-BHC	μg/L	9	--	--	0
delta-BHC	μg/L	9	--	--	0
Dieldrin	μg/L	9	--	--	0
Endosulfan I	μg/L	9	--	--	0
Endosulfan II	μg/L	9	0.0241 J	0.0241 J	1
Endosulfan sulfate	μg/L	9	0.0195 J	0.0195 J	1
Endrin	μg/L	9	--	--	0
Endrin aldehyde	μg/L	9	--	--	0
Endrin ketone	μg/L	9	--	--	0
gamma-BHC (Lindane)	μg/L	9	--	--	0
gamma-Chlordane	μg/L	9	--	--	0
Heptachlor	μg/L	9	--	--	0
Heptachlor epoxide	μg/L	9	--	--	0
Methoxychlor	μg/L	9	--	--	0
Toxaphene	μg/L	9	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	4	--	--	0
Alpha, Dissolved	pCi/L	3	4.96	20.5	2
Americium-241, Dissolved	pCi/L	4	--	--	0
Beta, Dissolved	pCi/L	3	8.27	23.6	3
Cesium-137, Dissolved	pCi/L	4	--	--	0
Cobalt-60, Dissolved	pCi/L	4	--	--	0
Protactinium-231, Dissolved	pCi/L	4	--	--	0
Radium-226, Dissolved	pCi/L	4	--	--	0
Radium-228, Dissolved	pCi/L	4	1.03	1.03	1
Thorium-228, Dissolved	pCi/L	4	--	--	0
Thorium-230, Dissolved	pCi/L	4	--	--	0
Thorium-232, Dissolved	pCi/L	4	--	--	0
Total Uranium, Dissolved	μg/L	4	0.381	47.2	4
Uranium-234, Dissolved	pCi/L	4	0.437	22.1	4
Uranium-235, Dissolved	pCi/L	4	0.118	0.684	3
Uranium-238, Dissolved	pCi/L	4	0.207	17.5	4
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	5	--	--	0
Alpha	pCi/L	10	3.54	71.8	9
Americium-241	pCi/L	5	--	--	0
Beta	pCi/L	10	9.67	41.1	10
Cesium-137	pCi/L	5	--	--	0
Cobalt-60	pCi/L	5	--	--	0
Protactinium-231	pCi/L	5	--	--	0
Radium-226	pCi/L	10	0.576 J	1.94	6
Radium-228	pCi/L	5	--	--	0
Thorium-228	pCi/L	10	0.228	0.557 J	3
Thorium-230	pCi/L	10	0.234	0.337	4
Thorium-232	pCi/L	10	0.0754	0.337	5
Total Uranium	μg/L	10	0.435 J	62.4	8
Uranium-234	pCi/L	10	0.109 J	24.7	9
Uranium-235	pCi/L	10	0.471	1.19	5
Uranium-238	pCi/L	10	0.155 J	20.3	9
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	10	--	--	0
1,2-Dichlorobenzene	μg/L	10	--	--	0
1,3-Dichlorobenzene	μg/L	10	--	--	0
1,4-Dichlorobenzene	μg/L	10	--	--	0
2,4,5-Trichlorophenol	μg/L	10	--	--	0
2,4,6-Trichlorophenol	μg/L	10	--	--	0
2,4-Dichlorophenol	μg/L	10	--	--	0
2,4-Dimethylphenol	μg/L	10	--	--	0
2,4-Dinitrophenol	μg/L	10	--	--	0
2-Chloronaphthalene	μg/L	10	--	--	0
2-Chlorophenol	μg/L	10	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	20	--	--	0
2-Methylnaphthalene	μg/L	9	--	--	0
2-Nitroaniline	μg/L	10	--	--	0
2-Nitrophenol	μg/L	10	--	--	0
3,3'-Dichlorobenzidine	μg/L	10	--	--	0
3-Nitroaniline	μg/L	10	--	--	0
4-Bromophenylphenylether	μg/L	10	--	--	0
4-Chloro-3-methylphenol	μg/L	10	--	--	0
4-Chloroaniline	μg/L	10	--	--	0
4-Chlorophenylphenylether	μg/L	10	--	--	0
4-Nitroaniline	μg/L	10	--	--	0
4-Nitrophenol	μg/L	10	--	--	0
Benzoic Acid	μg/L	7	--	--	0
bis(2-Chloroethoxy)methane	μg/L	10	--	--	0
bis(2-Chloroethyl)ether	μg/L	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	10	--	--	0

* Data qualifier included with concentration value

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	10	6.4 J	6.4 J	1
Butylbenzylphthalate	μg/L	10	--	--	0
Carbazole	μg/L	10	--	--	0
Dibenzofuran	μg/L	10	--	--	0
Diethylphthalate	μg/L	10	--	--	0
Dimethylphthalate	μg/L	10	--	--	0
Di-n-butylphthalate	μg/L	10	--	--	0
Di-n-octylphthalate	μg/L	10	--	--	0
Diphenylamine	μg/L	7	--	--	0
Hexachlorobenzene	μg/L	10	--	--	0
Hexachlorobutadiene	μg/L	10	--	--	0
Hexachlorocyclopentadiene	μg/L	10	--	--	0
Hexachloroethane	μg/L	10	--	--	0
Isophorone	μg/L	10	--	--	0
m,p-Cresols	μg/L	9	--	--	0
N-Nitroso-di-n-propylamine	μg/L	10	--	--	0
N-Nitrosodiphenylamine	μg/L	3	--	--	0
o-Cresol	μg/L	10	--	--	0
p-Cresol	μg/L	1	--	--	0
Pentachlorophenol	μg/L	10	--	--	0
Phenol	μg/L	10	0.306 J	0.306 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	9	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	9	--	--	0
1,1,2-Trichloroethane	μg/L	9	--	--	0
1,1-Dichloroethane	μg/L	9	--	--	0
1,1-Dichloroethene	μg/L	9	--	--	0
1,2-Dichloroethane	μg/L	9	--	--	0
1,2-Dichloroethene	μg/L	1	--	--	0
1,2-Dichloropropane	μg/L	9	--	--	0
2-Butanone	μg/L	8	8.4	8.4	1
2-Hexanone	μg/L	9	--	--	0
4-Methyl-2-pentanone	μg/L	8	--	--	0
Acetone	μg/L	9	0.62 J	4.84 J	4
Benzene	μg/L	9	--	--	0
Bromodichloromethane	μg/L	9	--	--	0
Bromoform	μg/L	9	--	--	0
Bromomethane	μg/L	9	--	--	0
Carbon disulfide	μg/L	9	--	--	0
Carbon tetrachloride	μg/L	9	--	--	0
Chlorobenzene	μg/L	9	--	--	0
Chloroethane	μg/L	9	--	--	0
Chloroform	μg/L	9	0.41 J	0.41 J	1
Chloromethane	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-96
Exposure Unit 1
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,2-Dichloroethene	μg/L	8	--	--	0
cis-1,3-Dichloropropene	μg/L	9	--	--	0
Dibromochloromethane	μg/L	9	--	--	0
Ethylbenzene	μg/L	9	0.067 J	0.067 J	1
Methylene chloride	μg/L	9	--	--	0
Styrene	μg/L	9	--	--	0
Tetrachloroethene	μg/L	9	--	--	0
Toluene	μg/L	9	--	--	0
trans-1,2-Dichloroethene	μg/L	8	--	--	0
trans-1,3-Dichloropropene	μg/L	9	--	--	0
Trichloroethene	μg/L	9	--	--	0
Vinyl chloride	μg/L	9	1	1	1
Xylenes (total)	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	14	30.6 B	529 BN*	7
Antimony, Dissolved	μg/L	14	3 B	6.2 B	5
Arsenic, Dissolved	μg/L	13	2.3 B	11.8	13
Barium, Dissolved	μg/L	14	9.86	258	14
Beryllium, Dissolved	μg/L	14	0.25 B	0.38 B	2
Boron, Dissolved	μg/L	13	24 B	1010	13
Cadmium, Dissolved	μg/L	14	0.27 B	0.36 B	3
Calcium, Dissolved	μg/L	14	49100	410000	14
Chromium, Dissolved	μg/L	14	0.85 B	0.85 B	1
Cobalt, Dissolved	μg/L	14	0.75 B	1.6 B	3
Copper, Dissolved	μg/L	14	1 B	15.4	10
Iron, Dissolved	μg/L	14	4.3 B	385	7
Lead, Dissolved	μg/L	14	0.02 B	0.25 BE	6
Lithium, Dissolved	μg/L	14	2.9 BE	225 E	14
Magnesium, Dissolved	μg/L	14	21600	947000	14
Manganese, Dissolved	μg/L	14	1.55 B	295	14
Mercury, Dissolved	μg/L	14	0.06 B	0.06 B	1
Nickel, Dissolved	μg/L	14	1.4 B	5.6	9
Potassium, Dissolved	μg/L	14	887 E	15500 NE	14
Selenium, Dissolved	μg/L	14	0.73 B	5.5	10
Silver, Dissolved	μg/L	14	0.1 B	0.85 B	10
Sodium, Dissolved	μg/L	14	3780 E	573000 E	14
Thallium, Dissolved	μg/L	14	0.115 BN	0.96	8
Vanadium, Dissolved	μg/L	14	0.74 B	2.1 B	6
Zinc, Dissolved	μg/L	14	5.3	38.3 BE	8
Metals, Total					
Aluminum	μg/L	14	125	48500	12
Antimony	μg/L	14	0.295 B	17.7	5
Arsenic	μg/L	14	3.8 B	38.8 B	13
Barium	μg/L	14	11.5	452	14
Beryllium	μg/L	14	0.37 B	2.1 B	7
Boron	μg/L	14	52	1050	14
Cadmium	μg/L	14	0.24 B	2.8 B	5
Calcium	μg/L	14	61200	627000	14
Chromium	μg/L	14	0.65 B	61.9	10
Cobalt	μg/L	14	2.09 B	32.9	8
Copper	μg/L	14	1.73 B	193	14
Iron	μg/L	14	10.3 B	90200	13
Lead	μg/L	14	0.14 B	34.5 E	13
Lithium	μg/L	14	24.9 B	246 EN	14
Magnesium	μg/L	14	45000	866000	14
Manganese	μg/L	14	2.35 B	7720	14
Mercury	μg/L	14	0.044 B	0.11 B	2

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	14	1.74 B	76.3	11
Potassium	μg/L	14	2000	21700 EN	14
Selenium	μg/L	14	1.49 B	17.9 B	10
Silver	μg/L	14	0.03 B	0.88 B	9
Sodium	μg/L	14	5020 E	485000 E	14
Thallium	μg/L	14	0.395 B	11.3	6
Vanadium	μg/L	14	4.49 B	111	10
Zinc	μg/L	14	12.8	220	11
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	8	--	--	0
2,4,6-Trinitrotoluene	μg/L	8	--	--	0
2,4-Dinitrotoluene	μg/L	14	--	--	0
2,6-Dinitrotoluene	μg/L	14	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	8	--	--	0
2-Nitrotoluene	μg/L	8	--	--	0
3-Dinitrobenzene	μg/L	8	--	--	0
3-Nitrotoluene	μg/L	8	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	8	--	--	0
4-Nitrotoluene	μg/L	8	--	--	0
HMX	μg/L	8	--	--	0
Nitrobenzene	μg/L	14	--	--	0
RDX	μg/L	8	--	--	0
Tetryl	μg/L	8	--	--	0
PAHs					
Acenaphthene	μg/L	13	--	--	0
Acenaphthylene	μg/L	13	--	--	0
Anthracene	μg/L	13	--	--	0
Benzo(a)anthracene	μg/L	13	0.0226 J	0.0226 J	1
Benzo(a)pyrene	μg/L	13	--	--	0
Benzo(b)fluoranthene	μg/L	13	--	--	0
Benzo(g,h,i)perylene	μg/L	13	--	--	0
Benzo(k)fluoranthene	μg/L	13	0.036	0.036	1
Chrysene	μg/L	13	--	--	0
Dibenzo(a,h)anthracene	μg/L	13	0.0343 J	0.0343 J	1
Fluoranthene	μg/L	13	--	--	0
Fluorene	μg/L	13	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	13	--	--	0
Naphthalene	μg/L	13	--	--	0
Phenanthrene	μg/L	13	--	--	0
Pyrene	μg/L	13	--	--	0
PCBs					
Aroclor-1016	μg/L	7	--	--	0
Aroclor-1221	μg/L	7	--	--	0
Aroclor-1232	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	7	--	--	0
Aroclor-1248	μg/L	7	--	--	0
Aroclor-1254	μg/L	7	--	--	0
Aroclor-1260	μg/L	7	--	--	0
Pesticides					
4,4'-DDD	μg/L	7	--	--	0
4,4'-DDE	μg/L	7	--	--	0
4,4'-DDT	μg/L	7	--	--	0
Aldrin	μg/L	7	--	--	0
alpha-BHC	μg/L	7	--	--	0
alpha-Chlordane	μg/L	7	--	--	0
beta-BHC	μg/L	7	--	--	0
delta-BHC	μg/L	7	--	--	0
Dieldrin	μg/L	7	--	--	0
Endosulfan I	μg/L	7	--	--	0
Endosulfan II	μg/L	7	--	--	0
Endosulfan sulfate	μg/L	7	--	--	0
Endrin	μg/L	7	--	--	0
Endrin aldehyde	μg/L	7	--	--	0
Endrin ketone	μg/L	7	--	--	0
gamma-BHC (Lindane)	μg/L	7	--	--	0
gamma-Chlordane	μg/L	7	--	--	0
Heptachlor	μg/L	7	--	--	0
Heptachlor epoxide	μg/L	7	--	--	0
Methoxychlor	μg/L	7	--	--	0
Toxaphene	μg/L	7	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	5	--	--	0
Alpha, Dissolved	pCi/L	3	4.83	25.4	3
Americium-241, Dissolved	pCi/L	5	--	--	0
Beta, Dissolved	pCi/L	3	3.2	22.7	3
Cesium-137, Dissolved	pCi/L	5	--	--	0
Cobalt-60, Dissolved	pCi/L	5	--	--	0
Protactinium-231, Dissolved	pCi/L	5	--	--	0
Radium-226, Dissolved	pCi/L	5	0.45	0.598	2
Radium-228, Dissolved	pCi/L	5	1	1	1
Thorium-228, Dissolved	pCi/L	8	0.318	0.318	1
Thorium-230, Dissolved	pCi/L	5	--	--	0
Thorium-232, Dissolved	pCi/L	5	--	--	0
Total Uranium, Dissolved	μg/L	5	5	38.9	5
Uranium-234, Dissolved	pCi/L	8	2.24	19.1	8
Uranium-235, Dissolved	pCi/L	8	0.211	1.43	6
Uranium-238, Dissolved	pCi/L	8	1.8	15.8	8
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	8	--	--	0
Alpha	pCi/L	17	4.45	105	16
Americium-241	pCi/L	8	--	--	0
Beta	pCi/L	17	4.65	75.2	16
Cesium-137	pCi/L	8	33.5	61.5	2
Cobalt-60	pCi/L	8	--	--	0
Protactinium-231	pCi/L	8	--	--	0
Radium-226	pCi/L	18	0.608	2.33	12
Radium-228	pCi/L	8	--	--	0
Thorium-228	pCi/L	18	0.0832	1.14	10
Thorium-230	pCi/L	18	0.157 J	0.565 J	8
Thorium-232	pCi/L	18	0.0292	0.572 J	9
Total Uranium	μg/L	18	0.446	107	18
Uranium-234	pCi/L	18	0.144	36	18
Uranium-235	pCi/L	18	0.0981 J	1.35	13
Uranium-238	pCi/L	18	0.11	29.2	18
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	13	--	--	0
1,2-Dichlorobenzene	μg/L	13	--	--	0
1,3-Dichlorobenzene	μg/L	13	--	--	0
1,4-Dichlorobenzene	μg/L	13	--	--	0
2,4,5-Trichlorophenol	μg/L	13	--	--	0
2,4,6-Trichlorophenol	μg/L	13	--	--	0
2,4-Dichlorophenol	μg/L	13	--	--	0
2,4-Dimethylphenol	μg/L	13	--	--	0
2,4-Dinitrophenol	μg/L	13	--	--	0
2-Chloronaphthalene	μg/L	13	--	--	0
2-Chlorophenol	μg/L	13	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	26	--	--	0
2-Methylnaphthalene	μg/L	13	--	--	0
2-Nitroaniline	μg/L	13	--	--	0
2-Nitrophenol	μg/L	13	--	--	0
3,3'-Dichlorobenzidine	μg/L	13	--	--	0
3-Nitroaniline	μg/L	13	--	--	0
4-Bromophenylphenylether	μg/L	13	--	--	0
4-Chloro-3-methylphenol	μg/L	13	--	--	0
4-Chloroaniline	μg/L	13	--	--	0
4-Chlorophenylphenylether	μg/L	13	--	--	0
4-Nitroaniline	μg/L	13	--	--	0
4-Nitrophenol	μg/L	13	--	--	0
Benzoic Acid	μg/L	10	--	--	0
bis(2-Chloroethoxy)methane	μg/L	13	--	--	0
bis(2-Chloroethyl)ether	μg/L	13	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	13	--	--	0

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	13	14.5	276 D	3
Butylbenzylphthalate	μg/L	13	--	--	0
Carbazole	μg/L	13	--	--	0
Dibenzofuran	μg/L	13	--	--	0
Diethylphthalate	μg/L	13	--	--	0
Dimethylphthalate	μg/L	13	--	--	0
Di-n-butylphthalate	μg/L	13	--	--	0
Di-n-octylphthalate	μg/L	13	--	--	0
Diphenylamine	μg/L	10	--	--	0
Hexachlorobenzene	μg/L	13	--	--	0
Hexachlorobutadiene	μg/L	13	--	--	0
Hexachlorocyclopentadiene	μg/L	13	--	--	0
Hexachloroethane	μg/L	13	--	--	0
Isophorone	μg/L	13	--	--	0
m,p-Cresols	μg/L	13	--	--	0
N-Nitroso-di-n-propylamine	μg/L	13	--	--	0
N-Nitrosodiphenylamine	μg/L	3	--	--	0
o-Cresol	μg/L	13	--	--	0
Pentachlorophenol	μg/L	13	--	--	0
Phenol	μg/L	13	2.15 J	2.15 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	12	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	12	--	--	0
1,1,2-Trichloroethane	μg/L	12	--	--	0
1,1-Dichloroethane	μg/L	12	--	--	0
1,1-Dichloroethene	μg/L	12	--	--	0
1,2-Dichloroethane	μg/L	12	--	--	0
1,2-Dichloropropane	μg/L	12	--	--	0
2-Butanone	μg/L	12	1.4 J	4.9 J	2
2-Hexanone	μg/L	12	--	--	0
4-Methyl-2-pentanone	μg/L	12	--	--	0
Acetone	μg/L	12	2.2 J	4.99 J	4
Benzene	μg/L	12	--	--	0
Bromodichloromethane	μg/L	12	--	--	0
Bromoform	μg/L	12	--	--	0
Bromomethane	μg/L	12	--	--	0
Carbon disulfide	μg/L	12	--	--	0
Carbon tetrachloride	μg/L	12	--	--	0
Chlorobenzene	μg/L	12	--	--	0
Chloroethane	μg/L	12	--	--	0
Chloroform	μg/L	12	--	--	0
Chloromethane	μg/L	12	--	--	0
cis-1,2-Dichloroethene	μg/L	12	--	--	0
cis-1,3-Dichloropropene	μg/L	12	--	--	0

* Data qualifier included with concentration value

Table 4-97
Exposure Unit 2
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/L	11	--	--	0
Ethylbenzene	μg/L	12	--	--	0
Methylene chloride	μg/L	12	--	--	0
Styrene	μg/L	12	--	--	0
Tetrachloroethene	μg/L	12	1.7	1.7	1
Toluene	μg/L	12	0.429 J	0.429 J	1
trans-1,2-Dichloroethene	μg/L	12	--	--	0
trans-1,3-Dichloropropene	μg/L	12	--	--	0
Trichloroethene	μg/L	12	--	--	0
Vinyl chloride	μg/L	12	1.3	1.3	1
Xylenes (total)	μg/L	12	--	--	0

* Data qualifier included with concentration value

Table 4-98
Exposure Unit 3
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	3	18.3 B	744 N	3
Antimony, Dissolved	μg/L	3	2.5 J	4.7 B	2
Arsenic, Dissolved	μg/L	3	1 B	6.6 J	3
Barium, Dissolved	μg/L	3	18.8	82	3
Beryllium, Dissolved	μg/L	3	--	--	0
Boron, Dissolved	μg/L	3	75.7 J	227	3
Cadmium, Dissolved	μg/L	3	0.36 B	0.36 B	1
Calcium, Dissolved	μg/L	3	130000	576000	3
Chromium, Dissolved	μg/L	3	--	--	0
Cobalt, Dissolved	μg/L	3	--	--	0
Copper, Dissolved	μg/L	3	2.1 B	5.4	2
Iron, Dissolved	μg/L	3	61.9	18500	3
Lead, Dissolved	μg/L	3	0.13 B	1.5 J	3
Lithium, Dissolved	μg/L	3	4 J	94.2 E	2
Magnesium, Dissolved	μg/L	3	44800	262000	3
Manganese, Dissolved	μg/L	3	272	1430	3
Mercury, Dissolved	μg/L	3	0.09 B	0.09 B	1
Nickel, Dissolved	μg/L	3	2.5 B	3.3 B	2
Potassium, Dissolved	μg/L	3	912 J	6670 NE	3
Selenium, Dissolved	μg/L	3	1.6 B	7.7 J	2
Silver, Dissolved	μg/L	3	0.09 B	0.94 B	2
Sodium, Dissolved	μg/L	3	24300	179000 E	3
Thallium, Dissolved	μg/L	3	0.05 B	2.4 B	2
Vanadium, Dissolved	μg/L	3	0.88 B	1.5 B	2
Zinc, Dissolved	μg/L	3	1 B	1 B	1
Metals, Total					
Aluminum	μg/L	3	3660	5880 N	3
Antimony	μg/L	3	2.8 J	2.8 J	1
Arsenic	μg/L	3	3.9 B	14.5	3
Barium	μg/L	3	45.6 J	118	3
Beryllium	μg/L	3	0.19 B	0.19 B	1
Boron	μg/L	3	133	198	3
Cadmium	μg/L	3	0.35 B	0.35 B	1
Calcium	μg/L	3	148000	576000 J	3
Chromium	μg/L	3	3.6 B	7.5	3
Cobalt	μg/L	3	1.1 B	2.9 B	2
Copper	μg/L	3	10.3	25.5	2
Iron	μg/L	3	3560	29000 J	3
Lead	μg/L	3	0.38 B	25.3	3
Lithium	μg/L	3	2.7 B	111 E	3
Magnesium	μg/L	3	44100	277000	3
Manganese	μg/L	3	556	1520 *	3
Mercury	μg/L	3	0.07 B	0.07 B	1

* Data qualifier included with concentration value

Table 4-98
Exposure Unit 3
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	3	10.1	10.1	1
Potassium	μg/L	3	1910 *	6290 NE	3
Selenium	μg/L	3	1.5 B	14.3 B	3
Silver	μg/L	3	0.36 B	0.36 B	1
Sodium	μg/L	3	19000 J	161000 E	3
Thallium	μg/L	3	2.1 B	2.1 B	1
Vanadium	μg/L	3	6.1	12.2	2
Zinc	μg/L	3	39.9 E	216	2
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	3	--	--	0
2,4,6-Trinitrotoluene	μg/L	3	--	--	0
2,4-Dinitrotoluene	μg/L	3	--	--	0
2,6-Dinitrotoluene	μg/L	3	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	3	--	--	0
2-Nitrotoluene	μg/L	3	--	--	0
3-Dinitrobenzene	μg/L	3	--	--	0
3-Nitrotoluene	μg/L	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	3	--	--	0
4-Nitrotoluene	μg/L	3	--	--	0
HMX	μg/L	3	--	--	0
Nitrobenzene	μg/L	3	--	--	0
RDX	μg/L	3	--	--	0
Tetryl	μg/L	3	--	--	0
PAHs					
Acenaphthene	μg/L	3	0.5	0.5	1
Acenaphthylene	μg/L	3	--	--	0
Anthracene	μg/L	3	0.05	0.05	1
Benzo(a)anthracene	μg/L	3	--	--	0
Benzo(a)pyrene	μg/L	3	--	--	0
Benzo(b)fluoranthene	μg/L	3	--	--	0
Benzo(g,h,i)perylene	μg/L	3	--	--	0
Benzo(k)fluoranthene	μg/L	3	--	--	0
Chrysene	μg/L	3	--	--	0
Dibenzo(a,h)anthracene	μg/L	3	--	--	0
Fluoranthene	μg/L	3	0.35	0.35	1
Fluorene	μg/L	3	0.15	0.15	1
Indeno(1,2,3-cd)pyrene	μg/L	3	--	--	0
Naphthalene	μg/L	3	--	--	0
Phenanthrene	μg/L	3	0.05	0.05	1
Pyrene	μg/L	3	0.2	0.2	1
PCBs					
Aroclor-1016	μg/L	1	--	--	0
Aroclor-1221	μg/L	1	--	--	0
Aroclor-1232	μg/L	1	--	--	0

* Data qualifier included with concentration value

Table 4-98
Exposure Unit 3
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	1	--	--	0
Aroclor-1248	μg/L	1	--	--	0
Aroclor-1254	μg/L	1	--	--	0
Aroclor-1260	μg/L	1	--	--	0
Pesticides					
4,4'-DDD	μg/L	1	--	--	0
4,4'-DDE	μg/L	1	--	--	0
4,4'-DDT	μg/L	1	--	--	0
Aldrin	μg/L	1	--	--	0
alpha-BHC	μg/L	1	--	--	0
alpha-Chlordane	μg/L	1	--	--	0
beta-BHC	μg/L	1	--	--	0
delta-BHC	μg/L	1	--	--	0
Dieldrin	μg/L	1	--	--	0
Endosulfan I	μg/L	1	--	--	0
Endosulfan II	μg/L	1	--	--	0
Endosulfan sulfate	μg/L	1	--	--	0
Endrin	μg/L	1	--	--	0
Endrin aldehyde	μg/L	1	--	--	0
Endrin ketone	μg/L	1	--	--	0
gamma-BHC (Lindane)	μg/L	1	--	--	0
gamma-Chlordane	μg/L	1	--	--	0
Heptachlor	μg/L	1	--	--	0
Heptachlor epoxide	μg/L	2	0.016 J	0.016 J	1
Methoxychlor	μg/L	1	--	--	0
Toxaphene	μg/L	1	--	--	0
Radionuclides, Total					
Alpha	pCi/L	2	20.3	22	2
Beta	pCi/L	2	12	30.3	2
Radium-226	pCi/L	2	--	--	0
Thorium-228	pCi/L	2	0.36 J	0.36 J	1
Thorium-230	pCi/L	2	0.156 J	0.156 J	1
Thorium-232	pCi/L	2	0.0889 J	0.0889 J	1
Total Uranium	μg/L	2	15.8	23.2	2
Uranium-234	pCi/L	2	6.38	8.34	2
Uranium-235	pCi/L	2	0.393 J	0.657	2
Uranium-238	pCi/L	2	5.05	8.28	2
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	3	--	--	0
1,2-Dichlorobenzene	μg/L	3	--	--	0
1,3-Dichlorobenzene	μg/L	3	--	--	0
1,4-Dichlorobenzene	μg/L	3	--	--	0
2,4,5-Trichlorophenol	μg/L	3	--	--	0
2,4,6-Trichlorophenol	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-98
Exposure Unit 3
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
2,4-Dichlorophenol	μg/L	3	--	--	0
2,4-Dimethylphenol	μg/L	3	--	--	0
2,4-Dinitrophenol	μg/L	3	--	--	0
2-Chloronaphthalene	μg/L	3	--	--	0
2-Chlorophenol	μg/L	3	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	6	--	--	0
2-Methylnaphthalene	μg/L	2	--	--	0
2-Nitroaniline	μg/L	3	--	--	0
2-Nitrophenol	μg/L	3	--	--	0
3,3'-Dichlorobenzidine	μg/L	3	--	--	0
3-Nitroaniline	μg/L	3	--	--	0
4-Bromophenylphenylether	μg/L	3	--	--	0
4-Chloro-3-methylphenol	μg/L	3	--	--	0
4-Chloroaniline	μg/L	3	--	--	0
4-Chlorophenylphenylether	μg/L	3	--	--	0
4-Nitroaniline	μg/L	3	--	--	0
4-Nitrophenol	μg/L	3	--	--	0
Benzoic Acid	μg/L	2	--	--	0
bis(2-Chloroethoxy)methane	μg/L	3	--	--	0
bis(2-Chloroethyl)ether	μg/L	3	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	3	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	3	--	--	0
Butylbenzylphthalate	μg/L	3	--	--	0
Carbazole	μg/L	3	--	--	0
Dibenzofuran	μg/L	3	--	--	0
Diethylphthalate	μg/L	3	--	--	0
Dimethylphthalate	μg/L	3	--	--	0
Di-n-butylphthalate	μg/L	3	--	--	0
Di-n-octylphthalate	μg/L	3	--	--	0
Diphenylamine	μg/L	2	--	--	0
Hexachlorobenzene	μg/L	3	--	--	0
Hexachlorobutadiene	μg/L	3	--	--	0
Hexachlorocyclopentadiene	μg/L	3	--	--	0
Hexachloroethane	μg/L	3	--	--	0
Isophorone	μg/L	3	--	--	0
m,p-Cresols	μg/L	2	--	--	0
N-Nitroso-di-n-propylamine	μg/L	3	--	--	0
N-Nitrosodiphenylamine	μg/L	1	--	--	0
o-Cresol	μg/L	3	--	--	0
p-Cresol	μg/L	1	--	--	0
Pentachlorophenol	μg/L	3	--	--	0
Phenol	μg/L	3	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-98
Exposure Unit 3
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
1,1,2,2-Tetrachloroethane	μg/L	2	--	--	0
1,1,2-Trichloroethane	μg/L	2	--	--	0
1,1-Dichloroethane	μg/L	2	--	--	0
1,1-Dichloroethene	μg/L	2	--	--	0
1,2-Dichloroethane	μg/L	2	--	--	0
1,2-Dichloroethene	μg/L	1	--	--	0
1,2-Dichloropropane	μg/L	2	--	--	0
2-Butanone	μg/L	1	--	--	0
2-Hexanone	μg/L	2	--	--	0
4-Methyl-2-pentanone	μg/L	1	--	--	0
Acetone	μg/L	2	6 J	6 J	1
Benzene	μg/L	2	--	--	0
Bromodichloromethane	μg/L	2	--	--	0
Bromoform	μg/L	2	--	--	0
Bromomethane	μg/L	2	--	--	0
Carbon disulfide	μg/L	2	0.4 J	0.4 J	1
Carbon tetrachloride	μg/L	2	--	--	0
Chlorobenzene	μg/L	2	--	--	0
Chloroethane	μg/L	2	--	--	0
Chloroform	μg/L	2	--	--	0
Chloromethane	μg/L	2	--	--	0
cis-1,2-Dichloroethene	μg/L	1	--	--	0
cis-1,3-Dichloropropene	μg/L	2	--	--	0
Dibromochloromethane	μg/L	2	--	--	0
Ethylbenzene	μg/L	2	--	--	0
Methylene chloride	μg/L	2	--	--	0
Styrene	μg/L	2	--	--	0
Tetrachloroethene	μg/L	2	--	--	0
Toluene	μg/L	2	--	--	0
trans-1,2-Dichloroethene	μg/L	1	--	--	0
trans-1,3-Dichloropropene	μg/L	2	--	--	0
Trichloroethene	μg/L	2	--	--	0
Vinyl chloride	μg/L	2	--	--	0
Xylenes (total)	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	9	28.1 B	634	5
Antimony, Dissolved	μg/L	9	0.164 B	0.677 B	2
Arsenic, Dissolved	μg/L	9	0.59 B	6.8 B	8
Barium, Dissolved	μg/L	9	6.62	62.4	9
Beryllium, Dissolved	μg/L	9	--	--	0
Boron, Dissolved	μg/L	9	141	26600	9
Cadmium, Dissolved	μg/L	9	--	--	0
Calcium, Dissolved	μg/L	9	91600	266000	9
Chromium, Dissolved	μg/L	9	0.64 B	1.47 B	2
Cobalt, Dissolved	μg/L	9	0.69 B	6.64	5
Copper, Dissolved	μg/L	9	1.66 B	12.2	7
Iron, Dissolved	μg/L	9	3.3 B	586	5
Lead, Dissolved	μg/L	9	0.071 B	0.41 B	4
Lithium, Dissolved	μg/L	9	5.93 B	99.4 B	9
Magnesium, Dissolved	μg/L	9	42400	282000	9
Manganese, Dissolved	μg/L	9	2.2 B	3350	9
Mercury, Dissolved	μg/L	9	0.06 B	0.07 B	2
Nickel, Dissolved	μg/L	9	1.1 B	195	6
Potassium, Dissolved	μg/L	9	1190	8120	9
Selenium, Dissolved	μg/L	9	0.78 B	9.4 B	7
Silver, Dissolved	μg/L	9	0.007 B	0.86 B	6
Sodium, Dissolved	μg/L	9	8800 E	168000	9
Thallium, Dissolved	μg/L	9	0.04 B	0.04 B	1
Vanadium, Dissolved	μg/L	9	1 B	19.2	3
Zinc, Dissolved	μg/L	9	1.44 B	69	5
Metals, Total					
Aluminum	μg/L	10	51.7	410000	9
Antimony	μg/L	10	0.11 B	2.3 B	3
Arsenic	μg/L	10	3.4 B	40.1 E	7
Barium	μg/L	10	8.15	3100	10
Beryllium	μg/L	10	0.18 B	20.4 B	5
Boron	μg/L	10	144	28700	10
Cadmium	μg/L	10	0.74 B	0.74 B	1
Calcium	μg/L	10	86900	2350000	10
Chromium	μg/L	10	1.53 B	620	8
Cobalt	μg/L	10	1.5 B	341	9
Copper	μg/L	10	6.8	1440	10
Iron	μg/L	10	54 B	802000	10
Lead	μg/L	10	0.225 B	37.3	9
Lithium	μg/L	10	14.2 B	255	10
Magnesium	μg/L	10	42100	680000	10
Manganese	μg/L	10	41.8	36500	10
Mercury	μg/L	10	0.06 B	0.06 B	2

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	10	1.51 B	762	9
Potassium	μg/L	10	2080 E	75300	10
Selenium	μg/L	10	1.3 B	12 B	8
Silver	μg/L	10	0.009 B	0.99 B	8
Sodium	μg/L	10	8150 E	159000	10
Thallium	μg/L	10	0.016 B	0.024 B	2
Vanadium	μg/L	10	2.27 B	875	9
Zinc	μg/L	10	3.16 B	1900	9
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	10	--	--	0
2,4,6-Trinitrotoluene	μg/L	10	--	--	0
2,4-Dinitrotoluene	μg/L	15	--	--	0
2,6-Dinitrotoluene	μg/L	15	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	10	--	--	0
2-Nitrotoluene	μg/L	10	--	--	0
3-Dinitrobenzene	μg/L	10	--	--	0
3-Nitrotoluene	μg/L	10	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	10	--	--	0
4-Nitrotoluene	μg/L	10	--	--	0
HMX	μg/L	10	--	--	0
Nitrobenzene	μg/L	15	--	--	0
RDX	μg/L	10	--	--	0
Tetryl	μg/L	10	--	--	0
PAHs					
Acenaphthene	μg/L	14	--	--	0
Acenaphthylene	μg/L	14	--	--	0
Anthracene	μg/L	14	1.06 J	1.06 J	1
Benzo(a)anthracene	μg/L	14	--	--	0
Benzo(a)pyrene	μg/L	14	--	--	0
Benzo(b)fluoranthene	μg/L	14	--	--	0
Benzo(g,h,i)perylene	μg/L	14	--	--	0
Benzo(k)fluoranthene	μg/L	14	--	--	0
Chrysene	μg/L	14	--	--	0
Dibenzo(a,h)anthracene	μg/L	14	--	--	0
Fluoranthene	μg/L	14	3.27	3.27	1
Fluorene	μg/L	14	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	14	--	--	0
Naphthalene	μg/L	14	0.416 J	0.416 J	1
Phenanthrene	μg/L	14	0.626	6.93	2
Pyrene	μg/L	14	1.93	1.93	1
PCBs					
Aroclor-1016	μg/L	9	--	--	0
Aroclor-1221	μg/L	9	--	--	0
Aroclor-1232	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	9	--	--	0
Aroclor-1248	μg/L	9	--	--	0
Aroclor-1254	μg/L	9	--	--	0
Aroclor-1260	μg/L	9	--	--	0
Pesticides					
4,4'-DDD	μg/L	9	--	--	0
4,4'-DDE	μg/L	9	0.0323 J	0.0323 J	1
4,4'-DDT	μg/L	9	0.078 P	0.078 P	1
Aldrin	μg/L	9	--	--	0
alpha-BHC	μg/L	9	--	--	0
alpha-Chlordane	μg/L	9	--	--	0
beta-BHC	μg/L	9	--	--	0
delta-BHC	μg/L	9	--	--	0
Dieldrin	μg/L	9	--	--	0
Endosulfan I	μg/L	9	--	--	0
Endosulfan II	μg/L	9	--	--	0
Endosulfan sulfate	μg/L	9	--	--	0
Endrin	μg/L	9	--	--	0
Endrin aldehyde	μg/L	9	--	--	0
Endrin ketone	μg/L	9	--	--	0
gamma-BHC (Lindane)	μg/L	9	--	--	0
gamma-Chlordane	μg/L	9	--	--	0
Heptachlor	μg/L	9	--	--	0
Heptachlor epoxide	μg/L	9	--	--	0
Methoxychlor	μg/L	9	--	--	0
Toxaphene	μg/L	9	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	9	--	--	0
Alpha, Dissolved	pCi/L	3	6.4	12.8	3
Americium-241, Dissolved	pCi/L	9	--	--	0
Beta, Dissolved	pCi/L	3	7.51	12.4	2
Cesium-137, Dissolved	pCi/L	9	--	--	0
Cobalt-60, Dissolved	pCi/L	9	--	--	0
Protactinium-231, Dissolved	pCi/L	9	--	--	0
Radium-226, Dissolved	pCi/L	9	0.684	0.686	2
Radium-228, Dissolved	pCi/L	9	--	--	0
Thorium-228, Dissolved	pCi/L	13	0.228	0.228	1
Thorium-230, Dissolved	pCi/L	9	0.132	0.644	4
Thorium-232, Dissolved	pCi/L	9	--	--	0
Total Activity, Dissolved	pCi/mL	1	--	--	0
Total Uranium, Dissolved	μg/L	9	7.51	35.9	9
Uranium-234, Dissolved	pCi/L	13	3.07	12.2	13
Uranium-235, Dissolved	pCi/L	13	0.0933	0.831	10
Uranium-238, Dissolved	pCi/L	13	2.35	8.99	12

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides, Total					
Actinium-227	pCi/L	12	--	--	0
Alpha	pCi/L	16	6.94	39.9	16
Americium-241	pCi/L	12	--	--	0
Beta	pCi/L	16	4.07	47.3	16
Cesium-137	pCi/L	12	4.48	4.48	1
Cobalt-60	pCi/L	12	--	--	0
Protactinium-231	pCi/L	12	--	--	0
Radium-226	pCi/L	16	0.736 J	10.7	5
Radium-228	pCi/L	12	70.4	70.4	1
Thorium-228	pCi/L	16	0.225	3.85	9
Thorium-230	pCi/L	16	0.119 J	2.15	10
Thorium-232	pCi/L	16	0.0637	2.12	12
Total Activity	pCi/mL	1	--	--	0
Total Uranium	μg/L	16	8.02	33.3	16
Uranium-234	pCi/L	16	3.29	13.3	16
Uranium-235	pCi/L	16	0.181 J	0.988	15
Uranium-238	pCi/L	16	2.58	10.4	16
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	14	--	--	0
1,2-Dichlorobenzene	μg/L	14	--	--	0
1,3-Dichlorobenzene	μg/L	14	--	--	0
1,4-Dichlorobenzene	μg/L	14	--	--	0
2,4,5-Trichlorophenol	μg/L	14	--	--	0
2,4,6-Trichlorophenol	μg/L	14	--	--	0
2,4-Dichlorophenol	μg/L	14	--	--	0
2,4-Dimethylphenol	μg/L	14	--	--	0
2,4-Dinitrophenol	μg/L	14	--	--	0
2-Chloronaphthalene	μg/L	14	--	--	0
2-Chlorophenol	μg/L	14	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	28	--	--	0
2-Methylnaphthalene	μg/L	14	--	--	0
2-Nitroaniline	μg/L	14	--	--	0
2-Nitrophenol	μg/L	14	--	--	0
3,3'-Dichlorobenzidine	μg/L	14	--	--	0
3-Nitroaniline	μg/L	14	--	--	0
4-Bromophenylphenylether	μg/L	14	--	--	0
4-Chloro-3-methylphenol	μg/L	14	--	--	0
4-Chloroaniline	μg/L	14	--	--	0
4-Chlorophenylphenylether	μg/L	14	--	--	0
4-Nitroaniline	μg/L	14	--	--	0
4-Nitrophenol	μg/L	14	--	--	0
Benzoic Acid	μg/L	10	--	--	0
bis(2-Chloroethoxy)methane	μg/L	14	--	--	0

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/L	14	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	14	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	14	3.61 J	24	3
Butylbenzylphthalate	μg/L	14	--	--	0
Carbazole	μg/L	14	6.11 J	6.11 J	1
Dibenzofuran	μg/L	14	--	--	0
Diethylphthalate	μg/L	14	--	--	0
Dimethylphthalate	μg/L	14	--	--	0
Di-n-butylphthalate	μg/L	14	30.1	30.1	1
Di-n-octylphthalate	μg/L	14	--	--	0
Diphenylamine	μg/L	10	--	--	0
Hexachlorobenzene	μg/L	14	--	--	0
Hexachlorobutadiene	μg/L	14	--	--	0
Hexachlorocyclopentadiene	μg/L	14	--	--	0
Hexachloroethane	μg/L	14	--	--	0
Isophorone	μg/L	14	28.7	28.7	1
m,p-Cresols	μg/L	14	--	--	0
N-Nitroso-di-n-propylamine	μg/L	14	--	--	0
N-Nitrosodiphenylamine	μg/L	4	--	--	0
o-Cresol	μg/L	14	--	--	0
Pentachlorophenol	μg/L	14	--	--	0
Phenol	μg/L	14	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	15	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	15	--	--	0
1,1,2-Trichloroethane	μg/L	15	4.29	4.29	1
1,1-Dichloroethane	μg/L	15	--	--	0
1,1-Dichloroethene	μg/L	15	38.9	38.9	1
1,2-Dichloroethane	μg/L	15	--	--	0
1,2-Dichloropropane	μg/L	15	--	--	0
2-Butanone	μg/L	15	19.5	25	2
2-Hexanone	μg/L	15	--	--	0
4-Methyl-2-pentanone	μg/L	15	8.56	8.56	1
Acetone	μg/L	15	1.4 J	157	8
Benzene	μg/L	15	1.65	2.28	2
Bromodichloromethane	μg/L	15	--	--	0
Bromoform	μg/L	15	--	--	0
Bromomethane	μg/L	15	--	--	0
Carbon disulfide	μg/L	15	3.91 J	3.91 J	1
Carbon tetrachloride	μg/L	15	--	--	0
Chlorobenzene	μg/L	15	--	--	0
Chloroethane	μg/L	15	--	--	0
Chloroform	μg/L	15	1.37	1.37	1
Chloromethane	μg/L	15	--	--	0

* Data qualifier included with concentration value

Table 4-99
Exposure Unit 4
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,2-Dichloroethene	μg/L	15	0.87 J	14800	8
cis-1,3-Dichloropropene	μg/L	15	--	--	0
Dibromochloromethane	μg/L	15	--	--	0
Ethylbenzene	μg/L	15	0.36 J	0.36 J	1
Methylene chloride	μg/L	15	2.59 J	1680 JB	2
Styrene	μg/L	15	0.398 J	0.398 J	1
Tetrachloroethene	μg/L	15	11.2	103000 D	7
Toluene	μg/L	15	0.59 J	1.37	2
trans-1,2-Dichloroethene	μg/L	15	0.25 J	355 J	5
trans-1,3-Dichloropropene	μg/L	15	--	--	0
Trichloroethene	μg/L	15	1.27	21200 D	7
Vinyl chloride	μg/L	15	0.68 J	2100	5
Xylenes (total)	μg/L	15	2.04	2.04	1

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	9	7.8 B	96.2	7
Antimony, Dissolved	μg/L	9	0.072 B	7.62 B	6
Arsenic, Dissolved	μg/L	9	1.6 B	11.6	8
Barium, Dissolved	μg/L	9	7.1	34.6	9
Beryllium, Dissolved	μg/L	9	0.18 B	11.2	3
Boron, Dissolved	μg/L	9	197	1210	9
Cadmium, Dissolved	μg/L	9	0.67 B	11.6	2
Calcium, Dissolved	μg/L	9	61100	224000	9
Chromium, Dissolved	μg/L	9	1 B	11.6	4
Cobalt, Dissolved	μg/L	9	0.85 B	11.7	3
Copper, Dissolved	μg/L	9	3.6 B	9.71	3
Iron, Dissolved	μg/L	9	9.6 B	360	5
Lead, Dissolved	μg/L	9	0.117 B	0.16 B	2
Lithium, Dissolved	μg/L	9	14.8 EN	120 N	9
Magnesium, Dissolved	μg/L	9	67300	162000 E	9
Manganese, Dissolved	μg/L	9	1.27 B	265	9
Mercury, Dissolved	μg/L	9	0.09 B	0.09 B	1
Nickel, Dissolved	μg/L	9	2.3 B	10	3
Potassium, Dissolved	μg/L	9	1610	13600	9
Selenium, Dissolved	μg/L	9	0.4 B	15.1	7
Silver, Dissolved	μg/L	9	0.08 B	0.67 B	7
Sodium, Dissolved	μg/L	9	24000	266000	9
Thallium, Dissolved	μg/L	9	0.006 B	0.386 BN	5
Vanadium, Dissolved	μg/L	9	0.67 B	10.9	4
Zinc, Dissolved	μg/L	9	2.2 B	8.01	6
Metals, Total					
Aluminum	μg/L	9	21.5 B	39500	9
Antimony	μg/L	9	0.29 B	3.68 B	5
Arsenic	μg/L	9	3 B	13.9	8
Barium	μg/L	9	7.2	420	9
Beryllium	μg/L	9	0.76 B	1.68 B	3
Boron	μg/L	9	208	1260 E	9
Cadmium	μg/L	9	0.29 B	0.872 B	2
Calcium	μg/L	9	79100	291000	9
Chromium	μg/L	9	0.71 B	50.6	7
Cobalt	μg/L	9	9.4	29.8	3
Copper	μg/L	9	3.3 B	211	4
Iron	μg/L	9	105	67200	9
Lead	μg/L	9	0.083 B	7.8 BE	6
Lithium	μg/L	9	49.3 EN	133	9
Magnesium	μg/L	9	68200	170000	9
Manganese	μg/L	9	4.9 B	2270	9
Mercury	μg/L	9	0.08 B	0.08 B	1

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	9	1.82 B	65.4	5
Potassium	μg/L	9	1750	12800	9
Selenium	μg/L	9	0.783 B	16.4 B	7
Silver	μg/L	9	0.009 B	2 B	8
Sodium	μg/L	9	27200	268000	9
Thallium	μg/L	9	0.052 BN	0.85 BN	2
Vanadium	μg/L	9	0.64 B	77.4	4
Zinc	μg/L	9	1.9 B	152	7
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	2	--	--	0
2,4,6-Trinitrotoluene	μg/L	2	--	--	0
2,4-Dinitrotoluene	μg/L	7	--	--	0
2,6-Dinitrotoluene	μg/L	7	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	2	--	--	0
2-Nitrotoluene	μg/L	2	--	--	0
3-Dinitrobenzene	μg/L	2	--	--	0
3-Nitrotoluene	μg/L	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	2	--	--	0
4-Nitrotoluene	μg/L	2	--	--	0
HMX	μg/L	2	--	--	0
Nitrobenzene	μg/L	7	--	--	0
RDX	μg/L	2	--	--	0
Tetryl	μg/L	2	--	--	0
PAHs					
Acenaphthene	μg/L	7	--	--	0
Acenaphthylene	μg/L	7	--	--	0
Anthracene	μg/L	7	--	--	0
Benzo(a)anthracene	μg/L	7	--	--	0
Benzo(a)pyrene	μg/L	7	--	--	0
Benzo(b)fluoranthene	μg/L	7	--	--	0
Benzo(g,h,i)perylene	μg/L	7	--	--	0
Benzo(k)fluoranthene	μg/L	7	--	--	0
Chrysene	μg/L	7	--	--	0
Dibenzo(a,h)anthracene	μg/L	7	--	--	0
Fluoranthene	μg/L	7	--	--	0
Fluorene	μg/L	7	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	7	--	--	0
Naphthalene	μg/L	7	--	--	0
Phenanthrene	μg/L	7	--	--	0
Pyrene	μg/L	7	--	--	0
PCBs					
Aroclor-1016	μg/L	2	--	--	0
Aroclor-1221	μg/L	2	--	--	0
Aroclor-1232	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	2	--	--	0
Aroclor-1248	μg/L	2	--	--	0
Aroclor-1254	μg/L	2	--	--	0
Aroclor-1260	μg/L	2	--	--	0
Pesticides					
4,4'-DDD	μg/L	2	--	--	0
4,4'-DDE	μg/L	2	--	--	0
4,4'-DDT	μg/L	2	0.0244 J	0.0244 J	1
Aldrin	μg/L	2	--	--	0
alpha-BHC	μg/L	2	--	--	0
alpha-Chlordane	μg/L	2	--	--	0
beta-BHC	μg/L	2	--	--	0
delta-BHC	μg/L	2	--	--	0
Dieldrin	μg/L	2	--	--	0
Endosulfan I	μg/L	2	--	--	0
Endosulfan II	μg/L	2	--	--	0
Endosulfan sulfate	μg/L	2	--	--	0
Endrin	μg/L	2	--	--	0
Endrin aldehyde	μg/L	2	--	--	0
Endrin ketone	μg/L	2	--	--	0
gamma-BHC (Lindane)	μg/L	2	--	--	0
gamma-Chlordane	μg/L	2	--	--	0
Heptachlor	μg/L	2	--	--	0
Heptachlor epoxide	μg/L	2	--	--	0
Methoxychlor	μg/L	2	--	--	0
Toxaphene	μg/L	2	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	4	--	--	0
Alpha, Dissolved	pCi/L	1	5.94	5.94	1
Americium-241, Dissolved	pCi/L	4	--	--	0
Beta, Dissolved	pCi/L	1	1.96	1.96	1
Cesium-137, Dissolved	pCi/L	4	--	--	0
Cobalt-60, Dissolved	pCi/L	4	--	--	0
Protactinium-231, Dissolved	pCi/L	4	--	--	0
Radium-226, Dissolved	pCi/L	4	--	--	0
Radium-228, Dissolved	pCi/L	4	--	--	0
Thorium-228, Dissolved	pCi/L	4	--	--	0
Thorium-230, Dissolved	pCi/L	4	--	--	0
Thorium-232, Dissolved	pCi/L	4	--	--	0
Total Uranium, Dissolved	μg/L	4	10.6	12.4	4
Uranium-234, Dissolved	pCi/L	4	4.56	5.84	4
Uranium-235, Dissolved	pCi/L	4	0.121	0.293	4
Uranium-238, Dissolved	pCi/L	4	3.77	4.41	4
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	4	--	--	0
Alpha	pCi/L	9	0.525	18.8	8
Americium-241	pCi/L	4	--	--	0
Beta	pCi/L	9	6.62	11.7	7
Cesium-137	pCi/L	4	--	--	0
Cobalt-60	pCi/L	4	--	--	0
Protactinium-231	pCi/L	4	--	--	0
Radium-226	pCi/L	9	0.895	3.28	4
Radium-228	pCi/L	4	--	--	0
Thorium-228	pCi/L	9	0.225 J	0.934	4
Thorium-230	pCi/L	9	0.0512 J	0.77	5
Thorium-232	pCi/L	9	0.269 J	0.547	3
Total Uranium	µg/L	9	0.497 J	14.5	9
Uranium-234	pCi/L	9	0.257 J	6.49	9
Uranium-235	pCi/L	9	0.0512	1.24	5
Uranium-238	pCi/L	9	0.209 J	4.87	9
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/L	7	--	--	0
1,2-Dichlorobenzene	µg/L	7	--	--	0
1,3-Dichlorobenzene	µg/L	7	--	--	0
1,4-Dichlorobenzene	µg/L	7	--	--	0
2,4,5-Trichlorophenol	µg/L	7	--	--	0
2,4,6-Trichlorophenol	µg/L	7	--	--	0
2,4-Dichlorophenol	µg/L	7	--	--	0
2,4-Dimethylphenol	µg/L	7	--	--	0
2,4-Dinitrophenol	µg/L	7	--	--	0
2-Chloronaphthalene	µg/L	7	--	--	0
2-Chlorophenol	µg/L	7	--	--	0
2-Methyl-4,6-dinitrophenol	µg/L	14	--	--	0
2-Methylnaphthalene	µg/L	7	--	--	0
2-Nitroaniline	µg/L	7	--	--	0
2-Nitrophenol	µg/L	7	--	--	0
3,3'-Dichlorobenzidine	µg/L	7	--	--	0
3-Nitroaniline	µg/L	7	--	--	0
4-Bromophenylphenylether	µg/L	7	--	--	0
4-Chloro-3-methylphenol	µg/L	7	--	--	0
4-Chloroaniline	µg/L	7	--	--	0
4-Chlorophenylphenylether	µg/L	7	--	--	0
4-Nitroaniline	µg/L	7	--	--	0
4-Nitrophenol	µg/L	7	--	--	0
Benzoic Acid	µg/L	6	--	--	0
bis(2-Chloroethoxy)methane	µg/L	7	--	--	0
bis(2-Chloroethyl)ether	µg/L	7	--	--	0
bis(2-Chloroisopropyl)ether	µg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	7	--	--	0
Butylbenzylphthalate	μg/L	7	--	--	0
Carbazole	μg/L	7	--	--	0
Dibenzofuran	μg/L	7	--	--	0
Diethylphthalate	μg/L	7	--	--	0
Dimethylphthalate	μg/L	7	--	--	0
Di-n-butylphthalate	μg/L	7	--	--	0
Di-n-octylphthalate	μg/L	7	--	--	0
Diphenylamine	μg/L	6	--	--	0
Hexachlorobenzene	μg/L	7	--	--	0
Hexachlorobutadiene	μg/L	7	--	--	0
Hexachlorocyclopentadiene	μg/L	7	--	--	0
Hexachloroethane	μg/L	7	--	--	0
Isophorone	μg/L	7	--	--	0
m,p-Cresols	μg/L	7	--	--	0
N-Nitroso-di-n-propylamine	μg/L	7	--	--	0
N-Nitrosodiphenylamine	μg/L	1	--	--	0
o-Cresol	μg/L	7	--	--	0
Pentachlorophenol	μg/L	7	--	--	0
Phenol	μg/L	7	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	6	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	6	--	--	0
1,1,2-Trichloroethane	μg/L	6	--	--	0
1,1-Dichloroethane	μg/L	6	--	--	0
1,1-Dichloroethene	μg/L	6	--	--	0
1,2-Dichloroethane	μg/L	6	--	--	0
1,2-Dichloropropane	μg/L	6	--	--	0
2-Butanone	μg/L	6	2.4 J	2.4 J	1
2-Hexanone	μg/L	6	--	--	0
4-Methyl-2-pentanone	μg/L	6	--	--	0
Acetone	μg/L	6	0.81 J	0.96 J	2
Benzene	μg/L	6	--	--	0
Bromodichloromethane	μg/L	6	--	--	0
Bromoform	μg/L	6	--	--	0
Bromomethane	μg/L	6	--	--	0
Carbon disulfide	μg/L	6	--	--	0
Carbon tetrachloride	μg/L	6	--	--	0
Chlorobenzene	μg/L	6	--	--	0
Chloroethane	μg/L	6	--	--	0
Chloroform	μg/L	6	--	--	0
Chloromethane	μg/L	6	--	--	0
cis-1,2-Dichloroethene	μg/L	6	--	--	0
cis-1,3-Dichloropropene	μg/L	6	--	--	0

* Data qualifier included with concentration value

Table 4-100
Exposure Unit 5
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/L	5	--	--	0
Ethylbenzene	μg/L	6	0.052 J	0.052 J	1
Methylene chloride	μg/L	6	--	--	0
Styrene	μg/L	6	--	--	0
Tetrachloroethene	μg/L	6	--	--	0
Toluene	μg/L	6	--	--	0
trans-1,2-Dichloroethene	μg/L	6	--	--	0
trans-1,3-Dichloropropene	μg/L	6	--	--	0
Trichloroethene	μg/L	6	--	--	0
Vinyl chloride	μg/L	6	--	--	0
Xylenes (total)	μg/L	6	--	--	0

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	9	48.9 B	2960 BN*	4
Antimony, Dissolved	μg/L	9	0.086 B	0.086 B	1
Arsenic, Dissolved	μg/L	9	0.333 B	21.1 B	9
Barium, Dissolved	μg/L	9	7	66.7 N*	8
Beryllium, Dissolved	μg/L	9	0.19 B	0.44 B	2
Boron, Dissolved	μg/L	9	89.5	3220	9
Cadmium, Dissolved	μg/L	9	3.77 B	3.77 B	1
Calcium, Dissolved	μg/L	9	52400	1270000	9
Chromium, Dissolved	μg/L	9	2.42 B	22	2
Cobalt, Dissolved	μg/L	9	19.4	19.4	1
Copper, Dissolved	μg/L	9	1.5 B	25.3	4
Iron, Dissolved	μg/L	9	5.7 BE	3540	5
Lead, Dissolved	μg/L	9	0.06 B	0.288 B	2
Lithium, Dissolved	μg/L	9	31.1	7610	9
Magnesium, Dissolved	μg/L	9	64100	317000	9
Manganese, Dissolved	μg/L	9	22.5	3050	8
Mercury, Dissolved	μg/L	9	--	--	0
Nickel, Dissolved	μg/L	9	2.5 B	72.5 B	2
Potassium, Dissolved	μg/L	9	2570	94300	9
Selenium, Dissolved	μg/L	9	0.514 B	44.6	8
Silver, Dissolved	μg/L	9	0.066 B	0.3 B	7
Sodium, Dissolved	μg/L	9	33500 E	4160000	9
Thallium, Dissolved	μg/L	9	0.029 B	0.186 B	2
Vanadium, Dissolved	μg/L	9	0.78 B	20.2	3
Zinc, Dissolved	μg/L	9	6.9	12.2	3
Metals, Total					
Aluminum	μg/L	9	30.1 B	290000	9
Antimony	μg/L	9	0.092 B	4.16 B	5
Arsenic	μg/L	9	1.52 B*	152	9
Barium	μg/L	9	7.6	1930 N*	9
Beryllium	μg/L	9	0.19 B	13.3	4
Boron	μg/L	9	90.5	3050	9
Cadmium	μg/L	9	0.78 B	0.78 B	1
Calcium	μg/L	9	59800	2150000	9
Chromium	μg/L	9	0.89 B	427	6
Cobalt	μg/L	9	0.489 B	251	5
Copper	μg/L	9	3.51 B	899	8
Iron	μg/L	9	207	577000	9
Lead	μg/L	9	0.469 B	165 E	8
Lithium	μg/L	9	31.2 E	7370	9
Magnesium	μg/L	9	71100	381000	9
Manganese	μg/L	9	64.5	22400	9
Mercury	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	9	4.33 B	542	5
Potassium	μg/L	9	2750	133000	9
Selenium	μg/L	9	0.527 B	39.7 B	6
Silver	μg/L	9	0.006 B	1.3 B	7
Sodium	μg/L	9	31900 E	2570000	9
Thallium	μg/L	9	0.012 B	0.72 B	2
Vanadium	μg/L	9	5.11	610	5
Zinc	μg/L	9	5.1	1350	7
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	6	--	--	0
2,4,6-Trinitrotoluene	μg/L	6	--	--	0
2,4-Dinitrotoluene	μg/L	9	--	--	0
2,6-Dinitrotoluene	μg/L	9	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	6	--	--	0
2-Nitrotoluene	μg/L	6	--	--	0
3-Dinitrobenzene	μg/L	6	--	--	0
3-Nitrotoluene	μg/L	6	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	6	--	--	0
4-Nitrotoluene	μg/L	6	--	--	0
HMX	μg/L	6	--	--	0
Nitrobenzene	μg/L	9	--	--	0
RDX	μg/L	6	--	--	0
Tetryl	μg/L	6	--	--	0
PAHs					
Acenaphthene	μg/L	9	--	--	0
Acenaphthylene	μg/L	9	--	--	0
Anthracene	μg/L	9	--	--	0
Benzo(a)anthracene	μg/L	9	--	--	0
Benzo(a)pyrene	μg/L	9	--	--	0
Benzo(b)fluoranthene	μg/L	9	--	--	0
Benzo(g,h,i)perylene	μg/L	9	--	--	0
Benzo(k)fluoranthene	μg/L	9	--	--	0
Chrysene	μg/L	9	--	--	0
Dibenzo(a,h)anthracene	μg/L	9	--	--	0
Fluoranthene	μg/L	9	--	--	0
Fluorene	μg/L	9	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	9	--	--	0
Naphthalene	μg/L	9	--	--	0
Phenanthrene	μg/L	9	--	--	0
Pyrene	μg/L	9	--	--	0
PCBs					
Aroclor-1016	μg/L	6	--	--	0
Aroclor-1221	μg/L	6	--	--	0
Aroclor-1232	μg/L	6	--	--	0

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	6	--	--	0
Aroclor-1248	μg/L	6	--	--	0
Aroclor-1254	μg/L	6	--	--	0
Aroclor-1260	μg/L	6	--	--	0
Pesticides					
4,4'-DDD	μg/L	6	--	--	0
4,4'-DDE	μg/L	6	--	--	0
4,4'-DDT	μg/L	6	--	--	0
Aldrin	μg/L	6	--	--	0
alpha-BHC	μg/L	6	--	--	0
alpha-Chlordane	μg/L	6	--	--	0
beta-BHC	μg/L	6	--	--	0
delta-BHC	μg/L	6	--	--	0
Dieldrin	μg/L	6	--	--	0
Endosulfan I	μg/L	6	--	--	0
Endosulfan II	μg/L	6	--	--	0
Endosulfan sulfate	μg/L	6	--	--	0
Endrin	μg/L	6	--	--	0
Endrin aldehyde	μg/L	6	--	--	0
Endrin ketone	μg/L	6	--	--	0
gamma-BHC (Lindane)	μg/L	6	--	--	0
gamma-Chlordane	μg/L	6	0.03 P	0.03 P	1
Heptachlor	μg/L	6	--	--	0
Heptachlor epoxide	μg/L	6	--	--	0
Methoxychlor	μg/L	6	--	--	0
Toxaphene	μg/L	6	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	3	--	--	0
Alpha, Dissolved	pCi/L	2	10.6	10.6	1
Americium-241, Dissolved	pCi/L	3	--	--	0
Beta, Dissolved	pCi/L	2	9.58	53	2
Cesium-137, Dissolved	pCi/L	3	--	--	0
Cobalt-60, Dissolved	pCi/L	3	--	--	0
Protactinium-231, Dissolved	pCi/L	3	--	--	0
Radium-226, Dissolved	pCi/L	3	0.559	0.559	1
Radium-228, Dissolved	pCi/L	3	2.14	2.14	1
Thorium-228, Dissolved	pCi/L	6	--	--	0
Thorium-230, Dissolved	pCi/L	3	0.372	0.372	1
Thorium-232, Dissolved	pCi/L	3	--	--	0
Total Uranium, Dissolved	μg/L	3	12.5	18.2	2
Uranium-234, Dissolved	pCi/L	6	4.96	8.98	5
Uranium-235, Dissolved	pCi/L	6	0.166	0.393	4
Uranium-238, Dissolved	pCi/L	6	4.04	5.92	5
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	7	--	--	0
Alpha	pCi/L	12	0.278	23.6	9
Americium-241	pCi/L	7	--	--	0
Beta	pCi/L	12	7.18	127	11
Cesium-137	pCi/L	7	2.66	2.66	1
Cobalt-60	pCi/L	7	--	--	0
Protactinium-231	pCi/L	7	--	--	0
Radium-226	pCi/L	11	0.838	3.23	9
Radium-228	pCi/L	7	1.98	1.98	1
Thorium-228	pCi/L	12	0.116	0.296 J	4
Thorium-230	pCi/L	12	0.0921 J	0.2	4
Thorium-232	pCi/L	12	0.0411	0.153 J	5
Total Uranium	μg/L	12	0.34 J	28.3	10
Uranium-234	pCi/L	12	0.288 J	16.2	10
Uranium-235	pCi/L	12	0.139	0.755	8
Uranium-238	pCi/L	12	0.119 J	13.6	10
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	9	--	--	0
1,2-Dichlorobenzene	μg/L	9	--	--	0
1,3-Dichlorobenzene	μg/L	9	--	--	0
1,4-Dichlorobenzene	μg/L	9	--	--	0
2,4,5-Trichlorophenol	μg/L	9	--	--	0
2,4,6-Trichlorophenol	μg/L	9	--	--	0
2,4-Dichlorophenol	μg/L	9	--	--	0
2,4-Dimethylphenol	μg/L	9	--	--	0
2,4-Dinitrophenol	μg/L	9	--	--	0
2-Chloronaphthalene	μg/L	9	--	--	0
2-Chlorophenol	μg/L	9	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	18	--	--	0
2-Methylnaphthalene	μg/L	9	--	--	0
2-Nitroaniline	μg/L	9	--	--	0
2-Nitrophenol	μg/L	9	--	--	0
3,3'-Dichlorobenzidine	μg/L	9	--	--	0
3-Nitroaniline	μg/L	9	--	--	0
4-Bromophenylphenylether	μg/L	9	--	--	0
4-Chloro-3-methylphenol	μg/L	9	--	--	0
4-Chloroaniline	μg/L	9	--	--	0
4-Chlorophenylphenylether	μg/L	9	--	--	0
4-Nitroaniline	μg/L	9	--	--	0
4-Nitrophenol	μg/L	9	--	--	0
Benzoic Acid	μg/L	7	--	--	0
bis(2-Chloroethoxy)methane	μg/L	9	--	--	0
bis(2-Chloroethyl)ether	μg/L	9	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	9	--	--	0

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	9	2.84 J	10.8	2
Butylbenzylphthalate	μg/L	9	--	--	0
Carbazole	μg/L	9	--	--	0
Dibenzofuran	μg/L	9	--	--	0
Diethylphthalate	μg/L	9	--	--	0
Dimethylphthalate	μg/L	9	--	--	0
Di-n-butylphthalate	μg/L	9	--	--	0
Di-n-octylphthalate	μg/L	9	--	--	0
Diphenylamine	μg/L	7	--	--	0
Hexachlorobenzene	μg/L	9	--	--	0
Hexachlorobutadiene	μg/L	9	--	--	0
Hexachlorocyclopentadiene	μg/L	9	--	--	0
Hexachloroethane	μg/L	9	--	--	0
Isophorone	μg/L	9	--	--	0
m,p-Cresols	μg/L	9	--	--	0
N-Nitroso-di-n-propylamine	μg/L	9	--	--	0
N-Nitrosodiphenylamine	μg/L	2	--	--	0
o-Cresol	μg/L	9	--	--	0
Pentachlorophenol	μg/L	9	--	--	0
Phenol	μg/L	9	3.91 J	5.18 J	2
Volatile Organics					
1,1,1-Trichloroethane	μg/L	8	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	8	--	--	0
1,1,2-Trichloroethane	μg/L	8	--	--	0
1,1-Dichloroethane	μg/L	8	--	--	0
1,1-Dichloroethene	μg/L	8	--	--	0
1,2-Dichloroethane	μg/L	8	--	--	0
1,2-Dichloropropane	μg/L	8	--	--	0
2-Butanone	μg/L	8	22.1	22.1	1
2-Hexanone	μg/L	8	--	--	0
4-Methyl-2-pentanone	μg/L	8	--	--	0
Acetone	μg/L	8	0.96 J	1.9 J	3
Benzene	μg/L	8	--	--	0
Bromodichloromethane	μg/L	8	--	--	0
Bromoform	μg/L	8	--	--	0
Bromomethane	μg/L	8	--	--	0
Carbon disulfide	μg/L	8	--	--	0
Carbon tetrachloride	μg/L	8	--	--	0
Chlorobenzene	μg/L	8	--	--	0
Chloroethane	μg/L	8	--	--	0
Chloroform	μg/L	8	--	--	0
Chloromethane	μg/L	8	--	--	0
cis-1,2-Dichloroethene	μg/L	8	--	--	0
cis-1,3-Dichloropropene	μg/L	8	--	--	0

* Data qualifier included with concentration value

Table 4-101
Exposure Unit 6
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/L	8	--	--	0
Ethylbenzene	μg/L	8	--	--	0
Methylene chloride	μg/L	8	--	--	0
Styrene	μg/L	8	--	--	0
Tetrachloroethene	μg/L	8	--	--	0
Toluene	μg/L	8	0.32 J	0.32 J	1
trans-1,2-Dichloroethene	μg/L	8	--	--	0
trans-1,3-Dichloropropene	μg/L	8	--	--	0
Trichloroethene	μg/L	8	--	--	0
Vinyl chloride	μg/L	8	--	--	0
Xylenes (total)	μg/L	8	--	--	0

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	6	--	--	0
Antimony, Dissolved	μg/L	6	--	--	0
Arsenic, Dissolved	μg/L	6	5.5	47.6 BN	5
Barium, Dissolved	μg/L	6	10.4	58.8	6
Beryllium, Dissolved	μg/L	6	--	--	0
Boron, Dissolved	μg/L	6	118	316	6
Cadmium, Dissolved	μg/L	6	--	--	0
Calcium, Dissolved	μg/L	6	50400	265000	6
Chromium, Dissolved	μg/L	6	--	--	0
Cobalt, Dissolved	μg/L	6	1.58 B	1.58 B	1
Copper, Dissolved	μg/L	6	2.97 B	3.4 B	3
Iron, Dissolved	μg/L	6	28.4 B	267	5
Lead, Dissolved	μg/L	6	0.15 BE	0.15 BE	1
Lithium, Dissolved	μg/L	6	47.5 E	120 B	6
Magnesium, Dissolved	μg/L	6	78700	392000 E	6
Manganese, Dissolved	μg/L	6	10	197	6
Mercury, Dissolved	μg/L	6	--	--	0
Nickel, Dissolved	μg/L	6	1.8 B	1.8 B	1
Potassium, Dissolved	μg/L	6	4110	10700 NE	6
Selenium, Dissolved	μg/L	6	0.74 B	3.6 B	2
Silver, Dissolved	μg/L	6	0.08 B	0.16 B	2
Sodium, Dissolved	μg/L	6	68600	130000	6
Thallium, Dissolved	μg/L	6	0.04 B	0.225 B	3
Vanadium, Dissolved	μg/L	6	1.5 B	1.5 B	1
Zinc, Dissolved	μg/L	6	--	--	0
Metals, Total					
Aluminum	μg/L	5	467 B	31200	5
Antimony	μg/L	5	0.311 B	0.314 B	2
Arsenic	μg/L	5	7	563	5
Barium	μg/L	5	47	137	5
Beryllium	μg/L	5	0.56 B	1.22 B	4
Boron	μg/L	5	113 B	288	5
Cadmium	μg/L	5	0.47 B	0.47 B	1
Calcium	μg/L	5	155000	4360000	5
Chromium	μg/L	5	12.7	46.4	4
Cobalt	μg/L	5	3.59 B	28	4
Copper	μg/L	5	13.5	49.5	4
Iron	μg/L	5	864	49900	5
Lead	μg/L	5	3.13	603	5
Lithium	μg/L	5	107 E	3150	5
Magnesium	μg/L	5	162000	1610000	5
Manganese	μg/L	5	54.5	1370	5
Mercury	μg/L	5	0.033 B	0.079 B	3

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	5	14.8	53.2	4
Potassium	μg/L	5	5940	14900	5
Selenium	μg/L	5	1.8 B	48.6 B	2
Silver	μg/L	5	0.04 B	5.07 B	4
Sodium	μg/L	5	62900	115000	5
Thallium	μg/L	5	0.117 B	3.58 B	5
Vanadium	μg/L	5	20.5	69.9	4
Zinc	μg/L	5	19.1	88.8	4
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	1	--	--	0
2,4,6-Trinitrotoluene	μg/L	1	--	--	0
2,4-Dinitrotoluene	μg/L	5	--	--	0
2,6-Dinitrotoluene	μg/L	5	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	1	--	--	0
2-Nitrotoluene	μg/L	1	--	--	0
3-Dinitrobenzene	μg/L	1	--	--	0
3-Nitrotoluene	μg/L	1	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	1	--	--	0
4-Nitrotoluene	μg/L	1	--	--	0
HMX	μg/L	1	--	--	0
Nitrobenzene	μg/L	5	--	--	0
RDX	μg/L	1	--	--	0
Tetryl	μg/L	1	--	--	0
PAHs					
Acenaphthene	μg/L	5	--	--	0
Acenaphthylene	μg/L	5	--	--	0
Anthracene	μg/L	5	--	--	0
Benzo(a)anthracene	μg/L	5	--	--	0
Benzo(a)pyrene	μg/L	5	--	--	0
Benzo(b)fluoranthene	μg/L	5	--	--	0
Benzo(g,h,i)perylene	μg/L	5	--	--	0
Benzo(k)fluoranthene	μg/L	5	--	--	0
Chrysene	μg/L	5	--	--	0
Dibenzo(a,h)anthracene	μg/L	5	--	--	0
Fluoranthene	μg/L	5	--	--	0
Fluorene	μg/L	5	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	5	--	--	0
Naphthalene	μg/L	5	--	--	0
Phenanthrene	μg/L	5	--	--	0
Pyrene	μg/L	5	--	--	0
PCBs					
Aroclor-1016	μg/L	5	--	--	0
Aroclor-1221	μg/L	5	--	--	0
Aroclor-1232	μg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	5	--	--	0
Aroclor-1248	μg/L	5	--	--	0
Aroclor-1254	μg/L	5	--	--	0
Aroclor-1260	μg/L	5	0.14	0.14	1
Pesticides					
4,4'-DDD	μg/L	4	--	--	0
4,4'-DDE	μg/L	4	0.0105 J	0.0105 J	1
4,4'-DDT	μg/L	4	0.0207 J	0.0207 J	1
Aldrin	μg/L	4	--	--	0
alpha-BHC	μg/L	4	--	--	0
alpha-Chlordane	μg/L	4	--	--	0
beta-BHC	μg/L	4	--	--	0
delta-BHC	μg/L	4	--	--	0
Dieldrin	μg/L	4	--	--	0
Endosulfan I	μg/L	4	--	--	0
Endosulfan II	μg/L	4	--	--	0
Endosulfan sulfate	μg/L	4	--	--	0
Endrin	μg/L	4	--	--	0
Endrin aldehyde	μg/L	4	--	--	0
Endrin ketone	μg/L	4	--	--	0
gamma-BHC (Lindane)	μg/L	4	--	--	0
gamma-Chlordane	μg/L	4	--	--	0
Heptachlor	μg/L	4	--	--	0
Heptachlor epoxide	μg/L	4	--	--	0
Methoxychlor	μg/L	4	--	--	0
Toxaphene	μg/L	4	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	6	--	--	0
Alpha, Dissolved	pCi/L	6	8.31	14.7	6
Americium-241, Dissolved	pCi/L	6	--	--	0
Beta, Dissolved	pCi/L	6	6.17	11.9	6
Cesium-137, Dissolved	pCi/L	6	--	--	0
Cobalt-60, Dissolved	pCi/L	6	--	--	0
Protactinium-231, Dissolved	pCi/L	6	--	--	0
Radium-226, Dissolved	pCi/L	6	0.803	2.54	2
Radium-228, Dissolved	pCi/L	6	0.843	0.843	1
Thorium-228, Dissolved	pCi/L	6	--	--	0
Thorium-230, Dissolved	pCi/L	6	0.231	1.08	4
Thorium-232, Dissolved	pCi/L	6	--	--	0
Total Activity, Dissolved	pCi/mL	4	--	--	0
Total Uranium, Dissolved	μg/L	5	15.5	28.3	5
Uranium-234, Dissolved	pCi/L	6	6.54	12.9	6
Uranium-235, Dissolved	pCi/L	6	0.437	1.02	6
Uranium-238, Dissolved	pCi/L	6	4.58	9.85	6

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides, Total					
Actinium-227	pCi/L	6	--	--	0
Alpha	pCi/L	7	12.7	44.1	7
Americium-241	pCi/L	6	--	--	0
Beta	pCi/L	7	8.21	33.6	7
Cesium-137	pCi/L	6	--	--	0
Cobalt-60	pCi/L	6	--	--	0
Protactinium-231	pCi/L	6	--	--	0
Radium-226	pCi/L	8	0.651	2.63	7
Radium-228	pCi/L	6	--	--	0
Thorium-228	pCi/L	8	0.243	0.783	4
Thorium-230	pCi/L	8	0.227	1.43	7
Thorium-232	pCi/L	8	0.0882	0.731	7
Total Activity	pCi/mL	4	--	--	0
Total Uranium	μg/L	8	1.07	28.4	8
Uranium-234	pCi/L	8	0.73	11	8
Uranium-235	pCi/L	8	0.805	1.44	4
Uranium-238	pCi/L	8	0.635	8.89	8
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	5	--	--	0
1,2-Dichlorobenzene	μg/L	5	--	--	0
1,3-Dichlorobenzene	μg/L	5	--	--	0
1,4-Dichlorobenzene	μg/L	5	--	--	0
2,4,5-Trichlorophenol	μg/L	5	--	--	0
2,4,6-Trichlorophenol	μg/L	5	--	--	0
2,4-Dichlorophenol	μg/L	5	--	--	0
2,4-Dimethylphenol	μg/L	5	--	--	0
2,4-Dinitrophenol	μg/L	5	--	--	0
2-Chloronaphthalene	μg/L	5	--	--	0
2-Chlorophenol	μg/L	5	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	10	--	--	0
2-Methylnaphthalene	μg/L	5	--	--	0
2-Nitroaniline	μg/L	5	--	--	0
2-Nitrophenol	μg/L	5	--	--	0
3,3'-Dichlorobenzidine	μg/L	5	--	--	0
3-Nitroaniline	μg/L	5	--	--	0
4-Bromophenylphenylether	μg/L	5	--	--	0
4-Chloro-3-methylphenol	μg/L	5	--	--	0
4-Chloroaniline	μg/L	5	--	--	0
4-Chlorophenylphenylether	μg/L	5	--	--	0
4-Nitroaniline	μg/L	5	--	--	0
4-Nitrophenol	μg/L	5	--	--	0
Benzoic Acid	μg/L	1	--	--	0
bis(2-Chloroethoxy)methane	μg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/L	5	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	5	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	5	--	--	0
Butylbenzylphthalate	μg/L	5	--	--	0
Carbazole	μg/L	5	--	--	0
Dibenzofuran	μg/L	5	--	--	0
Diethylphthalate	μg/L	5	--	--	0
Dimethylphthalate	μg/L	5	--	--	0
Di-n-butylphthalate	μg/L	5	--	--	0
Di-n-octylphthalate	μg/L	5	--	--	0
Diphenylamine	μg/L	1	--	--	0
Hexachlorobenzene	μg/L	5	--	--	0
Hexachlorobutadiene	μg/L	5	--	--	0
Hexachlorocyclopentadiene	μg/L	5	--	--	0
Hexachloroethane	μg/L	5	--	--	0
Isophorone	μg/L	5	--	--	0
m,p-Cresols	μg/L	5	--	--	0
N-Nitroso-di-n-propylamine	μg/L	5	--	--	0
N-Nitrosodiphenylamine	μg/L	4	--	--	0
o-Cresol	μg/L	5	--	--	0
Pentachlorophenol	μg/L	5	--	--	0
Phenol	μg/L	5	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	7	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	7	--	--	0
1,1,2-Trichloroethane	μg/L	7	--	--	0
1,1-Dichloroethane	μg/L	7	--	--	0
1,1-Dichloroethene	μg/L	7	--	--	0
1,2-Dichloroethane	μg/L	7	--	--	0
1,2-Dichloropropane	μg/L	7	--	--	0
2-Butanone	μg/L	7	--	--	0
2-Hexanone	μg/L	7	--	--	0
4-Methyl-2-pentanone	μg/L	7	--	--	0
Acetone	μg/L	7	8.28	20.4	3
Benzene	μg/L	7	--	--	0
Bromodichloromethane	μg/L	7	--	--	0
Bromoform	μg/L	7	--	--	0
Bromomethane	μg/L	7	--	--	0
Carbon disulfide	μg/L	7	--	--	0
Carbon tetrachloride	μg/L	7	--	--	0
Chlorobenzene	μg/L	7	--	--	0
Chloroethane	μg/L	7	--	--	0
Chloroform	μg/L	7	--	--	0
Chloromethane	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-102
Exposure Unit 7
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,2-Dichloroethene	μg/L	7	--	--	0
cis-1,3-Dichloropropene	μg/L	7	--	--	0
Dibromochloromethane	μg/L	7	--	--	0
Ethylbenzene	μg/L	7	--	--	0
Methylene chloride	μg/L	7	--	--	0
Styrene	μg/L	7	--	--	0
Tetrachloroethene	μg/L	7	--	--	0
Toluene	μg/L	7	--	--	0
trans-1,2-Dichloroethene	μg/L	7	--	--	0
trans-1,3-Dichloropropene	μg/L	7	--	--	0
Trichloroethene	μg/L	7	--	--	0
Vinyl chloride	μg/L	7	--	--	0
Xylenes (total)	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	17	15.1 B	799	6
Antimony, Dissolved	μg/L	17	0.074 B	4.7 B	7
Arsenic, Dissolved	μg/L	17	1.8 B	8.7 B	15
Barium, Dissolved	μg/L	17	6.34	73.2	17
Beryllium, Dissolved	μg/L	17	0.24 B	0.24 B	1
Boron, Dissolved	μg/L	17	47.1 B	3130	17
Cadmium, Dissolved	μg/L	17	0.33 B	0.33 B	1
Calcium, Dissolved	μg/L	17	82800	486000	17
Chromium, Dissolved	μg/L	17	38.9	38.9	1
Cobalt, Dissolved	μg/L	17	0.75 B	33.4	9
Copper, Dissolved	μg/L	17	1.1 B	33.7	14
Iron, Dissolved	μg/L	17	2.5 B	7540	10
Lead, Dissolved	μg/L	17	0.05 B	0.52 B	5
Lithium, Dissolved	μg/L	17	6.7 EN	1750 NE	17
Magnesium, Dissolved	μg/L	17	11500 E	1180000	17
Manganese, Dissolved	μg/L	17	1.3 B	1230	17
Mercury, Dissolved	μg/L	17	--	--	0
Nickel, Dissolved	μg/L	17	1.4 B	19.5 B	8
Potassium, Dissolved	μg/L	17	359 E	51000	17
Selenium, Dissolved	μg/L	17	0.4 B	13 B	14
Silver, Dissolved	μg/L	17	0.09 B	0.83 B	11
Sodium, Dissolved	μg/L	17	4830 E	1870000 E	17
Thallium, Dissolved	μg/L	17	0.017 B	0.06 B	3
Vanadium, Dissolved	μg/L	17	1.5 B	34.5	2
Zinc, Dissolved	μg/L	17	0.69 B	17.6 B	10
Metals, Total					
Aluminum	μg/L	17	14.6 B	80400	17
Antimony	μg/L	17	0.067 B	3.9 B	6
Arsenic	μg/L	17	2.1 B	35.3 E	15
Barium	μg/L	17	6.01	692 N*	17
Beryllium	μg/L	17	0.19 B	3.3 B	10
Boron	μg/L	17	79.5	2860 E	17
Cadmium	μg/L	17	0.37 B	1.3 B	6
Calcium	μg/L	17	73600	690000	17
Chromium	μg/L	17	1.2 B	106	14
Cobalt	μg/L	17	0.446 B	47.4	15
Copper	μg/L	17	2.2 B	422	16
Iron	μg/L	17	29.1 B	121000	17
Lead	μg/L	17	0.189 B	36.4	12
Lithium	μg/L	17	28.7 E	1600 E	17
Magnesium	μg/L	17	7830 E	1130000	17
Manganese	μg/L	17	5.3 B	7840	17
Mercury	μg/L	17	0.06 B	0.06 B	1

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	17	1.5 B	113	13
Potassium	μg/L	17	2130	42900	17
Selenium	μg/L	17	0.74 B	22.1	15
Silver	μg/L	17	0.006 B	1.4 B	15
Sodium	μg/L	17	7230 E	1730000 E	17
Thallium	μg/L	17	0.025 B	14.8	5
Vanadium	μg/L	17	1.2 B	165	13
Zinc	μg/L	17	2.6 B	273	17
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	9	1.5	1.5	1
2,4,6-Trinitrotoluene	μg/L	9	--	--	0
2,4-Dinitrotoluene	μg/L	19	--	--	0
2,6-Dinitrotoluene	μg/L	19	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	9	--	--	0
2-Nitrotoluene	μg/L	9	--	--	0
3-Dinitrobenzene	μg/L	9	--	--	0
3-Nitrotoluene	μg/L	9	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	9	--	--	0
4-Nitrotoluene	μg/L	9	--	--	0
HMX	μg/L	9	--	--	0
Nitrobenzene	μg/L	19	--	--	0
RDX	μg/L	9	0.153	0.153	1
Tetryl	μg/L	9	--	--	0
PAHs					
Acenaphthene	μg/L	19	--	--	0
Acenaphthylene	μg/L	19	--	--	0
Anthracene	μg/L	19	--	--	0
Benzo(a)anthracene	μg/L	19	--	--	0
Benzo(a)pyrene	μg/L	19	--	--	0
Benzo(b)fluoranthene	μg/L	19	--	--	0
Benzo(g,h,i)perylene	μg/L	19	--	--	0
Benzo(k)fluoranthene	μg/L	19	--	--	0
Chrysene	μg/L	19	--	--	0
Dibenzo(a,h)anthracene	μg/L	19	--	--	0
Fluoranthene	μg/L	19	--	--	0
Fluorene	μg/L	19	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	19	--	--	0
Naphthalene	μg/L	19	--	--	0
Phenanthrene	μg/L	19	0.01	0.914	2
Pyrene	μg/L	19	--	--	0
PCBs					
Aroclor-1016	μg/L	11	--	--	0
Aroclor-1221	μg/L	11	--	--	0
Aroclor-1232	μg/L	11	--	--	0

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	11	--	--	0
Aroclor-1248	μg/L	11	--	--	0
Aroclor-1254	μg/L	11	--	--	0
Aroclor-1260	μg/L	11	--	--	0
Pesticides					
4,4'-DDD	μg/L	11	--	--	0
4,4'-DDE	μg/L	11	0.055	0.055	1
4,4'-DDT	μg/L	11	0.0361 J	0.0361 J	1
Aldrin	μg/L	11	--	--	0
alpha-BHC	μg/L	11	0.019 J	0.019 J	1
alpha-Chlordane	μg/L	11	--	--	0
beta-BHC	μg/L	11	--	--	0
delta-BHC	μg/L	11	--	--	0
Dieldrin	μg/L	11	--	--	0
Endosulfan I	μg/L	11	--	--	0
Endosulfan II	μg/L	11	--	--	0
Endosulfan sulfate	μg/L	11	--	--	0
Endrin	μg/L	11	--	--	0
Endrin aldehyde	μg/L	11	--	--	0
Endrin ketone	μg/L	11	--	--	0
gamma-BHC (Lindane)	μg/L	11	--	--	0
gamma-Chlordane	μg/L	11	--	--	0
Heptachlor	μg/L	11	--	--	0
Heptachlor epoxide	μg/L	11	--	--	0
Methoxychlor	μg/L	11	--	--	0
Toxaphene	μg/L	11	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	4	--	--	0
Alpha, Dissolved	pCi/L	4	9.3	70.2	3
Americium-241, Dissolved	pCi/L	4	--	--	0
Beta, Dissolved	pCi/L	4	7.6	44.4	4
Cesium-137, Dissolved	pCi/L	4	--	--	0
Cobalt-60, Dissolved	pCi/L	4	--	--	0
Plutonium-238, Dissolved	pCi/L	1	--	--	0
Protactinium-231, Dissolved	pCi/L	4	--	--	0
Radium-226, Dissolved	pCi/L	4	0.493	0.558	2
Radium-228, Dissolved	pCi/L	4	--	--	0
Strontium-90, Dissolved	pCi/L	1	--	--	0
Thorium-228, Dissolved	pCi/L	7	0.334	0.334	1
Thorium-230, Dissolved	pCi/L	4	0.283	0.554	3
Thorium-232, Dissolved	pCi/L	4	--	--	0
Total Activity, Dissolved	pCi/mL	1	--	--	0
Total Uranium, Dissolved	μg/L	4	0.696	126	4
Uranium-234, Dissolved	pCi/L	7	5.65	57.5	6

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Uranium-235, Dissolved	pCi/L	7	0.291	3.46	6
Uranium-238, Dissolved	pCi/L	7	5.4	44.4	6
Radionuclides, Total					
Actinium-227	pCi/L	6	--	--	0
Alpha	pCi/L	20	0.982	132	17
Americium-241	pCi/L	6	--	--	0
Beta	pCi/L	20	3.89	44.9	19
Cesium-137	pCi/L	6	--	--	0
Cobalt-60	pCi/L	6	--	--	0
Plutonium-238	pCi/L	1	--	--	0
Plutonium-239/240	pCi/L	1	--	--	0
Protactinium-231	pCi/L	6	--	--	0
Radium-226	pCi/L	19	0.39	3.9	11
Radium-228	pCi/L	6	--	--	0
Strontium-90	pCi/L	1	--	--	0
Thorium-228	pCi/L	19	0.188 J	5.33	6
Thorium-230	pCi/L	19	0.138	4.37	11
Thorium-232	pCi/L	19	0.0848 J	3.37	8
Total Activity	pCi/mL	1	--	--	0
Total Uranium	µg/L	19	0.434	125	17
Uranium-234	pCi/L	19	0.0515 J	61	18
Uranium-235	pCi/L	19	0.27 J	2.24	14
Uranium-238	pCi/L	19	0.216 J	47	17
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/L	19	--	--	0
1,2-Dichlorobenzene	µg/L	19	--	--	0
1,3-Dichlorobenzene	µg/L	19	--	--	0
1,4-Dichlorobenzene	µg/L	19	--	--	0
2,4,5-Trichlorophenol	µg/L	19	--	--	0
2,4,6-Trichlorophenol	µg/L	19	--	--	0
2,4-Dichlorophenol	µg/L	19	--	--	0
2,4-Dimethylphenol	µg/L	19	--	--	0
2,4-Dinitrophenol	µg/L	19	--	--	0
2-Chloronaphthalene	µg/L	19	--	--	0
2-Chlorophenol	µg/L	19	0.407 J	0.407 J	1
2-Methyl-4,6-dinitrophenol	µg/L	38	--	--	0
2-Methylnaphthalene	µg/L	18	--	--	0
2-Nitroaniline	µg/L	19	--	--	0
2-Nitrophenol	µg/L	19	--	--	0
3,3'-Dichlorobenzidine	µg/L	19	--	--	0
3-Nitroaniline	µg/L	19	--	--	0
4-Bromophenylphenylether	µg/L	19	--	--	0
4-Chloro-3-methylphenol	µg/L	19	--	--	0
4-Chloroaniline	µg/L	19	--	--	0

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Chlorophenylphenylether	μg/L	19	--	--	0
4-Nitroaniline	μg/L	19	--	--	0
4-Nitrophenol	μg/L	19	--	--	0
Benzoic Acid	μg/L	14	--	--	0
bis(2-Chloroethoxy)methane	μg/L	19	--	--	0
bis(2-Chloroethyl)ether	μg/L	19	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	19	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	19	3.07 J	3.07	1
Butylbenzylphthalate	μg/L	19	--	--	0
Carbazole	μg/L	19	--	--	0
Dibenzofuran	μg/L	19	--	--	0
Diethylphthalate	μg/L	19	--	--	0
Dimethylphthalate	μg/L	19	--	--	0
Di-n-butylphthalate	μg/L	19	14.9	89.4	6
Di-n-octylphthalate	μg/L	19	--	--	0
Diphenylamine	μg/L	14	--	--	0
Hexachlorobenzene	μg/L	19	--	--	0
Hexachlorobutadiene	μg/L	19	--	--	0
Hexachlorocyclopentadiene	μg/L	19	--	--	0
Hexachloroethane	μg/L	19	--	--	0
Isophorone	μg/L	19	--	--	0
m,p-Cresols	μg/L	18	--	--	0
N-Nitroso-di-n-propylamine	μg/L	19	--	--	0
N-Nitrosodiphenylamine	μg/L	5	--	--	0
o-Cresol	μg/L	19	--	--	0
p-Cresol	μg/L	1	--	--	0
Pentachlorophenol	μg/L	19	--	--	0
Phenol	μg/L	19	11.3	12.3	2
Volatile Organics					
1,1,1-Trichloroethane	μg/L	18	6	6	1
1,1,2,2-Tetrachloroethane	μg/L	18	--	--	0
1,1,2-Trichloroethane	μg/L	18	--	--	0
1,1-Dichloroethane	μg/L	18	1	1	1
1,1-Dichloroethene	μg/L	18	2	2	1
1,2-Dichloroethane	μg/L	18	--	--	0
1,2-Dichloroethene	μg/L	1	2	2	1
1,2-Dichloropropane	μg/L	18	--	--	0
2-Butanone	μg/L	17	2.2 J	4.95 J	2
2-Hexanone	μg/L	18	--	--	0
4-Methyl-2-pentanone	μg/L	17	--	--	0
Acetone	μg/L	18	0.83 J	14.5	5
Benzene	μg/L	18	--	--	0
Bromodichloromethane	μg/L	18	--	--	0
Bromoform	μg/L	18	--	--	0

* Data qualifier included with concentration value

Table 4-103
Exposure Unit 8
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Bromomethane	μg/L	18	--	--	0
Carbon disulfide	μg/L	18	2.37 J	2.37 J	1
Carbon tetrachloride	μg/L	18	--	--	0
Chlorobenzene	μg/L	18	--	--	0
Chloroethane	μg/L	18	--	--	0
Chloroform	μg/L	18	--	--	0
Chloromethane	μg/L	18	--	--	0
cis-1,2-Dichloroethene	μg/L	17	--	--	0
cis-1,3-Dichloropropene	μg/L	18	--	--	0
Dibromochloromethane	μg/L	18	--	--	0
Ethylbenzene	μg/L	18	0.06 J	0.06 J	1
Methylene chloride	μg/L	18	1.93 J	1.93 J	1
o-Xylene	μg/L	1	--	--	0
Styrene	μg/L	18	--	--	0
Tetrachloroethene	μg/L	18	0.597 BJ	0.597 BJ	1
Toluene	μg/L	18	0.13 J	0.13 J	1
trans-1,2-Dichloroethene	μg/L	17	--	--	0
trans-1,3-Dichloropropene	μg/L	18	--	--	0
Trichloroethene	μg/L	18	5	5	1
Vinyl chloride	μg/L	18	--	--	0
Xylenes (total)	μg/L	17	--	--	0

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	68	6.59 B	739 B	29
Antimony, Dissolved	μg/L	68	0.065 B	4.9 B	32
Arsenic, Dissolved	μg/L	68	0.25 B	66.8 B	54
Barium, Dissolved	μg/L	68	6.59	147	68
Beryllium, Dissolved	μg/L	68	0.18 B	13.3	7
Boron, Dissolved	μg/L	68	22.9 B	2690	68
Cadmium, Dissolved	μg/L	68	0.24 B	1.4 B	12
Calcium, Dissolved	μg/L	68	10800	598000	68
Chromium, Dissolved	μg/L	68	0.74 B	5.68	16
Cobalt, Dissolved	μg/L	68	0.618 B	7.19	21
Copper, Dissolved	μg/L	68	1.19 B	4770	50
Iron, Dissolved	μg/L	68	3.8 B	1150	40
Lead, Dissolved	μg/L	68	0.025 B	2.41	29
Lithium, Dissolved	μg/L	68	15.1 NE	717	68
Magnesium, Dissolved	μg/L	68	18300 E	822000	68
Manganese, Dissolved	μg/L	68	2.17 B	795	60
Mercury, Dissolved	μg/L	68	--	--	0
Nickel, Dissolved	μg/L	68	1.3 B	74	39
Potassium, Dissolved	μg/L	68	1110	143000 E	68
Selenium, Dissolved	μg/L	68	0.284 B	62.7 BN*	39
Silver, Dissolved	μg/L	68	0.005 B	0.995 B	30
Sodium, Dissolved	μg/L	68	21100	805000	68
Thallium, Dissolved	μg/L	68	0.005 B	11.9 B	33
Vanadium, Dissolved	μg/L	68	0.7 B	6.23	5
Zinc, Dissolved	μg/L	68	0.6 B	643	40
Metals, Total					
Aluminum	μg/L	67	8.77 B	1330000	56
Antimony	μg/L	68	0.059 B	28.2	49
Arsenic	μg/L	68	1.04 B	594	59
Barium	μg/L	68	7.3	6680	68
Beryllium	μg/L	68	0.189 B	54.1	18
Boron	μg/L	68	31.3 B	2980	68
Cadmium	μg/L	68	0.23 B	13.5 B	16
Calcium	μg/L	68	1640	3850000	68
Chromium	μg/L	68	0.64 B	2090	42
Cobalt	μg/L	68	0.316 B	1090	32
Copper	μg/L	68	1.74 B	2920	58
Iron	μg/L	68	13.7 B	2430000	63
Lead	μg/L	68	0.028 B	520	58
Lithium	μg/L	68	11 E	1610 N	68
Magnesium	μg/L	68	587 E	1150000 E	68
Manganese	μg/L	68	1.4 B	78300	64
Mercury	μg/L	68	0.035 B	1.01	14

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	68	0.998 B	2340	56
Potassium	μg/L	68	1190	240000	68
Selenium	μg/L	68	0.503 B	25.3	42
Silver	μg/L	68	0.006 B	4.47 B	43
Sodium	μg/L	68	18900 E	909000	68
Thallium	μg/L	68	0.006 B	6.32	47
Vanadium	μg/L	68	0.535 B	2700	22
Zinc	μg/L	68	0.74 B	4950	61
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	38	--	--	0
2,4,6-Trinitrotoluene	μg/L	38	--	--	0
2,4-Dinitrotoluene	μg/L	67	--	--	0
2,6-Dinitrotoluene	μg/L	67	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	38	--	--	0
2-Nitrotoluene	μg/L	38	--	--	0
3-Dinitrobenzene	μg/L	38	--	--	0
3-Nitrotoluene	μg/L	38	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	38	--	--	0
4-Nitrotoluene	μg/L	38	--	--	0
HMX	μg/L	38	--	--	0
Nitrobenzene	μg/L	67	--	--	0
RDX	μg/L	38	--	--	0
Tetryl	μg/L	38	--	--	0
PAHs					
Acenaphthene	μg/L	68	--	--	0
Acenaphthylene	μg/L	68	--	--	0
Anthracene	μg/L	68	--	--	0
Benzo(a)anthracene	μg/L	68	--	--	0
Benzo(a)pyrene	μg/L	68	--	--	0
Benzo(b)fluoranthene	μg/L	68	--	--	0
Benzo(g,h,i)perylene	μg/L	68	--	--	0
Benzo(k)fluoranthene	μg/L	68	--	--	0
Chrysene	μg/L	68	--	--	0
Dibenzo(a,h)anthracene	μg/L	68	--	--	0
Fluoranthene	μg/L	68	0.016 J	0.0852	2
Fluorene	μg/L	68	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	68	0.0267 J	0.0267 J	1
Naphthalene	μg/L	68	0.186 J	0.186 J	1
Phenanthrene	μg/L	68	0.795 J	2.49 J	2
Pyrene	μg/L	68	0.953 J	0.953 J	1
PCBs					
Aroclor-1016	μg/L	57	--	--	0
Aroclor-1221	μg/L	57	--	--	0
Aroclor-1232	μg/L	57	--	--	0

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	57	--	--	0
Aroclor-1248	μg/L	57	--	--	0
Aroclor-1254	μg/L	57	--	--	0
Aroclor-1260	μg/L	57	--	--	0
Pesticides					
4,4'-DDD	μg/L	57	0.0414	0.0414	1
4,4'-DDE	μg/L	57	0.0048 J	0.0355 J	10
4,4'-DDT	μg/L	57	0.011 J	0.0492	11
Aldrin	μg/L	57	0.0294	0.0294	1
alpha-BHC	μg/L	57	0.0096	0.0096	1
alpha-Chlordane	μg/L	57	--	--	0
beta-BHC	μg/L	57	0.0283	0.0283	1
delta-BHC	μg/L	57	0.0074	0.0074	1
Dieldrin	μg/L	57	0.0051	0.0288 J	2
Endosulfan I	μg/L	57	--	--	0
Endosulfan II	μg/L	57	--	--	0
Endosulfan sulfate	μg/L	57	0.0221 J	0.0221 J	1
Endrin	μg/L	57	0.0252 J	0.0252 J	1
Endrin aldehyde	μg/L	57	0.0152 J	0.0152 J	1
Endrin ketone	μg/L	57	0.0046	0.0072 J	2
gamma-BHC (Lindane)	μg/L	57	0.0155 J	0.0155 J	1
gamma-Chlordane	μg/L	57	--	--	0
Heptachlor	μg/L	57	0.0197 J	0.0197 J	1
Heptachlor epoxide	μg/L	57	0.031	0.031	1
Methoxychlor	μg/L	57	--	--	0
Toxaphene	μg/L	57	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	50	--	--	0
Alpha, Dissolved	pCi/L	49	2.64	610	38
Americium-241, Dissolved	pCi/L	50	--	--	0
Beta, Dissolved	pCi/L	49	1.92	453	44
Cesium-137, Dissolved	pCi/L	50	2.61	2.61	1
Cobalt-60, Dissolved	pCi/L	50	--	--	0
Protactinium-231, Dissolved	pCi/L	50	--	--	0
Radium-226, Dissolved	pCi/L	50	0.277	2.75	17
Radium-228, Dissolved	pCi/L	50	0.701	1.87	13
Thorium-228, Dissolved	pCi/L	64	0.169	0.197	2
Thorium-230, Dissolved	pCi/L	50	0.0904	4.68	26
Thorium-232, Dissolved	pCi/L	50	--	--	0
Total Activity, Dissolved	pCi/mL	20	--	--	0
Total Uranium, Dissolved	μg/L	47	0.393	9580	45
Uranium-234, Dissolved	pCi/L	64	0.155	319	61
Uranium-235, Dissolved	pCi/L	64	0.109	39.1	43
Uranium-238, Dissolved	pCi/L	64	0.132	301	60

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides, Total					
Actinium-227	pCi/L	64	--	--	0
Alpha	pCi/L	83	0.934	562	63
Americium-241	pCi/L	64	--	--	0
Beta	pCi/L	83	4.17	220 J	78
Cesium-137	pCi/L	64	2.12	57.1	4
Cobalt-60	pCi/L	64	--	--	0
Protactinium-231	pCi/L	64	--	--	0
Radium-226	pCi/L	84	0.471 J	11.3	36
Radium-228	pCi/L	64	0.953	126	9
Thorium-228	pCi/L	84	0.109 J	9.06	21
Thorium-230	pCi/L	84	0.0446 J	5.3	32
Thorium-232	pCi/L	84	0.035 J	5.6	18
Total Activity	pCi/mL	20	--	--	0
Total Uranium	µg/L	83	0.243	662	80
Uranium-234	pCi/L	84	0.333	523	78
Uranium-235	pCi/L	84	0.06	33.2	57
Uranium-238	pCi/L	84	0.149	543	78
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/L	67	--	--	0
1,2-Dichlorobenzene	µg/L	67	--	--	0
1,3-Dichlorobenzene	µg/L	67	--	--	0
1,4-Dichlorobenzene	µg/L	67	--	--	0
2,4,5-Trichlorophenol	µg/L	66	--	--	0
2,4,6-Trichlorophenol	µg/L	66	--	--	0
2,4-Dichlorophenol	µg/L	66	--	--	0
2,4-Dimethylphenol	µg/L	66	--	--	0
2,4-Dinitrophenol	µg/L	66	--	--	0
2-Chloronaphthalene	µg/L	67	--	--	0
2-Chlorophenol	µg/L	66	0.511 J	0.511 J	1
2-Methyl-4,6-dinitrophenol	µg/L	132	--	--	0
2-Methylnaphthalene	µg/L	67	--	--	0
2-Nitroaniline	µg/L	67	--	--	0
2-Nitrophenol	µg/L	66	--	--	0
3,3'-Dichlorobenzidine	µg/L	67	--	--	0
3-Nitroaniline	µg/L	67	--	--	0
4-Bromophenylphenylether	µg/L	67	--	--	0
4-Chloro-3-methylphenol	µg/L	66	--	--	0
4-Chloroaniline	µg/L	67	--	--	0
4-Chlorophenylphenylether	µg/L	67	--	--	0
4-Nitroaniline	µg/L	67	--	--	0
4-Nitrophenol	µg/L	66	--	--	0
Benzoic Acid	µg/L	23	--	--	0
bis(2-Chloroethoxy)methane	µg/L	67	--	--	0

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/L	67	1.77 J	1.77 J	1
bis(2-Chloroisopropyl)ether	μg/L	67	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	67	1.91 J	289	9
Butylbenzylphthalate	μg/L	67	--	--	0
Carbazole	μg/L	67	--	--	0
Dibenzofuran	μg/L	67	--	--	0
Diethylphthalate	μg/L	67	--	--	0
Dimethylphthalate	μg/L	67	--	--	0
Di-n-butylphthalate	μg/L	67	2.72 J	2.72 J	1
Di-n-octylphthalate	μg/L	67	19.6	19.6	1
Diphenylamine	μg/L	23	--	--	0
Hexachlorobenzene	μg/L	67	--	--	0
Hexachlorobutadiene	μg/L	67	--	--	0
Hexachlorocyclopentadiene	μg/L	67	--	--	0
Hexachloroethane	μg/L	67	--	--	0
Isophorone	μg/L	67	--	--	0
m,p-Cresols	μg/L	66	--	--	0
N-Nitroso-di-n-propylamine	μg/L	67	--	--	0
N-Nitrosodiphenylamine	μg/L	44	--	--	0
o-Cresol	μg/L	66	--	--	0
Pentachlorophenol	μg/L	66	--	--	0
Phenol	μg/L	66	0.291 J	57.9	11
Volatile Organics					
1,1,1-Trichloroethane	μg/L	67	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	67	--	--	0
1,1,2-Trichloroethane	μg/L	67	--	--	0
1,1-Dichloroethane	μg/L	67	--	--	0
1,1-Dichloroethene	μg/L	67	--	--	0
1,2-Dichloroethane	μg/L	67	--	--	0
1,2-Dichloropropane	μg/L	67	--	--	0
2-Butanone	μg/L	67	1.8 J	68.6	16
2-Hexanone	μg/L	67	--	--	0
4-Methyl-2-pentanone	μg/L	67	--	--	0
Acetone	μg/L	67	0.64 J	101	22
Benzene	μg/L	67	0.758 J	2.79	2
Bromodichloromethane	μg/L	67	--	--	0
Bromoform	μg/L	67	--	--	0
Bromomethane	μg/L	67	--	--	0
Carbon disulfide	μg/L	67	0.84 J	14.6	3
Carbon tetrachloride	μg/L	67	--	--	0
Chlorobenzene	μg/L	67	--	--	0
Chloroethane	μg/L	67	--	--	0
Chloroform	μg/L	67	0.944 J	0.944 J	1
Chloromethane	μg/L	67	--	--	0

* Data qualifier included with concentration value

Table 4-104
Exposure Unit 10
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,2-Dichloroethene	μg/L	67	--	--	0
cis-1,3-Dichloropropene	μg/L	67	--	--	0
Dibromochloromethane	μg/L	62	--	--	0
Ethylbenzene	μg/L	67	0.1 J	0.1 J	1
Methylene chloride	μg/L	67	1.92 J	2.13 J	6
Styrene	μg/L	67	0.15 J	0.15 J	1
Tetrachloroethene	μg/L	67	--	--	0
Toluene	μg/L	67	0.26 J	0.36 J	3
trans-1,2-Dichloroethene	μg/L	67	--	--	0
trans-1,3-Dichloropropene	μg/L	67	--	--	0
Trichloroethene	μg/L	67	--	--	0
Vinyl chloride	μg/L	67	0.75 J	0.75 J	1
Xylenes (total)	μg/L	67	2.5 J	2.5 J	1

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	11	20.2 BN	295	4
Antimony, Dissolved	μg/L	11	4.2 B	5.41 B	4
Arsenic, Dissolved	μg/L	11	3.6	9.4 B	6
Barium, Dissolved	μg/L	11	4.87 B	35.6	11
Beryllium, Dissolved	μg/L	11	0.23 B	0.23 B	1
Boron, Dissolved	μg/L	11	118	3410	11
Cadmium, Dissolved	μg/L	11	0.28 B	1.05 B	3
Calcium, Dissolved	μg/L	11	73800	553000	11
Chromium, Dissolved	μg/L	11	1.1 B	1.1 B	1
Cobalt, Dissolved	μg/L	11	1.9 B	2.4 B	3
Copper, Dissolved	μg/L	11	2.05 B	13.2	6
Iron, Dissolved	μg/L	11	10.2 B	983	4
Lead, Dissolved	μg/L	11	0.23 B	0.23 B	1
Lithium, Dissolved	μg/L	11	61.4	1670	11
Magnesium, Dissolved	μg/L	11	67600	353000 NE	11
Manganese, Dissolved	μg/L	11	2.88 B	701	11
Mercury, Dissolved	μg/L	11	0.036 B	0.146 B	2
Nickel, Dissolved	μg/L	11	1.7 B	5.25	6
Potassium, Dissolved	μg/L	11	2510	56000	11
Selenium, Dissolved	μg/L	11	0.38 B	25.6	6
Silver, Dissolved	μg/L	11	0.08 B	0.94 B	7
Sodium, Dissolved	μg/L	11	42100	186000	11
Thallium, Dissolved	μg/L	11	0.225 B	11.4 B	4
Vanadium, Dissolved	μg/L	11	0.91 B	1.7 B	3
Zinc, Dissolved	μg/L	11	0.85 B	49.6	3
Metals, Total					
Aluminum	μg/L	10	27.9 B	67700	10
Antimony	μg/L	10	0.229 B	17.3	8
Arsenic	μg/L	10	3 B	40.2	9
Barium	μg/L	10	8.98	505	10
Beryllium	μg/L	10	0.633 B	2.7 B	8
Boron	μg/L	10	141	3800	10
Cadmium	μg/L	10	0.26 B	1.43 B	6
Calcium	μg/L	10	107000	571000	10
Chromium	μg/L	10	0.7 B	91	10
Cobalt	μg/L	10	5.81	53.3	8
Copper	μg/L	10	6.55	143	9
Iron	μg/L	10	76	119000 EN	10
Lead	μg/L	10	0.825 B	28.9 E	9
Lithium	μg/L	10	72.4	2050	10
Magnesium	μg/L	10	76300	367000	10
Manganese	μg/L	10	86.6	5740	10
Mercury	μg/L	10	0.05 B	0.138 B	5

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	10	2.25 B	107	9
Potassium	μg/L	10	6250	59500	10
Selenium	μg/L	10	3 B	15.4 B	4
Silver	μg/L	10	0.109 B	0.402 B	7
Sodium	μg/L	10	41800	188000	10
Thallium	μg/L	10	0.035 BN	0.96	7
Vanadium	μg/L	10	25.7	147	8
Zinc	μg/L	10	1.98 B	251 E	10
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	2	--	--	0
2,4,6-Trinitrotoluene	μg/L	2	--	--	0
2,4-Dinitrotoluene	μg/L	10	--	--	0
2,6-Dinitrotoluene	μg/L	10	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	2	--	--	0
2-Nitrotoluene	μg/L	2	--	--	0
3-Dinitrobenzene	μg/L	2	--	--	0
3-Nitrotoluene	μg/L	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	2	--	--	0
4-Nitrotoluene	μg/L	2	--	--	0
HMX	μg/L	2	--	--	0
Nitrobenzene	μg/L	10	--	--	0
RDX	μg/L	2	--	--	0
Tetryl	μg/L	2	--	--	0
PAHs					
Acenaphthene	μg/L	10	--	--	0
Acenaphthylene	μg/L	10	--	--	0
Anthracene	μg/L	10	--	--	0
Benzo(a)anthracene	μg/L	10	--	--	0
Benzo(a)pyrene	μg/L	10	--	--	0
Benzo(b)fluoranthene	μg/L	10	--	--	0
Benzo(g,h,i)perylene	μg/L	10	--	--	0
Benzo(k)fluoranthene	μg/L	10	0.0174 JP	0.0174 JP	1
Chrysene	μg/L	10	--	--	0
Dibenzo(a,h)anthracene	μg/L	10	--	--	0
Fluoranthene	μg/L	10	--	--	0
Fluorene	μg/L	10	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	10	--	--	0
Naphthalene	μg/L	10	--	--	0
Phenanthrene	μg/L	10	--	--	0
Pyrene	μg/L	10	--	--	0
PCBs					
Aroclor-1016	μg/L	6	--	--	0
Aroclor-1221	μg/L	6	--	--	0
Aroclor-1232	μg/L	6	--	--	0

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	6	--	--	0
Aroclor-1248	μg/L	6	--	--	0
Aroclor-1254	μg/L	6	--	--	0
Aroclor-1260	μg/L	6	--	--	0
Pesticides					
4,4'-DDD	μg/L	6	--	--	0
4,4'-DDE	μg/L	6	0.0135 J	0.0546	2
4,4'-DDT	μg/L	6	0.0568	0.0568	1
Aldrin	μg/L	6	--	--	0
alpha-BHC	μg/L	6	--	--	0
alpha-Chlordane	μg/L	6	--	--	0
beta-BHC	μg/L	6	--	--	0
delta-BHC	μg/L	6	--	--	0
Dieldrin	μg/L	6	--	--	0
Endosulfan I	μg/L	6	--	--	0
Endosulfan II	μg/L	6	--	--	0
Endosulfan sulfate	μg/L	6	--	--	0
Endrin	μg/L	6	--	--	0
Endrin aldehyde	μg/L	6	--	--	0
Endrin ketone	μg/L	6	--	--	0
gamma-BHC (Lindane)	μg/L	6	--	--	0
gamma-Chlordane	μg/L	6	--	--	0
Heptachlor	μg/L	6	--	--	0
Heptachlor epoxide	μg/L	6	--	--	0
Methoxychlor	μg/L	6	--	--	0
Toxaphene	μg/L	6	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	9	--	--	0
Alpha, Dissolved	pCi/L	6	2.44	19	6
Americium-241, Dissolved	pCi/L	9	--	--	0
Beta, Dissolved	pCi/L	6	3.53	9.78	5
Cesium-137, Dissolved	pCi/L	9	--	--	0
Cobalt-60, Dissolved	pCi/L	9	--	--	0
Potassium-40, Dissolved	pCi/L	1	123	123	1
Protactinium-231, Dissolved	pCi/L	9	--	--	0
Radium-226, Dissolved	pCi/L	9	0.287	6.22	3
Radium-228, Dissolved	pCi/L	9	0.906	0.906	1
Thorium-228, Dissolved	pCi/L	9	1.8	1.8	1
Thorium-230, Dissolved	pCi/L	9	0.137	11.8	8
Thorium-232, Dissolved	pCi/L	9	0.938	0.938	1
Total Activity, Dissolved	pCi/mL	5	--	--	0
Total Uranium, Dissolved	μg/L	8	8.13	51	8
Uranium-234, Dissolved	pCi/L	9	3.48	23.6	9
Uranium-235, Dissolved	pCi/L	9	0.177	0.901	9

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Uranium-238, Dissolved	pCi/L	9	2.67	45.7	9
Radionuclides, Total					
Actinium-227	pCi/L	9	--	--	0
Alpha	pCi/L	13	12.7	102	11
Americium-241	pCi/L	9	--	--	0
Beta	pCi/L	13	4.48	144	12
Cesium-137	pCi/L	9	--	--	0
Cobalt-60	pCi/L	9	--	--	0
Protactinium-231	pCi/L	9	--	--	0
Radium-226	pCi/L	14	0.469 J	12.3	8
Radium-228	pCi/L	9	1.91	48.3	3
Thorium-228	pCi/L	14	0.164 J	4.02	8
Thorium-230	pCi/L	14	0.194	3.71	7
Thorium-232	pCi/L	14	0.0491	2.52	8
Total Activity	pCi/mL	5	--	--	0
Total Uranium	µg/L	13	1.03	32.5	12
Uranium-234	pCi/L	14	0.531	15	13
Uranium-235	pCi/L	14	0.159	1.92	10
Uranium-238	pCi/L	14	0.433	11	13
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/L	10	--	--	0
1,2-Dichlorobenzene	µg/L	10	--	--	0
1,3-Dichlorobenzene	µg/L	10	--	--	0
1,4-Dichlorobenzene	µg/L	10	--	--	0
2,4,5-Trichlorophenol	µg/L	10	--	--	0
2,4,6-Trichlorophenol	µg/L	10	--	--	0
2,4-Dichlorophenol	µg/L	10	--	--	0
2,4-Dimethylphenol	µg/L	10	--	--	0
2,4-Dinitrophenol	µg/L	10	--	--	0
2-Chloronaphthalene	µg/L	10	--	--	0
2-Chlorophenol	µg/L	10	--	--	0
2-Methyl-4,6-dinitrophenol	µg/L	20	--	--	0
2-Methylnaphthalene	µg/L	10	--	--	0
2-Nitroaniline	µg/L	10	--	--	0
2-Nitrophenol	µg/L	10	--	--	0
3,3'-Dichlorobenzidine	µg/L	10	--	--	0
3-Nitroaniline	µg/L	10	--	--	0
4-Bromophenylphenylether	µg/L	10	--	--	0
4-Chloro-3-methylphenol	µg/L	10	--	--	0
4-Chloroaniline	µg/L	10	--	--	0
4-Chlorophenylphenylether	µg/L	10	--	--	0
4-Nitroaniline	µg/L	10	--	--	0
4-Nitrophenol	µg/L	10	--	--	0
Benzoic Acid	µg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/L	10	--	--	0
bis(2-Chloroethyl)ether	μg/L	10	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	10	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	10	--	--	0
Butylbenzylphthalate	μg/L	10	--	--	0
Carbazole	μg/L	10	--	--	0
Dibenzofuran	μg/L	10	--	--	0
Diethylphthalate	μg/L	10	--	--	0
Dimethylphthalate	μg/L	10	--	--	0
Di-n-butylphthalate	μg/L	10	21.4	21.4	1
Di-n-octylphthalate	μg/L	10	--	--	0
Diphenylamine	μg/L	5	--	--	0
Hexachlorobenzene	μg/L	10	--	--	0
Hexachlorobutadiene	μg/L	10	--	--	0
Hexachlorocyclopentadiene	μg/L	10	--	--	0
Hexachloroethane	μg/L	10	--	--	0
Isophorone	μg/L	10	--	--	0
m,p-Cresols	μg/L	10	--	--	0
N-Nitroso-di-n-propylamine	μg/L	10	--	--	0
N-Nitrosodiphenylamine	μg/L	5	--	--	0
o-Cresol	μg/L	10	--	--	0
Pentachlorophenol	μg/L	10	--	--	0
Phenol	μg/L	10	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/L	10	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	11	--	--	0
1,1,2-Trichloroethane	μg/L	11	--	--	0
1,1-Dichloroethane	μg/L	11	--	--	0
1,1-Dichloroethene	μg/L	11	--	--	0
1,2-Dichloroethane	μg/L	11	--	--	0
1,2-Dichloropropane	μg/L	11	--	--	0
2-Butanone	μg/L	11	1.7 J	1.7 J	1
2-Hexanone	μg/L	11	--	--	0
4-Methyl-2-pentanone	μg/L	11	--	--	0
Acetone	μg/L	11	3 J	7.56	3
Benzene	μg/L	11	--	--	0
Bromodichloromethane	μg/L	11	--	--	0
Bromoform	μg/L	11	--	--	0
Bromomethane	μg/L	11	--	--	0
Carbon disulfide	μg/L	11	0.6 J	0.6 J	1
Carbon tetrachloride	μg/L	11	--	--	0
Chlorobenzene	μg/L	11	--	--	0
Chloroethane	μg/L	11	--	--	0
Chloroform	μg/L	11	--	--	0

* Data qualifier included with concentration value

Table 4-105
Exposure Unit 11
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloromethane	μg/L	11	--	--	0
cis-1,2-Dichloroethene	μg/L	11	--	--	0
cis-1,3-Dichloropropene	μg/L	11	--	--	0
Dibromochloromethane	μg/L	11	--	--	0
Ethylbenzene	μg/L	11	--	--	0
Methylene chloride	μg/L	11	--	--	0
Styrene	μg/L	11	--	--	0
Tetrachloroethene	μg/L	11	--	--	0
Toluene	μg/L	11	0.29 J	0.29 J	1
trans-1,2-Dichloroethene	μg/L	11	--	--	0
trans-1,3-Dichloropropene	μg/L	11	--	--	0
Trichloroethene	μg/L	11	--	--	0
Vinyl chloride	μg/L	11	--	--	0
Xylenes (total)	μg/L	11	--	--	0

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	5	34.9 B	34.9 B	1
Antimony, Dissolved	μg/L	5	0.132 B	5.7 B	4
Arsenic, Dissolved	μg/L	5	1.58 J	6.6 B	5
Barium, Dissolved	μg/L	5	7.33	50.6	5
Beryllium, Dissolved	μg/L	5	0.4 B	0.4 B	1
Boron, Dissolved	μg/L	5	99.6	528	5
Cadmium, Dissolved	μg/L	5	--	--	0
Calcium, Dissolved	μg/L	5	118000	501000	5
Chromium, Dissolved	μg/L	5	--	--	0
Cobalt, Dissolved	μg/L	5	1.24 B	2.9 B	2
Copper, Dissolved	μg/L	5	2.38 B	4.9 B	4
Iron, Dissolved	μg/L	5	33.8 B	10500	2
Lead, Dissolved	μg/L	5	0.049 B	0.049 B	1
Lithium, Dissolved	μg/L	5	2.6 BE	176	5
Magnesium, Dissolved	μg/L	5	90700 E	410000	5
Manganese, Dissolved	μg/L	5	28.3	979	5
Mercury, Dissolved	μg/L	5	--	--	0
Nickel, Dissolved	μg/L	5	2.5 B	5.55	2
Potassium, Dissolved	μg/L	5	1140 E	11600	5
Selenium, Dissolved	μg/L	5	0.631 B	5	4
Silver, Dissolved	μg/L	5	0.019 B	0.21 B	3
Sodium, Dissolved	μg/L	5	18200	113000	5
Thallium, Dissolved	μg/L	5	0.005 B	0.432 BN	3
Vanadium, Dissolved	μg/L	5	2.38 B	2.38 B	1
Zinc, Dissolved	μg/L	5	2 B	40.5 B	3
Metals, Total					
Aluminum	μg/L	5	1660	125000	5
Antimony	μg/L	5	0.125 B	0.125 B	1
Arsenic	μg/L	5	3.25	30.9 E	5
Barium	μg/L	5	30	764	5
Beryllium	μg/L	5	0.62 B	5.3 B	2
Boron	μg/L	5	113	543	5
Cadmium	μg/L	5	--	--	0
Calcium	μg/L	5	118000	754000	5
Chromium	μg/L	5	2.05 B	177	5
Cobalt	μg/L	5	1.59 B	81.7	4
Copper	μg/L	5	6.16	216	5
Iron	μg/L	5	2840	191000	5
Lead	μg/L	5	0.96 B	49	5
Lithium	μg/L	5	8.97 B	258	5
Magnesium	μg/L	5	124000 E	444000	5
Manganese	μg/L	5	149	5310	5
Mercury	μg/L	5	--	--	0

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	5	2.65 B	193	5
Potassium	μg/L	5	2420 E	34500	5
Selenium	μg/L	5	0.616 B	9.5	5
Silver	μg/L	5	0.026 B	0.79 B	5
Sodium	μg/L	5	31900	117000	5
Thallium	μg/L	5	0.86 B	0.86 B	1
Vanadium	μg/L	5	2.62 B	251	5
Zinc	μg/L	5	15.9	452	3
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	2	--	--	0
2,4,6-Trinitrotoluene	μg/L	2	--	--	0
2,4-Dinitrotoluene	μg/L	4	--	--	0
2,6-Dinitrotoluene	μg/L	4	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	2	--	--	0
2-Nitrotoluene	μg/L	2	--	--	0
3-Dinitrobenzene	μg/L	2	--	--	0
3-Nitrotoluene	μg/L	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	2	--	--	0
4-Nitrotoluene	μg/L	2	--	--	0
HMX	μg/L	2	--	--	0
Nitrobenzene	μg/L	4	--	--	0
RDX	μg/L	2	--	--	0
Tetryl	μg/L	2	--	--	0
PAHs					
Acenaphthene	μg/L	4	--	--	0
Acenaphthylene	μg/L	4	--	--	0
Anthracene	μg/L	4	--	--	0
Benzo(a)anthracene	μg/L	4	--	--	0
Benzo(a)pyrene	μg/L	4	--	--	0
Benzo(b)fluoranthene	μg/L	4	--	--	0
Benzo(g,h,i)perylene	μg/L	4	--	--	0
Benzo(k)fluoranthene	μg/L	4	--	--	0
Chrysene	μg/L	4	--	--	0
Dibenzo(a,h)anthracene	μg/L	4	--	--	0
Fluoranthene	μg/L	4	0.0354 J	0.0354 J	1
Fluorene	μg/L	4	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	4	--	--	0
Naphthalene	μg/L	4	--	--	0
Phenanthrene	μg/L	4	--	--	0
Pyrene	μg/L	4	--	--	0
PCBs					
Aroclor-1016	μg/L	2	--	--	0
Aroclor-1221	μg/L	2	--	--	0
Aroclor-1232	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	2	--	--	0
Aroclor-1248	μg/L	2	--	--	0
Aroclor-1254	μg/L	2	--	--	0
Aroclor-1260	μg/L	2	--	--	0
Pesticides					
4,4'-DDD	μg/L	2	--	--	0
4,4'-DDE	μg/L	2	--	--	0
4,4'-DDT	μg/L	2	--	--	0
Aldrin	μg/L	2	--	--	0
alpha-BHC	μg/L	2	--	--	0
alpha-Chlordane	μg/L	2	--	--	0
beta-BHC	μg/L	2	--	--	0
delta-BHC	μg/L	2	--	--	0
Dieldrin	μg/L	2	--	--	0
Endosulfan I	μg/L	2	--	--	0
Endosulfan II	μg/L	2	--	--	0
Endosulfan sulfate	μg/L	2	--	--	0
Endrin	μg/L	2	--	--	0
Endrin aldehyde	μg/L	2	--	--	0
Endrin ketone	μg/L	2	--	--	0
gamma-BHC (Lindane)	μg/L	2	--	--	0
gamma-Chlordane	μg/L	2	--	--	0
Heptachlor	μg/L	2	--	--	0
Heptachlor epoxide	μg/L	2	--	--	0
Methoxychlor	μg/L	2	--	--	0
Toxaphene	μg/L	2	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	3	--	--	0
Alpha, Dissolved	pCi/L	1	36.9	36.9	1
Americium-241, Dissolved	pCi/L	3	--	--	0
Beta, Dissolved	pCi/L	1	21.1	21.1	1
Cesium-137, Dissolved	pCi/L	3	--	--	0
Cobalt-60, Dissolved	pCi/L	3	--	--	0
Protactinium-231, Dissolved	pCi/L	3	--	--	0
Radium-226, Dissolved	pCi/L	3	--	--	0
Radium-228, Dissolved	pCi/L	3	--	--	0
Thorium-228, Dissolved	pCi/L	3	--	--	0
Thorium-230, Dissolved	pCi/L	3	0.29	0.29	1
Thorium-232, Dissolved	pCi/L	3	--	--	0
Total Uranium, Dissolved	μg/L	3	11.7	45.8	3
Uranium-234, Dissolved	pCi/L	3	17.1	20.1	3
Uranium-235, Dissolved	pCi/L	3	0.38	2.61	3
Uranium-238, Dissolved	pCi/L	3	13.9	15.7	3
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	4	--	--	0
Alpha	pCi/L	6	12.2	140	6
Americium-241	pCi/L	4	--	--	0
Beta	pCi/L	6	14.6	49.3	6
Cesium-137	pCi/L	4	--	--	0
Cobalt-60	pCi/L	4	--	--	0
Protactinium-231	pCi/L	4	--	--	0
Radium-226	pCi/L	8	0.733	3.57	4
Radium-228	pCi/L	4	20.2	20.2	1
Thorium-228	pCi/L	8	0.281	2.57	6
Thorium-230	pCi/L	8	0.165	1.34	7
Thorium-232	pCi/L	8	0.0717	0.792	7
Total Uranium	μg/L	8	10.3	145	8
Uranium-234	pCi/L	8	4.93	48.8	8
Uranium-235	pCi/L	8	0.128	4.15	8
Uranium-238	pCi/L	8	3.55	41.2	8
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	4	--	--	0
1,2-Dichlorobenzene	μg/L	4	--	--	0
1,3-Dichlorobenzene	μg/L	4	--	--	0
1,4-Dichlorobenzene	μg/L	4	--	--	0
2,4,5-Trichlorophenol	μg/L	4	--	--	0
2,4,6-Trichlorophenol	μg/L	4	--	--	0
2,4-Dichlorophenol	μg/L	4	--	--	0
2,4-Dimethylphenol	μg/L	4	--	--	0
2,4-Dinitrophenol	μg/L	4	--	--	0
2-Chloronaphthalene	μg/L	4	--	--	0
2-Chlorophenol	μg/L	4	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	8	--	--	0
2-Methylnaphthalene	μg/L	4	--	--	0
2-Nitroaniline	μg/L	4	--	--	0
2-Nitrophenol	μg/L	4	--	--	0
3,3'-Dichlorobenzidine	μg/L	4	--	--	0
3-Nitroaniline	μg/L	4	--	--	0
4-Bromophenylphenylether	μg/L	4	--	--	0
4-Chloro-3-methylphenol	μg/L	4	--	--	0
4-Chloroaniline	μg/L	4	--	--	0
4-Chlorophenylphenylether	μg/L	4	--	--	0
4-Nitroaniline	μg/L	4	--	--	0
4-Nitrophenol	μg/L	4	--	--	0
Benzoic Acid	μg/L	3	--	--	0
bis(2-Chloroethoxy)methane	μg/L	4	--	--	0
bis(2-Chloroethyl)ether	μg/L	4	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	4	--	--	0
Butylbenzylphthalate	μg/L	4	--	--	0
Carbazole	μg/L	4	--	--	0
Dibenzofuran	μg/L	4	--	--	0
Diethylphthalate	μg/L	4	--	--	0
Dimethylphthalate	μg/L	4	--	--	0
Di-n-butylphthalate	μg/L	4	50.7	50.7	1
Di-n-octylphthalate	μg/L	4	--	--	0
Diphenylamine	μg/L	3	--	--	0
Hexachlorobenzene	μg/L	4	--	--	0
Hexachlorobutadiene	μg/L	4	--	--	0
Hexachlorocyclopentadiene	μg/L	4	--	--	0
Hexachloroethane	μg/L	4	--	--	0
Isophorone	μg/L	4	--	--	0
m,p-Cresols	μg/L	4	--	--	0
N-Nitroso-di-n-propylamine	μg/L	4	--	--	0
N-Nitrosodiphenylamine	μg/L	1	--	--	0
o-Cresol	μg/L	4	--	--	0
Pentachlorophenol	μg/L	4	7.4 J	7.4 J	1
Phenol	μg/L	4	7.15 J	7.15 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	7	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	7	--	--	0
1,1,2-Trichloroethane	μg/L	7	--	--	0
1,1-Dichloroethane	μg/L	7	--	--	0
1,1-Dichloroethene	μg/L	7	--	--	0
1,2-Dichloroethane	μg/L	7	--	--	0
1,2-Dichloropropane	μg/L	7	--	--	0
2-Butanone	μg/L	7	--	--	0
2-Hexanone	μg/L	7	--	--	0
4-Methyl-2-pentanone	μg/L	7	--	--	0
Acetone	μg/L	7	1.7 J	2.9 J	2
Benzene	μg/L	7	--	--	0
Bromodichloromethane	μg/L	7	--	--	0
Bromoform	μg/L	7	--	--	0
Bromomethane	μg/L	7	--	--	0
Carbon disulfide	μg/L	7	--	--	0
Carbon tetrachloride	μg/L	7	--	--	0
Chlorobenzene	μg/L	7	--	--	0
Chloroethane	μg/L	7	--	--	0
Chloroform	μg/L	7	--	--	0
Chloromethane	μg/L	7	--	--	0
cis-1,2-Dichloroethene	μg/L	7	--	--	0
cis-1,3-Dichloropropene	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-106
Exposure Unit 12
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/L	7	--	--	0
Ethylbenzene	μg/L	7	--	--	0
Methylene chloride	μg/L	7	--	--	0
Styrene	μg/L	7	--	--	0
Tetrachloroethene	μg/L	7	--	--	0
Toluene	μg/L	7	--	--	0
trans-1,2-Dichloroethene	μg/L	7	--	--	0
trans-1,3-Dichloropropene	μg/L	7	--	--	0
Trichloroethene	μg/L	7	--	--	0
Vinyl chloride	μg/L	7	--	--	0
Xylenes (total)	μg/L	7	--	--	0

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	10	17.4 B	108	5
Antimony, Dissolved	μg/L	11	0.206 B	0.307 J	2
Arsenic, Dissolved	μg/L	11	1.7 B	10.5	10
Barium, Dissolved	μg/L	11	7.72	51.1	11
Beryllium, Dissolved	μg/L	11	0.25 J	0.271 B	2
Boron, Dissolved	μg/L	11	146 B	17300	11
Cadmium, Dissolved	μg/L	11	--	--	0
Calcium, Dissolved	μg/L	11	156000	464000	11
Chromium, Dissolved	μg/L	11	--	--	0
Cobalt, Dissolved	μg/L	11	1.02 B	7.62	4
Copper, Dissolved	μg/L	11	2.8 B	14.7	6
Iron, Dissolved	μg/L	11	46.9 B	9790	10
Lead, Dissolved	μg/L	11	0.025 B	0.327 J	6
Lithium, Dissolved	μg/L	11	21.6 B	139	11
Magnesium, Dissolved	μg/L	11	91000	312000	11
Manganese, Dissolved	μg/L	11	80.9	1190	11
Mercury, Dissolved	μg/L	11	0.06 B	0.06 B	2
Nickel, Dissolved	μg/L	11	3.4 B	20.3	5
Potassium, Dissolved	μg/L	11	2510	18200	11
Selenium, Dissolved	μg/L	11	1.7 B	2.26 J	4
Silver, Dissolved	μg/L	11	0.008 B	1.3 B	6
Sodium, Dissolved	μg/L	11	57300	224000	11
Thallium, Dissolved	μg/L	11	0.043 J	0.56 B	4
Vanadium, Dissolved	μg/L	11	0.87 B	2.58 J	2
Zinc, Dissolved	μg/L	11	4.8 B	94.1	7
Metals, Total					
Aluminum	μg/L	11	61.6 B	232000	11
Antimony	μg/L	11	--	--	0
Arsenic	μg/L	11	3.3 BE	96.9	10
Barium	μg/L	11	8.94	1320	11
Beryllium	μg/L	11	0.23 J	9.3	4
Boron	μg/L	11	131	20700	11
Cadmium	μg/L	11	0.908 B	1.08 B	2
Calcium	μg/L	11	157000	2080000	11
Chromium	μg/L	11	1.54 J	335	6
Cobalt	μg/L	11	1.4	203	9
Copper	μg/L	11	3.36 B	699	11
Iron	μg/L	11	56 B	419000	11
Lead	μg/L	11	0.195 B	109	10
Lithium	μg/L	11	24.8 B	476	11
Magnesium	μg/L	11	93200	568000	11
Manganese	μg/L	11	281	26200	11
Mercury	μg/L	11	0.07 B	0.15 B	3

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	11	1.43 J	455	9
Potassium	μg/L	11	2820	35700	11
Selenium	μg/L	11	1.5 B	22.4	5
Silver	μg/L	11	0.237 J	1.4 B	4
Sodium	μg/L	11	34300	190000	11
Thallium	μg/L	11	0.473 J	0.81 B	3
Vanadium	μg/L	11	2.84 B	441	7
Zinc	μg/L	11	37.9	1080	9
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	9	--	--	0
2,4,6-Trinitrotoluene	μg/L	9	--	--	0
2,4-Dinitrotoluene	μg/L	17	--	--	0
2,6-Dinitrotoluene	μg/L	17	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	9	--	--	0
2-Nitrotoluene	μg/L	9	--	--	0
3-Dinitrobenzene	μg/L	9	--	--	0
3-Nitrotoluene	μg/L	9	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	9	--	--	0
4-Nitrotoluene	μg/L	9	--	--	0
HMX	μg/L	9	--	--	0
Nitrobenzene	μg/L	17	--	--	0
RDX	μg/L	9	--	--	0
Tetryl	μg/L	9	0.032 J	0.032 J	1
PAHs					
Acenaphthene	μg/L	17	--	--	0
Acenaphthylene	μg/L	17	--	--	0
Anthracene	μg/L	17	--	--	0
Benzo(a)anthracene	μg/L	17	--	--	0
Benzo(a)pyrene	μg/L	17	--	--	0
Benzo(b)fluoranthene	μg/L	17	--	--	0
Benzo(g,h,i)perylene	μg/L	17	--	--	0
Benzo(k)fluoranthene	μg/L	17	--	--	0
Chrysene	μg/L	17	--	--	0
Dibenzo(a,h)anthracene	μg/L	17	--	--	0
Fluoranthene	μg/L	17	0.0155 JP	0.0155 JP	1
Fluorene	μg/L	17	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	17	--	--	0
Naphthalene	μg/L	17	--	--	0
Phenanthrene	μg/L	17	0.669 J	0.669 J	1
Pyrene	μg/L	17	--	--	0
PCBs					
Aroclor-1016	μg/L	11	--	--	0
Aroclor-1221	μg/L	11	--	--	0
Aroclor-1232	μg/L	11	--	--	0

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	11	--	--	0
Aroclor-1248	μg/L	11	--	--	0
Aroclor-1254	μg/L	11	--	--	0
Aroclor-1260	μg/L	11	--	--	0
Pesticides					
4,4'-DDD	μg/L	11	0.0292 J	0.0292 J	1
4,4'-DDE	μg/L	11	0.0158 J	0.0356 J	2
4,4'-DDT	μg/L	11	0.0267 J	0.0267 J	1
Aldrin	μg/L	11	--	--	0
alpha-BHC	μg/L	11	--	--	0
alpha-Chlordane	μg/L	11	--	--	0
beta-BHC	μg/L	11	--	--	0
delta-BHC	μg/L	11	--	--	0
Dieldrin	μg/L	11	0.0089	0.0089	1
Endosulfan I	μg/L	11	--	--	0
Endosulfan II	μg/L	11	0.0155 J	0.0155 J	1
Endosulfan sulfate	μg/L	11	--	--	0
Endrin	μg/L	11	0.0114 J	0.0114 J	1
Endrin aldehyde	μg/L	11	--	--	0
Endrin ketone	μg/L	11	--	--	0
gamma-BHC (Lindane)	μg/L	11	--	--	0
gamma-Chlordane	μg/L	11	--	--	0
Heptachlor	μg/L	11	--	--	0
Heptachlor epoxide	μg/L	11	--	--	0
Methoxychlor	μg/L	11	--	--	0
Toxaphene	μg/L	11	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	6	--	--	0
Alpha, Dissolved	pCi/L	5	6.62	44.7	5
Americium-241, Dissolved	pCi/L	6	--	--	0
Beta, Dissolved	pCi/L	5	5.13	26.5	5
Cesium-137, Dissolved	pCi/L	6	3.59	3.59	1
Cobalt-60, Dissolved	pCi/L	6	--	--	0
Protactinium-231, Dissolved	pCi/L	6	--	--	0
Radium-226, Dissolved	pCi/L	6	0.673	0.767	2
Radium-228, Dissolved	pCi/L	6	0.755	1.12	2
Thorium-228, Dissolved	pCi/L	9	0.359	0.359	1
Thorium-230, Dissolved	pCi/L	6	0.214	0.648	3
Thorium-232, Dissolved	pCi/L	6	--	--	0
Total Activity, Dissolved	pCi/mL	2	--	--	0
Total Uranium, Dissolved	μg/L	6	1.67	55.4	6
Uranium-234, Dissolved	pCi/L	9	0.716	23.4	9
Uranium-235, Dissolved	pCi/L	9	0.318	2.55	8
Uranium-238, Dissolved	pCi/L	9	5.22	17.2	8

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides, Total					
Actinium-227	pCi/L	9	--	--	0
Alpha	pCi/L	21	7.41	69.8	20
Americium-241	pCi/L	9	--	--	0
Beta	pCi/L	21	6.67	26.2	21
Cesium-137	pCi/L	9	27.4	27.4	1
Cobalt-60	pCi/L	9	--	--	0
Protactinium-231	pCi/L	9	--	--	0
Radium-226	pCi/L	20	0.463	7.98	13
Radium-228	pCi/L	9	--	--	0
Thorium-228	pCi/L	21	0.108	1.33	12
Thorium-230	pCi/L	21	0.105	1.31	14
Thorium-232	pCi/L	21	0.127	0.767	11
Total Activity	pCi/mL	2	--	--	0
Total Uranium	μg/L	21	1.08	46.3	21
Uranium-234	pCi/L	21	0.554	25.6	21
Uranium-235	pCi/L	21	0.261 J	1.72 J	19
Uranium-238	pCi/L	21	0.408	19.2	21
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	17	--	--	0
1,2-Dichlorobenzene	μg/L	17	--	--	0
1,3-Dichlorobenzene	μg/L	17	--	--	0
1,4-Dichlorobenzene	μg/L	17	--	--	0
2,4,5-Trichlorophenol	μg/L	17	--	--	0
2,4,6-Trichlorophenol	μg/L	17	--	--	0
2,4-Dichlorophenol	μg/L	17	--	--	0
2,4-Dimethylphenol	μg/L	17	--	--	0
2,4-Dinitrophenol	μg/L	17	--	--	0
2-Chloronaphthalene	μg/L	17	--	--	0
2-Chlorophenol	μg/L	17	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	34	--	--	0
2-Methylnaphthalene	μg/L	17	--	--	0
2-Nitroaniline	μg/L	17	--	--	0
2-Nitrophenol	μg/L	17	--	--	0
3,3'-Dichlorobenzidine	μg/L	17	--	--	0
3-Nitroaniline	μg/L	17	--	--	0
4-Bromophenylphenylether	μg/L	17	--	--	0
4-Chloro-3-methylphenol	μg/L	17	--	--	0
4-Chloroaniline	μg/L	17	--	--	0
4-Chlorophenylphenylether	μg/L	17	--	--	0
4-Nitroaniline	μg/L	17	--	--	0
4-Nitrophenol	μg/L	17	--	--	0
Benzoic Acid	μg/L	12	--	--	0
bis(2-Chloroethoxy)methane	μg/L	17	--	--	0

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/L	17	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	17	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	17	3.14 J	41.4	3
Butylbenzylphthalate	μg/L	17	--	--	0
Carbazole	μg/L	17	--	--	0
Dibenzofuran	μg/L	17	--	--	0
Diethylphthalate	μg/L	17	--	--	0
Dimethylphthalate	μg/L	17	--	--	0
Di-n-butylphthalate	μg/L	17	--	--	0
Di-n-octylphthalate	μg/L	17	--	--	0
Diphenylamine	μg/L	12	--	--	0
Hexachlorobenzene	μg/L	17	--	--	0
Hexachlorobutadiene	μg/L	17	--	--	0
Hexachlorocyclopentadiene	μg/L	17	--	--	0
Hexachloroethane	μg/L	17	--	--	0
Isophorone	μg/L	17	--	--	0
m,p-Cresols	μg/L	17	--	--	0
N-Nitroso-di-n-propylamine	μg/L	17	--	--	0
N-Nitrosodiphenylamine	μg/L	5	--	--	0
o-Cresol	μg/L	17	--	--	0
Pentachlorophenol	μg/L	17	--	--	0
Phenol	μg/L	17	12	12	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	21	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	21	--	--	0
1,1,2-Trichloroethane	μg/L	21	--	--	0
1,1-Dichloroethane	μg/L	21	--	--	0
1,1-Dichloroethene	μg/L	21	4.5	4.5	1
1,2-Dichloroethane	μg/L	21	0.99 J	1.1	2
1,2-Dichloropropane	μg/L	21	--	--	0
2-Butanone	μg/L	21	13.6	64	2
2-Hexanone	μg/L	21	--	--	0
4-Methyl-2-pentanone	μg/L	21	--	--	0
Acetone	μg/L	21	2.8 J	11	6
Benzene	μg/L	21	--	--	0
Bromodichloromethane	μg/L	21	--	--	0
Bromoform	μg/L	21	--	--	0
Bromomethane	μg/L	21	--	--	0
Carbon disulfide	μg/L	21	--	--	0
Carbon tetrachloride	μg/L	21	--	--	0
Chlorobenzene	μg/L	21	--	--	0
Chloroethane	μg/L	21	--	--	0
Chloroform	μg/L	21	--	--	0
Chloromethane	μg/L	21	1.3	1.9	4

* Data qualifier included with concentration value

Table 4-107
Exposure Unit 13
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,2-Dichloroethene	μg/L	21	846 D	846 D	1
cis-1,3-Dichloropropene	μg/L	21	--	--	0
Dibromochloromethane	μg/L	21	--	--	0
Ethylbenzene	μg/L	21	--	--	0
Methylene chloride	μg/L	21	18	27	4
Styrene	μg/L	21	--	--	0
Tetrachloroethene	μg/L	21	0.46 J	0.52 J	2
Toluene	μg/L	21	--	--	0
trans-1,2-Dichloroethene	μg/L	21	11.4	11.4	1
trans-1,3-Dichloropropene	μg/L	21	--	--	0
Trichloroethene	μg/L	21	9580 D	9580 D	1
Vinyl chloride	μg/L	21	--	--	0
Xylenes (total)	μg/L	21	--	--	0

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	4	50.5	73.5 B	2
Antimony, Dissolved	μg/L	4	0.335 B	2.7 B	2
Arsenic, Dissolved	μg/L	4	2.3 B	8.6 B	4
Barium, Dissolved	μg/L	4	10.6	23.4	4
Beryllium, Dissolved	μg/L	4	--	--	0
Boron, Dissolved	μg/L	4	136	2110	4
Cadmium, Dissolved	μg/L	4	--	--	0
Calcium, Dissolved	μg/L	4	113000 E	392000	4
Chromium, Dissolved	μg/L	4	2.5 B	2.5 B	1
Cobalt, Dissolved	μg/L	4	1.43 B	2.15 B	4
Copper, Dissolved	μg/L	4	89.4	89.4	1
Iron, Dissolved	μg/L	4	27 B	428	4
Lead, Dissolved	μg/L	4	0.05 B	0.059 B	2
Lithium, Dissolved	μg/L	4	64	335 NE	4
Magnesium, Dissolved	μg/L	4	74400	202000	4
Manganese, Dissolved	μg/L	4	15.2	546	4
Mercury, Dissolved	μg/L	4	--	--	0
Nickel, Dissolved	μg/L	4	2.5 B	10.7	2
Potassium, Dissolved	μg/L	4	3910 E	23100	4
Selenium, Dissolved	μg/L	4	0.972 B	10.4 B	3
Silver, Dissolved	μg/L	4	0.09 B	0.25 B	3
Sodium, Dissolved	μg/L	4	43200 E	370000 E	4
Thallium, Dissolved	μg/L	4	0.03 B	0.152 BN	2
Vanadium, Dissolved	μg/L	4	1.21 B	3 B	3
Zinc, Dissolved	μg/L	4	0.83 B	2.9 B	2
Metals, Total					
Aluminum	μg/L	4	83.4	5940	3
Antimony	μg/L	4	0.078 B	3.4 B	2
Arsenic	μg/L	4	3.69	6.5 B	4
Barium	μg/L	4	13.2	52.1	4
Beryllium	μg/L	4	0.62 B	0.62 B	1
Boron	μg/L	4	145	2570 E	4
Cadmium	μg/L	4	0.41 B	0.41 B	1
Calcium	μg/L	4	120000 E	506000	4
Chromium	μg/L	4	1.11 B	7.4	2
Cobalt	μg/L	4	0.97 B	4.8 B	2
Copper	μg/L	4	4.43 B	625	3
Iron	μg/L	4	440	7830	4
Lead	μg/L	4	0.906 B	2.48	3
Lithium	μg/L	4	36.4	454 E	4
Magnesium	μg/L	4	107000	178000	4
Manganese	μg/L	4	229	800	4
Mercury	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	4	11.2	12.1	2
Potassium	μg/L	4	3850 E	26900	4
Selenium	μg/L	4	0.954 B	13.3 B	4
Silver	μg/L	4	0.009 B	0.8 B	4
Sodium	μg/L	4	43900 E	497000 E	4
Thallium	μg/L	4	--	--	0
Vanadium	μg/L	4	0.49 B	11.1	2
Zinc	μg/L	4	14.2	48.1	3
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	2	--	--	0
2,4,6-Trinitrotoluene	μg/L	2	--	--	0
2,4-Dinitrotoluene	μg/L	4	--	--	0
2,6-Dinitrotoluene	μg/L	4	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	2	--	--	0
2-Nitrotoluene	μg/L	2	--	--	0
3-Dinitrobenzene	μg/L	2	--	--	0
3-Nitrotoluene	μg/L	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	2	--	--	0
4-Nitrotoluene	μg/L	2	--	--	0
HMX	μg/L	2	--	--	0
Nitrobenzene	μg/L	4	--	--	0
RDX	μg/L	2	--	--	0
Tetryl	μg/L	2	--	--	0
PAHs					
Acenaphthene	μg/L	4	--	--	0
Acenaphthylene	μg/L	4	--	--	0
Anthracene	μg/L	4	--	--	0
Benzo(a)anthracene	μg/L	4	0.0613	0.0613	1
Benzo(a)pyrene	μg/L	4	0.0503	0.0503	1
Benzo(b)fluoranthene	μg/L	4	--	--	0
Benzo(g,h,i)perylene	μg/L	4	0.0549	0.0549	1
Benzo(k)fluoranthene	μg/L	4	0.0708	0.0708	1
Chrysene	μg/L	4	--	--	0
Dibenzo(a,h)anthracene	μg/L	4	0.0925	0.0925	1
Fluoranthene	μg/L	4	--	--	0
Fluorene	μg/L	4	--	--	0
Indeno(1,2,3-cd)pyrene	μg/L	4	0.0548	0.0548	1
Naphthalene	μg/L	4	--	--	0
Phenanthrene	μg/L	4	--	--	0
Pyrene	μg/L	4	--	--	0
PCBs					
Aroclor-1016	μg/L	2	--	--	0
Aroclor-1221	μg/L	2	--	--	0
Aroclor-1232	μg/L	2	--	--	0

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	2	--	--	0
Aroclor-1248	μg/L	2	--	--	0
Aroclor-1254	μg/L	2	--	--	0
Aroclor-1260	μg/L	2	--	--	0
Pesticides					
4,4'-DDD	μg/L	2	--	--	0
4,4'-DDE	μg/L	2	--	--	0
4,4'-DDT	μg/L	2	--	--	0
Aldrin	μg/L	2	--	--	0
alpha-BHC	μg/L	2	--	--	0
alpha-Chlordane	μg/L	2	--	--	0
beta-BHC	μg/L	2	--	--	0
delta-BHC	μg/L	2	--	--	0
Dieldrin	μg/L	2	--	--	0
Endosulfan I	μg/L	2	--	--	0
Endosulfan II	μg/L	2	--	--	0
Endosulfan sulfate	μg/L	2	--	--	0
Endrin	μg/L	2	--	--	0
Endrin aldehyde	μg/L	2	--	--	0
Endrin ketone	μg/L	2	--	--	0
gamma-BHC (Lindane)	μg/L	2	--	--	0
gamma-Chlordane	μg/L	2	--	--	0
Heptachlor	μg/L	2	--	--	0
Heptachlor epoxide	μg/L	2	--	--	0
Methoxychlor	μg/L	2	--	--	0
Toxaphene	μg/L	2	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	4	--	--	0
Alpha, Dissolved	pCi/L	1	11.1	11.1	1
Americium-241, Dissolved	pCi/L	4	--	--	0
Beta, Dissolved	pCi/L	1	5.93	5.93	1
Cesium-137, Dissolved	pCi/L	4	--	--	0
Cobalt-60, Dissolved	pCi/L	4	--	--	0
Protactinium-231, Dissolved	pCi/L	4	--	--	0
Radium-226, Dissolved	pCi/L	4	0.809	0.809	1
Radium-228, Dissolved	pCi/L	4	--	--	0
Thorium-228, Dissolved	pCi/L	5	0.422	0.422	1
Thorium-230, Dissolved	pCi/L	4	0.324	0.324	1
Thorium-232, Dissolved	pCi/L	4	0.147	0.147	1
Total Uranium, Dissolved	μg/L	4	11.5	46	4
Uranium-234, Dissolved	pCi/L	5	5.01	19.5	5
Uranium-235, Dissolved	pCi/L	5	0.149	1	5
Uranium-238, Dissolved	pCi/L	5	4.8	14.4	5
Radionuclides, Total					

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Actinium-227	pCi/L	5	--	--	0
Alpha	pCi/L	7	6.42	20	7
Americium-241	pCi/L	5	--	--	0
Beta	pCi/L	7	8.22	22.7	7
Cesium-137	pCi/L	5	3.18	3.18	1
Cobalt-60	pCi/L	5	--	--	0
Protactinium-231	pCi/L	5	--	--	0
Radium-226	pCi/L	8	1.16	2.33	4
Radium-228	pCi/L	5	--	--	0
Thorium-228	pCi/L	8	0.0438	2.02	6
Thorium-230	pCi/L	8	0.151	1.52	4
Thorium-232	pCi/L	8	0.0941	1.3	4
Total Uranium	μg/L	8	5.47	34.1	8
Uranium-234	pCi/L	8	2.92	16.9	8
Uranium-235	pCi/L	8	0.144 J	0.659	8
Uranium-238	pCi/L	8	1.92	11.8	8
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	4	--	--	0
1,2-Dichlorobenzene	μg/L	4	--	--	0
1,3-Dichlorobenzene	μg/L	4	--	--	0
1,4-Dichlorobenzene	μg/L	4	--	--	0
2,4,5-Trichlorophenol	μg/L	4	--	--	0
2,4,6-Trichlorophenol	μg/L	4	--	--	0
2,4-Dichlorophenol	μg/L	4	--	--	0
2,4-Dimethylphenol	μg/L	4	--	--	0
2,4-Dinitrophenol	μg/L	4	--	--	0
2-Chloronaphthalene	μg/L	4	--	--	0
2-Chlorophenol	μg/L	4	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	8	--	--	0
2-Methylnaphthalene	μg/L	4	--	--	0
2-Nitroaniline	μg/L	4	--	--	0
2-Nitrophenol	μg/L	4	--	--	0
3,3'-Dichlorobenzidine	μg/L	4	--	--	0
3-Nitroaniline	μg/L	4	--	--	0
4-Bromophenylphenylether	μg/L	4	--	--	0
4-Chloro-3-methylphenol	μg/L	4	--	--	0
4-Chloroaniline	μg/L	4	--	--	0
4-Chlorophenylphenylether	μg/L	4	--	--	0
4-Nitroaniline	μg/L	4	--	--	0
4-Nitrophenol	μg/L	4	--	--	0
Benzoic Acid	μg/L	3	--	--	0
bis(2-Chloroethoxy)methane	μg/L	4	--	--	0
bis(2-Chloroethyl)ether	μg/L	4	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	4	--	--	0

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/L	4	3.28 J	3.28	1
Butylbenzylphthalate	μg/L	4	--	--	0
Carbazole	μg/L	4	--	--	0
Dibenzofuran	μg/L	4	--	--	0
Diethylphthalate	μg/L	4	--	--	0
Dimethylphthalate	μg/L	4	--	--	0
Di-n-butylphthalate	μg/L	4	22.5	22.5	1
Di-n-octylphthalate	μg/L	4	--	--	0
Diphenylamine	μg/L	3	--	--	0
Hexachlorobenzene	μg/L	4	--	--	0
Hexachlorobutadiene	μg/L	4	--	--	0
Hexachlorocyclopentadiene	μg/L	4	--	--	0
Hexachloroethane	μg/L	4	--	--	0
Isophorone	μg/L	4	--	--	0
m,p-Cresols	μg/L	4	--	--	0
N-Nitroso-di-n-propylamine	μg/L	4	--	--	0
N-Nitrosodiphenylamine	μg/L	1	--	--	0
o-Cresol	μg/L	4	--	--	0
Pentachlorophenol	μg/L	4	--	--	0
Phenol	μg/L	4	6.1 J	6.1 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	3	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	3	--	--	0
1,1,2-Trichloroethane	μg/L	3	--	--	0
1,1-Dichloroethane	μg/L	3	--	--	0
1,1-Dichloroethene	μg/L	3	--	--	0
1,2-Dichloroethane	μg/L	3	--	--	0
1,2-Dichloropropane	μg/L	3	--	--	0
2-Butanone	μg/L	3	--	--	0
2-Hexanone	μg/L	3	--	--	0
4-Methyl-2-pentanone	μg/L	3	--	--	0
Acetone	μg/L	3	1.5 J	1.5 J	1
Benzene	μg/L	3	--	--	0
Bromodichloromethane	μg/L	3	--	--	0
Bromoform	μg/L	3	--	--	0
Bromomethane	μg/L	3	--	--	0
Carbon disulfide	μg/L	3	--	--	0
Carbon tetrachloride	μg/L	3	--	--	0
Chlorobenzene	μg/L	3	--	--	0
Chloroethane	μg/L	3	--	--	0
Chloroform	μg/L	3	--	--	0
Chloromethane	μg/L	3	--	--	0
cis-1,2-Dichloroethene	μg/L	3	--	--	0
cis-1,3-Dichloropropene	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-108
Exposure Unit 14
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/L	3	--	--	0
Ethylbenzene	μg/L	3	--	--	0
Methylene chloride	μg/L	3	--	--	0
Styrene	μg/L	3	--	--	0
Tetrachloroethene	μg/L	3	--	--	0
Toluene	μg/L	3	--	--	0
trans-1,2-Dichloroethene	μg/L	3	--	--	0
trans-1,3-Dichloropropene	μg/L	3	--	--	0
Trichloroethene	μg/L	3	--	--	0
Vinyl chloride	μg/L	3	--	--	0
Xylenes (total)	μg/L	3	--	--	0

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	175	6.59 B	2960 BN*	79
Antimony, Dissolved	μg/L	176	0.065 B	11.7	71
Arsenic, Dissolved	μg/L	175	0.25 B	66.8 B	150
Barium, Dissolved	μg/L	176	0.31 B	258	175
Beryllium, Dissolved	μg/L	176	0.18 B	13.3	20
Boron, Dissolved	μg/L	175	22.9	26600	175
Cadmium, Dissolved	μg/L	176	0.24 B	11.6	25
Calcium, Dissolved	μg/L	176	10800	1270000	176
Chromium, Dissolved	μg/L	176	0.64 B	38.9	30
Cobalt, Dissolved	μg/L	176	0.618 B	33.4	59
Copper, Dissolved	μg/L	176	1 B	4770	116
Iron, Dissolved	μg/L	176	2.5 B	18500	105
Lead, Dissolved	μg/L	176	0.02 B	2.41	67
Lithium, Dissolved	μg/L	176	2.6 BE	7610	175
Magnesium, Dissolved	μg/L	176	11500 E	1300000	176
Manganese, Dissolved	μg/L	176	1.27 B	3350	167
Mercury, Dissolved	μg/L	176	0.036 B	0.146 B	11
Nickel, Dissolved	μg/L	176	1.1 B	195	90
Potassium, Dissolved	μg/L	176	359 E	143000 E	176
Selenium, Dissolved	μg/L	176	0.284 B	62.7 BN*	115
Silver, Dissolved	μg/L	176	0.005 B	1.3 B	102
Sodium, Dissolved	μg/L	176	3780 E	4160000	176
Thallium, Dissolved	μg/L	176	0.005 B	11.9 B	72
Vanadium, Dissolved	μg/L	176	0.67 B	34.5	39
Zinc, Dissolved	μg/L	176	0.6 B	643	90
Metals, Total					
Aluminum	μg/L	174	8.77 B	1330000	158
Antimony	μg/L	175	0.059 B	28.2	93
Arsenic	μg/L	175	1.04 B	594	156
Barium	μg/L	175	4.9 B	6680	175
Beryllium	μg/L	175	0.18 B	54.1	68
Boron	μg/L	175	31.3 B	28700	175
Cadmium	μg/L	175	0.23 B	13.5 B	42
Calcium	μg/L	175	1640	4360000	175
Chromium	μg/L	175	0.64 B	2090	123
Cobalt	μg/L	175	0.316 B	1090	102
Copper	μg/L	175	1.73 B	2920	150
Iron	μg/L	175	10.3 B	2430000	169
Lead	μg/L	175	0.028 B	603	146
Lithium	μg/L	175	2.7 B	7370	175
Magnesium	μg/L	175	587 E	1610000	175
Manganese	μg/L	175	1.4 B	78300	171
Mercury	μg/L	175	0.033 B	1.01	35

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	175	0.998 B	2340	132
Potassium	μg/L	175	1190	240000	175
Selenium	μg/L	175	0.503 B	48.6 B	120
Silver	μg/L	175	0.006 B	5.07 B	120
Sodium	μg/L	175	5020 E	2570000	175
Thallium	μg/L	175	0.006 B	14.8	82
Vanadium	μg/L	175	0.49 B	2700	96
Zinc	μg/L	175	0.74 B	4950	147
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	101	0.084 J	1.5	3
2,4,6-Trinitrotoluene	μg/L	101	--	--	0
2,4-Dinitrotoluene	μg/L	184	--	--	0
2,6-Dinitrotoluene	μg/L	184	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	101	--	--	0
2-Nitrotoluene	μg/L	101	--	--	0
3-Dinitrobenzene	μg/L	101	--	--	0
3-Nitrotoluene	μg/L	101	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	101	--	--	0
4-Nitrotoluene	μg/L	101	--	--	0
HMX	μg/L	101	0.42 J	0.42 J	1
Nitrobenzene	μg/L	184	--	--	0
RDX	μg/L	101	0.153	0.153	1
Tetryl	μg/L	101	0.032 J	0.032 J	1
PAHs					
Acenaphthene	μg/L	183	0.5	0.5	1
Acenaphthylene	μg/L	183	--	--	0
Anthracene	μg/L	183	0.05	1.06 J	2
Benzo(a)anthracene	μg/L	183	0.0226 J	0.0613	2
Benzo(a)pyrene	μg/L	183	0.0503	0.0503	1
Benzo(b)fluoranthene	μg/L	183	--	--	0
Benzo(g,h,i)perylene	μg/L	183	0.0549	0.0549	1
Benzo(k)fluoranthene	μg/L	183	0.0174 JP	0.0708	3
Chrysene	μg/L	183	--	--	0
Dibenzo(a,h)anthracene	μg/L	183	0.0343 J	0.0925	2
Fluoranthene	μg/L	183	0.0155 JP	3.27	6
Fluorene	μg/L	183	0.15	0.15	1
Indeno(1,2,3-cd)pyrene	μg/L	183	0.0267 J	0.0548	2
Naphthalene	μg/L	183	0.186 J	0.416 J	2
Phenanthrene	μg/L	183	0.01	6.93	8
Pyrene	μg/L	183	0.2	1.93	3
PCBs					
Aroclor-1016	μg/L	128	--	--	0
Aroclor-1221	μg/L	128	--	--	0
Aroclor-1232	μg/L	128	--	--	0

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	128	--	--	0
Aroclor-1248	μg/L	128	--	--	0
Aroclor-1254	μg/L	128	--	--	0
Aroclor-1260	μg/L	128	0.14	0.14	1
Pesticides					
4,4'-DDD	μg/L	127	0.0279 J	0.0414	3
4,4'-DDE	μg/L	127	0.0048 J	0.055	17
4,4'-DDT	μg/L	127	0.011 J	0.078 P	18
Aldrin	μg/L	127	0.0294	0.0294	1
alpha-BHC	μg/L	127	0.0096	0.019 J	2
alpha-Chlordane	μg/L	127	--	--	0
beta-BHC	μg/L	127	0.0283	0.0283	1
delta-BHC	μg/L	127	0.0074	0.0074	1
Dieldrin	μg/L	127	0.0051	0.0288 J	3
Endosulfan I	μg/L	127	--	--	0
Endosulfan II	μg/L	127	0.0155 J	0.0241 J	2
Endosulfan sulfate	μg/L	127	0.0195 J	0.0221 J	2
Endrin	μg/L	127	0.0114 J	0.0252 J	2
Endrin aldehyde	μg/L	127	0.0152 J	0.0152 J	1
Endrin ketone	μg/L	127	0.0046	0.0072 J	2
gamma-BHC (Lindane)	μg/L	127	0.0155 J	0.0155 J	1
gamma-Chlordane	μg/L	127	0.03 P	0.03 P	1
Heptachlor	μg/L	127	0.0197 J	0.0197 J	1
Heptachlor epoxide	μg/L	128	0.016 J	0.031	2
Methoxychlor	μg/L	127	--	--	0
Toxaphene	μg/L	127	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	107	--	--	0
Alpha, Dissolved	pCi/L	84	2.44	610	70
Americium-241, Dissolved	pCi/L	107	--	--	0
Beta, Dissolved	pCi/L	84	1.92	453	77
Cesium-137, Dissolved	pCi/L	107	2.61	3.59	2
Cobalt-60, Dissolved	pCi/L	107	--	--	0
Plutonium-238, Dissolved	pCi/L	1	--	--	0
Potassium-40, Dissolved	pCi/L	1	123	123	1
Protactinium-231, Dissolved	pCi/L	107	--	--	0
Radium-226, Dissolved	pCi/L	107	0.277	6.22	32
Radium-228, Dissolved	pCi/L	107	0.701	2.14	20
Strontium-90, Dissolved	pCi/L	1	--	--	0
Thorium-228, Dissolved	pCi/L	138	0.169	1.8	8
Thorium-230, Dissolved	pCi/L	107	0.0904	11.8	51
Thorium-232, Dissolved	pCi/L	107	0.147	0.938	2
Total Activity, Dissolved	pCi/mL	33	--	--	0
Total Uranium, Dissolved	μg/L	102	0.381	9580	99

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Uranium-234, Dissolved	pCi/L	138	0.155	319	133
Uranium-235, Dissolved	pCi/L	138	0.0933	39.1	107
Uranium-238, Dissolved	pCi/L	138	0.132	301	130
Radionuclides, Total					
Actinium-227	pCi/L	139	--	--	0
Alpha	pCi/L	223	0.278	562	191
Americium-241	pCi/L	139	--	--	0
Beta	pCi/L	223	3.89	220 J	212
Cesium-137	pCi/L	139	2.12	61.5	10
Cobalt-60	pCi/L	139	--	--	0
Plutonium-238	pCi/L	1	--	--	0
Plutonium-239/240	pCi/L	1	--	--	0
Protactinium-231	pCi/L	139	--	--	0
Radium-226	pCi/L	227	0.39	12.3	119
Radium-228	pCi/L	139	0.953	126	15
Strontium-90	pCi/L	1	--	--	0
Thorium-228	pCi/L	229	0.0438	9.06	94
Thorium-230	pCi/L	229	0.0446 J	5.3	114
Thorium-232	pCi/L	229	0.0292	5.6	98
Total Activity	pCi/mL	33	--	--	0
Total Uranium	µg/L	227	0.243	662	217
Uranium-234	pCi/L	229	0.0515 J	523	218
Uranium-235	pCi/L	229	0.0512	33.2	168
Uranium-238	pCi/L	229	0.11	543	217
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/L	182	--	--	0
1,2-Dichlorobenzene	µg/L	182	--	--	0
1,3-Dichlorobenzene	µg/L	182	--	--	0
1,4-Dichlorobenzene	µg/L	182	--	--	0
2,4,5-Trichlorophenol	µg/L	181	--	--	0
2,4,6-Trichlorophenol	µg/L	181	--	--	0
2,4-Dichlorophenol	µg/L	181	--	--	0
2,4-Dimethylphenol	µg/L	181	--	--	0
2,4-Dinitrophenol	µg/L	181	--	--	0
2-Chloronaphthalene	µg/L	182	--	--	0
2-Chlorophenol	µg/L	181	0.407 J	0.511 J	2
2-Methyl-4,6-dinitrophenol	µg/L	362	--	--	0
2-Methylnaphthalene	µg/L	179	--	--	0
2-Nitroaniline	µg/L	182	--	--	0
2-Nitrophenol	µg/L	181	--	--	0
3,3'-Dichlorobenzidine	µg/L	182	--	--	0
3-Nitroaniline	µg/L	182	--	--	0
4-Bromophenylphenylether	µg/L	182	--	--	0
4-Chloro-3-methylphenol	µg/L	181	--	--	0

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Chloroaniline	μg/L	182	--	--	0
4-Chlorophenylphenylether	μg/L	182	--	--	0
4-Nitroaniline	μg/L	182	--	--	0
4-Nitrophenol	μg/L	181	--	--	0
Benzoic Acid	μg/L	103	--	--	0
bis(2-Chloroethoxy)methane	μg/L	182	--	--	0
bis(2-Chloroethyl)ether	μg/L	182	1.77 J	1.77 J	1
bis(2-Chloroisopropyl)ether	μg/L	182	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	182	1.91 J	289	23
Butylbenzylphthalate	μg/L	182	--	--	0
Carbazole	μg/L	182	6.11 J	6.11 J	1
Dibenzofuran	μg/L	182	--	--	0
Diethylphthalate	μg/L	182	--	--	0
Dimethylphthalate	μg/L	182	--	--	0
Di-n-butylphthalate	μg/L	182	2.72 J	89.4	11
Di-n-octylphthalate	μg/L	182	19.6	19.6	1
Diphenylamine	μg/L	103	--	--	0
Hexachlorobenzene	μg/L	182	--	--	0
Hexachlorobutadiene	μg/L	182	--	--	0
Hexachlorocyclopentadiene	μg/L	182	--	--	0
Hexachloroethane	μg/L	182	--	--	0
Isophorone	μg/L	182	28.7	28.7	1
m,p-Cresols	μg/L	178	--	--	0
N-Nitroso-di-n-propylamine	μg/L	182	--	--	0
N-Nitrosodiphenylamine	μg/L	79	--	--	0
o-Cresol	μg/L	181	--	--	0
p-Cresol	μg/L	3	--	--	0
Pentachlorophenol	μg/L	181	7.4 J	7.4 J	1
Phenol	μg/L	181	0.291 J	57.9	20
Volatile Organics					
1,1,1-Trichloroethane	μg/L	185	6	6	1
1,1,2,2-Tetrachloroethane	μg/L	186	--	--	0
1,1,2-Trichloroethane	μg/L	186	4.29	4.29	1
1,1-Dichloroethane	μg/L	186	1	1	1
1,1-Dichloroethene	μg/L	186	2	38.9	3
1,2-Dichloroethane	μg/L	186	0.99 J	1.1	2
1,2-Dichloroethene	μg/L	3	2	2	1
1,2-Dichloropropane	μg/L	186	--	--	0
2-Butanone	μg/L	183	1.4 J	68.6	28
2-Hexanone	μg/L	186	--	--	0
4-Methyl-2-pentanone	μg/L	183	8.56	8.56	1
Acetone	μg/L	186	0.62 J	157	64
Benzene	μg/L	186	0.758 J	2.79	4
Bromodichloromethane	μg/L	186	--	--	0

* Data qualifier included with concentration value

Table 4-109
Exposure Unit 17
Groundwater Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Bromoform	μg/L	186	--	--	0
Bromomethane	μg/L	186	--	--	0
Carbon disulfide	μg/L	186	0.4 J	14.6	7
Carbon tetrachloride	μg/L	186	--	--	0
Chlorobenzene	μg/L	186	--	--	0
Chloroethane	μg/L	186	--	--	0
Chloroform	μg/L	186	0.41 J	1.37	3
Chloromethane	μg/L	186	1.3	1.9	4
cis-1,2-Dichloroethene	μg/L	183	0.87 J	14800	9
cis-1,3-Dichloropropene	μg/L	186	--	--	0
Dibromochloromethane	μg/L	179	--	--	0
Ethylbenzene	μg/L	186	0.052 J	0.36 J	5
Methylene chloride	μg/L	186	1.92 J	1680 JB	13
o-Xylene	μg/L	1	--	--	0
Styrene	μg/L	186	0.15 J	0.398 J	2
Tetrachloroethene	μg/L	186	0.46 J	103000 D	11
Toluene	μg/L	186	0.13 J	1.37	9
trans-1,2-Dichloroethene	μg/L	183	0.25 J	355 J	6
trans-1,3-Dichloropropene	μg/L	186	--	--	0
Trichloroethene	μg/L	186	1.27	21200 D	9
Vinyl chloride	μg/L	186	0.68 J	2100	8
Xylenes (total)	μg/L	185	2.04	2.5 J	2

* Data qualifier included with concentration value

Table 4-110
Exposure Unit 1
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	$\mu\text{g/L}$	2.4	C5-VS-GW-D300	6.4
			GWBH62-275	11.7
Beryllium, Dissolved	$\mu\text{g/L}$	0.19	GWBH62-275	0.45 B
Cobalt, Dissolved	$\mu\text{g/L}$	3	GW505-783	4.29 B
Magnesium, Dissolved	$\mu\text{g/L}$	618000	C5-VS-GW-D300	1300000
Nickel, Dissolved	$\mu\text{g/L}$	6.15	GW505-783	9.89
Metals, Total				
Aluminum	$\mu\text{g/L}$	979	C5-VS-GW-D300	987 *
			GW501-229	2480 N
			GW502-230	19100
			GW503-231	1190
			GW504-752	1370 N
Antimony	$\mu\text{g/L}$	2.34	C5-VS-GW-D300	6
			GWBH61-274	4.1 B
			GWBH62-275	5.6 B
Barium	$\mu\text{g/L}$	46.8	GW502-230	103
Beryllium	$\mu\text{g/L}$	--	GW502-230	0.82 B
Chromium	$\mu\text{g/L}$	3.19	GW502-230	21.9
Cobalt	$\mu\text{g/L}$	2.8	GW502-230	9.3
Iron	$\mu\text{g/L}$	8810	GW502-230	23500
Lead	$\mu\text{g/L}$	5.99	GW502-230	8.4 B
Magnesium	$\mu\text{g/L}$	580000	C5-VS-GW-D300	1360000
Nickel	$\mu\text{g/L}$	6.48	GW502-230	25.1
Selenium	$\mu\text{g/L}$	4.24	C5-VS-GW-D300	7.3
			GW502-230	6.7 B
			GW503-231	10 B
			GWBH62-275	6.5 B
Silver	$\mu\text{g/L}$	0.018	GW504-752	0.085 B
			GW505-783	0.163 B
			GWBH61-274	0.2 B
			GWBH62-275	0.31 B
Vanadium	$\mu\text{g/L}$	2.8	GW501-229	6
			GW502-230	34.6
			GW504-752	3.34 B
			GW505-783	5.93
Zinc	$\mu\text{g/L}$	131	GW505-3279	460
Nitroaromatics				
1,3,5-Trinitrobenzene	$\mu\text{g/L}$	--	C5-VS-GW-D300	1.4 J
			GWBH62-275	0.084 J
HMX	$\mu\text{g/L}$	--	C5-VS-GW-D300	0.42 J
Pesticides				
4,4'-DDD	$\mu\text{g/L}$	--	GW505-3279	0.0279 J

* Data qualifier included with concentration value

Table 4-110
Exposure Unit 1
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Endosulfan II	μg/L	--	GW505-3279	0.0241 J
Endosulfan sulfate	μg/L	--	GW505-3279	0.0195 J
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	15	GW505-3279	20.5
Total Uranium, Dissolved	μg/L	16.7	GW505-3279	30.2
			GW506-753	47.2
Uranium-234, Dissolved	pCi/L	8.94	GW505-3279	14.2
			GW506-753	22.1
Uranium-235, Dissolved	pCi/L	0.512	GW505-3279	0.684
			GW506-753	0.629
Uranium-238, Dissolved	pCi/L	6.32	GW505-3279	11.9
			GW506-753	17.5
Radionuclides, Total				
Alpha	pCi/L	15	GW501-229	17.8
			GW502-230	20.8
			GW503-231	71.8
			GW505-783	20.8
			GW506-753	30.3
Radium-226	pCi/L	1.76	GW505-783	1.94
Thorium-228	pCi/L	0.25	GW503-231	0.557 J
			GW506-753	0.299
Thorium-232	pCi/L	0.229	GW503-231	0.242 J
			GW506-753	0.337
Total Uranium	μg/L	15.6	GW501-229	24.3
			GW502-230	24
			GW503-231	62.4
			GW505-3279	25.8
			GW505-783	24.4
			GW506-753	35.1
Uranium-234	pCi/L	8.73	GW501-229	12
			GW502-230	10.9
			GW503-231	24.7
			GW505-3279	11.8
			GW505-783	11.3
			GW506-753	19.2
Uranium-235	pCi/L	0.715	GW503-231	1.19
			GW505-3279	0.859
Uranium-238	pCi/L	5.79	GW501-229	9.7
			GW502-230	8.57
			GW503-231	20.3
			GW505-3279	9.12
			GW505-783	8.71
			GW506-753	16.1

* Data qualifier included with concentration value

Table 4-110
Exposure Unit 1
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW505-783	6.4 J
Phenol	μg/L	--	GW505-3279	0.306 J
Volatile Organics				
2-Butanone	μg/L	4.49	GW505-783	8.4
Chloroform	μg/L	--	GW505-783	0.41 J

* Data qualifier included with concentration value

Table 4-111
Exposure Unit 2
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	μg/L	2.4	GW402-205	3 B
			GW404-207	5.1 B
			GW808-243	3.2 B
			GW810-245	6.2 B
			GWBH50-267	3.21 B
Barium, Dissolved	μg/L	42.8	GW809-244	51.7 N*
			GW810-245	96.2
			GWBH50-3283	258
Beryllium, Dissolved	μg/L	0.19	GW809-244	0.25 B
			GW810-245	0.38 B
Magnesium, Dissolved	μg/L	618000	GW808-243	947000
Thallium, Dissolved	μg/L	0.222	GW808-243	0.79
			GW809-244	0.96
			GW810-245	0.38 B
			GWBH50-267	0.435 B
Metals, Total				
Aluminum	μg/L	979	GW401-204	2740
			GW402-205	14100 N
			GW403-206	35100 N
			GW404-207	10700 N
			GW405-208	47700
			GW406-209	48500
			GW808-243	3960
			GW809-244	12700
			GW810-245	31000
			GW822-765	1490
Antimony	μg/L	2.34	GW402-205	2.7 B
			GW404-207	5.7 B
			GWBH50-267	17.7
Arsenic	μg/L	30.6	GW405-208	38.8 B
Barium	μg/L	46.8	GW401-204	52.3
			GW402-205	67.2
			GW403-206	176
			GW404-207	57.4
			GW405-208	419 N*
			GW406-209	293
			GW809-244	117 N*
			GW810-245	452
		GWBH50-3283	269	

* Data qualifier included with concentration value

Table 4-111
Exposure Unit 2
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	$\mu\text{g/L}$	--	GW402-205	0.47 B
			GW403-206	1.5 B
			GW404-207	0.37 B
			GW405-208	1.8 B
			GW406-209	1.8 B
			GW809-244	0.51 B
			GW810-245	2.1 B
Cadmium	$\mu\text{g/L}$	2.51	GW401-204	2.8 B
Calcium	$\mu\text{g/L}$	620000	GW405-208	627000
Chromium	$\mu\text{g/L}$	3.19	GW402-205	15.9
			GW403-206	42.2
			GW404-207	12.2
			GW405-208	61.9
			GW406-209	58.3
			GW808-243	5.1
			GW809-244	15.9
Cobalt	$\mu\text{g/L}$	2.8	GW810-245	44.2
			GW402-205	5.3
			GW403-206	16.5
			GW404-207	4.4 B
			GW405-208	32.9
			GW406-209	26.1
			GW809-244	6.2
Iron	$\mu\text{g/L}$	8810	GW810-245	23.5
			GW402-205	16900 EN
			GW403-206	50000 EN
			GW404-207	13400 EN
			GW405-208	90200
			GW406-209	65100
			GW809-244	17600
Lead	$\mu\text{g/L}$	5.99	GW810-245	65500
			GW403-206	15.2 E
			GW405-208	34.5 E
			GW406-209	17.4
Magnesium	$\mu\text{g/L}$	580000	GW810-245	24.3
			GW808-243	866000
Manganese	$\mu\text{g/L}$	722	GW808A-3257	701000
			GW403-206	2190
			GW405-208	7720
			GW406-209	1560
			GW810-245	3330

* Data qualifier included with concentration value

Table 4-111
Exposure Unit 2
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	μg/L	6.48	GW401-204	14 B
			GW402-205	16.7
			GW403-206	44.7
			GW404-207	16.2
			GW405-208	76.3
			GW406-209	66.7
			GW808-243	8.7
			GW809-244	17.1
			GW810-245	51.3
Selenium	μg/L	4.24	GW403-206	4.5 B
			GW405-208	17.9 B
			GW808-243	8.6 B
			GW810-245	4.7 B
			GW822-765	4.64 B
Silver	μg/L	0.018	GW401-204	0.27 B
			GW403-206	0.34 B
			GW405-208	0.45 B
			GW406-209	0.51 B
			GW808-243	0.75 B
			GW808A-3257	0.03 B
			GW810-245	0.88 B
			GW822-765	0.293 B
			GWBH50-267	0.174 B
Thallium	μg/L	1.72	GW809-244	11.3
Vanadium	μg/L	2.8	GW401-204	8.9 B
			GW402-205	27
			GW403-206	68.8
			GW404-207	21.9
			GW405-208	111
			GW406-209	88.5
			GW808-243	7.3
			GW809-244	25.6
			GW810-245	69.5
GW822-765	4.49 B			
Zinc	μg/L	131	GW405-208	220
			GW406-209	148
			GW808A-3257	135
			GW810-245	183
PAHs				
Benzo(a)anthracene	μg/L	--	GW808A-3257	0.0226 J
Benzo(k)fluoranthene	μg/L	0.0334	GW808A-3257	0.036
Dibenzo(a,h)anthracene	μg/L	--	GW808A-3257	0.0343 J
Radionuclides, Dissolved				

* Data qualifier included with concentration value

Table 4-111
Exposure Unit 2
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha, Dissolved	pCi/L	15	GW808A-3257	25.4
Thorium-228, Dissolved	pCi/L	0.162	GW808A-787	0.318
Total Uranium, Dissolved	µg/L	16.7	GW808A-3257	38.9
Uranium-234, Dissolved	pCi/L	8.94	GW808A-3257	18.3
			GW808A-787	19.1
Uranium-235, Dissolved	pCi/L	0.512	GW808A-3257	1.43
			GW808A-787	0.749
Uranium-238, Dissolved	pCi/L	6.32	GW808A-3257	15.1
			GW808A-787	15.8
Radionuclides, Total				
Alpha	pCi/L	15	GW401-204	81.1
			GW402-205	27.9
			GW403-206	53.7
			GW404-207	105
			GW405-208	45.3
			GW406-209	21
			GW808A-3257	18.4
			GW808A-787	18.8
Beta	pCi/L	50	GW403-206	75.2
			GW404-207	51.3
Cesium-137	pCi/L	--	GW404A-779	61.5
			GW810A-788	33.5
Radium-226	pCi/L	1.76	GW403-206	2.33
			GW810-245	2.02
Thorium-228	pCi/L	0.25	GW402-205	0.858 J
			GW403-206	0.594 J
			GW404-207	0.701 J
			GW405-208	1.14
			GW406-209	0.405 J
			GW808-243	0.432 J
			GW810-245	0.26 J
Thorium-232	pCi/L	0.229	GW402-205	0.503 J
			GW403-206	0.245 J
			GW404-207	0.518 J
			GW405-208	0.572 J
			GW808-243	0.324 J

* Data qualifier included with concentration value

Table 4-111
Exposure Unit 2
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	μg/L	15.6	GW401-204	42.6
			GW403-206	22.6
			GW404-207	107
			GW405-208	23
			GW406-209	21.7
			GW808-243	64.1
			GW808A-3257	37.4
			GW808A-787	46.3
Uranium-234	pCi/L	8.73	GW401-204	16.7
			GW403-206	10.7
			GW404-207	36
			GW405-208	10.6
			GW808-243	28
			GW808A-3257	15.9
			GW808A-787	18.6
Uranium-235	pCi/L	0.715	GW401-204	0.95 J
			GW404-207	1.35
			GW808-243	0.831 J
			GW808A-3257	1.07
			GW808A-787	0.967
Uranium-238	pCi/L	5.79	GW401-204	14.1
			GW403-206	8.26
			GW404-207	29.2
			GW405-208	8.86
			GW406-209	6.7
			GW808-243	19
			GW808A-3257	12.1
			GW808A-787	16.4
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW822-765	276 D
			GWBH50-267	37.6
			GWBH50-3283	14.5
Phenol	μg/L	--	GW808A-3257	2.15 J
Volatile Organics				
2-Butanone	μg/L	4.49	GW810A-788	4.9 J
Tetrachloroethene	μg/L	--	GW810-245	1.7

* Data qualifier included with concentration value

Table 4-112
Exposure Unit 3
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	616	GW407-210	744 N
Antimony, Dissolved	μg/L	2.4	C5-AC-GW-BP3	2.5 J
			GW407-210	4.7 B
Barium, Dissolved	μg/L	42.8	GW409-212	82
Iron, Dissolved	μg/L	9280	C5-AC-GW-BP3	18500
Lead, Dissolved	μg/L	0.935	C5-AC-GW-BP3	1.5 J
Manganese, Dissolved	μg/L	966	C5-AC-GW-BP3	1430
			GW409-212	1310
Thallium, Dissolved	μg/L	0.222	GW409-212	2.4 B
Metals, Total				
Aluminum	μg/L	979	C5-AC-GW-BP3	3740
			GW407-210	5880 N
			GW409-212	3660
Antimony	μg/L	2.34	C5-AC-GW-BP3	2.8 J
Barium	μg/L	46.8	GW407-210	49.5
			GW409-212	118
Beryllium	μg/L	--	GW407-210	0.19 B
Chromium	μg/L	3.19	C5-AC-GW-BP3	6.9 J
			GW407-210	7.5
			GW409-212	3.6 B
Cobalt	μg/L	2.8	GW407-210	2.9 B
Iron	μg/L	8810	C5-AC-GW-BP3	29000 J
			GW407-210	9670 EN
Lead	μg/L	5.99	C5-AC-GW-BP3	25.3
Manganese	μg/L	722	C5-AC-GW-BP3	1520 *
			GW409-212	1290
Nickel	μg/L	6.48	GW407-210	10.1
Selenium	μg/L	4.24	C5-AC-GW-BP3	5.2 J
			GW409-212	14.3 B
Silver	μg/L	0.018	GW409-212	0.36 B
Thallium	μg/L	1.72	GW409-212	2.1 B
Vanadium	μg/L	2.8	GW407-210	12.2
			GW409-212	6.1
Zinc	μg/L	131	C5-AC-GW-BP3	216
PAHs				
Acenaphthene	μg/L	--	C5-AC-GW-BP3	0.5
Anthracene	μg/L	--	C5-AC-GW-BP3	0.05
Fluoranthene	μg/L	--	C5-AC-GW-BP3	0.35
Fluorene	μg/L	--	C5-AC-GW-BP3	0.15
Phenanthrene	μg/L	--	C5-AC-GW-BP3	0.05
Pyrene	μg/L	--	C5-AC-GW-BP3	0.2

* Data qualifier included with concentration value

Table 4-112
Exposure Unit 3
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Pesticides				
Heptachlor epoxide	μg/L	--	C5-AC-GW-BP3	0.016 J
Radionuclides, Total				
Alpha	pCi/L	15	GW407-210	22
			GW409-212	20.3
Thorium-228	pCi/L	0.25	GW409-212	0.36 J
Total Uranium	μg/L	15.6	GW407-210	15.8
			GW409-212	23.2
Uranium-238	pCi/L	5.79	GW409-212	8.28
Volatile Organics				
Carbon disulfide	μg/L	--	C5-AC-GW-BP3	0.4 J

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	616	GW415A-781	634
Barium, Dissolved	μg/L	42.8	GW417-223	62.4
Boron, Dissolved	μg/L	4750	GW415-221	14400
			GW415A-3280	15100
			GW415A-781	26600
			GW4D003-668	8010
Cobalt, Dissolved	μg/L	3	GW415A-781	6.12
			GW-MW424-3610	6.64
Manganese, Dissolved	μg/L	966	GW415-221	1780
			GW415A-3280	3350
			GW415A-781	2110
Nickel, Dissolved	μg/L	6.15	GW415-221	195
			GW415A-781	25.6
			GW-MW424-3610	9.38
Vanadium, Dissolved	μg/L	2.6	GW415A-3280	19.2
			GW415A-781	5.19
Metals, Total				
Aluminum	μg/L	979	GW410-213	7220
			GW411-214	410000
			GW415-221	3990
			GW417-223	2680
			GW4D003-666	13400 N
			GW4D003-668	14000 N
Arsenic	μg/L	30.6	GW411-214	40.1 E
Barium	μg/L	46.8	GW410-213	70
			GW411-214	3100
			GW417-223	82.8
			GW4D003-666	64.3
			GW4D003-668	66.1
Beryllium	μg/L	--	GW411-214	20.4 B
			GW415-221	0.18 B
			GW417-223	0.34 B
			GW4D003-666	0.473 B
			GW4D003-668	0.513 B
Boron	μg/L	3820	GW415-221	14800
			GW415A-3280	28700
			GW415A-781	21100
			GW4D003-666	8210
			GW4D003-668	8340
Calcium	μg/L	620000	GW411-214	2350000

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	$\mu\text{g/L}$	3.19	GW410-213	7.7
			GW411-214	620
			GW415-221	4.5 B
			GW417-223	3.8 B
			GW4D003-666	16.9
			GW4D003-668	17.3
Cobalt	$\mu\text{g/L}$	2.8	GW411-214	341
			GW415A-781	5.86
			GW4D003-666	9.31
			GW4D003-668	9.65
			GW-MW424-3610	5.52
Copper	$\mu\text{g/L}$	204	GW411-214	1440
Iron	$\mu\text{g/L}$	8810	GW411-214	802000
			GW4D003-666	22600
			GW4D003-668	23400
Lead	$\mu\text{g/L}$	5.99	GW411-214	37.3
Magnesium	$\mu\text{g/L}$	580000	GW411-214	680000
Manganese	$\mu\text{g/L}$	722	GW411-214	36500
			GW415-221	1630
			GW415A-3280	1600
			GW415A-781	3060
Nickel	$\mu\text{g/L}$	6.48	GW411-214	762
			GW415-221	149
			GW415A-781	21.1
			GW4D003-666	23.9
			GW4D003-668	24.5
Potassium	$\mu\text{g/L}$	62100	GW411-214	75300
Selenium	$\mu\text{g/L}$	4.24	GW410-213	12 B
			GW411-214	11.6
			GW415-221	6.4 B
			GW415A-781	4.57 B
Silver	$\mu\text{g/L}$	0.018	GW411-214	0.49 B
			GW415-221	0.31 B
			GW415A-3280	0.036 B
			GW415A-781	0.183 B
			GW417-223	0.99 B
			GW4D003-666	0.123 B
			GW4D003-668	0.228 B

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	μg/L	2.8	GW410-213	12.8
			GW411-214	875
			GW415-221	7.8
			GW417-223	5.3
			GW4D003-666	25.9
			GW4D003-668	26.8
Zinc	μg/L	131	GW411-214	1900
PAHs				
Anthracene	μg/L	--	GW-MW423-3613	1.06 J
Fluoranthene	μg/L	--	GW-MW423-3613	3.27
Naphthalene	μg/L	--	GW415A-3280	0.416 J
Phenanthrene	μg/L	--	GW-MW423-3613	6.93
			GW-MW424-3610	0.626
Pyrene	μg/L	--	GW-MW423-3613	1.93
Pesticides				
4,4'-DDE	μg/L	0.0146	GW-MW424-3610	0.0323 J
4,4'-DDT	μg/L	0.0413	GW313-747	0.078 P
Radionuclides, Dissolved				
Thorium-228, Dissolved	pCi/L	0.162	GW411A-780	0.228
Thorium-230, Dissolved	pCi/L	0.388	GW411A-3255	0.644
			GW-MW424-3610	0.434
Total Uranium, Dissolved	μg/L	16.7	GW415A-781	30.1
			GW4D003-668	22.5
			GW4D005-670	35.9
Uranium-234, Dissolved	pCi/L	8.94	GW415A-781	12.2
			GW415A-782	12
			GW4D003-668	9.12
Uranium-235, Dissolved	pCi/L	0.512	GW411A-3255	0.831
			GW415A-3280	0.82
			GW415A-781	0.587
			GW415A-782	0.527
			GW-MW424-3610	0.531
Uranium-238, Dissolved	pCi/L	6.32	GW415A-782	8.99
			GW4D003-666	7.21
			GW4D003-668	6.94
Radionuclides, Total				

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/L	15	GW313-747	21.9
			GW410-213	21.4
			GW411-214	21.3
			GW415-221	33.9
			GW415A-3280	21.8
			GW415A-781	39.9
			GW425-751	15.5
			GW4D003-666	29.7
			GW4D003-668	18.9
			GW4D005-670	19.8
Cesium-137	pCi/L	--	GW4D005-670	4.48
Radium-226	pCi/L	1.76	GW313-747	10.7
			GW411-214	1.94
Radium-228	pCi/L	1.67	GW313-747	70.4
Thorium-228	pCi/L	0.25	GW313-747	2.53
			GW411-214	3.85
			GW415-221	0.363 J
			GW417-223	0.426 J
			GW4D003-666	0.438
			GW4D003-668	0.522
			GW-MW424-3610	0.438
Thorium-230	pCi/L	0.877	GW313-747	1.76
			GW411-214	2.15
Thorium-232	pCi/L	0.229	GW313-747	1.72
			GW411-214	2.12
			GW417-223	0.237 J
Total Uranium	μg/L	15.6	GW313-747	18.4
			GW415-221	33.3
			GW415A-3280	16.7
			GW415A-781	29.8
			GW4D003-666	22.4
			GW4D003-668	24.7
			GW4D005-670	32.8
Uranium-234	pCi/L	8.73	GW313-747	9.15
			GW415-221	11.4
			GW415A-3280	10.8
			GW415A-781	11.6
			GW4D003-666	9.23
			GW4D003-668	11.2
Uranium-235	pCi/L	0.715	GW4D005-670	13.3
			GW415A-3280	0.988

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GW313-747	7.4
			GW410-213	6.57
			GW415-221	9.99
			GW415A-3280	9.16
			GW415A-781	10.4
			GW4D003-666	7.66
			GW4D003-668	8.25
			GW4D005-670	10.3
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW411A-3255	24
			GW415A-3280	16.7
			GW-MW424-3610	3.61 J
Carbazole	μg/L	--	GW-MW423-3613	6.11 J
Di-n-butylphthalate	μg/L	--	GW417-223	30.1
Isophorone	μg/L	--	GW415A-781	28.7
Volatile Organics				
1,1,2-Trichloroethane	μg/L	--	GW415A-3280	4.29
1,1-Dichloroethene	μg/L	--	GW415A-3280	38.9
2-Butanone	μg/L	4.49	GW415A-3280	19.5
			GW-MW424-3610	25
4-Methyl-2-pentanone	μg/L	--	GW415A-3280	8.56
Acetone	μg/L	30.5	GW415A-3280	157
Benzene	μg/L	0.366	GW415A-3280	2.28
			GW-MW424-3610	1.65
Carbon disulfide	μg/L	--	GW-MW424-3610	3.91 J
Chloroform	μg/L	--	GW415A-3280	1.37
cis-1,2-Dichloroethene	μg/L	--	GW411-214	0.87 J
			GW411A-3255	1.47
			GW415-221	5660 D
			GW415A-3280	13900
			GW415A-781	12300 D
			GW415A-782	14800
			GW4D003-666	38.5
			GW4D003-668	32.8
Ethylbenzene	μg/L	0.297	GW415A-3280	0.36 J
Methylene chloride	μg/L	--	GW415-221	1680 JB
			GW415A-3280	2.59 J
Styrene	μg/L	--	GW415A-3280	0.398 J

* Data qualifier included with concentration value

Table 4-113
Exposure Unit 4
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Tetrachloroethene	$\mu\text{g/L}$	--	GW415-221	14800 D
			GW415A-3280	92000 B
			GW415A-781	103000 D
			GW415A-782	78900 D
			GW4D003-666	69.3
			GW4D003-668	46.1
			GW-MW424-3610	11.2
trans-1,2-Dichloroethene	$\mu\text{g/L}$	--	GW415-221	355 J
			GW415A-3280	115 E
			GW415A-782	71.8 J
			GW4D003-666	0.25 J
			GW4D003-668	0.42 J
Trichloroethene	$\mu\text{g/L}$	--	GW415-221	3690 D
			GW415A-3280	20400
			GW415A-781	21200 D
			GW415A-782	16300
			GW4D003-666	23.7
			GW4D003-668	16.9
			GW-MW424-3610	1.27
Vinyl chloride	$\mu\text{g/L}$	1.48	GW415-221	2100
			GW415A-3280	1630
			GW415A-781	1760 JD
			GW415A-782	1480 JD
Xylenes (total)	$\mu\text{g/L}$	0.958	GW415A-3280	2.04

* Data qualifier included with concentration value

Table 4-114
Exposure Unit 5
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	$\mu\text{g/L}$	2.4	GW423-749	3.07 B
			GWBH51-269	7.62 B
			GWOW20D-257	4.9 B
			GWOW20S-263	3 B
Beryllium, Dissolved	$\mu\text{g/L}$	0.19	GWBH51-269	11.2
			GWOW20D-257	0.67 B
Cadmium, Dissolved	$\mu\text{g/L}$	2.32	GWBH51-269	11.6
Cobalt, Dissolved	$\mu\text{g/L}$	3	GWBH51-269	11.7
Nickel, Dissolved	$\mu\text{g/L}$	6.15	GWBH51-269	10
Selenium, Dissolved	$\mu\text{g/L}$	10.3	GW420-226	15.1
Thallium, Dissolved	$\mu\text{g/L}$	0.222	GW420-226	0.27 B
			GW423-749	0.386 BN
Vanadium, Dissolved	$\mu\text{g/L}$	2.6	GWBH51-269	10.9
Metals, Total				
Aluminum	$\mu\text{g/L}$	979	GW420-226	20100
			GW423-749	39500
			GW605-754	35400
Antimony	$\mu\text{g/L}$	2.34	GWBH51-269	3.68 B
			GWBH60-273	3.4 B
			GWOW20D-257	3.5 B
			GWOW20S-263	2.9 B
Barium	$\mu\text{g/L}$	46.8	GW420-226	212 N*
			GW423-749	420
			GW605-754	237
Beryllium	$\mu\text{g/L}$	--	GW420-226	0.76 B
			GW423-749	1.68 B
			GW605-754	1.52 B
Chromium	$\mu\text{g/L}$	3.19	GW420-226	23
			GW423-749	50.6
			GW605-754	48.5
			GWOW20S-263	9.6
Cobalt	$\mu\text{g/L}$	2.8	GW420-226	9.4
			GW423-749	29.8
			GW605-754	29.4
Copper	$\mu\text{g/L}$	204	GW605-754	211
Iron	$\mu\text{g/L}$	8810	GW420-226	27800
			GW423-749	64500
			GW605-754	67200
Lead	$\mu\text{g/L}$	5.99	GW420-226	7.8 BE
			GW605-754	7.24

* Data qualifier included with concentration value

Table 4-114
Exposure Unit 5
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Manganese	μg/L	722	GW420-226	1400
			GW423-749	1810
			GW605-754	2270
Nickel	μg/L	6.48	GW420-226	25.3
			GW423-749	65.4
			GW605-754	61.9
Selenium	μg/L	4.24	GW420-226	16.4 B
			GW605-754	9.78
Silver	μg/L	0.018	GW420-226	2 B
			GW423-749	0.078 B
			GW605-754	0.372 B
			GWBH51-269	0.167 B
			GWBH60-273	0.23 B
			GWOW20D-257	0.73 B
			GWOW20S-263	0.25 B
Vanadium	μg/L	2.8	GW420-226	40.5
			GW423-749	74.3
			GW605-754	77.4
Zinc	μg/L	131	GW423-749	146
			GW605-754	152
Radionuclides, Total				
Alpha	pCi/L	15	GW423-749	15.8
			GW424-750	18.8
			GW605-754	17.6
Radium-226	pCi/L	1.76	GW420-226	2.36
			GW605-754	3.28
Thorium-228	pCi/L	0.25	GW420-226	0.484 J
			GW424-750	0.533
			GW605-754	0.934
Thorium-232	pCi/L	0.229	GW420-226	0.269 J
			GW424-750	0.341
			GW605-754	0.547
Uranium-235	pCi/L	0.715	GWB02W020S-3287	1.24

* Data qualifier included with concentration value

Table 4-115
Exposure Unit 6
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	616	GWBH57-3278	2960 BN*
Barium, Dissolved	μg/L	42.8	GW602-233	66.7 N*
			GW604-235	54.5
Beryllium, Dissolved	μg/L	0.19	GWBH57-271	0.44 B
Cadmium, Dissolved	μg/L	2.32	GWBH57-271	3.77 B
Calcium, Dissolved	μg/L	603000	GWBH57-3278	1270000
Chromium, Dissolved	μg/L	16	GWBH57-271	22
Cobalt, Dissolved	μg/L	3	GWBH57-271	19.4
Lithium, Dissolved	μg/L	972	GWBH57-271	7610
			GWBH57-3278	3560
Manganese, Dissolved	μg/L	966	GWBH57-271	3050
			GWBH57-3278	1860
Nickel, Dissolved	μg/L	6.15	GWBH57-271	72.5 B
Potassium, Dissolved	μg/L	52400	GWBH57-3278	94300
Selenium, Dissolved	μg/L	10.3	GWBH57-271	44.6
Sodium, Dissolved	μg/L	1540000	GWBH57-3278	4160000
Vanadium, Dissolved	μg/L	2.6	GWBH57-271	20.2
Metals, Total				
Aluminum	μg/L	979	GW602-233	7690
			GW603-234	290000
			GW604-235	5220 N
			GW607-755	10100
			GW825-768	2330 N
Antimony	μg/L	2.34	GWBH57-271	4.16 B
Arsenic	μg/L	30.6	GW603-234	152
Barium	μg/L	46.8	GW602-233	120 N*
			GW603-234	1930 N*
			GW604-235	88.9
			GW607-755	76.3
Beryllium	μg/L	--	GW602-233	0.24 B
			GW603-234	13.3
			GW604-235	0.19 B
			GWBH57-3278	1.32 B
Calcium	μg/L	620000	GW603-234	1310000
			GWBH57-271	2150000
			GWBH57-3278	1030000
Chromium	μg/L	3.19	GW602-233	9.5
			GW603-234	427
			GW604-235	6
			GW607-755	13.2
			GW825-768	3.38 B

* Data qualifier included with concentration value

Table 4-115
Exposure Unit 6
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	2.8	GW602-233	3.5 B
			GW603-234	251
			GW607-755	6.23
Copper	$\mu\text{g/L}$	204	GW603-234	899
			GWBH57-3278	401
Iron	$\mu\text{g/L}$	8810	GW602-233	11200
			GW603-234	577000
			GW607-755	15100
			GWBH57-3278	9420
Lead	$\mu\text{g/L}$	5.99	GW603-234	165 E
			GWBH57-3278	11.9
Lithium	$\mu\text{g/L}$	1130	GWBH57-271	7370
			GWBH57-3278	2500
Manganese	$\mu\text{g/L}$	722	GW603-234	22400
			GWBH57-271	3060
			GWBH57-3278	1330
Nickel	$\mu\text{g/L}$	6.48	GW602-233	10.2
			GW603-234	542
			GW604-235	6.5
			GW607-755	15.3
Potassium	$\mu\text{g/L}$	62100	GWBH57-271	133000
			GWBH57-3278	78400 E
Selenium	$\mu\text{g/L}$	4.24	GW603-234	39.7 B
			GWBH57-271	19.1 B
			GWBH57-3278	13.7
Silver	$\mu\text{g/L}$	0.018	GW603-234	1.3 B
			GW607-755	0.153 B
			GW825-768	0.097 B
			GWBH57-271	0.81 B
			GWBH57-3278	0.033 B
			GWBH63-277	0.27 B
Sodium	$\mu\text{g/L}$	1200000	GWBH57-3278	2570000
Vanadium	$\mu\text{g/L}$	2.8	GW602-233	15.6
			GW603-234	610
			GW604-235	10.8
			GW607-755	20.9
Zinc	$\mu\text{g/L}$	131	GW825-768	5.11
			GW603-234	1350
			GWBH57-3278	282
Pesticides				
gamma-Chlordane	$\mu\text{g/L}$	--	GW825-768	0.03 P
Radionuclides, Dissolved				
Beta, Dissolved	pCi/L	50	GWBH57-3278	53

* Data qualifier included with concentration value

Table 4-115
Exposure Unit 6
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-228, Dissolved	pCi/L	1.6	GWBH57-3278	2.14
Total Uranium, Dissolved	μg/L	16.7	GW825-768	18.2
Radionuclides, Total				
Alpha	pCi/L	15	GW603-234	23.6
			GW825-769	15.9
Beta	pCi/L	50	GWBH57-271	93
			GWBH57-3278	127
Cesium-137	pCi/L	--	GW825-768	2.66
Radium-226	pCi/L	1.76	GW602-233	2.77
			GW603-234	3.23
			GWBH57-271	1.77
			GWBH57-3278	2.03
Radium-228	pCi/L	1.67	GWBH57-3278	1.98
Thorium-228	pCi/L	0.25	GWBH57-271	0.296 J
Total Uranium	μg/L	15.6	GW603-234	28.3
			GW825-768	17.5
			GW825-769	18.2
Uranium-234	pCi/L	8.73	GW603-234	9.83
			GW606-786	16.2
			GW825-768	8.89
Uranium-235	pCi/L	0.715	GW606-786	0.755
Uranium-238	pCi/L	5.79	GW603-234	8.19
			GW606-786	13.6
			GW825-768	6.25
			GW825-769	6.48
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW607-755	10.8
			GWBH57-3278	2.84 J
Phenol	μg/L	--	GW603A-3256	3.91 J
			GWBH57-3278	5.18 J
Volatile Organics				
2-Butanone	μg/L	4.49	GWBH57-3278	22.1

* Data qualifier included with concentration value

Table 4-116
Exposure Unit 7
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Arsenic, Dissolved	$\mu\text{g/L}$	25.7	GW-TWP835-3517	47 BN
			GW-TWP837-3523	47.6 BN
Barium, Dissolved	$\mu\text{g/L}$	42.8	GW-TWP835-3517	58.8
Thallium, Dissolved	$\mu\text{g/L}$	0.222	GW-TWP837-3523	0.225 B
Metals, Total				
Aluminum	$\mu\text{g/L}$	979	GW807-242	11400 N
			GW-TWP836-3520	11300
			GW-TWP837-3523	31200
			GW-TWP838-3526	14300
Arsenic	$\mu\text{g/L}$	30.6	GW-TWP835-3517	65.3 B
			GW-TWP837-3523	563
Barium	$\mu\text{g/L}$	46.8	GW807-242	61.3
			GW-TWP835-3517	47
			GW-TWP836-3520	67
			GW-TWP837-3523	137
			GW-TWP838-3526	97.7
Beryllium	$\mu\text{g/L}$	--	GW807-242	0.56 B
			GW-TWP836-3520	0.577 B
			GW-TWP837-3523	1.22 B
			GW-TWP838-3526	0.606 B
Calcium	$\mu\text{g/L}$	620000	GW-TWP837-3523	4360000
Chromium	$\mu\text{g/L}$	3.19	GW807-242	13
			GW-TWP836-3520	12.7
			GW-TWP837-3523	46.4
			GW-TWP838-3526	17
Cobalt	$\mu\text{g/L}$	2.8	GW807-242	5.9
			GW-TWP836-3520	3.59 B
			GW-TWP837-3523	28
			GW-TWP838-3526	7.68
Iron	$\mu\text{g/L}$	8810	GW807-242	14700 EN
			GW-TWP836-3520	13200
			GW-TWP837-3523	49900
			GW-TWP838-3526	17500
Lead	$\mu\text{g/L}$	5.99	GW-TWP835-3517	34.3 B
			GW-TWP837-3523	603
Lithium	$\mu\text{g/L}$	1130	GW-TWP837-3523	3150
Magnesium	$\mu\text{g/L}$	580000	GW-TWP837-3523	1610000
Manganese	$\mu\text{g/L}$	722	GW-TWP837-3523	1370
Nickel	$\mu\text{g/L}$	6.48	GW807-242	14.8
			GW-TWP836-3520	14.9
			GW-TWP837-3523	53.2
			GW-TWP838-3526	17.2

* Data qualifier included with concentration value

Table 4-116
Exposure Unit 7
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	μg/L	4.24	GW-TWP837-3523	48.6 B
Silver	μg/L	0.018	GW807-242	0.25 B
			GW-TWP836-3520	0.04 B
			GW-TWP837-3523	5.07 B
			GW-TWP838-3526	0.099 B
Thallium	μg/L	1.72	GW-TWP837-3523	3.58 B
Vanadium	μg/L	2.8	GW807-242	22.2
			GW-TWP836-3520	20.5
			GW-TWP837-3523	69.9
			GW-TWP838-3526	26.7
PCBs				
Aroclor-1260	μg/L	--	GW-TWP838-3526	0.14
Radionuclides, Dissolved				
Radium-226, Dissolved	pCi/L	1.31	GW-TWP837-3523	2.54
Thorium-230, Dissolved	pCi/L	0.388	GW-TWP836-3520	1.08
			GW-TWP838-3526	0.679
Total Uranium, Dissolved	μg/L	16.7	GW820-763	23.7
			GW821-764	24.3
			GW-TWP835-3517	28.3
			GW-TWP838-3526	24.9
Uranium-234, Dissolved	pCi/L	8.94	GW820-763	10.6
			GW821-764	10.7
			GW-TWP835-3517	12.9
			GW-TWP838-3526	9.51
Uranium-235, Dissolved	pCi/L	0.512	GW821-764	0.551
			GW-TWP835-3517	1.02
			GW-TWP836-3520	0.626
			GW-TWP838-3526	0.927
Uranium-238, Dissolved	pCi/L	6.32	GW820-763	8.07
			GW821-764	8.24
			GW-TWP835-3517	9.85
			GW-TWP838-3526	7.51
Radionuclides, Total				
Alpha	pCi/L	15	GW807-242	29.3
			GW820-763	44.1
			GW821-764	16.5
			GW-TWP835-3517	17
Radium-226	pCi/L	1.76	GW820-763	2.6
			GW-TWP837-3523	2.63
Thorium-228	pCi/L	0.25	GW807-242	0.322 J
			GW-TWP835-3517	0.783
			GW-TWP837-3523	0.584

* Data qualifier included with concentration value

Table 4-116
Exposure Unit 7
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/L	0.877	GW-TWP835-3517	1.43
			GW-TWP837-3523	0.967
Thorium-232	pCi/L	0.229	GW-TWP835-3517	0.731
			GW-TWP837-3523	0.342
			GW-TWP838-3526	0.282
Total Uranium	μg/L	15.6	GW-TWP835-3517	28.4
			GW-TWP837-3523	17
			GW-TWP838-3526	21.1
Uranium-234	pCi/L	8.73	GW-TWP835-3517	11
			GW-TWP838-3526	8.87
Uranium-235	pCi/L	0.715	GW-TWP835-3517	1.44
			GW-TWP836-3520	0.805
			GW-TWP837-3523	0.857
			GW-TWP838-3526	1.06
Uranium-238	pCi/L	5.79	GW820-763	6.02
			GW-TWP835-3517	8.89
			GW-TWP838-3526	6.97

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	μg/L	616	GW302A-3253	799
Antimony, Dissolved	μg/L	2.4	C5-SO-GW-D800	2.9 J
			GW303-193	2.5 B
			GW307-197	4.7 B
			WO19D-260	2.6 B
Barium, Dissolved	μg/L	42.8	C5-SO-GW-D800	45.3 J
			GW303-193	64.7
			GW308-198	71.1 N*
			GW309-199	46.2 N*
			GW310-200	73.2
			GWBH05-251	72.1
			GWBH15-3276	44.7
Beryllium, Dissolved	μg/L	0.19	GW307-197	0.24 B
Chromium, Dissolved	μg/L	16	GWBH15-253	38.9
Cobalt, Dissolved	μg/L	3	GWBH15-253	33.4
			GW-MW313-3592	9.29
Lithium, Dissolved	μg/L	972	GWBH15-253	1750 NE
Magnesium, Dissolved	μg/L	618000	GW302-192	670000
			GW302A-3253	1180000
Manganese, Dissolved	μg/L	966	GW302-192	1230
Nickel, Dissolved	μg/L	6.15	GW302-192	19.5 B
			GW302A-3253	7.65
			GW-MW313-3592	9.89
Selenium, Dissolved	μg/L	10.3	GW307-197	13 B
			GWBH15-253	10.7 B
Sodium, Dissolved	μg/L	1540000	GWBH15-253	1870000 E
Vanadium, Dissolved	μg/L	2.6	GWBH15-253	34.5
Metals, Total				
Aluminum	μg/L	979	C5-SO-GW-D800	8810
			GW302-192	58000
			GW303-193	25000
			GW304-194	21900
			GW306-196	8460
			GW307-197	18100
			GW308-198	38000
			GW309-199	80400
			GW310-200	60400
			GW311-201	61700
Antimony	μg/L	2.34	C5-SO-GW-D800	3.6 J
			GWBH05-251	3.7 B
			GWBH15-253	3.9 B
			WO19D-260	3.5 B

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Arsenic	μg/L	30.6	GW302-192	35.3 E
Barium	μg/L	46.8	C5-SO-GW-D800	108 J
			GW302-192	314
			GW303-193	240
			GW304-194	169
			GW306-196	77.3
			GW307-197	161
			GW308-198	234 N*
			GW309-199	692 N*
			GW310-200	675
			GW311-201	615 N*
			GWBH05-251	74.5
Beryllium	μg/L	--	GW302-192	2.2 B
			GW303-193	1.3 B
			GW304-194	1.4 B
			GW306-196	0.67 B
			GW307-197	1.2 B
			GW308-198	1.5 B
			GW309-199	3.3 B
			GW310-200	3.3 B
			GW311-201	2.6 B
			GWBH05-251	0.19 B
Calcium	μg/L	620000	GW302-192	690000
Chromium	μg/L	3.19	C5-SO-GW-D800	9 J
			GW302-192	81.2
			GW302A-3253	15.4
			GW303-193	31.2
			GW304-194	29.1
			GW306-196	10.4
			GW307-197	22.9
			GW308-198	46.6
			GW309-199	106
			GW310-200	80.4
			GW311-201	74.6
Cobalt	μg/L	2.8	GW302-192	40.2 B
			GW303-193	10.4
			GW304-194	13.3
			GW306-196	4.4 B
			GW307-197	12.5
			GW308-198	21.9
			GW309-199	47.4
			GW310-200	33
			GW311-201	38
			GW-MW313-3592	19.9

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	μg/L	204	GW311-201	422
Iron	μg/L	8810	C5-SO-GW-D800	12700
			GW302-192	98500
			GW303-193	30300
			GW304-194	30600
			GW306-196	11700
			GW307-197	25200
			GW308-198	51500
			GW309-199	121000
			GW310-200	87300
Lead	μg/L	5.99	GW311-201	102000
			GW302-192	24.5
			GW303-193	6.9 B
			GW304-194	7.1 B
			GW307-197	7.9 B
			GW308-198	20.1 E
			GW309-199	31.9 E
			GW310-200	36.4
			GW311-201	29.3 E
Lithium	μg/L	1130	GWBH15-253	1600 E
Magnesium	μg/L	580000	GW302-192	756000
			GW302A-3253	1130000
Manganese	μg/L	722	GW302-192	4600
			GW302A-3253	770
			GW304-194	830
			GW307-197	844
			GW308-198	2480
			GW309-199	4080
			GW310-200	3170
			GW311-201	7840
			GWBH15-253	802
Nickel	μg/L	6.48	GW-MW313-3592	1270
			C5-SO-GW-D800	11.3 J
			GW302-192	107
			GW302A-3253	7.49
			GW303-193	32.3
			GW304-194	34.9
			GW306-196	10.2
			GW307-197	26.3
			GW308-198	50
			GW309-199	113
			GW310-200	86.4
			GW311-201	90.2
			GW-MW313-3592	17.8

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	μg/L	4.24	C5-SO-GW-D800	4.6 J
			GW302-192	6.4 B
			GW303-193	7.5 B
			GW304-194	9.1 B
			GW306-196	4.3 B
			GW307-197	14.2 B
			GW308-198	5.4 B
			GW309-199	8.2 B
			GW310-200	10.5 B
			GW311-201	8.3 B
			GWBH15-253	22.1
			WO19D-260	6.6 B
Silver	μg/L	0.018	GW302-192	0.48 B
			GW302A-3253	0.025 B
			GW303-193	0.79 B
			GW304-194	0.88 B
			GW306-196	0.76 B
			GW307-197	0.89 B
			GW308-198	0.71 B
			GW309-199	0.93 B
			GW310-200	1 B
			GW311-201	1.4 B
			GWBH05-251	0.68 B
			GWBH15-253	0.26 B
			WO19D-260	0.18 B
Sodium	μg/L	1200000	GWBH15-253	1730000 E
Thallium	μg/L	1.72	GW308-198	3.8 B
			GW309-199	14.8
Vanadium	μg/L	2.8	C5-SO-GW-D800	12.4 J
			GW302-192	130
			GW303-193	46.2
			GW304-194	40
			GW306-196	16.1
			GW307-197	33.3
			GW308-198	77.2
			GW309-199	165
			GW310-200	116
			GW311-201	128
Zinc	μg/L	131	GW302-192	235
			GW309-199	273
			GW310-200	234
			GW311-201	253
Nitroaromatics				
1,3,5-Trinitrobenzene	μg/L	--	C5-SO-GW-D800	1.5

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
RDX	μg/L	--	GW302A-3253	0.153
PAHs				
Phenanthrene	μg/L	--	C5-SO-GW-D800	0.01
			GW-MW313-3592	0.914
Pesticides				
4,4'-DDE	μg/L	0.0146	GW-MW313-3592	0.055
alpha-BHC	μg/L	--	C5-SO-GW-D800	0.019 J
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	15	GW302A-3253	70.2
			GW-MW313-3592	16
Thorium-228, Dissolved	pCi/L	0.162	GW302A-3253	0.334
Thorium-230, Dissolved	pCi/L	0.388	GW303A-3254	0.554
			GW-MW313-3592	0.44
Total Uranium, Dissolved	μg/L	16.7	GW302A-3253	126
			GW-MW313-3592	27.1
Uranium-234, Dissolved	pCi/L	8.94	GW302A-3253	57.5
			GW302A-777	57.4
			GW-MW313-3592	13.8
Uranium-235, Dissolved	pCi/L	0.512	GW302A-3253	3.46
			GW302A-777	1.87
			GW-MW313-3592	0.693
Uranium-238, Dissolved	pCi/L	6.32	GW302A-3253	44.4
			GW302A-777	42.7
			GW-MW313-3592	11.1
Radionuclides, Total				
Alpha	pCi/L	15	GW302-192	132
			GW302A-3253	53.9
			GW302A-777	59.7
			GW303-193	55.7
			GW304-194	69.5
			GW306-196	25.6
			GW307-197	91.9
			GW308-198	20.7
			GW310-200	34.3
			GW312-203	26.4
Radium-226	pCi/L	1.76	GW308-198	2.33
			GW309-199	2.13
			GW311-201	2.25
			GW312-203	3.9
			WO19D-260	3.11

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/L	0.25	GW304-194	0.342 J
			GW306-196	0.344 J
			GW307-197	1.51
			GW309-199	0.684 J
			GW312-203	5.33
Thorium-230	pCi/L	0.877	GW312-203	4.37
Thorium-232	pCi/L	0.229	GW304-194	0.296 J
			GW307-197	0.841
			GW309-199	0.286 J
			GW312-203	3.37
Total Uranium	µg/L	15.6	GW302-192	96.3
			GW302A-3253	125
			GW302A-777	125
			GW303-193	59.1
			GW303A-778	21.4
			GW304-194	56.5
			GW306-196	26.7
			GW307-197	26.1
			GW308-198	17
			GW312-203	35.7
			GW-MW313-3592	31.7
Uranium-234	pCi/L	8.73	GW302-192	33.3
			GW302A-3253	52.6
			GW302A-777	61
			GW303-193	21.7
			GW304-194	24.1
			GW306-196	10.4
			GW307-197	9.66
			GW308-198	9.28
			GW312-203	13.4
Uranium-235	pCi/L	0.715	GW-MW313-3592	13.3
			GW302-192	1.42
			GW302A-3253	2.24
			GW302A-777	1.89
			GW303-193	0.831
			GW-MW313-3592	1.12

* Data qualifier included with concentration value

Table 4-117
Exposure Unit 8
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GW302-192	27.3
			GW302A-3253	41.1
			GW302A-777	47
			GW303-193	18.6
			GW303A-3254	6
			GW303A-778	7.02
			GW304-194	17.2
			GW306-196	8.98
			GW307-197	7.49
			GW308-198	7.55
			GW312-203	11.8
			GW-MW313-3592	10.6
Semivolatile Organics				
2-Chlorophenol	μg/L	--	GWBH15-3276	0.407 J
bis(2-Ethylhexyl)phthalate	μg/L	--	GW-MW313-3592	3.07 J
Di-n-butylphthalate	μg/L	--	GW301-191	14.9
			GW303-193	69
			GW304-194	38.4
			GW306-196	41.1
			GW307-197	89.4
			GW310-200	30.7
Phenol	μg/L	--	GW302A-3253	11.3
			GW303A-3254	12.3
Volatile Organics				
1,1,1-Trichloroethane	μg/L	0.435	C5-SO-GW-D800	6
1,1-Dichloroethane	μg/L	--	C5-SO-GW-D800	1
1,1-Dichloroethene	μg/L	--	C5-SO-GW-D800	2
1,2-Dichloroethene	μg/L	--	C5-SO-GW-D800	2
2-Butanone	μg/L	4.49	GWBH15-3276	4.95 J
Carbon disulfide	μg/L	--	GW-MW313-3592	2.37 J
Methylene chloride	μg/L	--	GW-MW313-3592	1.93 J
Tetrachloroethene	μg/L	--	GW303A-3254	0.597 BJ
Trichloroethene	μg/L	--	C5-SO-GW-D800	5

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	616	GW-TWP832-3508	716 B
			GW-TWP859-3589	739 B
Antimony, Dissolved	$\mu\text{g/L}$	2.4	GWA50-258	4.49 B
			GWA56-282	4.9 B
			GWOW03A-286	3.12 B
			GWOW17A-289	2.94 B
Arsenic, Dissolved	$\mu\text{g/L}$	25.7	GW-TWP856-3580	57.4 B
			GW-TWP858-3586	26.2 B
			GW-TWP859-3589	66.8 B
Barium, Dissolved	$\mu\text{g/L}$	42.8	GWA55-3265	44.3
			GWA57-281	46.2
			GWOW01A-3273	52.5
			GW-TWP851-3565	147
Beryllium, Dissolved	$\mu\text{g/L}$	0.19	GWA56-282	0.28 B
			GWOW03A-286	0.21 B
			GWOW06A-287	0.2 B
			GWOW10B-3277	13.3
			GWOW17A-289	0.21 B
			GW-TWP852-3568	0.254 B
Cobalt, Dissolved	$\mu\text{g/L}$	3	GWA43-264	3.3 B
			GW-MW862-3604	7.19
			GW-TWP830-3502	3.03 B
			GW-TWP831-3505	3.45 B
Copper, Dissolved	$\mu\text{g/L}$	90.9	GWOW06B-3291	108
			GWOW10B-3277	4770
			GWOW11B-3263	107
Lead, Dissolved	$\mu\text{g/L}$	0.935	GWOW14B-3268	2.41
Magnesium, Dissolved	$\mu\text{g/L}$	618000	GW-TWP831-3505	822000
Nickel, Dissolved	$\mu\text{g/L}$	6.15	GWA45-256	74
			GWOW04A-279	23.3
			GWOW05B-3274	30.6
			GWOW06A-287	12.6
			GWOW06B-262	29.4
			GWOW06B-3291	16.8
			GWOW17A-289	7.31
			GW-TWP851-3565	20.6
Potassium, Dissolved	$\mu\text{g/L}$	52400	GWA45-256	84300
			GWOW01A-3273	143000 E
Selenium, Dissolved	$\mu\text{g/L}$	10.3	GWA23A-285	13.8
			GW-TWP832-3508	41.7 BN*
			GW-TWP852-3568	62.7 BN*
			GW-TWP858-3586	41.2 BN*

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium, Dissolved	μg/L	0.222	GWA45-256	0.33 B
			GWA50-258	0.646
			GWA52-259	2.44 B
			GWA52-3260	0.328 B
			GW-MW861-3601	11.9 B
			GWOW10A-288	0.4 B
			GWOW15B-3288	0.333 B
			GW-TWP844-3544	1.72 B
			GW-TWP851-3565	0.225 B
Vanadium, Dissolved	μg/L	2.6	GW-TWP858-3586	6.23
Zinc, Dissolved	μg/L	108	GWA57-281	520
			GWOW06B-3291	134
			GWOW10B-3277	643
Metals, Total				
Aluminum	μg/L	979	GW102-745	30900 N
			GW103-746	8350 N
			GWBH70-283	9300
			GWOW05A-278	1210
			GW-TWP830-3502	816000
			GW-TWP831-3505	143000
			GW-TWP832-3508	63600
			GW-TWP833-3511	2850
			GW-TWP834-3514	11100
			GW-TWP839-3529	1000000
			GW-TWP844-3544	6300 *N
			GW-TWP850-3562	17300
			GW-TWP851-3565	1330000
			GW-TWP853-3571	199000
			GW-TWP854-3574	15200
			GW-TWP855-3577	21100
			GW-TWP856-3580	18200
			GW-TWP858-3586	317000
			GW-TWP859-3589	13800

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Antimony	$\mu\text{g/L}$	2.34	GW103-746	5.31 B
			GWA23A-285	4.57 B
			GWA42-254	3.8 B
			GWA43-264	5.8 B
			GWA45-256	4.7 B
			GWA50-258	10.3
			GWA51-270	4.4 B
			GWA54-280	5.28 B
			GWA57-281	3.6 B
			GWBH49-266	3.38 B
			GWBH70-283	3.79 B
			GWOW03A-286	3.09 B
			GWOW03B-261	7.27 B
			GWOW04A-279	12.2
			GWOW05A-278	23.1
			GWOW06A-287	28.2
			GWOW06B-262	6.54 B
			GWOW10A-288	4.22 B
			GWOW17A-289	2.76 B
Arsenic	$\mu\text{g/L}$	30.6	GW-TWP830-3502	594
			GW-TWP831-3505	80.3
			GW-TWP839-3529	441 N
			GW-TWP853-3571	80.1
			GW-TWP858-3586	118
Barium	$\mu\text{g/L}$	46.8	GW102-745	197
			GW103-746	60.5
			GWA55-3265	62.4
			GWBH70-283	81.9
			GWOW01A-3273	62
			GW-TWP830-3502	2500
			GW-TWP831-3505	1140
			GW-TWP832-3508	466
			GW-TWP833-3511	49.3
			GW-TWP834-3514	60.9
			GW-TWP839-3529	6680
			GW-TWP844-3544	51
			GW-TWP850-3562	114
			GW-TWP851-3565	1850
			GW-TWP853-3571	1000
			GW-TWP854-3574	105
			GW-TWP855-3577	176
			GW-TWP856-3580	86.2
			GW-TWP858-3586	1640
			GW-TWP859-3589	73.1

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	$\mu\text{g/L}$	--	GW102-745	1.47 B
			GWA43-264	0.23 B
			GWBH70-283	0.46 B
			GW-MW863-3607	0.301 B
			GW-TWP830-3502	33.3
			GW-TWP831-3505	6.45
			GW-TWP832-3508	2.87 B
			GW-TWP833-3511	0.273 B
			GW-TWP834-3514	0.58 B
			GW-TWP839-3529	51.5 B
			GW-TWP844-3544	0.189 B
			GW-TWP850-3562	0.905 B
			GW-TWP851-3565	54.1
			GW-TWP852-3568	0.231 B
			GW-TWP853-3571	9.62
			GW-TWP854-3574	0.904 B
Cadmium	$\mu\text{g/L}$	2.51	GW-TWP855-3577	0.995 B
			GW-TWP858-3586	15.1
Calcium	$\mu\text{g/L}$	620000	GW-TWP830-3502	13.5 B
			GW-TWP853-3571	2.67 B
			GW-TWP858-3586	3.53 B
			GWA23A-285	651000
			GW-TWP830-3502	3850000
			GW-TWP831-3505	1170000
			GW-TWP839-3529	2050000
			GW-TWP853-3571	911000
			GW-TWP858-3586	1830000

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	$\mu\text{g/L}$	3.19	GW102-745	38
			GW103-746	9.97
			GWBH70-283	13.6
			GWOW05A-278	5.45
			GWOW05B-3274	3.82 B
			GWOW06B-262	5.31
			GWOW10B-801	5.03
			GWOW17B-3289	4.07 B
			GW-TWP830-3502	1270
			GW-TWP831-3505	228
			GW-TWP832-3508	85.3
			GW-TWP833-3511	5.74
			GW-TWP834-3514	13.3
			GW-TWP839-3529	1530
			GW-TWP844-3544	8.1
			GW-TWP850-3562	23
			GW-TWP851-3565	2090
			GW-TWP853-3571	311
			GW-TWP854-3574	19.7
			GW-TWP855-3577	26.6
			GW-TWP856-3580	22
			GW-TWP858-3586	514
			GW-TWP859-3589	15.5
Cobalt	$\mu\text{g/L}$	2.8	GW102-745	21.4
			GW103-746	4.37 B
			GWA52-259	3.14 B
			GWBH70-283	7.2
			GW-MW862-3604	21.9
			GW-TWP830-3502	645
			GW-TWP831-3505	119
			GW-TWP832-3508	44.2
			GW-TWP833-3511	2.98 B
			GW-TWP834-3514	6.05
			GW-TWP839-3529	672
			GW-TWP844-3544	4.68 B
			GW-TWP850-3562	11.7
			GW-TWP851-3565	1090
			GW-TWP853-3571	159
			GW-TWP854-3574	9.58
			GW-TWP855-3577	12.9
			GW-TWP856-3580	9.57
			GW-TWP858-3586	268
			GW-TWP859-3589	7.7

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	$\mu\text{g/L}$	204	GW-TWP830-3502	2880
			GW-TWP831-3505	335
			GW-TWP839-3529	2920
			GW-TWP851-3565	2370
			GW-TWP853-3571	362
			GW-TWP858-3586	646
Iron	$\mu\text{g/L}$	8810	GW102-745	42900 N
			GW103-746	9860 N
			GWBH70-283	16500
			GW-TWP830-3502	1740000
			GW-TWP831-3505	293000
			GW-TWP832-3508	99600
			GW-TWP834-3514	12400
			GW-TWP839-3529	1530000
			GW-TWP850-3562	22400
			GW-TWP851-3565	2430000
			GW-TWP853-3571	358000
			GW-TWP854-3574	24300
			GW-TWP855-3577	26300
			GW-TWP856-3580	23000
			GW-TWP858-3586	586000
			GW-TWP859-3589	17200
Lead	$\mu\text{g/L}$	5.99	GW102-745	11.8 E
			GWBH70-283	6.86
			GW-TWP830-3502	398
			GW-TWP831-3505	73.3
			GW-TWP832-3508	26.6
			GW-TWP839-3529	520
			GW-TWP850-3562	6.18 B
			GW-TWP853-3571	93.9
			GW-TWP854-3574	15.3
			GW-TWP858-3586	156
			GW-TWP859-3589	6.08 J
Lithium	$\mu\text{g/L}$	1130	GW-TWP830-3502	1200
			GW-TWP839-3529	1610 N
Magnesium	$\mu\text{g/L}$	580000	GW-TWP830-3502	1150000 E
			GW-TWP831-3505	921000 E
			GW-TWP839-3529	719000

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Manganese	μg/L	722	GW102-745	1800
			GWA23A-285	904
			GWA42-254	927
			GWA43-264	817
			GWBH70-283	913
			GW-MW862-3604	870
			GW-TWP830-3502	74300
			GW-TWP831-3505	16800
			GW-TWP832-3508	4600
			GW-TWP839-3529	34700
			GW-TWP850-3562	806
			GW-TWP851-3565	78300
			GW-TWP853-3571	17200
			GW-TWP854-3574	3180
			GW-TWP855-3577	1150
			GW-TWP858-3586	24400
Mercury	μg/L	0.17	GW-TWP830-3502	0.509
			GW-TWP831-3505	0.199 B
			GW-TWP839-3529	1.01
			GW-TWP851-3565	0.56
			GW-TWP858-3586	0.302

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	$\mu\text{g/L}$	6.48	GW102-745	43
			GW103-746	10.6
			GWBH70-283	15.5
			GW-MW862-3604	15.6
			GWOW04A-279	24.8
			GWOW05A-278	11.6
			GWOW05B-3274	32.6
			GWOW06A-287	10.5
			GWOW06B-262	33.5
			GWOW06B-3291	16.3
			GWOW10B-801	11.9
			GW-TWP830-3502	1410
			GW-TWP831-3505	236
			GW-TWP832-3508	93
			GW-TWP834-3514	20.5
			GW-TWP839-3529	1540
			GW-TWP844-3544	7.46
			GW-TWP850-3562	23.9
			GW-TWP851-3565	2340
			GW-TWP853-3571	330
			GW-TWP854-3574	23
			GW-TWP855-3577	26.4
			GW-TWP856-3580	21.8
			GW-TWP858-3586	563
			GW-TWP859-3589	16.3
Potassium	$\mu\text{g/L}$	62100	GWOW01A-3273	209000 E
			GW-TWP830-3502	146000
			GW-TWP839-3529	207000
			GW-TWP851-3565	240000
			GW-TWP858-3586	75300
Selenium	$\mu\text{g/L}$	4.24	GWA23A-285	4.91
			GWOW07B-3292	4.49 B
			GW-TWP839-3529	25.3

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	$\mu\text{g/L}$	0.018	GW102-745	0.37 B
			GW103-746	0.34 B
			GWA23A-285	0.174 B
			GWA42-254	0.35 B
			GWA43-264	0.23 B
			GWA45-256	0.3 B
			GWA50-258	0.217 B
			GWA51-270	0.26 B
			GWA52-259	0.66 B
			GWA56-282	0.18 B
			GWA57-281	0.19 B
			GWBH70-283	0.201 B
			GW-MW863-3607	0.075 B
			GWOW03B-261	0.216 B
			GWOW06B-262	0.168 B
			GWOW06B-3291	0.047 B
			GWOW10A-288	0.68 B
			GWOW10B-801	0.176 B
			GWOW17B-3289	0.028 B
			GW-TWP830-3502	3.37 B
			GW-TWP831-3505	0.995 B
			GW-TWP832-3508	0.27 B
			GW-TWP839-3529	4.47 B
			GW-TWP844-3544	0.071 B
			GW-TWP853-3571	0.935 B
			GW-TWP854-3574	0.187 B
			GW-TWP855-3577	0.065 B
			GW-TWP856-3580	0.05 J
			GW-TWP858-3586	1.5 B
Thallium	$\mu\text{g/L}$	1.72	GWA52-259	2.81
			GW-MW863-3607	2.34 B
			GW-TWP830-3502	3.59 E
			GW-TWP839-3529	6.32
			GW-TWP853-3571	2.04 B
			GW-TWP858-3586	2.56 E

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	μg/L	2.8	GW102-745	58.3
			GW103-746	16.7
			GWBH70-283	17.3
			GW-TWP830-3502	1960
			GW-TWP831-3505	373
			GW-TWP832-3508	133
			GW-TWP834-3514	22 B
			GW-TWP839-3529	1970
			GW-TWP844-3544	12.6
			GW-TWP850-3562	39.7
			GW-TWP851-3565	2700
			GW-TWP853-3571	446
			GW-TWP854-3574	34.3
			GW-TWP855-3577	44.3
			GW-TWP856-3580	29.2
			GW-TWP858-3586	721
Zinc	μg/L	131	GWA57-281	543
			GW-TWP830-3502	3540
			GW-TWP831-3505	535
			GW-TWP832-3508	189
			GW-TWP839-3529	3640
			GW-TWP851-3565	4950
			GW-TWP853-3571	744
			GW-TWP858-3586	1280
Pesticides				
4,4'-DDE	μg/L	0.0146	GWBH49A-3261	0.0335 J
			GW-TWP851-3565	0.0206 J
			GW-TWP859-3589	0.0355 J
4,4'-DDT	μg/L	0.0413	GW-TWP855-3577	0.0492
Radionuclides, Dissolved				

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha, Dissolved	pCi/L	15	GWA42-3275	40.7
			GWA43-3259	34.1
			GWA45-3285	22.3
			GWA52-3260	55.7
			GWOW04B-3290	48.1
			GWOW06B-3291	21.7
			GWOW07B-3292	16.3
			GWOW09B-3262	19.1
			GWOW11B-3263	134
			GW-TWP830-3502	20.7
			GW-TWP831-3505	58.8
			GW-TWP833-3511	610
			GW-TWP844-3544	17.1
			GW-TWP852-3568	15.4
			GW-TWP856-3580	16.8
Beta, Dissolved	pCi/L	50	GWA55-3265	453
			GWOW01A-3273	125
			GWOW11B-3263	115
			GW-TWP833-3511	168
Radium-226, Dissolved	pCi/L	1.31	GW-TWP851-3565	2.75
Radium-228, Dissolved	pCi/L	1.6	GWOW07B-3292	1.87
Thorium-230, Dissolved	pCi/L	0.388	GW-MW861-3601	0.527
			GWOW09B-3262	0.61 J
			GWOW14B-3268	4.68
			GW-TWP839-3529	0.612
			GW-TWP851-3565	0.433
			GW-TWP852-3568	0.4
			GW-TWP853-3571	0.453
			GW-TWP856-3580	0.675
			GW-TWP858-3586	0.398
			GW-TWP859-3589	0.413

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium, Dissolved	$\mu\text{g/L}$	16.7	GWA42-3275	63.7
			GWA43-3259	45.9
			GWA45-3285	37.4
			GWA50-3286	18.2
			GWA52-3260	52.4
			GWBH49A-3261	42.9
			GWOW04B-3290	73.5
			GWOW06B-3291	28.2
			GWOW07B-3292	19.6
			GWOW09B-3262	25.1
			GWOW11B-3263	248
			GWOW13B-3267	29.2
			GWOW18B-3272	22
			GW-TWP830-3502	25.8
			GW-TWP831-3505	67.7
			GW-TWP833-3511	9580
			GW-TWP839-3529	17.4
			GW-TWP844-3544	21.7
			GW-TWP850-3562	22.5
			GW-TWP852-3568	21.9
			GW-TWP854-3574	19
			GW-TWP855-3577	24
			GW-TWP856-3580	27.8
Uranium-234, Dissolved	pCi/L	8.94	GWA42-3275	28.2
			GWA43-3259	17.1
			GWA45-3285	19.1
			GWA52-3260	23.6
			GWOW04B-3290	23.8
			GWOW06B-3291	12.1
			GWOW07B-3292	11.4
			GWOW09B-3262	13.5
			GWOW09B-800	13.9
			GWOW11B-3263	106
			GWOW11B-803	93
			GWOW13B-3267	10.2
			GW-TWP830-3502	11.4
			GW-TWP831-3505	35.2
			GW-TWP833-3511	319
			GW-TWP844-3544	9.27
			GW-TWP850-3562	9.47
			GW-TWP852-3568	9.31
			GW-TWP855-3577	11
			GW-TWP856-3580	11.1

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235, Dissolved	pCi/L	0.512	GWA42-3275	1.94
			GWA43-3259	1.92
			GWA45-3285	0.958
			GWA50-3286	0.684
			GWA52-3260	0.94
			GW-MW860-3598	1.37
			GWOW04B-3290	1.78
			GWOW07B-3292	1.19
			GWOW09B-3262	0.52
			GWOW11B-3263	4.95
			GWOW11B-803	4.12
			GWOW13B-3267	0.537
			GWOW18B-3272	0.605
			GW-TWP830-3502	0.658
			GW-TWP831-3505	2.02
			GW-TWP833-3511	39.1
			GW-TWP839-3529	0.55
			GW-TWP844-3544	1.38
			GW-TWP852-3568	0.518
			GW-TWP853-3571	0.561
Uranium-238, Dissolved	pCi/L	6.32	GW-TWP854-3574	0.559
			GW-TWP855-3577	0.725
			GW-TWP856-3580	1.25
			GWA42-3275	25.7
			GWA43-3259	14.2
			GWA45-3285	13.8
			GWA52-3260	18.5
			GWOW04B-3290	20.9
			GWOW06B-3291	9.07
			GWOW07B-3292	8.72
			GWOW08B-798	6.42
			GWOW09B-3262	9.32
			GWOW09B-800	10.2
			GWOW11B-3263	101
			GWOW11B-803	89.3
			GWOW12B-804	6.7
			GWOW13B-3267	8.38
			GW-TWP830-3502	9.11
			GW-TWP831-3505	30
			GW-TWP833-3511	301
			GW-TWP844-3544	7.46
			GW-TWP852-3568	7.31
			GW-TWP855-3577	7.54
			GW-TWP856-3580	8.39

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides, Total				
Alpha	pCi/L	15	GW101-744	15.5
			GWA42-254	72
			GWA42-3275	38.6
			GWA43-264	36.1
			GWA43-3259	30.9
			GWA45-256	40.1
			GWA45-3285	42.9
			GWA50-258	15.4
			GWA51-270	22.8
			GWA52-259	43.3
			GWA52-3260	52.6
			GWOW03B-261	17.7
			GWOW04B-3290	46.7
			GWOW06B-262	27.9
			GWOW06B-3291	20.7
			GWOW09B-3262	17
			GWOW09B-800	16.3
			GWOW11B-3263	128
			GWOW11B-803	127
			GWOW12B-804	19.8
			GWOW13B-3267	18
			GW-TWP830-3502	25.2
			GW-TWP831-3505	50.6
			GW-TWP833-3511	562
			GW-TWP834-3514	19.8
			GW-TWP839-3529	16.2
			GW-TWP844-3544	27.2
			GW-TWP850-3562	63.9
			GW-TWP851-3565	15.2
			GW-TWP852-3568	33.4
			GW-TWP855-3577	27.3
			GW-TWP856-3580	217 J
			GW-TWP858-3586	40
Beta	pCi/L	50	GWA45-3285	90
			GWOW01A-3273	173
			GWOW11B-3263	101
			GWOW11B-803	59.9
			GWOW13A-3295	58.5
			GW-TWP833-3511	211
			GW-TWP850-3562	115
			GW-TWP856-3580	220 J
			GW-TWP858-3586	90.8

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/L	--	GWBH49A-790	28
			GWOW07A-796	4.41
			GWOW07B-3292	2.12
			GWOW11B-803	57.1
Radium-226	pCi/L	1.76	GW101-744	2.78
			GW-TWP830-3502	10
			GW-TWP831-3505	4
			GW-TWP832-3508	2.65
			GW-TWP833-3511	1.78
			GW-TWP839-3529	2.15
			GW-TWP850-3562	2.69
			GW-TWP851-3565	2.59
			GW-TWP852-3568	5.35
			GW-TWP854-3574	2.2
			GW-TWP856-3580	11.3
			GW-TWP858-3586	4.58
Radium-228	pCi/L	1.67	GW102-745	47.8
			GW-TWP830-3502	126
			GW-TWP831-3505	8.59
			GW-TWP853-3571	19.1
			GW-TWP854-3574	12
			GW-TWP856-3580	40.1 J
			GW-TWP858-3586	42.3
Thorium-228	pCi/L	0.25	GW101-744	0.966
			GWA42-254	0.564
			GWBH70-283	0.322
			GWOW10A-288	1.24
			GW-TWP832-3508	1.1
			GW-TWP833-3511	0.915
			GW-TWP834-3514	0.785
			GW-TWP839-3529	2.45
			GW-TWP844-3544	0.36
			GW-TWP850-3562	0.881
			GW-TWP851-3565	0.975
			GW-TWP852-3568	9.06
			GW-TWP853-3571	4.43
			GW-TWP854-3574	1.1
			GW-TWP856-3580	4.59 J
			GW-TWP858-3586	1.41
			GW-TWP859-3589	0.931 J

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/L	0.877	GW-TWP830-3502	0.909
			GW-TWP832-3508	0.927
			GW-TWP833-3511	1.21
			GW-TWP834-3514	0.946
			GW-TWP839-3529	1.53
			GW-TWP850-3562	1.31
			GW-TWP851-3565	0.984
			GW-TWP852-3568	5.3
			GW-TWP853-3571	3.35
			GW-TWP856-3580	3.55 J
			GW-TWP858-3586	0.918
Thorium-232	pCi/L	0.229	GW101-744	0.4
			GW-TWP831-3505	0.254
			GW-TWP832-3508	0.893
			GW-TWP833-3511	0.601
			GW-TWP834-3514	0.613
			GW-TWP839-3529	1.15
			GW-TWP844-3544	0.244
			GW-TWP850-3562	0.407
			GW-TWP851-3565	0.698
			GW-TWP852-3568	5.6
			GW-TWP853-3571	2.45
			GW-TWP854-3574	0.559
			GW-TWP855-3577	0.492
			GW-TWP856-3580	2.98 J
			GW-TWP858-3586	0.807
			GW-TWP859-3589	0.355 J

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/L}$	15.6	GWA42-254	80.3
			GWA42-3275	56
			GWA43-264	36.6
			GWA43-3259	47.4
			GWA45-256	44.1
			GWA45-3285	42.8
			GWA50-258	17.6
			GWA51-270	25.6
			GWA52-259	46.2
			GWA52-3260	72
			GWBH49A-3261	16.3
			GW-MW862-3604	17.4
			GWOW03B-261	18.1
			GWOW04B-3290	61.1
			GWOW06B-262	37.2
			GWOW06B-3291	29.2
			GWOW07B-3292	19.1
			GWOW08B-798	15.9
			GWOW09B-3262	21.8
			GWOW09B-800	28.2
			GWOW11B-3263	250
			GWOW11B-803	172
			GWOW12B-804	17.9
			GWOW13B-3267	23.5
			GWOW18B-3272	20.5
			GW-TWP830-3502	27.6
			GW-TWP831-3505	82
			GW-TWP833-3511	662
			GW-TWP839-3529	16
			GW-TWP844-3544	24.1
			GW-TWP852-3568	20.8
			GW-TWP855-3577	22.5
			GW-TWP856-3580	29.6

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/L	8.73	GWA42-254	30.5
			GWA42-3275	25.7
			GWA43-264	14.2
			GWA43-3259	13.1
			GWA45-256	19.9
			GWA45-3285	16.4
			GWA50-3286	10.8
			GWA52-259	23.2
			GWA52-3260	21.9
			GWOW04B-3290	25.5
			GWOW06B-262	16
			GWOW06B-3291	9.38
			GWOW07B-3292	9.62
			GWOW09B-3262	13.5
			GWOW09B-800	14
			GWOW11B-3263	102
			GWOW11B-803	67.2
			GW-TWP830-3502	67
			GW-TWP831-3505	29.2
			GW-TWP833-3511	523
			GW-TWP839-3529	9.85
			GW-TWP844-3544	8.9
			GW-TWP850-3562	9.15
			GW-TWP853-3571	9.01
			GW-TWP855-3577	9.97
			GW-TWP856-3580	13 J

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/L	0.715	GWA42-254	1.23
			GWA42-3275	2.1
			GWA45-256	0.831
			GWA45-3285	0.899
			GWA52-259	0.875
			GWA52-3260	2.4
			GWOW04B-3290	1.56
			GWOW07B-3292	0.947
			GWOW11B-3263	10.5
			GWOW11B-803	2.72
			GWOW15B-3288	0.823
			GW-TWP830-3502	8.18
			GW-TWP831-3505	2.64
			GW-TWP833-3511	33.2
			GW-TWP834-3514	0.826
			GW-TWP839-3529	2.31
			GW-TWP844-3544	1.06
			GW-TWP850-3562	0.969
			GW-TWP852-3568	0.752
			GW-TWP855-3577	1.63
			GW-TWP856-3580	3.04 J
			GW-TWP858-3586	1.04

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GWA42-254	25.7
			GWA42-3275	23.8
			GWA43-264	11.5
			GWA43-3259	11.9
			GWA45-256	14.8
			GWA45-3285	11.8
			GWA50-3286	8.53
			GWA51-270	7.01
			GWA52-259	17.2
			GWA52-3260	16.5
			GW-MW862-3604	5.95
			GWOW03B-261	6.55
			GWOW04B-3290	24.5
			GWOW06B-262	13
			GWOW06B-3291	7.55
			GWOW07B-3292	7.93
			GWOW08B-798	6.01
			GWOW09B-3262	10.3
			GWOW09B-800	8.88
			GWOW11B-3263	104
			GWOW11B-803	63.4
			GWOW12B-804	6
			GWOW18B-3272	6.92
			GW-TWP830-3502	72.7
			GW-TWP831-3505	23.7
			GW-TWP832-3508	5.93
			GW-TWP833-3511	543
			GW-TWP839-3529	7.02
			GW-TWP844-3544	7.65
			GW-TWP850-3562	7.84
			GW-TWP852-3568	6.63
			GW-TWP853-3571	9.13
			GW-TWP854-3574	6.92
			GW-TWP855-3577	8.29
			GW-TWP856-3580	13.6 J
			GW-TWP858-3586	6.48
Semivolatile Organics				

* Data qualifier included with concentration value

Table 4-118
Exposure Unit 10
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
bis(2-Ethylhexyl)phthalate	$\mu\text{g/L}$	--	GWA45-3285	9.65 J
			GWA50-3286	2.87 J
			GWA51-270	9.4 J
			GW-MW862-3604	4.43 J
			GWOW01A-3273	71
			GWOW09B-3262	289
			GWOW10B-3277	2.49 J
			GWOW10B-801	14.2
			GWOW17B-3289	1.91 J
Phenol	$\mu\text{g/L}$	--	GWA42-3275	8.34 J
			GWA45-3285	4.08 J
			GWOW01A-3273	8.14 J
			GWOW02B-3264	13.4
			GWOW05B-3274	6.38 J
			GWOW09B-3262	0.3 J
			GWOW10B-3277	15.8
			GWOW10B-801	57.9
			GWOW11B-3263	0.291 J
Volatile Organics	$\mu\text{g/L}$	4.49	GWOW18A-3271	42.7
			GWOW18B-3272	11.4
			GWOW18A-3271	9.67
			GW-TWP834-3514	14.4
			GWOW01A-3273	101
			GWOW11A-3266	12.5
			GWOW10B-3277	19.1
			GWOW01A-3273	68.6
			GW-MW863-3607	4.92 J
2-Butanone	$\mu\text{g/L}$	4.49	GW-MW862-3604	7.9
			GW-BH49A-3261	6.81
			GWOW01A-3273	68.6
			GWOW10B-3277	19.1
			GWOW11A-3266	12.5
			GWOW18A-3271	9.67
			GW-TWP834-3514	14.4
			GWOW01A-3273	101
			GWOW11A-3266	12.5
Acetone	$\mu\text{g/L}$	30.5	GWOW01A-3273	101
			GWOW11A-3266	12.5
			GWOW10B-3277	19.1
			GWOW01A-3273	68.6
			GW-MW863-3607	4.92 J
			GW-MW862-3604	7.9
Methylene chloride	$\mu\text{g/L}$	--	GW-TWP830-3502	1.92 J
			GW-TWP831-3505	2.09 J
			GW-TWP832-3508	1.94 J
			GW-TWP833-3511	2.08 J
			GW-TWP856-3580	2.13 J
			GW-TWP858-3586	1.93 J

* Data qualifier included with concentration value

Table 4-119
Exposure Unit 11
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	μg/L	2.4	GW801-236	5.2 B
			GW802-237	4.2 B
			GWBH12-252	5.41 B
			GWBH59-272	5.05 B
Beryllium, Dissolved	μg/L	0.19	GWBH12-252	0.23 B
Lithium, Dissolved	μg/L	972	GWBH12-252	1670
Potassium, Dissolved	μg/L	52400	GWBH12-252	56000
Selenium, Dissolved	μg/L	10.3	GWBH12-252	25.6
Thallium, Dissolved	μg/L	0.222	GW-TWP842-3538	11.4 B
			GW-TWP845-3547	0.95 B
			GW-TWP846-3550	0.325 B
			GW-TWP847-3553	0.225 B
Metals, Total				
Aluminum	μg/L	979	GW801-236	18900 N
			GW802-237	65300 N
			GW813-756	24500 N
			GW-TWP842-3538	51000 *N
			GW-TWP845-3547	13500 *N
			GW-TWP846-3550	34200 *N
			GW-TWP847-3553	35000 *N
			GW-TWP849-3559	67700
Antimony	μg/L	2.34	GW802-237	2.9 B
			GW813-756	3.84 B
			GWBH12-252	17.3
			GWBH59-272	2.92 B
Arsenic	μg/L	30.6	GW-TWP847-3553	40.2
Barium	μg/L	46.8	GW801-236	76.3
			GW802-237	505
			GW813-756	136
			GW-TWP842-3538	284
			GW-TWP845-3547	83.9
			GW-TWP846-3550	303
			GW-TWP847-3553	221
			GW-TWP849-3559	367
Beryllium	μg/L	--	GW801-236	0.65 B
			GW802-237	2.5 B
			GW813-756	0.89 B
			GW-TWP842-3538	2.63 B
			GW-TWP845-3547	0.633 B
			GW-TWP846-3550	1.82 B
			GW-TWP847-3553	1.84 B
			GW-TWP849-3559	2.7 B

* Data qualifier included with concentration value

Table 4-119
Exposure Unit 11
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	$\mu\text{g/L}$	3.19	GW801-236	23.9
			GW802-237	88
			GW813-756	29.1
			GW-TWP842-3538	63.7
			GW-TWP845-3547	15.3
			GW-TWP846-3550	46.4
			GW-TWP847-3553	44.9
			GW-TWP849-3559	91
Cobalt	$\mu\text{g/L}$	2.8	GW801-236	11.8
			GW802-237	47.3
			GW813-756	13.4
			GW-TWP842-3538	24.2
			GW-TWP845-3547	5.81
			GW-TWP846-3550	23.5
			GW-TWP847-3553	18
			GW-TWP849-3559	53.3
Iron	$\mu\text{g/L}$	8810	GW801-236	29000 EN
			GW802-237	119000 EN
			GW813-756	33800 N
			GW-TWP842-3538	66400 N
			GW-TWP845-3547	16000 N
			GW-TWP846-3550	62100 N
			GW-TWP847-3553	48900 N
			GW-TWP849-3559	115000
Lead	$\mu\text{g/L}$	5.99	GW801-236	7.2 E
			GW802-237	28.9 E
			GW813-756	6.77 E
			GW-TWP842-3538	15.5
			GW-TWP846-3550	17.7
			GW-TWP847-3553	27.3
			GW-TWP849-3559	10.8 B
Lithium	$\mu\text{g/L}$	1130	GWBH12-252	2050
Manganese	$\mu\text{g/L}$	722	GW801-236	1010
			GW802-237	5740
			GWBH12-252	808
			GW-TWP842-3538	1270
			GW-TWP846-3550	2220
			GW-TWP847-3553	1550
			GW-TWP849-3559	4270

* Data qualifier included with concentration value

Table 4-119
Exposure Unit 11
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	μg/L	6.48	GW801-236	29.7
			GW802-237	107
			GW813-756	30.6
			GW-TWP842-3538	51.5
			GW-TWP845-3547	8.58
			GW-TWP846-3550	45
			GW-TWP847-3553	36.5
			GW-TWP849-3559	107
Selenium	μg/L	4.24	GW802-237	9.2
			GWBH12-252	15.4 B
Silver	μg/L	0.018	GW801-236	0.28 B
			GW802-237	0.4 B
			GW813-756	0.402 B
			GW-TWP842-3538	0.252 B
			GW-TWP845-3547	0.109 B
			GW-TWP846-3550	0.244 B
			GW-TWP847-3553	0.332 B
Vanadium	μg/L	2.8	GW801-236	36.6
			GW802-237	137
			GW813-756	47
			GW-TWP842-3538	102
			GW-TWP845-3547	25.7
			GW-TWP846-3550	75.3
			GW-TWP847-3553	68.1
Zinc	μg/L	131	GW802-237	251 E
			GW-TWP849-3559	223
Pesticides				
4,4'-DDE	μg/L	0.0146	GW-TWP849-3559	0.0546
4,4'-DDT	μg/L	0.0413	GW-TWP849-3559	0.0568
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	15	GW-TWP849-3559	19
Potassium-40, Dissolved	pCi/L	--	GW830-757	123
Radium-226, Dissolved	pCi/L	1.31	GW830-757	6.22
			GW-TWP849-3559	2.15
Thorium-228, Dissolved	pCi/L	0.162	GW830-757	1.8
Thorium-230, Dissolved	pCi/L	0.388	GW830-757	11.8
			GW-TWP849-3559	0.519
Thorium-232, Dissolved	pCi/L	0.23	GW830-757	0.938

* Data qualifier included with concentration value

Table 4-119
Exposure Unit 11
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium, Dissolved	µg/L	16.7	GW2A002-661	51
			GW2A003-662	21
			GW830-757	16.8
			GW-TWP846-3550	17.1
			GW-TWP847-3553	19.3
			GW-TWP849-3559	23
Uranium-234, Dissolved	pCi/L	8.94	GW2A002-661	23.6
			GW2A003-662	10.4
			GW-TWP847-3553	9.1
			GW-TWP849-3559	9.79
Uranium-235, Dissolved	pCi/L	0.512	GW2A002-661	0.901
			GW-TWP847-3553	0.874
			GW-TWP849-3559	0.721
Uranium-238, Dissolved	pCi/L	6.32	GW2A002-661	18
			GW2A003-662	8.09
			GW813-756	45.7
			GW-TWP847-3553	7.9
			GW-TWP849-3559	7.93
Radionuclides, Total				
Alpha	pCi/L	15	GW2A002-661	19
			GW2A003-662	16
			GW801-236	99.7
			GW802-237	102
			GW805-240	30.1
			GW813-756	25
			GW-TWP842-3538	38.7
			GW-TWP845-3547	17.3
			GW-TWP847-3553	16.1
			GW-TWP849-3559	56.3
Beta	pCi/L	50	GW801-236	95.4
			GW802-237	144
			GW-TWP842-3538	51.6
			GW-TWP849-3559	109
Radium-226	pCi/L	1.76	GW801-236	1.92
			GW830-757	12.3
			GW-TWP845-3547	2.17
			GW-TWP846-3550	9
			GW-TWP847-3553	1.83
Radium-228	pCi/L	1.67	GW-TWP845-3547	19.6
			GW-TWP846-3550	48.3
			GW-TWP849-3559	1.91

* Data qualifier included with concentration value

Table 4-119
Exposure Unit 11
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/L	0.25	GW801-236	1.6
			GW802-237	0.343 J
			GW813-756	0.493
			GW-TWP842-3538	3.24
			GW-TWP847-3553	4.02
			GW-TWP849-3559	0.627
Thorium-230	pCi/L	0.877	GW801-236	0.944 J
			GW-TWP842-3538	2.85
			GW-TWP847-3553	3.71
Thorium-232	pCi/L	0.229	GW801-236	1.04
			GW813-756	0.317
			GW-TWP842-3538	2.28
			GW-TWP845-3547	0.246
			GW-TWP847-3553	2.52
			GW-TWP849-3559	0.334
Total Uranium	μg/L	15.6	GW2A002-661	27.6
			GW2A003-662	19.2
			GW805-240	32.5
			GW813-756	20.6
			GW-TWP846-3550	15.9
			GW-TWP847-3553	21.9
Uranium-234	pCi/L	8.73	GW2A002-661	14
			GW2A003-662	10.2
			GW805-240	15
			GW813-756	9.2
			GW-TWP849-3559	10.2
Uranium-235	pCi/L	0.715	GW-TWP842-3538	1.92
			GW-TWP847-3553	1.13
			GW-TWP849-3559	1.44
Uranium-238	pCi/L	5.79	GW2A002-661	10.6
			GW805-240	11
			GW813-756	7.14
			GW-TWP842-3538	7.05
			GW-TWP846-3550	8.75
			GW-TWP847-3553	6.62
			GW-TWP849-3559	7.57
Semivolatile Organics				
Di-n-butylphthalate	μg/L	--	GW805-240	21.4
Volatile Organics				
Carbon disulfide	μg/L	--	GWBH12-252	0.6 J

* Data qualifier included with concentration value

Table 4-120
Exposure Unit 12
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	μg/L	2.4	GW215-188	5.7 B
			GW2A001-660	5.31 J
			GW2C001-664	2.67 B
Barium, Dissolved	μg/L	42.8	GW215A-3252	50.6
Beryllium, Dissolved	μg/L	0.19	GW215-188	0.4 B
Iron, Dissolved	μg/L	9280	GW215A-3252	10500
Manganese, Dissolved	μg/L	966	GW206-175	979
Thallium, Dissolved	μg/L	0.222	GW215-188	0.28 B
			GW2C001-664	0.432 BN
Metals, Total				
Aluminum	μg/L	979	GW206-175	125000
			GW215-188	4500
			GW215A-3252	1660
			GW2A001-660	11500 J
			GW2C001-664	1790
Arsenic	μg/L	30.6	GW206-175	30.9 E
Barium	μg/L	46.8	GW206-175	764
			GW215-188	48.5
			GW215A-3252	52.6
			GW2A001-660	67.7
Beryllium	μg/L	--	GW206-175	5.3 B
			GW215-188	0.62 B
Calcium	μg/L	620000	GW206-175	754000
Chromium	μg/L	3.19	GW206-175	177
			GW215-188	7.3
			GW2A001-660	14.2
Cobalt	μg/L	2.8	GW206-175	81.7
			GW215-188	3.7 B
			GW2A001-660	7.46
Copper	μg/L	204	GW206-175	216
Iron	μg/L	8810	GW206-175	191000
			GW2A001-660	16300
Lead	μg/L	5.99	GW206-175	49
			GW2C001-664	13.3
Manganese	μg/L	722	GW206-175	5310
			GW215A-3252	1140
			GW2A001-660	1030
Nickel	μg/L	6.48	GW206-175	193
			GW215-188	7.1
			GW2A001-660	20.6
Selenium	μg/L	4.24	GW206-175	9.5
			GW215-188	5.4 B

* Data qualifier included with concentration value

Table 4-120
Exposure Unit 12
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	μg/L	0.018	GW206-175	0.57 B
			GW215-188	0.79 B
			GW215A-3252	0.026 B
			GW2A001-660	0.126 J
			GW2C001-664	0.122 B
Vanadium	μg/L	2.8	GW206-175	251
			GW215-188	8.1
			GW2A001-660	21.8
			GW2C001-664	4.42 B
Zinc	μg/L	131	GW206-175	452
PAHs				
Fluoranthene	μg/L	--	GW215A-3252	0.0354 J
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	15	GW215A-3252	36.9
Total Uranium, Dissolved	μg/L	16.7	GW215A-3252	45.8
			GW2A001-660	44.5
Uranium-234, Dissolved	pCi/L	8.94	GW215A-3252	20.1
			GW2A001-660	19.4
			GW2C001-664	17.1
Uranium-235, Dissolved	pCi/L	0.512	GW215A-3252	2.61
			GW2A001-660	0.752
Uranium-238, Dissolved	pCi/L	6.32	GW215A-3252	15.7
			GW2A001-660	14.2
			GW2C001-664	13.9
Radionuclides, Total				
Alpha	pCi/L	15	GW205-174	30
			GW206-175	40.9
			GW215-188	140
			GW215A-3252	42.9
			GW2A001-660	36.7
Radium-226	pCi/L	1.76	GW215A-776	3.57
			GW2C001-664	2.12
Radium-228	pCi/L	1.67	GW215A-776	20.2
Thorium-228	pCi/L	0.25	GW204-173	0.879
			GW205-174	0.806 J
			GW206-175	0.518 J
			GW215A-776	2.57
			GW2A001-660	0.281
			GW2C001-664	0.296
Thorium-230	pCi/L	0.877	GW215A-776	1.34

* Data qualifier included with concentration value

Table 4-120
Exposure Unit 12
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/L	0.229	GW204-173	0.586
			GW205-174	0.419 J
			GW206-175	0.386 J
			GW215A-776	0.792
Total Uranium	μg/L	15.6	GW204-173	59.5
			GW205-174	28.6
			GW206-175	37.9
			GW215-188	145
			GW215A-3252	51
			GW215A-776	41
			GW2A001-660	40.3
Uranium-234	pCi/L	8.73	GW204-173	24.4
			GW205-174	9.19
			GW206-175	16.3
			GW215-188	48.8
			GW215A-3252	36.2
			GW215A-776	17.4
			GW2A001-660	18.2
Uranium-235	pCi/L	0.715	GW204-173	0.744
			GW215-188	2.12
			GW215A-3252	4.15
			GW215A-776	0.79
			GW2A001-660	0.773
Uranium-238	pCi/L	5.79	GW204-173	17.7
			GW205-174	6.97
			GW206-175	11.6
			GW215-188	41.2
			GW215A-3252	28.6
			GW215A-776	14.9
			GW2A001-660	12.8
Semivolatile Organics				
Di-n-butylphthalate	μg/L	--	GW215-188	50.7
Pentachlorophenol	μg/L	--	GW215-188	7.4 J
Phenol	μg/L	--	GW215A-3252	7.15 J

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Barium, Dissolved	μg/L	42.8	GW207-176	51.1
Beryllium, Dissolved	μg/L	0.19	GW213A-775	0.25 J
			GW-MW229-3619	0.271 B
Boron, Dissolved	μg/L	4750	GW203A-3251	7610
			GW213-186	15200
			GW213A-3281	17300
			GW213A-775	8190
Cobalt, Dissolved	μg/L	3	GW213A-775	3.14 J
			GW-MW228-3616	7.62
Manganese, Dissolved	μg/L	966	GW213A-775	1190
Nickel, Dissolved	μg/L	6.15	GW213A-775	20.3
			GW-MW228-3616	8.6
Thallium, Dissolved	μg/L	0.222	GW208-178	0.56 B
			GW-MW229-3619	0.258 B
Metals, Total				
Aluminum	μg/L	979	GW207-176	42200
			GW208-178	48400
			GW209-182	232000
			GW213-186	16100
			GW217-190	6560
			GW-MW228-3616	1540
Arsenic	μg/L	30.6	GW209-182	96.9
Barium	μg/L	46.8	GW207-176	108
			GW208-178	335
			GW209-182	1320
			GW213-186	126
			GW217-190	68.1
Beryllium	μg/L	--	GW208-178	1.8 B
			GW209-182	9.3
			GW213A-775	0.23 J
			GW-MW229-3619	0.263 B
Boron	μg/L	3820	GW203A-3251	8080
			GW213-186	14600
			GW213A-3281	14800
			GW213A-775	7030
			GW-MW228-3616	20700
Calcium	μg/L	620000	GW209-182	2080000
Chromium	μg/L	3.19	GW207-176	12.4
			GW208-178	60.1
			GW209-182	335
			GW213-186	22.6 B
			GW217-190	10 B

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	2.8	GW207-176	3.9 B
			GW208-178	31
			GW209-182	203
			GW213-186	8.8 B
			GW213A-775	3.37 J
			GW-MW228-3616	7.2
Copper	$\mu\text{g/L}$	204	GW209-182	699
Iron	$\mu\text{g/L}$	8810	GW207-176	12200
			GW208-178	71400
			GW209-182	419000
			GW213-186	20400
			GW213A-775	21500
			GW217-190	9240
Lead	$\mu\text{g/L}$	5.99	GW208-178	18.4
			GW209-182	109
Manganese	$\mu\text{g/L}$	722	GW203A-3251	768
			GW208-178	3110
			GW209-182	26200
			GW213-186	937
			GW213A-3281	736
			GW213A-775	1790
Nickel	$\mu\text{g/L}$	6.48	GW207-176	15.5
			GW208-178	73.7
			GW209-182	455
			GW213-186	30.9 B
			GW213A-775	27
			GW-MW228-3616	6.74
Selenium	$\mu\text{g/L}$	4.24	GW208-178	15.2 B
			GW209-182	22.4
			GW213-186	4.4 B
Silver	$\mu\text{g/L}$	0.018	GW208-178	0.93 B
			GW209-182	1.4 B
			GW213-186	0.3 B
			GW213A-775	0.237 J
Vanadium	$\mu\text{g/L}$	2.8	GW207-176	19.4
			GW208-178	90.2
			GW209-182	441
			GW213-186	34.1 B
			GW213A-775	2.86 J
			GW217-190	14.8 B
			GW-MW228-3616	2.84 B

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	μg/L	131	GW201A-3250	149
			GW208-178	162
			GW209-182	1080
			GW-MW228-3616	174
Nitroaromatics				
Tetryl	μg/L	--	GW203A-3251	0.032 J
PAHs				
Fluoranthene	μg/L	--	GW-MW228-3616	0.0155 JP
Phenanthrene	μg/L	--	GW-MW228-3616	0.669 J
Pesticides				
4,4'-DDD	μg/L	--	GW201A-3250	0.0292 J
4,4'-DDE	μg/L	0.0146	GW201A-3250	0.0158 J
			GW-MW228-3616	0.0356 J
Dieldrin	μg/L	--	GW201A-3250	0.00891 J
Endosulfan II	μg/L	--	GW201A-3250	0.0155 J
Endrin	μg/L	--	GW201A-3250	0.0114 J
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	15	GW203A-3251	44.7
			GW213A-3281	27.1
Cesium-137, Dissolved	pCi/L	--	GW2B006-663	3.59
Thorium-228, Dissolved	pCi/L	0.162	GW2B006-663	0.359
Thorium-230, Dissolved	pCi/L	0.388	GW-MW229-3619	0.648
Total Uranium, Dissolved	μg/L	16.7	GW201A-3250	18.3
			GW203A-3251	49.2
			GW213A-3281	32
			GW2B006-663	55.4
Uranium-234, Dissolved	pCi/L	8.94	GW201A-3250	9.31
			GW201A-773	11.1
			GW203A-3251	23.4
			GW203A-774	16.3
			GW213A-3281	16.6
			GW213A-775	13.3
			GW2B006-663	19.5
Uranium-235, Dissolved	pCi/L	0.512	GW203A-3251	2.55
			GW203A-774	0.633
			GW213A-3281	0.953
			GW213A-775	0.549
			GW2B006-663	1.07

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238, Dissolved	pCi/L	6.32	GW201A-3250	6.78
			GW201A-773	8.64
			GW203A-3251	17.2
			GW203A-774	13.3
			GW213A-3281	12.8
			GW213A-775	10.3
			GW2B006-663	15.8
Radionuclides, Total				
Alpha	pCi/L	15	GW201-167	46.4
			GW201A-773	15.4
			GW203-172	59.7
			GW203A-3251	39.4
			GW203A-774	22.9
			GW208-178	39.7
			GW209-182	38.9
			GW210-183	15.9
			GW211-184	18.2
			GW212-185	46.4
			GW213-186	56.7
			GW213A-3281	43.5 J
			GW213A-775	16.1
			GW214-187	34.6
			GW216-189	69.8
GW217-190	39.1			
GW2B006-663	34.6			
Cesium-137	pCi/L	--	GW201A-773	27.4
Radium-226	pCi/L	1.76	GW201-167	2.86
			GW208-178	1.98
			GW212-185	7.98
			GW213-186	2.19
Thorium-228	pCi/L	0.25	GW201-167	0.451 J
			GW207-176	1.33
			GW210-183	0.382 J
			GW211-184	0.461 J
			GW212-185	0.624 J
			GW213-186	0.575 J
			GW214-187	0.751 J
			GW216-189	0.862 J
			GW217-190	0.623 J
			GW-MW228-3616	0.585
Thorium-230	pCi/L	0.877	GW-MW229-3619	1.31

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/L	0.229	GW207-176	0.767
			GW211-184	0.245 J
			GW213-186	0.239 J
			GW214-187	0.626 J
			GW216-189	0.423 J
Total Uranium	µg/L	15.6	GW201-167	31.9
			GW201A-3250	17.3
			GW201A-773	25.9
			GW203-172	46.3
			GW203A-3251	41.4
			GW203A-774	40.2
			GW208-178	27.1
			GW209-182	30.3
			GW211-184	31.3
			GW212-185	18.3
			GW213-186	38.8
			GW213A-3281	40.1
			GW213A-775	37.2
			GW217-190	33.2
			GW2B006-663	41
Uranium-234	pCi/L	8.73	GW201-167	10.6
			GW201A-3250	9.31
			GW201A-773	10.4
			GW203-172	22.7
			GW203A-3251	25.6
			GW203A-774	15.5
			GW208-178	16.4
			GW209-182	14
			GW212-185	8.82
			GW213-186	14.3
			GW213A-3281	16.2 J
			GW213A-775	16.3
			GW217-190	14.9
			GW2B006-663	21.2
Uranium-235	pCi/L	0.715	GW203-172	0.763 J
			GW203A-3251	1.16
			GW209-182	0.889
			GW213A-3281	1.72 J
			GW217-190	0.943 J
			GW2B006-663	0.838

* Data qualifier included with concentration value

Table 4-121
Exposure Unit 13
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GW201-167	8.52
			GW201A-3250	6.48
			GW201A-773	9.05
			GW203-172	18.9
			GW203A-3251	19.2
			GW203A-774	13.2
			GW208-178	11.5
			GW209-182	10.4
			GW212-185	6.17
			GW213-186	10.9
			GW213A-3281	13.3 J
			GW213A-775	12.8
			GW217-190	11.8
			GW2B006-663	16.3
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW213A-3281	41.4
			GW-MW228-3616	3.28 J
			GW-MW229-3619	3.14 J
Phenol	μg/L	--	GW203A-3251	12
Volatile Organics				
1,2-Dichloroethane	μg/L	--	GW201-167	1.1
			GW213-186	0.99 J
2-Butanone	μg/L	4.49	GW203A-3251	64
			GW-MW228-3616	13.6
Chloromethane	μg/L	--	GW201-167	1.9
			GW203-172	1.3
			GW213-186	1.6
			GW214-187	1.3
Methylene chloride	μg/L	--	GW201-167	27
			GW203-172	18
			GW213-186	25.8
			GW214-187	20.5
Tetrachloroethene	μg/L	--	GW210-183	0.52 J
			GW213A-775	0.46 J

* Data qualifier included with concentration value

Table 4-122
Exposure Unit 14
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Antimony, Dissolved	μg/L	2.4	GW804-239	2.7 B
Nickel, Dissolved	μg/L	6.15	GW816-789	10.7
Selenium, Dissolved	μg/L	10.3	GW804-239	10.4 B
Vanadium, Dissolved	μg/L	2.6	GW816-3282	3 B
Metals, Total				
Aluminum	μg/L	979	GW804-239	5940
Antimony	μg/L	2.34	GWBH48-265	3.4 B
Barium	μg/L	46.8	GW804-239	52.1
Beryllium	μg/L	--	GW804-239	0.62 B
Chromium	μg/L	3.19	GW804-239	7.4
Cobalt	μg/L	2.8	GW804-239	4.8 B
Copper	μg/L	204	GW816-789	625
Manganese	μg/L	722	GWBH48-265	800
Nickel	μg/L	6.48	GW804-239	11.2
			GW816-789	12.1
Selenium	μg/L	4.24	GW804-239	7.1 B
			GWBH48-265	13.3 B
Silver	μg/L	0.018	GW804-239	0.8 B
			GW816-789	0.39 B
			GWBH48-265	0.25 B
Vanadium	μg/L	2.8	GW804-239	11.1
PAHs				
Benzo(a)anthracene	μg/L	--	GW816-3282	0.0613
Benzo(a)pyrene	μg/L	--	GW816-3282	0.0503
Benzo(g,h,i)perylene	μg/L	--	GW816-3282	0.0549
Benzo(k)fluoranthene	μg/L	0.0334	GW816-3282	0.0708
Dibenzo(a,h)anthracene	μg/L	--	GW816-3282	0.0925
Indeno(1,2,3-cd)pyrene	μg/L	--	GW816-3282	0.0548
Radionuclides, Dissolved				
Thorium-228, Dissolved	pCi/L	0.162	GW817-759	0.422
Total Uranium, Dissolved	μg/L	16.7	GW815-758	24.4
			GW818-760	46
Uranium-234, Dissolved	pCi/L	8.94	GW815-758	10.3
			GW818-760	19.5
Uranium-235, Dissolved	pCi/L	0.512	GW818-760	1
Uranium-238, Dissolved	pCi/L	6.32	GW815-758	7.74
			GW818-760	14.4
Radionuclides, Total				

* Data qualifier included with concentration value

Table 4-122
Exposure Unit 14
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/L	15	GW804-239	17.5
			GW815-758	19.4
			GW817-759	19.5
			GW818-760	20
Cesium-137	pCi/L	--	GW818-760	3.18
Radium-226	pCi/L	1.76	GW815-758	2.33
Thorium-228	pCi/L	0.25	GW803-238	0.907 J
			GW804-239	2.02
			GW815-758	0.349
Thorium-230	pCi/L	0.877	GW804-239	1.52
Thorium-232	pCi/L	0.229	GW803-238	0.43 J
			GW804-239	1.3
Total Uranium	μg/L	15.6	GW803-238	16.4
			GW804-239	32.1
			GW815-758	23.8
			GW818-760	34.1
Uranium-234	pCi/L	8.73	GW804-239	11.7
			GW815-758	9.93
			GW818-760	16.9
Uranium-238	pCi/L	5.79	GW803-238	5.99
			GW804-239	7.87
			GW815-758	8.19
			GW818-760	11.8
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	GW816-3282	3.28 J
Di-n-butylphthalate	μg/L	--	GW804-239	22.5
Phenol	μg/L	--	GW816-789	6.1 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	616	GW302A-3253	799
			GW407-210	744 N
			GW415A-781	634
			GWBH57-3278	2960 BN*
			GW-TWP832-3508	716 B
			GW-TWP859-3589	739 B
Antimony, Dissolved	$\mu\text{g/L}$	2.4	C5-AC-GW-BP3	2.5 J
			C5-SO-GW-D800	2.9 J
			C5-VS-GW-D300	6.4
			GW215-188	5.7 B
			GW2A001-660	5.31 J
			GW2C001-664	2.67 B
			GW303-193	2.5 B
			GW307-197	4.7 B
			GW402-205	3 B
			GW404-207	5.1 B
			GW407-210	4.7 B
			GW423-749	3.07 B
			GW801-236	5.2 B
			GW802-237	4.2 B
			GW804-239	2.7 B
			GW808-243	3.2 B
			GW810-245	6.2 B
			GWA50-258	4.49 B
			GWA56-282	4.9 B
			GWBH12-252	5.41 B
			GWBH50-267	3.21 B
			GWBH51-269	7.62 B
			GWBH59-272	5.05 B
			GWBH62-275	11.7
			GWOW03A-286	3.12 B
			GWOW17A-289	2.94 B
			GWOW20D-257	4.9 B
			GWOW20S-263	3 B
			WO19D-260	2.6 B
Arsenic, Dissolved	$\mu\text{g/L}$	25.7	GW-TWP835-3517	47 BN
			GW-TWP837-3523	47.6 BN
			GW-TWP856-3580	57.4 B
			GW-TWP858-3586	26.2 B
			GW-TWP859-3589	66.8 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Barium, Dissolved	$\mu\text{g/L}$	42.8	C5-SO-GW-D800	45.3 J
			GW207-176	51.1
			GW215A-3252	50.6
			GW303-193	64.7
			GW308-198	71.1 N*
			GW309-199	46.2 N*
			GW310-200	73.2
			GW409-212	82
			GW417-223	62.4
			GW602-233	66.7 N*
			GW604-235	54.5
			GW809-244	51.7 N*
			GW810-245	96.2
			GWA55-3265	44.3
			GWA57-281	46.2
			GWBH05-251	72.1
			GWBH15-3276	44.7
			GWBH50-3283	258
			GWOW01A-3273	52.5
			GW-TWP835-3517	58.8
			GW-TWP851-3565	147
Beryllium, Dissolved	$\mu\text{g/L}$	0.19	GW213A-775	0.25 J
			GW215-188	0.4 B
			GW307-197	0.24 B
			GW809-244	0.25 B
			GW810-245	0.38 B
			GWA56-282	0.28 B
			GWBH12-252	0.23 B
			GWBH51-269	11.2
			GWBH57-271	0.44 B
			GWBH62-275	0.45 B
			GW-MW229-3619	0.271 B
			GWOW03A-286	0.21 B
			GWOW06A-287	0.2 B
			GWOW10B-3277	13.3
			GWOW17A-289	0.21 B
			GWOW20D-257	0.67 B
			GW-TWP852-3568	0.254 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron, Dissolved	$\mu\text{g/L}$	4750	GW203A-3251	7610
			GW213-186	15200
			GW213A-3281	17300
			GW213A-775	8190
			GW415-221	14400
			GW415A-3280	15100
			GW415A-781	26600
			GW4D003-668	8010
Cadmium, Dissolved	$\mu\text{g/L}$	2.32	GWBH51-269	11.6
			GWBH57-271	3.77 B
Calcium, Dissolved	$\mu\text{g/L}$	603000	GWBH57-3278	1270000
Chromium, Dissolved	$\mu\text{g/L}$	16	GWBH15-253	38.9
			GWBH57-271	22
Cobalt, Dissolved	$\mu\text{g/L}$	3	GW213A-775	3.14 J
			GW415A-781	6.12
			GW505-783	4.29 B
			GWA43-264	3.3 B
			GWBH15-253	33.4
			GWBH51-269	11.7
			GWBH57-271	19.4
			GW-MW228-3616	7.62
			GW-MW313-3592	9.29
			GW-MW424-3610	6.64
			GW-MW862-3604	7.19
			GW-TWP830-3502	3.03 B
			GW-TWP831-3505	3.45 B
Copper, Dissolved	$\mu\text{g/L}$	90.9	GWOW06B-3291	108
			GWOW10B-3277	4770
			GWOW11B-3263	107
Iron, Dissolved	$\mu\text{g/L}$	9280	C5-AC-GW-BP3	18500
			GW213A-775	9790
			GW215A-3252	10500
Lead, Dissolved	$\mu\text{g/L}$	0.935	C5-AC-GW-BP3	1.5 J
			GWOW14B-3268	2.41
Lithium, Dissolved	$\mu\text{g/L}$	972	GWBH12-252	1670
			GWBH15-253	1750 NE
			GWBH57-271	7610
			GWBH57-3278	3560
Magnesium, Dissolved	$\mu\text{g/L}$	618000	C5-VS-GW-D300	1300000
			GW302-192	670000
			GW302A-3253	1180000
			GW808-243	947000
			GW-TWP831-3505	822000

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Manganese, Dissolved	$\mu\text{g/L}$	966	C5-AC-GW-BP3	1430
			GW206-175	979
			GW213A-775	1190
			GW302-192	1230
			GW409-212	1310
			GW415-221	1780
			GW415A-3280	3350
			GW415A-781	2110
			GWBH57-271	3050
			GWBH57-3278	1860
Nickel, Dissolved	$\mu\text{g/L}$	6.15	GW213A-775	20.3
			GW302-192	19.5 B
			GW302A-3253	7.65
			GW415-221	195
			GW415A-781	25.6
			GW505-783	9.89
			GW816-789	10.7
			GWA45-256	74
			GWBH51-269	10
			GWBH57-271	72.5 B
			GW-MW228-3616	8.6
			GW-MW313-3592	9.89
			GW-MW424-3610	9.38
			GWOW04A-279	23.3
			GWOW05B-3274	30.6
			GWOW06A-287	12.6
			GWOW06B-262	29.4
			GWOW06B-3291	16.8
			GWOW17A-289	7.31
			GW-TWP851-3565	20.6
Potassium, Dissolved	$\mu\text{g/L}$	52400	GWA45-256	84300
			GWBH12-252	56000
			GWBH57-3278	94300
			GWOW01A-3273	143000 E
Selenium, Dissolved	$\mu\text{g/L}$	10.3	GW307-197	13 B
			GW420-226	15.1
			GW804-239	10.4 B
			GWA23A-285	13.8
			GWBH12-252	25.6
			GWBH15-253	10.7 B
			GWBH57-271	44.6
			GW-TWP832-3508	41.7 BN*
			GW-TWP852-3568	62.7 BN*
			GW-TWP858-3586	41.2 BN*

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Sodium, Dissolved	μg/L	1540000	GWBH15-253	1870000 E
			GWBH57-3278	4160000
Thallium, Dissolved	μg/L	0.222	GW208-178	0.56 B
			GW215-188	0.28 B
			GW2C001-664	0.432 BN
			GW409-212	2.4 B
			GW420-226	0.27 B
			GW423-749	0.386 BN
			GW808-243	0.79
			GW809-244	0.96
			GW810-245	0.38 B
			GWA45-256	0.33 B
			GWA50-258	0.646
			GWA52-259	2.44 B
			GWA52-3260	0.328 B
			GWBH50-267	0.435 B
			GW-MW229-3619	0.258 B
			GW-MW861-3601	11.9 B
			GWOW10A-288	0.4 B
			GWOW15B-3288	0.333 B
			GW-TWP837-3523	0.225 B
			GW-TWP842-3538	11.4 B
			GW-TWP844-3544	1.72 B
			GW-TWP845-3547	0.95 B
			GW-TWP846-3550	0.325 B
			GW-TWP847-3553	0.225 B
			GW-TWP851-3565	0.225 B
Vanadium, Dissolved	μg/L	2.6	GW415A-3280	19.2
			GW415A-781	5.19
			GW816-3282	3 B
			GWBH15-253	34.5
			GWBH51-269	10.9
			GWBH57-271	20.2
			GW-TWP858-3586	6.23
Zinc, Dissolved	μg/L	108	GWA57-281	520
			GWOW06B-3291	134
			GWOW10B-3277	643
Metals, Total				

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	$\mu\text{g/L}$	979	C5-AC-GW-BP3	3740
			C5-SO-GW-D800	8810
			C5-VS-GW-D300	987 *
			GW102-745	30900 N
			GW103-746	8350 N
			GW206-175	125000
			GW207-176	42200
			GW208-178	48400
			GW209-182	232000
			GW213-186	16100
			GW215-188	4500
			GW215A-3252	1660
			GW217-190	6560
			GW2A001-660	11500 J
			GW2C001-664	1790
			GW302-192	58000
			GW303-193	25000
			GW304-194	21900
			GW306-196	8460
			GW307-197	18100
			GW308-198	38000
			GW309-199	80400
			GW310-200	60400
			GW311-201	61700
			GW401-204	2740
			GW402-205	14100 N
			GW403-206	35100 N
			GW404-207	10700 N
			GW405-208	47700
			GW406-209	48500
			GW407-210	5880 N
			GW409-212	3660
			GW410-213	7220
			GW411-214	410000
			GW415-221	3990
			GW417-223	2680
			GW420-226	20100
			GW423-749	39500
			GW4D003-666	13400 N
			GW4D003-668	14000 N
			GW501-229	2480 N
			GW502-230	19100
			GW503-231	1190
			GW504-752	1370 N

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aluminum	$\mu\text{g/L}$	979	GW602-233	7690
			GW603-234	290000
			GW604-235	5220 N
			GW605-754	35400
			GW607-755	10100
			GW801-236	18900 N
			GW802-237	65300 N
			GW804-239	5940
			GW807-242	11400 N
			GW808-243	3960
			GW809-244	12700
			GW810-245	31000
			GW813-756	24500 N
			GW822-765	1490
			GW825-768	2330 N
			GWBH70-283	9300
			GW-MW228-3616	1540
			GWOW05A-278	1210
			GW-TWP830-3502	816000
			GW-TWP831-3505	143000
			GW-TWP832-3508	63600
			GW-TWP833-3511	2850
			GW-TWP834-3514	11100
			GW-TWP836-3520	11300
			GW-TWP837-3523	31200
			GW-TWP838-3526	14300
			GW-TWP839-3529	1000000
			GW-TWP842-3538	51000 *N
			GW-TWP844-3544	6300 *N
			GW-TWP845-3547	13500 *N
			GW-TWP846-3550	34200 *N
			GW-TWP847-3553	35000 *N
			GW-TWP849-3559	67700
			GW-TWP850-3562	17300
			GW-TWP851-3565	1330000
			GW-TWP853-3571	199000
			GW-TWP854-3574	15200
			GW-TWP855-3577	21100
			GW-TWP856-3580	18200
			GW-TWP858-3586	317000
			GW-TWP859-3589	13800

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Antimony	$\mu\text{g/L}$	2.34	C5-AC-GW-BP3	2.8 J
			C5-SO-GW-D800	3.6 J
			C5-VS-GW-D300	6
			GW103-746	5.31 B
			GW402-205	2.7 B
			GW404-207	5.7 B
			GW802-237	2.9 B
			GW813-756	3.84 B
			GWA23A-285	4.57 B
			GWA42-254	3.8 B
			GWA43-264	5.8 B
			GWA45-256	4.7 B
			GWA50-258	10.3
			GWA51-270	4.4 B
			GWA54-280	5.28 B
			GWA57-281	3.6 B
			GWBH05-251	3.7 B
			GWBH12-252	17.3
			GWBH15-253	3.9 B
			GWBH48-265	3.4 B
			GWBH49-266	3.38 B
			GWBH50-267	17.7
			GWBH51-269	3.68 B
			GWBH57-271	4.16 B
			GWBH59-272	2.92 B
			GWBH60-273	3.4 B
			GWBH61-274	4.1 B
			GWBH62-275	5.6 B
			GWBH70-283	3.79 B
			GWOW03A-286	3.09 B
			GWOW03B-261	7.27 B
			GWOW04A-279	12.2
			GWOW05A-278	23.1
			GWOW06A-287	28.2
			GWOW06B-262	6.54 B
			GWOW10A-288	4.22 B
			GWOW17A-289	2.76 B
			GWOW20D-257	3.5 B
			GWOW20S-263	2.9 B
			WO19D-260	3.5 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Arsenic	$\mu\text{g/L}$	30.6	GW206-175	30.9 E
			GW209-182	96.9
			GW302-192	35.3 E
			GW405-208	38.8 B
			GW411-214	40.1 E
			GW603-234	152
			GW-TWP830-3502	594
			GW-TWP831-3505	80.3
			GW-TWP835-3517	65.3 B
			GW-TWP837-3523	563
			GW-TWP839-3529	441 N
			GW-TWP847-3553	40.2
			GW-TWP853-3571	80.1
			GW-TWP858-3586	118

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Barium	$\mu\text{g/L}$	46.8	C5-SO-GW-D800	108 J
			GW102-745	197
			GW103-746	60.5
			GW206-175	764
			GW207-176	108
			GW208-178	335
			GW209-182	1320
			GW213-186	126
			GW215-188	48.5
			GW215A-3252	52.6
			GW217-190	68.1
			GW2A001-660	67.7
			GW302-192	314
			GW303-193	240
			GW304-194	169
			GW306-196	77.3
			GW307-197	161
			GW308-198	234 N*
			GW309-199	692 N*
			GW310-200	675
			GW311-201	615 N*
			GW401-204	52.3
			GW402-205	67.2
			GW403-206	176
			GW404-207	57.4
			GW405-208	419 N*
			GW406-209	293
			GW407-210	49.5
			GW409-212	118
			GW410-213	70
			GW411-214	3100
			GW417-223	82.8
			GW420-226	212 N*
			GW423-749	420
			GW4D003-666	64.3
			GW4D003-668	66.1
			GW502-230	103
			GW602-233	120 N*
			GW603-234	1930 N*
			GW604-235	88.9
			GW605-754	237
			GW607-755	76.3
			GW801-236	76.3
			GW802-237	505

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Barium	$\mu\text{g/L}$	46.8	GW804-239	52.1
			GW807-242	61.3
			GW809-244	117 N*
			GW810-245	452
			GW813-756	136
			GWA55-3265	62.4
			GWBH05-251	74.5
			GWBH50-3283	269
			GWBH70-283	81.9
			GWOW01A-3273	62
			GW-TWP830-3502	2500
			GW-TWP831-3505	1140
			GW-TWP832-3508	466
			GW-TWP833-3511	49.3
			GW-TWP834-3514	60.9
			GW-TWP835-3517	47
			GW-TWP836-3520	67
			GW-TWP837-3523	137
			GW-TWP838-3526	97.7
			GW-TWP839-3529	6680
			GW-TWP842-3538	284
			GW-TWP844-3544	51
			GW-TWP845-3547	83.9
			GW-TWP846-3550	303
			GW-TWP847-3553	221
			GW-TWP849-3559	367
			GW-TWP850-3562	114
			GW-TWP851-3565	1850
			GW-TWP853-3571	1000
			GW-TWP854-3574	105
			GW-TWP855-3577	176
			GW-TWP856-3580	86.2
			GW-TWP858-3586	1640
			GW-TWP859-3589	73.1

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	$\mu\text{g/L}$	--	GW102-745	1.47 B
			GW206-175	5.3 B
			GW208-178	1.8 B
			GW209-182	9.3
			GW213A-775	0.23 J
			GW215-188	0.62 B
			GW302-192	2.2 B
			GW303-193	1.3 B
			GW304-194	1.4 B
			GW306-196	0.67 B
			GW307-197	1.2 B
			GW308-198	1.5 B
			GW309-199	3.3 B
			GW310-200	3.3 B
			GW311-201	2.6 B
			GW402-205	0.47 B
			GW403-206	1.5 B
			GW404-207	0.37 B
			GW405-208	1.8 B
			GW406-209	1.8 B
			GW407-210	0.19 B
			GW411-214	20.4 B
			GW415-221	0.18 B
			GW417-223	0.34 B
			GW420-226	0.76 B
			GW423-749	1.68 B
			GW4D003-666	0.473 B
			GW4D003-668	0.513 B
			GW502-230	0.82 B
			GW602-233	0.24 B
			GW603-234	13.3
			GW604-235	0.19 B
			GW605-754	1.52 B
			GW801-236	0.65 B
			GW802-237	2.5 B
			GW804-239	0.62 B
			GW807-242	0.56 B
			GW809-244	0.51 B
			GW810-245	2.1 B
			GW813-756	0.89 B
			GWA43-264	0.23 B
			GWBH05-251	0.19 B
			GWBH57-3278	1.32 B
			GWBH70-283	0.46 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beryllium	$\mu\text{g/L}$	--	GW-MW229-3619	0.263 B
			GW-MW863-3607	0.301 B
			GW-TWP830-3502	33.3
			GW-TWP831-3505	6.45
			GW-TWP832-3508	2.87 B
			GW-TWP833-3511	0.273 B
			GW-TWP834-3514	0.58 B
			GW-TWP836-3520	0.577 B
			GW-TWP837-3523	1.22 B
			GW-TWP838-3526	0.606 B
			GW-TWP839-3529	51.5 B
			GW-TWP842-3538	2.63 B
			GW-TWP844-3544	0.189 B
			GW-TWP845-3547	0.633 B
			GW-TWP846-3550	1.82 B
			GW-TWP847-3553	1.84 B
			GW-TWP849-3559	2.7 B
			GW-TWP850-3562	0.905 B
			GW-TWP851-3565	54.1
			GW-TWP852-3568	0.231 B
Boron	$\mu\text{g/L}$	3820	GW-TWP853-3571	9.62
			GW-TWP854-3574	0.904 B
			GW-TWP855-3577	0.995 B
			GW-TWP858-3586	15.1
			GW203A-3251	8080
			GW213-186	14600
			GW213A-3281	14800
			GW213A-775	7030
Cadmium	$\mu\text{g/L}$	2.51	GW415-221	14800
			GW415A-3280	28700
			GW415A-781	21100
			GW4D003-666	8210
			GW4D003-668	8340
			GW-MW228-3616	20700
			GW401-204	2.8 B
Cadmium	$\mu\text{g/L}$	2.51	GW-TWP830-3502	13.5 B
			GW-TWP853-3571	2.67 B
			GW-TWP858-3586	3.53 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Calcium	$\mu\text{g/L}$	620000	GW206-175	754000
			GW209-182	2080000
			GW302-192	690000
			GW405-208	627000
			GW411-214	2350000
			GW603-234	1310000
			GWA23A-285	651000
			GWBH57-271	2150000
			GWBH57-3278	1030000
			GW-TWP830-3502	3850000
			GW-TWP831-3505	1170000
			GW-TWP837-3523	4360000
			GW-TWP839-3529	2050000
			GW-TWP853-3571	911000
			GW-TWP858-3586	1830000

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	$\mu\text{g/L}$	3.19	C5-AC-GW-BP3	6.9 J
			C5-SO-GW-D800	9 J
			GW102-745	38
			GW103-746	9.97
			GW206-175	177
			GW207-176	12.4
			GW208-178	60.1
			GW209-182	335
			GW213-186	22.6 B
			GW215-188	7.3
			GW217-190	10 B
			GW2A001-660	14.2
			GW302-192	81.2
			GW302A-3253	15.4
			GW303-193	31.2
			GW304-194	29.1
			GW306-196	10.4
			GW307-197	22.9
			GW308-198	46.6
			GW309-199	106
			GW310-200	80.4
			GW311-201	74.6
			GW402-205	15.9
			GW403-206	42.2
			GW404-207	12.2
			GW405-208	61.9
			GW406-209	58.3
			GW407-210	7.5
			GW409-212	3.6 B
			GW410-213	7.7
			GW411-214	620
			GW415-221	4.5 B
			GW417-223	3.8 B
			GW420-226	23
			GW423-749	50.6
			GW4D003-666	16.9
			GW4D003-668	17.3
			GW502-230	21.9
			GW602-233	9.5
			GW603-234	427
			GW604-235	6
			GW605-754	48.5
			GW607-755	13.2
			GW801-236	23.9

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Chromium	$\mu\text{g/L}$	3.19	GW802-237	88
			GW804-239	7.4
			GW807-242	13
			GW808-243	5.1
			GW809-244	15.9
			GW810-245	44.2
			GW813-756	29.1
			GW825-768	3.38 B
			GWBH70-283	13.6
			GWOW05A-278	5.45
			GWOW05B-3274	3.82 B
			GWOW06B-262	5.31
			GWOW10B-801	5.03
			GWOW17B-3289	4.07 B
			GWOW20S-263	9.6
			GW-TWP830-3502	1270
			GW-TWP831-3505	228
			GW-TWP832-3508	85.3
			GW-TWP833-3511	5.74
			GW-TWP834-3514	13.3
			GW-TWP836-3520	12.7
			GW-TWP837-3523	46.4
			GW-TWP838-3526	17
			GW-TWP839-3529	1530
			GW-TWP842-3538	63.7
			GW-TWP844-3544	8.1
			GW-TWP845-3547	15.3
			GW-TWP846-3550	46.4
			GW-TWP847-3553	44.9
			GW-TWP849-3559	91
			GW-TWP850-3562	23
			GW-TWP851-3565	2090
			GW-TWP853-3571	311
			GW-TWP854-3574	19.7
			GW-TWP855-3577	26.6
			GW-TWP856-3580	22
			GW-TWP858-3586	514
			GW-TWP859-3589	15.5

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	2.8	GW102-745	21.4
			GW103-746	4.37 B
			GW206-175	81.7
			GW207-176	3.9 B
			GW208-178	31
			GW209-182	203
			GW213-186	8.8 B
			GW213A-775	3.37 J
			GW215-188	3.7 B
			GW2A001-660	7.46
			GW302-192	40.2 B
			GW303-193	10.4
			GW304-194	13.3
			GW306-196	4.4 B
			GW307-197	12.5
			GW308-198	21.9
			GW309-199	47.4
			GW310-200	33
			GW311-201	38
			GW402-205	5.3
			GW403-206	16.5
			GW404-207	4.4 B
			GW405-208	32.9
			GW406-209	26.1
			GW407-210	2.9 B
			GW411-214	341
			GW415A-781	5.86
			GW420-226	9.4
			GW423-749	29.8
			GW4D003-666	9.31
			GW4D003-668	9.65
			GW502-230	9.3
			GW602-233	3.5 B
			GW603-234	251
			GW605-754	29.4
			GW607-755	6.23
			GW801-236	11.8
			GW802-237	47.3
			GW804-239	4.8 B
			GW807-242	5.9
			GW809-244	6.2
			GW810-245	23.5
			GW813-756	13.4
			GWA52-259	3.14 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cobalt	$\mu\text{g/L}$	2.8	GWBH70-283	7.2
			GW-MW228-3616	7.2
			GW-MW313-3592	19.9
			GW-MW424-3610	5.52
			GW-MW862-3604	21.9
			GW-TWP830-3502	645
			GW-TWP831-3505	119
			GW-TWP832-3508	44.2
			GW-TWP833-3511	2.98 B
			GW-TWP834-3514	6.05
			GW-TWP836-3520	3.59 B
			GW-TWP837-3523	28
			GW-TWP838-3526	7.68
			GW-TWP839-3529	672
			GW-TWP842-3538	24.2
			GW-TWP844-3544	4.68 B
			GW-TWP845-3547	5.81
			GW-TWP846-3550	23.5
			GW-TWP847-3553	18
			GW-TWP849-3559	53.3
			GW-TWP850-3562	11.7
			GW-TWP851-3565	1090
Copper	$\mu\text{g/L}$	204	GW-TWP853-3571	159
			GW-TWP854-3574	9.58
			GW-TWP855-3577	12.9
			GW-TWP856-3580	9.57
			GW-TWP858-3586	268
			GW-TWP859-3589	7.7
			GW206-175	216
			GW209-182	699
			GW311-201	422
			GW411-214	1440
			GW603-234	899
			GW605-754	211
			GW816-789	625
			GWBH57-3278	401
			GW-TWP830-3502	2880
			GW-TWP831-3505	335
			GW-TWP839-3529	2920
			GW-TWP851-3565	2370
			GW-TWP853-3571	362
			GW-TWP858-3586	646

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Iron	$\mu\text{g/L}$	8810	C5-AC-GW-BP3	29000 J
			C5-SO-GW-D800	12700
			GW102-745	42900 N
			GW103-746	9860 N
			GW206-175	191000
			GW207-176	12200
			GW208-178	71400
			GW209-182	419000
			GW213-186	20400
			GW213A-775	21500
			GW217-190	9240
			GW2A001-660	16300
			GW302-192	98500
			GW303-193	30300
			GW304-194	30600
			GW306-196	11700
			GW307-197	25200
			GW308-198	51500
			GW309-199	121000
			GW310-200	87300
			GW311-201	102000
			GW402-205	16900 EN
			GW403-206	50000 EN
			GW404-207	13400 EN
			GW405-208	90200
			GW406-209	65100
			GW407-210	9670 EN
			GW411-214	802000
			GW420-226	27800
			GW423-749	64500
			GW4D003-666	22600
			GW4D003-668	23400
			GW502-230	23500
			GW602-233	11200
			GW603-234	577000
			GW605-754	67200
			GW607-755	15100
			GW801-236	29000 EN
			GW802-237	119000 EN
			GW807-242	14700 EN
			GW809-244	17600
			GW810-245	65500
			GW813-756	33800 N
			GWBH57-3278	9420

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Iron	$\mu\text{g/L}$	8810	GWBH70-283	16500
			GW-TWP830-3502	1740000
			GW-TWP831-3505	293000
			GW-TWP832-3508	99600
			GW-TWP834-3514	12400
			GW-TWP836-3520	13200
			GW-TWP837-3523	49900
			GW-TWP838-3526	17500
			GW-TWP839-3529	1530000
			GW-TWP842-3538	66400 N
			GW-TWP845-3547	16000 N
			GW-TWP846-3550	62100 N
			GW-TWP847-3553	48900 N
			GW-TWP849-3559	115000
			GW-TWP850-3562	22400
			GW-TWP851-3565	2430000
			GW-TWP853-3571	358000
			GW-TWP854-3574	24300
			GW-TWP855-3577	26300
			GW-TWP856-3580	23000
			GW-TWP858-3586	586000
			GW-TWP859-3589	17200

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lead	$\mu\text{g/L}$	5.99	C5-AC-GW-BP3	25.3
			GW102-745	11.8 E
			GW206-175	49
			GW208-178	18.4
			GW209-182	109
			GW2C001-664	13.3
			GW302-192	24.5
			GW303-193	6.9 B
			GW304-194	7.1 B
			GW307-197	7.9 B
			GW308-198	20.1 E
			GW309-199	31.9 E
			GW310-200	36.4
			GW311-201	29.3 E
			GW403-206	15.2 E
			GW405-208	34.5 E
			GW406-209	17.4
			GW411-214	37.3
			GW420-226	7.8 BE
			GW502-230	8.4 B
			GW603-234	165 E
			GW605-754	7.24
			GW801-236	7.2 E
			GW802-237	28.9 E
			GW810-245	24.3
			GW813-756	6.77 E
			GWBH57-3278	11.9
			GWBH70-283	6.86
			GW-TWP830-3502	398
			GW-TWP831-3505	73.3
			GW-TWP832-3508	26.6
			GW-TWP835-3517	34.3 B
			GW-TWP837-3523	603
			GW-TWP839-3529	520
			GW-TWP842-3538	15.5
			GW-TWP846-3550	17.7
			GW-TWP847-3553	27.3
			GW-TWP849-3559	10.8 B
			GW-TWP850-3562	6.18 B
			GW-TWP853-3571	93.9
			GW-TWP854-3574	15.3
			GW-TWP858-3586	156
			GW-TWP859-3589	6.08 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lithium	μg/L	1130	GWBH12-252	2050
			GWBH15-253	1600 E
			GWBH57-271	7370
			GWBH57-3278	2500
			GW-TWP830-3502	1200
			GW-TWP837-3523	3150
			GW-TWP839-3529	1610 N
Magnesium	μg/L	580000	C5-VS-GW-D300	1360000
			GW302-192	756000
			GW302A-3253	1130000
			GW411-214	680000
			GW808-243	866000
			GW808A-3257	701000
			GW-TWP830-3502	1150000 E
			GW-TWP831-3505	921000 E
			GW-TWP837-3523	1610000
			GW-TWP839-3529	719000

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Manganese	$\mu\text{g/L}$	722	C5-AC-GW-BP3	1520 *
			GW102-745	1800
			GW203A-3251	768
			GW206-175	5310
			GW208-178	3110
			GW209-182	26200
			GW213-186	937
			GW213A-3281	736
			GW213A-775	1790
			GW215A-3252	1140
			GW2A001-660	1030
			GW302-192	4600
			GW302A-3253	770
			GW304-194	830
			GW307-197	844
			GW308-198	2480
			GW309-199	4080
			GW310-200	3170
			GW311-201	7840
			GW403-206	2190
			GW405-208	7720
			GW406-209	1560
			GW409-212	1290
			GW411-214	36500
			GW415-221	1630
			GW415A-3280	1600
			GW415A-781	3060
			GW420-226	1400
			GW423-749	1810
			GW603-234	22400
			GW605-754	2270
			GW801-236	1010
			GW802-237	5740
			GW810-245	3330
			GWA23A-285	904
			GWA42-254	927
			GWA43-264	817
			GWBH12-252	808
			GWBH15-253	802
			GWBH48-265	800
			GWBH57-271	3060
			GWBH57-3278	1330
			GWBH70-283	913
			GW-MW313-3592	1270

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Manganese	μg/L	722	GW-MW862-3604	870
			GW-TWP830-3502	74300
			GW-TWP831-3505	16800
			GW-TWP832-3508	4600
			GW-TWP837-3523	1370
			GW-TWP839-3529	34700
			GW-TWP842-3538	1270
			GW-TWP846-3550	2220
			GW-TWP847-3553	1550
			GW-TWP849-3559	4270
			GW-TWP850-3562	806
			GW-TWP851-3565	78300
			GW-TWP853-3571	17200
			GW-TWP854-3574	3180
			GW-TWP855-3577	1150
			GW-TWP858-3586	24400
Mercury	μg/L	0.17	GW-TWP830-3502	0.509
			GW-TWP831-3505	0.199 B
			GW-TWP839-3529	1.01
			GW-TWP851-3565	0.56
			GW-TWP858-3586	0.302

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	$\mu\text{g/L}$	6.48	C5-SO-GW-D800	11.3 J
			GW102-745	43
			GW103-746	10.6
			GW206-175	193
			GW207-176	15.5
			GW208-178	73.7
			GW209-182	455
			GW213-186	30.9 B
			GW213A-775	27
			GW215-188	7.1
			GW2A001-660	20.6
			GW302-192	107
			GW302A-3253	7.49
			GW303-193	32.3
			GW304-194	34.9
			GW306-196	10.2
			GW307-197	26.3
			GW308-198	50
			GW309-199	113
			GW310-200	86.4
			GW311-201	90.2
			GW401-204	14 B
			GW402-205	16.7
			GW403-206	44.7
			GW404-207	16.2
			GW405-208	76.3
			GW406-209	66.7
			GW407-210	10.1
			GW411-214	762
			GW415-221	149
			GW415A-781	21.1
			GW420-226	25.3
			GW423-749	65.4
			GW4D003-666	23.9
			GW4D003-668	24.5
			GW502-230	25.1
			GW602-233	10.2
			GW603-234	542
			GW604-235	6.5
			GW605-754	61.9
			GW607-755	15.3
			GW801-236	29.7
			GW802-237	107
			GW804-239	11.2

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Nickel	μg/L	6.48	GW807-242	14.8
			GW808-243	8.7
			GW809-244	17.1
			GW810-245	51.3
			GW813-756	30.6
			GW816-789	12.1
			GWBH70-283	15.5
			GW-MW228-3616	6.74
			GW-MW313-3592	17.8
			GW-MW862-3604	15.6
			GWOW04A-279	24.8
			GWOW05A-278	11.6
			GWOW05B-3274	32.6
			GWOW06A-287	10.5
			GWOW06B-262	33.5
			GWOW06B-3291	16.3
			GWOW10B-801	11.9
			GW-TWP830-3502	1410
			GW-TWP831-3505	236
			GW-TWP832-3508	93
			GW-TWP834-3514	20.5
			GW-TWP836-3520	14.9
			GW-TWP837-3523	53.2
			GW-TWP838-3526	17.2
			GW-TWP839-3529	1540
			GW-TWP842-3538	51.5
			GW-TWP844-3544	7.46
			GW-TWP845-3547	8.58
			GW-TWP846-3550	45
			GW-TWP847-3553	36.5
			GW-TWP849-3559	107
			GW-TWP850-3562	23.9
			GW-TWP851-3565	2340
			GW-TWP853-3571	330
			GW-TWP854-3574	23
			GW-TWP855-3577	26.4
			GW-TWP856-3580	21.8
			GW-TWP858-3586	563
			GW-TWP859-3589	16.3

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium	μg/L	62100	GW411-214	75300
			GWBH57-271	133000
			GWBH57-3278	78400 E
			GWOW01A-3273	209000 E
			GW-TWP830-3502	146000
			GW-TWP839-3529	207000
			GW-TWP851-3565	240000
			GW-TWP858-3586	75300

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	$\mu\text{g/L}$	4.24	C5-AC-GW-BP3	5.2 J
			C5-SO-GW-D800	4.6 J
			C5-VS-GW-D300	7.3
			GW206-175	9.5
			GW208-178	15.2 B
			GW209-182	22.4
			GW213-186	4.4 B
			GW215-188	5.4 B
			GW302-192	6.4 B
			GW303-193	7.5 B
			GW304-194	9.1 B
			GW306-196	4.3 B
			GW307-197	14.2 B
			GW308-198	5.4 B
			GW309-199	8.2 B
			GW310-200	10.5 B
			GW311-201	8.3 B
			GW403-206	4.5 B
			GW405-208	17.9 B
			GW409-212	14.3 B
			GW410-213	12 B
			GW411-214	11.6
			GW415-221	6.4 B
			GW415A-781	4.57 B
			GW420-226	16.4 B
			GW502-230	6.7 B
			GW503-231	10 B
			GW603-234	39.7 B
			GW605-754	9.78
			GW802-237	9.2
			GW804-239	7.1 B
			GW808-243	8.6 B
			GW810-245	4.7 B
			GW822-765	4.64 B
			GWA23A-285	4.91
			GWBH12-252	15.4 B
			GWBH15-253	22.1
			GWBH48-265	13.3 B
			GWBH57-271	19.1 B
			GWBH57-3278	13.7
			GWBH62-275	6.5 B
			GWOW07B-3292	4.49 B
			GW-TWP837-3523	48.6 B
			GW-TWP839-3529	25.3

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	µg/L	4.24	WO19D-260	6.6 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	$\mu\text{g/L}$	0.018	GW102-745	0.37 B
			GW103-746	0.34 B
			GW206-175	0.57 B
			GW208-178	0.93 B
			GW209-182	1.4 B
			GW213-186	0.3 B
			GW213A-775	0.237 J
			GW215-188	0.79 B
			GW215A-3252	0.026 B
			GW2A001-660	0.126 J
			GW2C001-664	0.122 B
			GW302-192	0.48 B
			GW302A-3253	0.025 B
			GW303-193	0.79 B
			GW304-194	0.88 B
			GW306-196	0.76 B
			GW307-197	0.89 B
			GW308-198	0.71 B
			GW309-199	0.93 B
			GW310-200	1 B
			GW311-201	1.4 B
			GW401-204	0.27 B
			GW403-206	0.34 B
			GW405-208	0.45 B
			GW406-209	0.51 B
			GW409-212	0.36 B
			GW411-214	0.49 B
			GW415-221	0.31 B
			GW415A-3280	0.036 B
			GW415A-781	0.183 B
			GW417-223	0.99 B
			GW420-226	2 B
			GW423-749	0.078 B
			GW4D003-666	0.123 B
			GW4D003-668	0.228 B
			GW504-752	0.085 B
			GW505-783	0.163 B
			GW603-234	1.3 B
			GW605-754	0.372 B
			GW607-755	0.153 B
			GW801-236	0.28 B
			GW802-237	0.4 B
			GW804-239	0.8 B
			GW807-242	0.25 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	$\mu\text{g/L}$	0.018	GW808-243	0.75 B
			GW808A-3257	0.03 B
			GW810-245	0.88 B
			GW813-756	0.402 B
			GW816-789	0.39 B
			GW822-765	0.293 B
			GW825-768	0.097 B
			GWA23A-285	0.174 B
			GWA42-254	0.35 B
			GWA43-264	0.23 B
			GWA45-256	0.3 B
			GWA50-258	0.217 B
			GWA51-270	0.26 B
			GWA52-259	0.66 B
			GWA56-282	0.18 B
			GWA57-281	0.19 B
			GWBH05-251	0.68 B
			GWBH15-253	0.26 B
			GWBH48-265	0.25 B
			GWBH50-267	0.174 B
			GWBH51-269	0.167 B
			GWBH57-271	0.81 B
			GWBH57-3278	0.033 B
			GWBH60-273	0.23 B
			GWBH61-274	0.2 B
			GWBH62-275	0.31 B
			GWBH63-277	0.27 B
			GWBH70-283	0.201 B
			GW-MW863-3607	0.075 B
			GWOW03B-261	0.216 B
			GWOW06B-262	0.168 B
			GWOW06B-3291	0.047 B
			GWOW10A-288	0.68 B
			GWOW10B-801	0.176 B
			GWOW17B-3289	0.028 B
			GWOW20D-257	0.73 B
			GWOW20S-263	0.25 B
			GW-TWP830-3502	3.37 B
			GW-TWP831-3505	0.995 B
			GW-TWP832-3508	0.27 B
			GW-TWP836-3520	0.04 B
			GW-TWP837-3523	5.07 B
			GW-TWP838-3526	0.099 B
			GW-TWP839-3529	4.47 B

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Silver	$\mu\text{g/L}$	0.018	GW-TWP842-3538	0.252 B
			GW-TWP844-3544	0.071 B
			GW-TWP845-3547	0.109 B
			GW-TWP846-3550	0.244 B
			GW-TWP847-3553	0.332 B
			GW-TWP853-3571	0.935 B
			GW-TWP854-3574	0.187 B
			GW-TWP855-3577	0.065 B
			GW-TWP856-3580	0.05 J
			GW-TWP858-3586	1.5 B
Sodium	$\mu\text{g/L}$	1200000	WO19D-260	0.18 B
Thallium	$\mu\text{g/L}$	1.72	GWBH15-253	1730000 E
			GWBH57-3278	2570000
			GW308-198	3.8 B
			GW309-199	14.8
			GW409-212	2.1 B
			GW809-244	11.3
			GWA52-259	2.81
			GW-MW863-3607	2.34 B
			GW-TWP830-3502	3.59 E
			GW-TWP837-3523	3.58 B
			GW-TWP839-3529	6.32
			GW-TWP853-3571	2.04 B
			GW-TWP858-3586	2.56 E

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	$\mu\text{g/L}$	2.8	C5-SO-GW-D800	12.4 J
			GW102-745	58.3
			GW103-746	16.7
			GW206-175	251
			GW207-176	19.4
			GW208-178	90.2
			GW209-182	441
			GW213-186	34.1 B
			GW213A-775	2.86 J
			GW215-188	8.1
			GW217-190	14.8 B
			GW2A001-660	21.8
			GW2C001-664	4.42 B
			GW302-192	130
			GW303-193	46.2
			GW304-194	40
			GW306-196	16.1
			GW307-197	33.3
			GW308-198	77.2
			GW309-199	165
			GW310-200	116
			GW311-201	128
			GW401-204	8.9 B
			GW402-205	27
			GW403-206	68.8
			GW404-207	21.9
			GW405-208	111
			GW406-209	88.5
			GW407-210	12.2
			GW409-212	6.1
			GW410-213	12.8
			GW411-214	875
			GW415-221	7.8
			GW417-223	5.3
			GW420-226	40.5
			GW423-749	74.3
			GW4D003-666	25.9
			GW4D003-668	26.8
			GW501-229	6
			GW502-230	34.6
			GW504-752	3.34 B
			GW505-783	5.93
			GW602-233	15.6
			GW603-234	610

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	$\mu\text{g/L}$	2.8	GW604-235	10.8
			GW605-754	77.4
			GW607-755	20.9
			GW801-236	36.6
			GW802-237	137
			GW804-239	11.1
			GW807-242	22.2
			GW808-243	7.3
			GW809-244	25.6
			GW810-245	69.5
			GW813-756	47
			GW822-765	4.49 B
			GW825-768	5.11
			GWBH70-283	17.3
			GW-MW228-3616	2.84 B
			GW-TWP830-3502	1960
			GW-TWP831-3505	373
			GW-TWP832-3508	133
			GW-TWP834-3514	22 B
			GW-TWP836-3520	20.5
			GW-TWP837-3523	69.9
			GW-TWP838-3526	26.7
			GW-TWP839-3529	1970
			GW-TWP842-3538	102
			GW-TWP844-3544	12.6
			GW-TWP845-3547	25.7
			GW-TWP846-3550	75.3
			GW-TWP847-3553	68.1
			GW-TWP849-3559	147
			GW-TWP850-3562	39.7
			GW-TWP851-3565	2700
			GW-TWP853-3571	446
			GW-TWP854-3574	34.3
			GW-TWP855-3577	44.3
			GW-TWP856-3580	29.2
			GW-TWP858-3586	721

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Zinc	μg/L	131	C5-AC-GW-BP3	216
			GW201A-3250	149
			GW206-175	452
			GW208-178	162
			GW209-182	1080
			GW302-192	235
			GW309-199	273
			GW310-200	234
			GW311-201	253
			GW405-208	220
			GW406-209	148
			GW411-214	1900
			GW423-749	146
			GW505-3279	460
			GW603-234	1350
			GW605-754	152
			GW802-237	251 E
			GW808A-3257	135
			GW810-245	183
			GWA57-281	543
			GWBH57-3278	282
			GW-MW228-3616	174
			GW-TWP830-3502	3540
			GW-TWP831-3505	535
			GW-TWP832-3508	189
			GW-TWP839-3529	3640
			GW-TWP849-3559	223
			GW-TWP851-3565	4950
			GW-TWP853-3571	744
GW-TWP858-3586	1280			
Pesticides				
4,4'-DDE	μg/L	0.0146	GW201A-3250	0.0158 J
			GWBH49A-3261	0.0335 J
			GW-MW228-3616	0.0356 J
			GW-MW313-3592	0.055
			GW-MW424-3610	0.0323 J
			GW-TWP849-3559	0.0546
			GW-TWP851-3565	0.0206 J
			GW-TWP859-3589	0.0355 J
4,4'-DDT	μg/L	0.0413	GW313-747	0.078 P
			GW-TWP849-3559	0.0568
			GW-TWP855-3577	0.0492
Radionuclides, Dissolved				

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha, Dissolved	pCi/L	15	GW203A-3251	44.7
			GW213A-3281	27.1
			GW215A-3252	36.9
			GW302A-3253	70.2
			GW505-3279	20.5
			GW808A-3257	25.4
			GWA42-3275	40.7
			GWA43-3259	34.1
			GWA45-3285	22.3
			GWA52-3260	55.7
			GW-MW313-3592	16
			GWOW04B-3290	48.1
			GWOW06B-3291	21.7
			GWOW07B-3292	16.3
			GWOW09B-3262	19.1
			GWOW11B-3263	134
			GW-TWP830-3502	20.7
			GW-TWP831-3505	58.8
			GW-TWP833-3511	610
			GW-TWP844-3544	17.1
Beta, Dissolved	pCi/L	50	GW-TWP849-3559	19
			GW-TWP852-3568	15.4
			GW-TWP856-3580	16.8
			GWA55-3265	453
			GWBH57-3278	53
Potassium-40, Dissolved	pCi/L	--	GWOW01A-3273	125
			GWOW11B-3263	115
			GW-TWP833-3511	168
			GW830-757	123
Radium-226, Dissolved	pCi/L	1.31	GW830-757	6.22
			GW-TWP837-3523	2.54
			GW-TWP849-3559	2.15
			GW-TWP851-3565	2.75
Radium-228, Dissolved	pCi/L	1.6	GWOW07B-3292	1.87
			GWBH57-3278	2.14
Thorium-228, Dissolved	pCi/L	0.162	GW2B006-663	0.359
			GW302A-3253	0.334
			GW411A-780	0.228
			GW808A-787	0.318
			GW817-759	0.422
			GW830-757	1.8
			GWA43-3259	0.169
			GWOW08A-797	0.197

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230, Dissolved	pCi/L	0.388	GW303A-3254	0.554
			GW411A-3255	0.644
			GW830-757	11.8
			GW-MW229-3619	0.648
			GW-MW313-3592	0.44
			GW-MW424-3610	0.434
			GW-MW861-3601	0.527
			GWOW09B-3262	0.61 J
			GWOW14B-3268	4.68
			GW-TWP836-3520	1.08
			GW-TWP838-3526	0.679
			GW-TWP839-3529	0.612
			GW-TWP849-3559	0.519
			GW-TWP851-3565	0.433
			GW-TWP852-3568	0.4
			GW-TWP853-3571	0.453
			GW-TWP856-3580	0.675
			GW-TWP858-3586	0.398
			GW-TWP859-3589	0.413

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium, Dissolved	$\mu\text{g/L}$	16.7	GW201A-3250	18.3
			GW203A-3251	49.2
			GW213A-3281	32
			GW215A-3252	45.8
			GW2A001-660	44.5
			GW2A002-661	51
			GW2A003-662	21
			GW2B006-663	55.4
			GW302A-3253	126
			GW415A-781	30.1
			GW4D003-668	22.5
			GW4D005-670	35.9
			GW505-3279	30.2
			GW506-753	47.2
			GW808A-3257	38.9
			GW815-758	24.4
			GW818-760	46
			GW820-763	23.7
			GW821-764	24.3
			GW825-768	18.2
			GW830-757	16.8
			GWA42-3275	63.7
			GWA43-3259	45.9
			GWA45-3285	37.4
			GWA50-3286	18.2
			GWA52-3260	52.4
			GWBH49A-3261	42.9
			GW-MW313-3592	27.1
			GWOW04B-3290	73.5
			GWOW06B-3291	28.2
			GWOW07B-3292	19.6
			GWOW09B-3262	25.1
			GWOW11B-3263	248
			GWOW13B-3267	29.2
			GWOW18B-3272	22
			GW-TWP830-3502	25.8
			GW-TWP831-3505	67.7
			GW-TWP833-3511	9580
			GW-TWP835-3517	28.3
			GW-TWP838-3526	24.9
			GW-TWP839-3529	17.4
			GW-TWP844-3544	21.7
			GW-TWP846-3550	17.1
			GW-TWP847-3553	19.3

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium, Dissolved	$\mu\text{g/L}$	16.7	GW-TWP849-3559	23
			GW-TWP850-3562	22.5
			GW-TWP852-3568	21.9
			GW-TWP854-3574	19
			GW-TWP855-3577	24
			GW-TWP856-3580	27.8

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234, Dissolved	pCi/L	8.94	GW201A-3250	9.31
			GW201A-773	11.1
			GW203A-3251	23.4
			GW203A-774	16.3
			GW213A-3281	16.6
			GW213A-775	13.3
			GW215A-3252	20.1
			GW2A001-660	19.4
			GW2A002-661	23.6
			GW2A003-662	10.4
			GW2B006-663	19.5
			GW2C001-664	17.1
			GW302A-3253	57.5
			GW302A-777	57.4
			GW415A-781	12.2
			GW415A-782	12
			GW4D003-668	9.12
			GW505-3279	14.2
			GW506-753	22.1
			GW808A-3257	18.3
			GW808A-787	19.1
			GW815-758	10.3
			GW818-760	19.5
			GW820-763	10.6
			GW821-764	10.7
			GW825-769	8.98
			GWA42-3275	28.2
			GWA43-3259	17.1
			GWA45-3285	19.1
			GWA52-3260	23.6
			GW-MW313-3592	13.8
			GWOW04B-3290	23.8
			GWOW06B-3291	12.1
			GWOW07B-3292	11.4
			GWOW09B-3262	13.5
			GWOW09B-800	13.9
			GWOW11B-3263	106
			GWOW11B-803	93
			GWOW13B-3267	10.2
			GW-TWP830-3502	11.4
			GW-TWP831-3505	35.2
			GW-TWP833-3511	319
			GW-TWP835-3517	12.9
			GW-TWP838-3526	9.51

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234, Dissolved	pCi/L	8.94	GW-TWP844-3544	9.27
			GW-TWP847-3553	9.1
			GW-TWP849-3559	9.79
			GW-TWP850-3562	9.47
			GW-TWP852-3568	9.31
			GW-TWP855-3577	11
			GW-TWP856-3580	11.1

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235, Dissolved	pCi/L	0.512	GW203A-3251	2.55
			GW203A-774	0.633
			GW213A-3281	0.953
			GW213A-775	0.549
			GW215A-3252	2.61
			GW2A001-660	0.752
			GW2A002-661	0.901
			GW2B006-663	1.07
			GW302A-3253	3.46
			GW302A-777	1.87
			GW411A-3255	0.831
			GW415A-3280	0.82
			GW415A-781	0.587
			GW415A-782	0.527
			GW505-3279	0.684
			GW506-753	0.629
			GW808A-3257	1.43
			GW808A-787	0.749
			GW818-760	1
			GW821-764	0.551
			GWA42-3275	1.94
			GWA43-3259	1.92
			GWA45-3285	0.958
			GWA50-3286	0.684
			GWA52-3260	0.94
			GW-MW313-3592	0.693
			GW-MW424-3610	0.531
			GW-MW860-3598	1.37
			GWOW04B-3290	1.78
			GWOW07B-3292	1.19
			GWOW09B-3262	0.52
			GWOW11B-3263	4.95
			GWOW11B-803	4.12
			GWOW13B-3267	0.537
			GWOW18B-3272	0.605
			GW-TWP830-3502	0.658
			GW-TWP831-3505	2.02
			GW-TWP833-3511	39.1
			GW-TWP835-3517	1.02
			GW-TWP836-3520	0.626
			GW-TWP838-3526	0.927
			GW-TWP839-3529	0.55
			GW-TWP844-3544	1.38
			GW-TWP847-3553	0.874

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235, Dissolved	pCi/L	0.512	GW-TWP849-3559	0.721
			GW-TWP852-3568	0.518
			GW-TWP853-3571	0.561
			GW-TWP854-3574	0.559
			GW-TWP855-3577	0.725
			GW-TWP856-3580	1.25

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238, Dissolved	pCi/L	6.32	GW201A-3250	6.78
			GW201A-773	8.64
			GW203A-3251	17.2
			GW203A-774	13.3
			GW213A-3281	12.8
			GW213A-775	10.3
			GW215A-3252	15.7
			GW2A001-660	14.2
			GW2A002-661	18
			GW2A003-662	8.09
			GW2B006-663	15.8
			GW2C001-664	13.9
			GW302A-3253	44.4
			GW302A-777	42.7
			GW415A-782	8.99
			GW4D003-666	7.21
			GW4D003-668	6.94
			GW505-3279	11.9
			GW506-753	17.5
			GW808A-3257	15.1
			GW808A-787	15.8
			GW813-756	45.7
			GW815-758	7.74
			GW818-760	14.4
			GW820-763	8.07
			GW821-764	8.24
			GWA42-3275	25.7
			GWA43-3259	14.2
			GWA45-3285	13.8
			GWA52-3260	18.5
			GW-MW313-3592	11.1
			GWOW04B-3290	20.9
			GWOW06B-3291	9.07
			GWOW07B-3292	8.72
			GWOW08B-798	6.42
			GWOW09B-3262	9.32
			GWOW09B-800	10.2
			GWOW11B-3263	101
			GWOW11B-803	89.3
			GWOW12B-804	6.7
			GWOW13B-3267	8.38
			GW-TWP830-3502	9.11
			GW-TWP831-3505	30
			GW-TWP833-3511	301

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238, Dissolved	pCi/L	6.32	GW-TWP835-3517	9.85
			GW-TWP838-3526	7.51
			GW-TWP844-3544	7.46
			GW-TWP847-3553	7.9
			GW-TWP849-3559	7.93
			GW-TWP852-3568	7.31
			GW-TWP855-3577	7.54
			GW-TWP856-3580	8.39
Radionuclides, Total				

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/L	15	GW101-744	15.5
			GW201-167	46.4
			GW201A-773	15.4
			GW203-172	59.7
			GW203A-3251	39.4
			GW203A-774	22.9
			GW205-174	30
			GW206-175	40.9
			GW208-178	39.7
			GW209-182	38.9
			GW210-183	15.9
			GW211-184	18.2
			GW212-185	46.4
			GW213-186	56.7
			GW213A-3281	43.5 J
			GW213A-775	16.1
			GW214-187	34.6
			GW215-188	140
			GW215A-3252	42.9
			GW216-189	69.8
			GW217-190	39.1
			GW2A001-660	36.7
			GW2A002-661	19
			GW2A003-662	16
			GW2B006-663	34.6
			GW302-192	132
			GW302A-3253	53.9
			GW302A-777	59.7
			GW303-193	55.7
			GW304-194	69.5
			GW306-196	25.6
			GW307-197	91.9
			GW308-198	20.7
			GW310-200	34.3
			GW312-203	26.4
			GW313-747	21.9
			GW401-204	81.1
			GW402-205	27.9
			GW403-206	53.7
			GW404-207	105
			GW405-208	45.3
			GW406-209	21
			GW407-210	22
			GW409-212	20.3

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/L	15	GW410-213	21.4
			GW411-214	21.3
			GW415-221	33.9
			GW415A-3280	21.8
			GW415A-781	39.9
			GW423-749	15.8
			GW424-750	18.8
			GW425-751	15.5
			GW4D003-666	29.7
			GW4D003-668	18.9
			GW4D005-670	19.8
			GW501-229	17.8
			GW502-230	20.8
			GW503-231	71.8
			GW505-783	20.8
			GW506-753	30.3
			GW603-234	23.6
			GW605-754	17.6
			GW801-236	99.7
			GW802-237	102
			GW804-239	17.5
			GW805-240	30.1
			GW807-242	29.3
			GW808A-3257	18.4
			GW808A-787	18.8
			GW813-756	25
			GW815-758	19.4
			GW817-759	19.5
			GW818-760	20
			GW820-763	44.1
			GW821-764	16.5
			GW825-769	15.9
			GWA42-254	72
			GWA42-3275	38.6
			GWA43-264	36.1
			GWA43-3259	30.9
			GWA45-256	40.1
			GWA45-3285	42.9
			GWA50-258	15.4
			GWA51-270	22.8
			GWA52-259	43.3
			GWA52-3260	52.6
			GWOW03B-261	17.7
			GWOW04B-3290	46.7

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/L	15	GWOW06B-262	27.9
			GWOW06B-3291	20.7
			GWOW09B-3262	17
			GWOW09B-800	16.3
			GWOW11B-3263	128
			GWOW11B-803	127
			GWOW12B-804	19.8
			GWOW13B-3267	18
			GW-TWP830-3502	25.2
			GW-TWP831-3505	50.6
			GW-TWP833-3511	562
			GW-TWP834-3514	19.8
			GW-TWP835-3517	17
			GW-TWP839-3529	16.2
			GW-TWP842-3538	38.7
			GW-TWP844-3544	27.2
			GW-TWP845-3547	17.3
			GW-TWP847-3553	16.1
			GW-TWP849-3559	56.3
			GW-TWP850-3562	63.9
			GW-TWP851-3565	15.2
			GW-TWP852-3568	33.4
			GW-TWP855-3577	27.3
			GW-TWP856-3580	217 J
			GW-TWP858-3586	40
Beta	pCi/L	50	GW403-206	75.2
			GW404-207	51.3
			GW801-236	95.4
			GW802-237	144
			GWA45-3285	90
			GWBH57-271	93
			GWBH57-3278	127
			GWOW01A-3273	173
			GWOW11B-3263	101
			GWOW11B-803	59.9
			GWOW13A-3295	58.5
			GW-TWP833-3511	211
			GW-TWP842-3538	51.6
			GW-TWP849-3559	109
			GW-TWP850-3562	115
			GW-TWP856-3580	220 J
			GW-TWP858-3586	90.8

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Cesium-137	pCi/L	--	GW201A-773	27.4
			GW404A-779	61.5
			GW4D005-670	4.48
			GW810A-788	33.5
			GW818-760	3.18
			GW825-768	2.66
			GWBH49A-790	28
			GWOW07A-796	4.41
			GWOW07B-3292	2.12
			GWOW11B-803	57.1

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/L	1.76	GW101-744	2.78
			GW201-167	2.86
			GW208-178	1.98
			GW212-185	7.98
			GW213-186	2.19
			GW215A-776	3.57
			GW2C001-664	2.12
			GW308-198	2.33
			GW309-199	2.13
			GW311-201	2.25
			GW312-203	3.9
			GW313-747	10.7
			GW403-206	2.33
			GW411-214	1.94
			GW420-226	2.36
			GW505-783	1.94
			GW602-233	2.77
			GW603-234	3.23
			GW605-754	3.28
			GW801-236	1.92
			GW810-245	2.02
			GW815-758	2.33
			GW820-763	2.6
			GW830-757	12.3
			GWBH57-271	1.77
			GWBH57-3278	2.03
			GW-TWP830-3502	10
			GW-TWP831-3505	4
			GW-TWP832-3508	2.65
			GW-TWP833-3511	1.78
			GW-TWP837-3523	2.63
			GW-TWP839-3529	2.15
			GW-TWP845-3547	2.17
			GW-TWP846-3550	9
			GW-TWP847-3553	1.83
			GW-TWP850-3562	2.69
			GW-TWP851-3565	2.59
			GW-TWP852-3568	5.35
			GW-TWP854-3574	2.2
			GW-TWP856-3580	11.3
			GW-TWP858-3586	4.58
			WO19D-260	3.11

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-228	pCi/L	1.67	GW102-745	47.8
			GW215A-776	20.2
			GW313-747	70.4
			GWBH57-3278	1.98
			GW-TWP830-3502	126
			GW-TWP831-3505	8.59
			GW-TWP845-3547	19.6
			GW-TWP846-3550	48.3
			GW-TWP849-3559	1.91
			GW-TWP853-3571	19.1
			GW-TWP854-3574	12
			GW-TWP856-3580	40.1 J
			GW-TWP858-3586	42.3

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/L	0.25	GW101-744	0.966
			GW201-167	0.451 J
			GW204-173	0.879
			GW205-174	0.806 J
			GW206-175	0.518 J
			GW207-176	1.33
			GW210-183	0.382 J
			GW211-184	0.461 J
			GW212-185	0.624 J
			GW213-186	0.575 J
			GW214-187	0.751 J
			GW215A-776	2.57
			GW216-189	0.862 J
			GW217-190	0.623 J
			GW2A001-660	0.281
			GW2C001-664	0.296
			GW304-194	0.342 J
			GW306-196	0.344 J
			GW307-197	1.51
			GW309-199	0.684 J
			GW312-203	5.33
			GW313-747	2.53
			GW402-205	0.858 J
			GW403-206	0.594 J
			GW404-207	0.701 J
			GW405-208	1.14
			GW406-209	0.405 J
			GW409-212	0.36 J
			GW411-214	3.85
			GW415-221	0.363 J
			GW417-223	0.426 J
			GW420-226	0.484 J
			GW424-750	0.533
			GW4D003-666	0.438
			GW4D003-668	0.522
			GW503-231	0.557 J
			GW506-753	0.299
			GW605-754	0.934
			GW801-236	1.6
			GW802-237	0.343 J
			GW803-238	0.907 J
			GW804-239	2.02
			GW807-242	0.322 J
			GW808-243	0.432 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-228	pCi/L	0.25	GW810-245	0.26 J
			GW813-756	0.493
			GW815-758	0.349
			GWA42-254	0.564
			GWBH57-271	0.296 J
			GWBH70-283	0.322
			GW-MW228-3616	0.585
			GW-MW424-3610	0.438
			GWOW10A-288	1.24
			GW-TWP832-3508	1.1
			GW-TWP833-3511	0.915
			GW-TWP834-3514	0.785
			GW-TWP835-3517	0.783
			GW-TWP837-3523	0.584
			GW-TWP839-3529	2.45
			GW-TWP842-3538	3.24
			GW-TWP844-3544	0.36
			GW-TWP847-3553	4.02
			GW-TWP849-3559	0.627
			GW-TWP850-3562	0.881
			GW-TWP851-3565	0.975
			GW-TWP852-3568	9.06
			GW-TWP853-3571	4.43
			GW-TWP854-3574	1.1
			GW-TWP856-3580	4.59 J
			GW-TWP858-3586	1.41
			GW-TWP859-3589	0.931 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/L	0.877	GW215A-776	1.34
			GW312-203	4.37
			GW313-747	1.76
			GW411-214	2.15
			GW801-236	0.944 J
			GW804-239	1.52
			GW-MW229-3619	1.31
			GW-TWP830-3502	0.909
			GW-TWP832-3508	0.927
			GW-TWP833-3511	1.21
			GW-TWP834-3514	0.946
			GW-TWP835-3517	1.43
			GW-TWP837-3523	0.967
			GW-TWP839-3529	1.53
			GW-TWP842-3538	2.85
			GW-TWP847-3553	3.71
			GW-TWP850-3562	1.31
			GW-TWP851-3565	0.984
			GW-TWP852-3568	5.3
			GW-TWP853-3571	3.35
			GW-TWP856-3580	3.55 J
			GW-TWP858-3586	0.918

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/L	0.229	GW101-744	0.4
			GW204-173	0.586
			GW205-174	0.419 J
			GW206-175	0.386 J
			GW207-176	0.767
			GW211-184	0.245 J
			GW213-186	0.239 J
			GW214-187	0.626 J
			GW215A-776	0.792
			GW216-189	0.423 J
			GW304-194	0.296 J
			GW307-197	0.841
			GW309-199	0.286 J
			GW312-203	3.37
			GW313-747	1.72
			GW402-205	0.503 J
			GW403-206	0.245 J
			GW404-207	0.518 J
			GW405-208	0.572 J
			GW411-214	2.12
			GW417-223	0.237 J
			GW420-226	0.269 J
			GW424-750	0.341
			GW503-231	0.242 J
			GW506-753	0.337
			GW605-754	0.547
			GW801-236	1.04
			GW803-238	0.43 J
			GW804-239	1.3
			GW808-243	0.324 J
			GW813-756	0.317
			GW-TWP831-3505	0.254
			GW-TWP832-3508	0.893
			GW-TWP833-3511	0.601
			GW-TWP834-3514	0.613
			GW-TWP835-3517	0.731
			GW-TWP837-3523	0.342
			GW-TWP838-3526	0.282
			GW-TWP839-3529	1.15
			GW-TWP842-3538	2.28
			GW-TWP844-3544	0.244
			GW-TWP845-3547	0.246
			GW-TWP847-3553	2.52
			GW-TWP849-3559	0.334

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-232	pCi/L	0.229	GW-TWP850-3562	0.407
			GW-TWP851-3565	0.698
			GW-TWP852-3568	5.6
			GW-TWP853-3571	2.45
			GW-TWP854-3574	0.559
			GW-TWP855-3577	0.492
			GW-TWP856-3580	2.98 J
			GW-TWP858-3586	0.807
			GW-TWP859-3589	0.355 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/L}$	15.6	GW201-167	31.9
			GW201A-3250	17.3
			GW201A-773	25.9
			GW203-172	46.3
			GW203A-3251	41.4
			GW203A-774	40.2
			GW204-173	59.5
			GW205-174	28.6
			GW206-175	37.9
			GW208-178	27.1
			GW209-182	30.3
			GW211-184	31.3
			GW212-185	18.3
			GW213-186	38.8
			GW213A-3281	40.1
			GW213A-775	37.2
			GW215-188	145
			GW215A-3252	51
			GW215A-776	41
			GW217-190	33.2
			GW2A001-660	40.3
			GW2A002-661	27.6
			GW2A003-662	19.2
			GW2B006-663	41
			GW302-192	96.3
			GW302A-3253	125
			GW302A-777	125
			GW303-193	59.1
			GW303A-778	21.4
			GW304-194	56.5
			GW306-196	26.7
			GW307-197	26.1
			GW308-198	17
			GW312-203	35.7
			GW313-747	18.4
			GW401-204	42.6
			GW403-206	22.6
			GW404-207	107
			GW405-208	23
			GW406-209	21.7
			GW407-210	15.8
			GW409-212	23.2
			GW415-221	33.3
			GW415A-3280	16.7

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/L}$	15.6	GW415A-781	29.8
			GW4D003-666	22.4
			GW4D003-668	24.7
			GW4D005-670	32.8
			GW501-229	24.3
			GW502-230	24
			GW503-231	62.4
			GW505-3279	25.8
			GW505-783	24.4
			GW506-753	35.1
			GW603-234	28.3
			GW803-238	16.4
			GW804-239	32.1
			GW805-240	32.5
			GW808-243	64.1
			GW808A-3257	37.4
			GW808A-787	46.3
			GW813-756	20.6
			GW815-758	23.8
			GW818-760	34.1
			GW825-768	17.5
			GW825-769	18.2
			GWA42-254	80.3
			GWA42-3275	56
			GWA43-264	36.6
			GWA43-3259	47.4
			GWA45-256	44.1
			GWA45-3285	42.8
			GWA50-258	17.6
			GWA51-270	25.6
			GWA52-259	46.2
			GWA52-3260	72
			GWBH49A-3261	16.3
			GW-MW313-3592	31.7
			GW-MW862-3604	17.4
			GWOW03B-261	18.1
			GWOW04B-3290	61.1
			GWOW06B-262	37.2
			GWOW06B-3291	29.2
			GWOW07B-3292	19.1
			GWOW08B-798	15.9
			GWOW09B-3262	21.8
			GWOW09B-800	28.2
			GWOW11B-3263	250

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium	$\mu\text{g/L}$	15.6	GWOW11B-803	172
			GWOW12B-804	17.9
			GWOW13B-3267	23.5
			GWOW18B-3272	20.5
			GW-TWP830-3502	27.6
			GW-TWP831-3505	82
			GW-TWP833-3511	662
			GW-TWP835-3517	28.4
			GW-TWP837-3523	17
			GW-TWP838-3526	21.1
			GW-TWP839-3529	16
			GW-TWP844-3544	24.1
			GW-TWP846-3550	15.9
			GW-TWP847-3553	21.9
			GW-TWP852-3568	20.8
			GW-TWP855-3577	22.5
			GW-TWP856-3580	29.6

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/L	8.73	GW201-167	10.6
			GW201A-3250	9.31
			GW201A-773	10.4
			GW203-172	22.7
			GW203A-3251	25.6
			GW203A-774	15.5
			GW204-173	24.4
			GW205-174	9.19
			GW206-175	16.3
			GW208-178	16.4
			GW209-182	14
			GW212-185	8.82
			GW213-186	14.3
			GW213A-3281	16.2 J
			GW213A-775	16.3
			GW215-188	48.8
			GW215A-3252	36.2
			GW215A-776	17.4
			GW217-190	14.9
			GW2A001-660	18.2
			GW2A002-661	14
			GW2A003-662	10.2
			GW2B006-663	21.2
			GW302-192	33.3
			GW302A-3253	52.6
			GW302A-777	61
			GW303-193	21.7
			GW304-194	24.1
			GW306-196	10.4
			GW307-197	9.66
			GW308-198	9.28
			GW312-203	13.4
			GW313-747	9.15
			GW401-204	16.7
			GW403-206	10.7
			GW404-207	36
			GW405-208	10.6
			GW415-221	11.4
			GW415A-3280	10.8
			GW415A-781	11.6
			GW4D003-666	9.23
			GW4D003-668	11.2
			GW4D005-670	13.3
			GW501-229	12

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/L	8.73	GW502-230	10.9
			GW503-231	24.7
			GW505-3279	11.8
			GW505-783	11.3
			GW506-753	19.2
			GW603-234	9.83
			GW606-786	16.2
			GW804-239	11.7
			GW805-240	15
			GW808-243	28
			GW808A-3257	15.9
			GW808A-787	18.6
			GW813-756	9.2
			GW815-758	9.93
			GW818-760	16.9
			GW825-768	8.89
			GWA42-254	30.5
			GWA42-3275	25.7
			GWA43-264	14.2
			GWA43-3259	13.1
			GWA45-256	19.9
			GWA45-3285	16.4
			GWA50-3286	10.8
			GWA52-259	23.2
			GWA52-3260	21.9
			GW-MW313-3592	13.3
			GWOW04B-3290	25.5
			GWOW06B-262	16
			GWOW06B-3291	9.38
			GWOW07B-3292	9.62
			GWOW09B-3262	13.5
			GWOW09B-800	14
			GWOW11B-3263	102
			GWOW11B-803	67.2
			GW-TWP830-3502	67
			GW-TWP831-3505	29.2
			GW-TWP833-3511	523
			GW-TWP835-3517	11
			GW-TWP838-3526	8.87
			GW-TWP839-3529	9.85
			GW-TWP844-3544	8.9
			GW-TWP849-3559	10.2
			GW-TWP850-3562	9.15
			GW-TWP853-3571	9.01

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/L	8.73	GW-TWP855-3577	9.97
			GW-TWP856-3580	13 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/L	0.715	GW203-172	0.763 J
			GW203A-3251	1.16
			GW204-173	0.744
			GW209-182	0.889
			GW213A-3281	1.72 J
			GW215-188	2.12
			GW215A-3252	4.15
			GW215A-776	0.79
			GW217-190	0.943 J
			GW2A001-660	0.773
			GW2B006-663	0.838
			GW302-192	1.42
			GW302A-3253	2.24
			GW302A-777	1.89
			GW303-193	0.831
			GW401-204	0.95 J
			GW404-207	1.35
			GW415A-3280	0.988
			GW503-231	1.19
			GW505-3279	0.859
			GW606-786	0.755
			GW808-243	0.831 J
			GW808A-3257	1.07
			GW808A-787	0.967
			GWA42-254	1.23
			GWA42-3275	2.1
			GWA45-256	0.831
			GWA45-3285	0.899
			GWA52-259	0.875
			GWA52-3260	2.4
			GWB02W020S-3287	1.24
			GW-MW313-3592	1.12
			GWOW04B-3290	1.56
			GWOW07B-3292	0.947
			GWOW11B-3263	10.5
			GWOW11B-803	2.72
			GWOW15B-3288	0.823
			GW-TWP830-3502	8.18
			GW-TWP831-3505	2.64
			GW-TWP833-3511	33.2
			GW-TWP834-3514	0.826
			GW-TWP835-3517	1.44
			GW-TWP836-3520	0.805
			GW-TWP837-3523	0.857

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/L	0.715	GW-TWP838-3526	1.06
			GW-TWP839-3529	2.31
			GW-TWP842-3538	1.92
			GW-TWP844-3544	1.06
			GW-TWP847-3553	1.13
			GW-TWP849-3559	1.44
			GW-TWP850-3562	0.969
			GW-TWP852-3568	0.752
			GW-TWP855-3577	1.63
			GW-TWP856-3580	3.04 J
			GW-TWP858-3586	1.04

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GW201-167	8.52
			GW201A-3250	6.48
			GW201A-773	9.05
			GW203-172	18.9
			GW203A-3251	19.2
			GW203A-774	13.2
			GW204-173	17.7
			GW205-174	6.97
			GW206-175	11.6
			GW208-178	11.5
			GW209-182	10.4
			GW212-185	6.17
			GW213-186	10.9
			GW213A-3281	13.3 J
			GW213A-775	12.8
			GW215-188	41.2
			GW215A-3252	28.6
			GW215A-776	14.9
			GW217-190	11.8
			GW2A001-660	12.8
			GW2A002-661	10.6
			GW2B006-663	16.3
			GW302-192	27.3
			GW302A-3253	41.1
			GW302A-777	47
			GW303-193	18.6
			GW303A-3254	6
			GW303A-778	7.02
			GW304-194	17.2
			GW306-196	8.98
			GW307-197	7.49
			GW308-198	7.55
			GW312-203	11.8
			GW313-747	7.4
			GW401-204	14.1
			GW403-206	8.26
			GW404-207	29.2
			GW405-208	8.86
			GW406-209	6.7
			GW409-212	8.28
			GW410-213	6.57
			GW415-221	9.99
			GW415A-3280	9.16
			GW415A-781	10.4

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GW4D003-666	7.66
			GW4D003-668	8.25
			GW4D005-670	10.3
			GW501-229	9.7
			GW502-230	8.57
			GW503-231	20.3
			GW505-3279	9.12
			GW505-783	8.71
			GW506-753	16.1
			GW603-234	8.19
			GW606-786	13.6
			GW803-238	5.99
			GW804-239	7.87
			GW805-240	11
			GW808-243	19
			GW808A-3257	12.1
			GW808A-787	16.4
			GW813-756	7.14
			GW815-758	8.19
			GW818-760	11.8
			GW820-763	6.02
			GW825-768	6.25
			GW825-769	6.48
			GWA42-254	25.7
			GWA42-3275	23.8
			GWA43-264	11.5
			GWA43-3259	11.9
			GWA45-256	14.8
			GWA45-3285	11.8
			GWA50-3286	8.53
			GWA51-270	7.01
			GWA52-259	17.2
			GWA52-3260	16.5
			GW-MW313-3592	10.6
			GW-MW862-3604	5.95
			GWOW03B-261	6.55
			GWOW04B-3290	24.5
			GWOW06B-262	13
			GWOW06B-3291	7.55
			GWOW07B-3292	7.93
			GWOW08B-798	6.01
			GWOW09B-3262	10.3
			GWOW09B-800	8.88
			GWOW11B-3263	104

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/L	5.79	GWOW11B-803	63.4
			GWOW12B-804	6
			GWOW18B-3272	6.92
			GW-TWP830-3502	72.7
			GW-TWP831-3505	23.7
			GW-TWP832-3508	5.93
			GW-TWP833-3511	543
			GW-TWP835-3517	8.89
			GW-TWP838-3526	6.97
			GW-TWP839-3529	7.02
			GW-TWP842-3538	7.05
			GW-TWP844-3544	7.65
			GW-TWP846-3550	8.75
			GW-TWP847-3553	6.62
			GW-TWP849-3559	7.57
			GW-TWP850-3562	7.84
			GW-TWP852-3568	6.63
			GW-TWP853-3571	9.13
			GW-TWP854-3574	6.92
			GW-TWP855-3577	8.29
			GW-TWP856-3580	13.6 J
			GW-TWP858-3586	6.48
Semivolatile Organics				

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
bis(2-Ethylhexyl)phthalate	$\mu\text{g/L}$	--	GW213A-3281	41.4
			GW411A-3255	24
			GW415A-3280	16.7
			GW505-783	6.4 J
			GW607-755	10.8
			GW816-3282	3.28 J
			GW822-765	276 D
			GWA45-3285	9.65 J
			GWA50-3286	2.87 J
			GWA51-270	9.4 J
			GWBH50-267	37.6
			GWBH50-3283	14.5
			GWBH57-3278	2.84 J
			GW-MW228-3616	3.28 J
			GW-MW229-3619	3.14 J
			GW-MW313-3592	3.07 J
			GW-MW424-3610	3.61 J
			GW-MW862-3604	4.43 J
			GWOW01A-3273	71
			GWOW09B-3262	289
Di-n-butylphthalate	$\mu\text{g/L}$	--	GWOW10B-3277	2.49 J
			GWOW10B-801	14.2
			GWOW17B-3289	1.91 J
			GW215-188	50.7
			GW301-191	14.9
			GW303-193	69
			GW304-194	38.4
			GW306-196	41.1
			GW307-197	89.4
			GW310-200	30.7
			GW417-223	30.1
			GW804-239	22.5
			GW805-240	21.4
			GW-TWP858-3586	2.72 J

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Phenol	μg/L	--	GW203A-3251	12
			GW215A-3252	7.15 J
			GW302A-3253	11.3
			GW303A-3254	12.3
			GW505-3279	0.306 J
			GW603A-3256	3.91 J
			GW808A-3257	2.15 J
			GW816-789	6.1 J
			GWA42-3275	8.34 J
			GWA45-3285	4.08 J
			GWBH57-3278	5.18 J
			GWOW01A-3273	8.14 J
			GWOW02B-3264	13.4
			GWOW05B-3274	6.38 J
			GWOW09B-3262	0.3 J
			GWOW10B-3277	15.8
			GWOW10B-801	57.9
			GWOW11B-3263	0.291 J
			GWOW18A-3271	42.7
			GWOW18B-3272	11.4
Volatile Organics				
1,2-Dichloroethene	μg/L	--	C5-SO-GW-D800	2
2-Butanone	μg/L	4.49	GW203A-3251	64
			GW415A-3280	19.5
			GW505-783	8.4
			GW810A-788	4.9 J
			GWBH15-3276	4.95 J
			GWBH49A-3261	6.81
			GWBH57-3278	22.1
			GW-MW228-3616	13.6
			GW-MW424-3610	25
			GW-MW862-3604	7.9
			GW-MW863-3607	4.92 J
			GWOW01A-3273	68.6
			GWOW10B-3277	19.1
			GWOW11A-3266	12.5
			GWOW18A-3271	9.67
			GW-TWP834-3514	14.4
Acetone	μg/L	30.5	GW415A-3280	157
			GWOW01A-3273	101

* Data qualifier included with concentration value

Table 4-123
Exposure Unit 17
Groundwater SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Methylene chloride	$\mu\text{g/L}$	--	GW201-167	27
			GW203-172	18
			GW213-186	25.8
			GW214-187	20.5
			GW415-221	1680 JB
			GW415A-3280	2.59 J
			GW-MW313-3592	1.93 J
			GW-TWP830-3502	1.92 J
			GW-TWP831-3505	2.09 J
			GW-TWP832-3508	1.94 J
			GW-TWP833-3511	2.08 J
			GW-TWP856-3580	2.13 J
			GW-TWP858-3586	1.93 J
Tetrachloroethene	$\mu\text{g/L}$	--	GW210-183	0.52 J
			GW213A-775	0.46 J
			GW303A-3254	0.597 BJ
			GW415-221	14800 D
			GW415A-3280	92000 B
			GW415A-781	103000 D
			GW415A-782	78900 D
			GW4D003-666	69.3
			GW4D003-668	46.1
			GW810-245	1.7
			GW-MW424-3610	11.2

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals, Dissolved					
Aluminum, Dissolved	μg/L	15	9.49 B	654	4
Antimony, Dissolved	μg/L	15	0.209 B	2.84 B	4
Arsenic, Dissolved	μg/L	15	0.428 B	4.25	15
Barium, Dissolved	μg/L	15	8.5	117	15
Beryllium, Dissolved	μg/L	15	0.299 B	0.299 B	1
Boron, Dissolved	μg/L	15	44.2 B	5360	15
Cadmium, Dissolved	μg/L	15	0.289 B	3.41 B	4
Calcium, Dissolved	μg/L	15	15700	146000	15
Chromium, Dissolved	μg/L	15	0.615 B	109	5
Cobalt, Dissolved	μg/L	15	0.433 B	1.12 B	3
Copper, Dissolved	μg/L	15	0.749 B	55.3	13
Iron, Dissolved	μg/L	15	6.2 B	18100	12
Lead, Dissolved	μg/L	15	0.045 B	16.8	10
Lithium, Dissolved	μg/L	15	2.93 B	14.6	15
Magnesium, Dissolved	μg/L	15	1850	57300	15
Manganese, Dissolved	μg/L	15	0.491 B	1080	15
Mercury, Dissolved	μg/L	15	0.064 B	0.291	4
Nickel, Dissolved	μg/L	15	1.29 B	28.3	9
Potassium, Dissolved	μg/L	15	1530	60900	15
Selenium, Dissolved	μg/L	15	0.589 BN	3.26 N	12
Silver, Dissolved	μg/L	15	0.054 B	0.312 B	11
Sodium, Dissolved	μg/L	15	1490	30800	15
Thallium, Dissolved	μg/L	15	0.008 B	0.791	8
Vanadium, Dissolved	μg/L	15	0.743 B	10.4	12
Zinc, Dissolved	μg/L	15	2.33 B	663	7
Metals, Total					
Aluminum	μg/L	21	18.3 B	10600	20
Antimony	μg/L	21	0.406 B	50.3	14
Arsenic	μg/L	21	0.855 BN	30.9	14
Barium	μg/L	21	12.1	1400	21
Beryllium	μg/L	21	--	--	0
Boron	μg/L	21	46.2 B	20400 E	21
Cadmium	μg/L	21	0.917 B	142	5
Calcium	μg/L	21	15500	565000	21
Chromium	μg/L	21	0.567 B	841	10
Cobalt	μg/L	21	0.282 B	619	4
Copper	μg/L	21	1.16 B	5930	18
Iron	μg/L	21	17.7 B	43500	21
Lead	μg/L	21	0.046 BN	4510	13
Lithium	μg/L	21	2.96 B	1060	20
Magnesium	μg/L	21	1950	204000	21
Manganese	μg/L	21	5.94 B	2650	21
Mercury	μg/L	21	0.597	33.4	2

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Nickel	μg/L	21	0.914 B	18500	7
Potassium	μg/L	21	1410	280000	21
Selenium	μg/L	21	0.658 BN	5.7	12
Silver	μg/L	21	0.011 B	7.06	7
Sodium	μg/L	21	1310	127000	21
Thallium	μg/L	21	0.083 B	0.84 B	8
Vanadium	μg/L	21	0.826 B	162	12
Zinc	μg/L	21	1.46 B	14300 E	13
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/L	6	--	--	0
2,4,6-Trinitrotoluene	μg/L	6	--	--	0
2,4-Dinitrotoluene	μg/L	31	--	--	0
2,6-Dinitrotoluene	μg/L	31	--	--	0
2-Amino-4,6-dinitrotoluene	μg/L	6	--	--	0
2-Nitrotoluene	μg/L	6	--	--	0
3-Dinitrobenzene	μg/L	6	--	--	0
3-Nitrotoluene	μg/L	6	--	--	0
4-Amino-2,6-dinitrotoluene	μg/L	6	--	--	0
4-Nitrotoluene	μg/L	6	--	--	0
HMX	μg/L	6	--	--	0
Nitrobenzene	μg/L	31	--	--	0
RDX	μg/L	6	--	--	0
Tetryl	μg/L	6	--	--	0
PAHs					
Acenaphthene	μg/L	31	5.4 J	5.4 J	1
Acenaphthylene	μg/L	31	1 J	1 J	1
Anthracene	μg/L	31	0.14 J	14.3	2
Benzo(a)anthracene	μg/L	31	0.73 J	10.2	2
Benzo(a)pyrene	μg/L	31	36.8	36.8	1
Benzo(b)fluoranthene	μg/L	31	2.6	39.4	2
Benzo(g,h,i)perylene	μg/L	31	--	--	0
Benzo(k)fluoranthene	μg/L	31	0.66 J	14.6	2
Chrysene	μg/L	31	0.72 J	12.7	2
Dibenzo(a,h)anthracene	μg/L	31	--	--	0
Fluoranthene	μg/L	31	1.2	71.8	2
Fluorene	μg/L	31	13.6	13.6	1
Indeno(1,2,3-cd)pyrene	μg/L	31	--	--	0
Naphthalene	μg/L	31	0.244 J	0.244 J	1
Phenanthrene	μg/L	31	0.02	63.3	3
Pyrene	μg/L	31	0.3 J	47.4	2
PCBs					
Aroclor-1016	μg/L	14	--	--	0
Aroclor-1221	μg/L	14	--	--	0
Aroclor-1232	μg/L	14	--	--	0

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Aroclor-1242	μg/L	14	--	--	0
Aroclor-1248	μg/L	14	--	--	0
Aroclor-1254	μg/L	14	0.57	855	2
Aroclor-1260	μg/L	14	0.17	0.17	1
Pesticides					
4,4'-DDD	μg/L	10	--	--	0
4,4'-DDE	μg/L	10	0.0386 J	0.0386 J	1
4,4'-DDT	μg/L	10	0.0374 J	0.0507	2
Aldrin	μg/L	10	--	--	0
alpha-BHC	μg/L	10	0.007 J	0.007 J	1
alpha-Chlordane	μg/L	9	--	--	0
beta-BHC	μg/L	10	--	--	0
delta-BHC	μg/L	10	--	--	0
Dieldrin	μg/L	10	--	--	0
Endosulfan I	μg/L	10	--	--	0
Endosulfan II	μg/L	10	--	--	0
Endosulfan sulfate	μg/L	10	--	--	0
Endrin	μg/L	10	--	--	0
Endrin aldehyde	μg/L	10	--	--	0
Endrin ketone	μg/L	9	--	--	0
gamma-BHC (Lindane)	μg/L	10	0.0076 J	0.0076 J	1
gamma-Chlordane	μg/L	9	--	--	0
Heptachlor	μg/L	10	--	--	0
Heptachlor epoxide	μg/L	10	0.0081 J	0.0081 J	1
Methoxychlor	μg/L	10	--	--	0
Toxaphene	μg/L	9	--	--	0
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	9	--	--	0
Alpha, Dissolved	pCi/L	9	10.5	676	6
Americium-241, Dissolved	pCi/L	9	--	--	0
Beta, Dissolved	pCi/L	9	2.2	331	9
Cesium-137, Dissolved	pCi/L	9	--	--	0
Cobalt-60, Dissolved	pCi/L	9	--	--	0
Plutonium-238, Dissolved	pCi/L	3	--	--	0
Protactinium-231, Dissolved	pCi/L	9	--	--	0
Radium-226, Dissolved	pCi/L	9	0.257	1.58	6
Radium-228, Dissolved	pCi/L	9	0.865	1.38	3
Strontium-90, Dissolved	pCi/L	3	--	--	0
Thorium-228, Dissolved	pCi/L	9	--	--	0
Thorium-230, Dissolved	pCi/L	9	0.359	0.744	7
Thorium-232, Dissolved	pCi/L	9	0.0497	0.134	2
Total Activity, Dissolved	pCi/mL	9	2.56	3.82	4
Total Uranium, Dissolved	μg/L	9	0.428	1210	9
Uranium-234, Dissolved	pCi/L	9	0.382	316	8

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Uranium-235, Dissolved	pCi/L	9	0.309	35.1	6
Uranium-238, Dissolved	pCi/L	9	0.152	327	8
Radionuclides, Total					
Actinium-227	9	1	--	--	0
	pCi/L	35	--	--	0
Alpha	pCi/L	34	1.07	701	30
Americium-241	pCi/L	36	--	--	0
Beta	pCi/L	34	2.79	394	34
Cesium-137	pCi/L	36	2.02	2.66	2
Cobalt-60	pCi/L	36	--	--	0
Protactinium-231	pCi/L	36	--	--	0
Radium-226	pCi/L	36	0.364	32.2	26
Radium-228	pCi/L	36	--	--	0
Thorium-228	pCi/L	36	0.329	0.565	3
Thorium-230	pCi/L	36	0.0405	4.92	28
Thorium-232	pCi/L	36	0.013	0.673	4
Total Uranium	μg/L	9	0.512	1300	9
Uranium-234	pCi/L	36	0.185	629	35
Uranium-235	pCi/L	36	0.0721	33	29
Uranium-238	pCi/L	36	0.123	627	34
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/L	31	--	--	0
1,2-Dichlorobenzene	μg/L	31	--	--	0
1,3-Dichlorobenzene	μg/L	31	--	--	0
1,4-Dichlorobenzene	μg/L	31	--	--	0
2,4,5-Trichlorophenol	μg/L	31	--	--	0
2,4,6-Trichlorophenol	μg/L	31	--	--	0
2,4-Dichlorophenol	μg/L	31	--	--	0
2,4-Dimethylphenol	μg/L	31	--	--	0
2,4-Dinitrophenol	μg/L	31	--	--	0
2-Chloronaphthalene	μg/L	31	--	--	0
2-Chlorophenol	μg/L	31	--	--	0
2-Methyl-4,6-dinitrophenol	μg/L	31	--	--	0
2-Methylnaphthalene	μg/L	26	--	--	0
2-Nitroaniline	μg/L	31	--	--	0
2-Nitrophenol	μg/L	31	--	--	0
3,3'-Dichlorobenzidine	μg/L	31	--	--	0
3-Nitroaniline	μg/L	31	--	--	0
4-Bromophenylphenylether	μg/L	31	--	--	0
4-Chloro-3-methylphenol	μg/L	31	--	--	0
4-Chloroaniline	μg/L	31	--	--	0
4-Chlorophenylphenylether	μg/L	31	--	--	0
4-Nitroaniline	μg/L	31	--	--	0
4-Nitrophenol	μg/L	31	--	--	0

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/L	31	--	--	0
bis(2-Chloroethyl)ether	μg/L	31	--	--	0
bis(2-Chloroisopropyl)ether	μg/L	31	--	--	0
bis(2-Ethylhexyl)phthalate	μg/L	31	0.21 J	181 J	6
Butylbenzylphthalate	μg/L	31	483 J	483 J	1
Carbazole	μg/L	31	--	--	0
Dibenzofuran	μg/L	31	--	--	0
Diethylphthalate	μg/L	31	--	--	0
Dimethylphthalate	μg/L	31	--	--	0
Di-n-butylphthalate	μg/L	31	2.3 J	2.5 J	2
Di-n-octylphthalate	μg/L	31	--	--	0
Diphenylamine	μg/L	22	--	--	0
Hexachlorobenzene	μg/L	31	--	--	0
Hexachlorobutadiene	μg/L	31	--	--	0
Hexachlorocyclopentadiene	μg/L	31	--	--	0
Hexachloroethane	μg/L	31	--	--	0
Isophorone	μg/L	31	--	--	0
m,p-Cresols	μg/L	26	10.4	10.4	1
N-Nitroso-di-n-propylamine	μg/L	31	--	--	0
N-Nitrosodiphenylamine	μg/L	9	--	--	0
o-Cresol	μg/L	31	--	--	0
p-Cresol	μg/L	5	--	--	0
Pentachlorophenol	μg/L	31	--	--	0
Phenol	μg/L	31	12.6	12.6	1
Volatile Organics					
1,1,1-Trichloroethane	μg/L	24	--	--	0
1,1,2,2-Tetrachloroethane	μg/L	24	--	--	0
1,1,2-Trichloroethane	μg/L	24	--	--	0
1,1-Dichloroethane	μg/L	24	--	--	0
1,1-Dichloroethene	μg/L	24	--	--	0
1,2-Dichloroethane	μg/L	24	--	--	0
1,2-Dichloroethene	μg/L	5	--	--	0
1,2-Dichloropropane	μg/L	24	--	--	0
2-Butanone	μg/L	19	2 J	36.6	4
2-Hexanone	μg/L	24	1.64 J	1.64	1
4-Methyl-2-pentanone	μg/L	19	--	--	0
Acetone	μg/L	23	0.9 J	268	8
Benzene	μg/L	24	0.16 J	0.16 J	1
Bromodichloromethane	μg/L	24	--	--	0
Bromoform	μg/L	24	--	--	0
Bromomethane	μg/L	24	--	--	0
Carbon disulfide	μg/L	24	1.3 J	1.3 J	1
Carbon tetrachloride	μg/L	24	--	--	0
Chlorobenzene	μg/L	24	--	--	0

* Data qualifier included with concentration value

Table 4-124
Exposure Unit 16
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroethane	μg/L	24	--	--	0
Chloroform	μg/L	24	--	--	0
Chloromethane	μg/L	24	0.9 J	0.9 J	1
cis-1,2-Dichloroethene	μg/L	19	8	123 D	3
cis-1,3-Dichloropropene	μg/L	24	--	--	0
Dibromochloromethane	μg/L	24	--	--	0
Ethylbenzene	μg/L	24	--	--	0
Methylene chloride	μg/L	24	0.65 J	0.65 J	1
o-Xylene	μg/L	3	--	--	0
Styrene	μg/L	24	--	--	0
Tetrachloroethene	μg/L	24	6.77	225 D	3
Toluene	μg/L	24	0.26 J	3 J	7
trans-1,2-Dichloroethene	μg/L	19	--	--	0
trans-1,3-Dichloropropene	μg/L	24	--	--	0
Trichloroethene	μg/L	24	2.6	80.2 D	2
Vinyl chloride	μg/L	24	2.2	2.2	1
Xylenes (total)	μg/L	21	0.283 J	0.283 J	1

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals, Dissolved				
Aluminum, Dissolved	$\mu\text{g/L}$	31.2	MH01W-2000	654
			PIPE28W-2056	172
Antimony, Dissolved	$\mu\text{g/L}$	0.648	DRAIN05-W-3708	2.58
			MH16W-2024	2.84 B
Arsenic, Dissolved	$\mu\text{g/L}$	3.76	DRAIN05-W-3708	4.25
			PIPE28W-2056	4.08
Beryllium, Dissolved	$\mu\text{g/L}$	--	DRAIN02-W-3702	0.299 B
Boron, Dissolved	$\mu\text{g/L}$	239	DRAIN01-W-3700	308
			DRAIN05-W-3708	5360
			MH01W-2000	686
			MH05W-2008	264
Cadmium, Dissolved	$\mu\text{g/L}$	1.19	DRAIN05-W-3708	3.41 B
Chromium, Dissolved	$\mu\text{g/L}$	6.69	DRAIN05-W-3708	7.22
			MH01W-2000	59.3
			MH03W-2004	36.2
			MH04W-2006	109
Copper, Dissolved	$\mu\text{g/L}$	8.39	DRAIN02-W-3702	17
			DRAIN05-W-3708	55.3
			MH01W-2000	53.4
Iron, Dissolved	$\mu\text{g/L}$	1360	MH01W-2000	3040
			PIPE28W-2056	18100
Lead, Dissolved	$\mu\text{g/L}$	0.919	DRAIN05-W-3708	5.57
			MH12W-2019	16.8
			PIPE28W-2056	11.7
Magnesium, Dissolved	$\mu\text{g/L}$	30300	MH01W-2000	31900
			MH05W-2008	57300
			MH08W-2013	38500
			MH09W-2016	33800
			MH26W-2032	43800
Manganese, Dissolved	$\mu\text{g/L}$	821	MH01W-2000	1080
			PIPE74W-2067	884
Mercury, Dissolved	$\mu\text{g/L}$	--	DRAIN05-W-3708	0.291
			MH04W-2006	0.064 B
			MH16W-2024	0.069 B
			MH26W-2032	0.071 B
Nickel, Dissolved	$\mu\text{g/L}$	1.81	DRAIN01-W-3700	3.96 B
			DRAIN05-W-3708	28.3
			MH01W-2000	11.8
			MH02W-2001	1.91 B
			MH16W-2024	2.09 B
			PIPE28W-2056	4.45 B

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Potassium, Dissolved	μg/L	7700	DRAIN01-W-3700	18700
			DRAIN05-W-3708	60900
			PIPE28W-2056	19800
			PIPE74W-2067	11100
Selenium, Dissolved	μg/L	2.41	MH12W-2019	2.66 BN
			PIPE28W-2056	3.26 N
Silver, Dissolved	μg/L	0.011	DRAIN05-W-3708	0.054 B
			MH01W-2000	0.3 B
			MH03W-2004	0.173 B
			MH04W-2006	0.299 B
			MH05W-2008	0.141 B
			MH08W-2013	0.302 B
			MH09W-2016	0.146 B
			MH12W-2019	0.312 B
			MH16W-2024	0.3 B
			MH26W-2032	0.301 B
Thallium, Dissolved	μg/L	0.24	PIPE28W-2056	0.292 B
			DRAIN01-W-3700	0.384 B
			MH09W-2016	0.791
Vanadium, Dissolved	μg/L	1.26	PIPE74W-2067	0.297 J
			DRAIN02-W-3702	2.54 B
			MH01W-2000	10.4
			MH03W-2004	1.3 B
			MH04W-2006	2.75 B
Zinc, Dissolved	μg/L	54.5	MH16W-2024	1.58 B
			PIPE28W-2056	1.9 B
			DRAIN05-W-3708	663
			MH01W-2000	153
Metals, Total				
Aluminum	μg/L	5030	DRAIN04-W-3706	10600
Antimony	μg/L	2.33	C7-NFSS-WW-SS8	3.3 J
			C7-NFSS-WW-SS9	3.1 J
			DRAIN04-W-3706	50.3
			DRAIN05-W-3708	2.71
			MH03W-2004	4.4 B
			MH04W-2006	7.25 B
			MH05W-2008	2.94 B
			MH09W-2016	5.35 B
Arsenic	μg/L	6.33	MH26W-2032	3.41 B
			DRAIN04-W-3706	30.9 B
			PIPE28W-2056	10.5
Barium	μg/L	117	DRAIN04-W-3706	1400

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	$\mu\text{g/L}$	244	DRAIN01-W-3700	280 E
			DRAIN04-W-3706	20400 E
			DRAIN05-W-3708	4680 E
			MH01W-2000	731
			MH05W-2008	264
Cadmium	$\mu\text{g/L}$	--	DRAIN01-W-3700	2.31 B
			DRAIN02-W-3702	0.981 B
			DRAIN04-W-3706	142
			DRAIN05-W-3708	5.51
			PIPE28W-2056	0.917 B
Calcium	$\mu\text{g/L}$	141000	DRAIN04-W-3706	565000
			MH03W-2004	146000
			MH05W-2008	148000
Chromium	$\mu\text{g/L}$	7.52	DRAIN04-W-3706	841
			DRAIN05-W-3708	11.1
			MH01W-2000	37
			MH03W-2004	37.7
			MH04W-2006	157
Cobalt	$\mu\text{g/L}$	1.08	DRAIN04-W-3706	619
			DRAIN05-W-3708	1.83 B
			PIPE28W-2056	2.45 B
Copper	$\mu\text{g/L}$	15	DRAIN02-W-3702	15.6
			DRAIN04-W-3706	5930
			DRAIN05-W-3708	66.2
			MH01W-2000	30.5
			PIPE28W-2056	17.7
Iron	$\mu\text{g/L}$	4740	DRAIN04-W-3706	43500
			PIPE28W-2056	38100
Lead	$\mu\text{g/L}$	11.1	DRAIN04-W-3706	4510
			DRAIN05-W-3708	21.7
			PIPE28W-2056	86.3 E
Lithium	$\mu\text{g/L}$	13.2	DRAIN04-W-3706	1060
			DRAIN05-W-3708	14.6
			MH09W-2016	15.9 EN
Magnesium	$\mu\text{g/L}$	30200	DRAIN04-W-3706	204000
			MH01W-2000	33300
			MH03W-2004	35300
			MH05W-2008	58300
			MH08W-2013	40100
			MH09W-2016	34400
			MH26W-2032	46300
Manganese	$\mu\text{g/L}$	951	DRAIN04-W-3706	2650

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Mercury	μg/L	--	DRAIN04-W-3706	33.4
			DRAIN05-W-3708	0.597
Nickel	μg/L	7.74	DRAIN04-W-3706	18500
			DRAIN05-W-3708	26.8
			MH01W-2000	7.86
			PIPE28W-2056	11.3
Potassium	μg/L	9540	DRAIN01-W-3700	19000
			DRAIN04-W-3706	280000
			DRAIN05-W-3708	67900
			PIPE28W-2056	18700
			PIPE74W-2067	10200
Selenium	μg/L	4.24	C7-NFSS-WW-SS9	5.7
Silver	μg/L	0.03	C7-NFSS-WW-ST9	1.3 J
			DRAIN01-W-3700	0.038 B
			DRAIN04-W-3706	7.06 B
			DRAIN05-W-3708	0.099 B
			MH01W-2000	0.14 B
			PIPE28W-2056	0.45 B
Thallium	μg/L	0.026	DRAIN01-W-3700	0.38 B
			DRAIN02-W-3702	0.203 B
			DRAIN04-W-3706	0.84 B
			DRAIN05-W-3708	0.083 B
			MH02W-2001	0.753
			MH03W-2004	0.332 BN
			MH16W-2024	0.46 BN
			PIPE74W-2067	0.65
Vanadium	μg/L	8.52	DRAIN04-W-3706	162
			MH01W-2000	9.73
Zinc	μg/L	70.5	DRAIN04-W-3706	14300 E
			DRAIN05-W-3708	884 E
			MH01W-2000	79
			PIPE28W-2056	87.4 E
PAHs				
Anthracene	μg/L	--	MH35W-2038	0.14 J
			PIPE28W-2056	14.3
Benzo(a)anthracene	μg/L	0.108	MH35W-2038	0.73 J
			PIPE28W-2056	10.2
Benzo(b)fluoranthene	μg/L	--	MH35W-2038	2.6
			PIPE28W-2056	39.4
Benzo(k)fluoranthene	μg/L	--	MH35W-2038	0.66 J
			PIPE28W-2056	14.6
Chrysene	μg/L	0.151	MH35W-2038	0.72 J
			PIPE28W-2056	12.7

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Fluoranthene	μg/L	0.522	MH35W-2038	1.2
			PIPE28W-2056	71.8
Phenanthrene	μg/L	0.223	MH35W-2038	0.69 J
			PIPE28W-2056	63.3
Pyrene	μg/L	0.302	PIPE28W-2056	47.4
PCBs				
Aroclor-1254	μg/L	--	DRAIN04-W-3706	855
			DRAIN05-W-3708	0.57
Aroclor-1260	μg/L	--	DRAIN05-W-3708	0.17
Pesticides				
4,4'-DDT	μg/L	0.0318	DRAIN02-W-3702	0.0374 J
			DRAIN05-W-3708	0.0507
alpha-BHC	μg/L	--	C7-NFSS-WW-ST9	0.007 J
gamma-BHC (Lindane)	μg/L	--	C7-NFSS-WW-SS8	0.0076 J
Heptachlor epoxide	μg/L	--	C7-NFSS-WW-ST6	0.0081 J
Radionuclides, Dissolved				
Alpha, Dissolved	pCi/L	16.7	MH06W-3681	676
			MH08W-3685	114
			MH45W-3687	47.9
			PIPE74W-3693	31.3
Beta, Dissolved	pCi/L	9.87	DRAIN01-W-3700	14.8
			DRAIN05-W-3708	48.8
			MH06W-3681	331
			MH08W-3685	59.6
			MH43W-3689	13.4
			MH45W-3687	27
			PIPE74W-3693	24
Radium-226, Dissolved	pCi/L	1.37	MH45W-3687	1.58
Radium-228, Dissolved	pCi/L	1.09	MH06W-3681	1.38
Thorium-230, Dissolved	pCi/L	0.289	DRAIN01-W-3700	0.688
			MH06W-3681	0.359
			MH07W-3683	0.489
			MH08W-3685	0.384
			MH43W-3689	0.57
			MH45W-3687	0.744
			PIPE74W-3693	0.552
Thorium-232, Dissolved	pCi/L	--	DRAIN01-W-3700	0.134
			MH07W-3683	0.0497
Total Activity, Dissolved	pCi/mL	--	MH06W-3681	3.82
			MH07W-3683	2.73
			MH08W-3685	2.56
			PIPE74W-3693	2.9

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Total Uranium, Dissolved	μg/L	12.4	MH06W-3681	1210
			MH07W-3683	27.1
			MH08W-3685	161
			MH43W-3689	19.4
			MH45W-3687	65.1
			PIPE74W-3693	42.6
Uranium-234, Dissolved	pCi/L	6.07	MH06W-3681	316
			MH07W-3683	8.77
			MH08W-3685	62.4
			MH43W-3689	6.83
			MH45W-3687	20.2
			PIPE74W-3693	13.2
Uranium-235, Dissolved	pCi/L	0.634	MH06W-3681	35.1
			MH07W-3683	0.848
			MH08W-3685	4.5
			MH45W-3687	1.45
			PIPE74W-3693	1.82
Uranium-238, Dissolved	pCi/L	5.23	MH06W-3681	327
			MH07W-3683	8.36
			MH08W-3685	65.4
			MH43W-3689	5.78
			MH45W-3687	21.1
			PIPE74W-3693	14.7
Radionuclides, Total				
Alpha	pCi/L	12.2	MH02W-2001	21.5
			MH03W-2004	18.6
			MH05W-2008	21.8
			MH06W-2009	701
			MH06W-3681	362
			MH07W-2011	14.1
			MH07W-3683	17.1
			MH08W-2013	186
			MH08W-3685	67
			MH09W-2016	13
			MH12W-2019	15.6
			MH31W-2035	47.1
			MH35W-2038	51.7
			MH45W-2049	18.5
			MH45W-3687	40.9
			PIPE74W-3693	26.3

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/L	12.3	DRAIN01-W-3700	18.3
			DRAIN05-W-3708	74.3
			MH02W-2001	23.9
			MH03W-2004	13.5
			MH05W-2008	12.6
			MH06W-2009	394
			MH06W-3681	238
			MH07W-3683	13.2
			MH08W-2013	136
			MH08W-3685	32
			MH31W-2035	23.8
			MH35W-2038	25.5
			MH43W-3689	14.8
			MH45W-2049	15
			MH45W-3687	23.7
			PIPE28W-2056	17.8
			PIPE74W-2067	20.4 J
Cesium-137	pCi/L	--	PIPE74W-3693	20.8
			SUMP35W-2077	20.2
Cesium-137	pCi/L	--	MH31W-2035	2.02
			MH45W-3687	2.66
Radium-226	pCi/L	0.487	DRAIN01-W-3700	1.34
			DRAIN02-W-3702	1.33
			DRAIN03-W-3704	4.29
			DRAIN05-W-3708	0.911
			DRAIN06-W-3710	1.13
			MH01W-2000	0.497
			MH02W-2001	0.684
			MH04W-2006	0.522
			MH06W-2009	0.921
			MH08W-2013	0.518
			MH10W-2018	0.729
			MH12W-2019	0.762
			MH15W-2023	0.625
			MH31W-2035	0.675
			MH41W-2041	0.831
			MH42W-2043	0.685
			MH43W-2045	0.514
			MH45W-3687	32.2
			PIPE74W-2067	0.815
Thorium-228	pCi/L	0.41	DRAIN06-W-3710	0.559
			MH35W-2038	0.565

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thorium-230	pCi/L	0.606	DRAIN03-W-3704	4.92
			DRAIN06-W-3710	2.76
			MH02W-2001	1.33
			MH35W-2038	1.44
Thorium-232	pCi/L	--	DRAIN03-W-3704	0.673
			MH02W-2001	0.286
			MH35W-2038	0.175
			MH42W-2043	0.013
Total Uranium	μg/L	12.5	MH06W-3681	1300
			MH07W-3683	21.6
			MH08W-3685	142
			MH43W-3689	15
			MH45W-3687	61.6
			PIPE74W-3693	35.9
Uranium-234	pCi/L	5.78	DRAIN03-W-3704	58.7 J
			DRAIN06-W-3710	13
			MH01W-2000	6.99
			MH03W-2004	13.2
			MH05W-2008	12.8
			MH06W-2009	629
			MH06W-3681	370
			MH07W-2011	6.43
			MH07W-3683	9.96
			MH08W-2013	128
			MH08W-3685	47.2
			MH09W-2016	7.3
			MH10W-2018	6.27
			MH12W-2019	6.78
			MH31W-2035	18.9
			MH35W-2038	13.2
			MH43W-3689	6.55
			MH45W-2049	6.56
			MH45W-3687	23.8
			PIPE74W-3693	13.7

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/L	0.529	DRAIN06-W-3710	1.77
			MH05W-2008	0.628
			MH06W-2009	30.9
			MH06W-3681	33
			MH07W-3683	0.792
			MH08W-2013	5.92
			MH08W-3685	5.47
			MH31W-2035	1.4
			MH35W-2038	0.836
			MH43W-3689	0.993
			MH45W-3687	1.37
			PIPE74W-3693	3.28
Uranium-238	pCi/L	4.81	DRAIN03-W-3704	63.5 J
			DRAIN06-W-3710	14
			MH01W-2000	5.88
			MH03W-2004	9.75
			MH05W-2008	11
			MH06W-2009	627
			MH06W-3681	388
			MH07W-2011	6.23
			MH07W-3683	8.73
			MH08W-2013	129
			MH08W-3685	48
			MH09W-2016	7.16
			MH10W-2018	5.06
			MH12W-2019	6.22
			MH31W-2035	17.8
			MH35W-2038	12.8
			MH43W-3689	6.73
			MH45W-2049	6.15
			MH45W-3687	24.8
			PIPE74W-3693	12.5
Semivolatile Organics				
bis(2-Ethylhexyl)phthalate	μg/L	--	DRAIN04-W-3706	181 J
			MH16W-2024	0.34 J
			MH35W-2038	4.3
			MH42W-2043	0.21 J
			MH46W-2051	2.9
			PIPE28W-2056	1.1 JB
Di-n-butylphthalate	μg/L	--	MH45W-2049	2.3 J
			MH46W-2051	2.5 J
Volatile Organics				
2-Butanone	μg/L	15.8	DRAIN06-W-3710	36.6

* Data qualifier included with concentration value

Table 4-125
Exposure Unit 16
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/L}$	16.4	DRAIN03-W-3704	76.2 J
			DRAIN04-W-3706	268
			DRAIN06-W-3710	38.9
cis-1,2-Dichloroethene	$\mu\text{g/L}$	--	MH31W-2035	8
			MH32W-2036	123 D
			MH35W-2038	8.2
Tetrachloroethene	$\mu\text{g/L}$	0.554	MH32W-2036	225 D
			MH35W-2038	13.1
			PIPE74W-3693	6.77
Toluene	$\mu\text{g/L}$	--	C7-NFSS-WW-ST9	3 J
			MH09W-2016	0.34 J
			MH35W-2038	0.32 J
			MH43W-2045	0.26 J
			PIPE28W-2056	1.2
			PIPE74W-2067	1.2
			SUMP35W-2077	0.39 J
Trichloroethene	$\mu\text{g/L}$	--	MH32W-2036	80.2 D
			MH35W-2038	2.6

* Data qualifier included with concentration value

Table 4-126
Summary of Drain Oil Sample Results
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Drain04-W-3719	Drain03-W-3720
		Concentration*	Concentration*
Volatile Organics			
1,1,1-Trichloroethane	µg/Kg	482000 U	NA
1,1,2,2-Tetrachloroethane	µg/Kg	827000 U	NA
1,1,2-Trichloroethane	µg/Kg	491000 U	NA
1,1-Dichloroethane	µg/Kg	427000 U	NA
1,1-Dichloroethene	µg/Kg	455000 U	NA
1,2-Dichloroethane	µg/Kg	391000 U	NA
1,2-Dichloropropane	µg/Kg	436000 U	NA
2-Butanone	µg/Kg	3400000 U	NA
2-Hexanone	µg/Kg	3430000 U	NA
4-Methyl-2-Pentanone	µg/Kg	3660000 U	NA
Acetone	µg/Kg	3200000 U	NA
Benzene	µg/Kg	409000 U	NA
Bromodichloromethane	µg/Kg	445000 U	NA
Bromoform	µg/Kg	445000 U	NA
Bromomethane	µg/Kg	455000 U	NA
CarbonDisulfide	µg/Kg	2150000 U	NA
CarbonTetrachloride	µg/Kg	445000 U	NA
Chlorobenzene	µg/Kg	373000 U	NA
Chloroethane	µg/Kg	736000 U	NA
Chloroform	µg/Kg	473000 U	NA
Chloromethane	µg/Kg	336000 U	NA
cis-1,2-Dichloroethene	µg/Kg	427000 U	NA
cis-1,3-Dichloropropene	µg/Kg	391000 U	NA
Dibromochloromethane	µg/Kg	455000 U	NA
Ethylbenzene	µg/Kg	345000 U	NA
MethyleneChloride	µg/Kg	1230000 U	NA
Styrene	µg/Kg	355000 U	NA
Tetrachloroethene	µg/Kg	345000 U	NA
Toluene	µg/Kg	309000 U	NA
trans-1,2-Dichloroethene	µg/Kg	482000 U	NA
trans-1,3-Dichloropropene	µg/Kg	227000 U	NA
Trichloroethene	µg/Kg	409000 U	NA
VinylChloride	µg/Kg	509000 U	NA
Xylenes	µg/Kg	355000 U	NA
Semivolatile Organics			
1,2,4-Trichlorobenzene	µg/Kg	15200 U	15200 U
1,2-Dichlorobenzene	µg/Kg	12000 U	12000 U
1,3-Dichlorobenzene	µg/Kg	13600 U	13600 U
1,4-Dichlorobenzene	µg/Kg	18800 U	18800 U
2,4,5-Trichlorophenol	µg/Kg	20800 U	20800 U
2,4,6-Trichlorophenol	µg/Kg	32800 U	32800 U
2,4-Dichlorophenol	µg/Kg	24800 U	24800 U
2,4-Dimethylphenol	µg/Kg	200000 U	200000 U

* Data qualifier included with concentration value

U: Undetected

NA: Not Analyzed

Table 4-126
Summary of Drain Oil Sample Results
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Drain04-W-3719	Drain03-W-3720
		Concentration*	Concentration*
2,4-Dinitrophenol	µg/Kg	200000 U	200000 U
2,4-Dinitrotoluene	µg/Kg	30400 U	30400 U
2,6-Dinitrotoluene	µg/Kg	40000 U	40000 U
2-Chloronaphthalene	µg/Kg	16400 U	16400 U
2-Chlorophenol	µg/Kg	18400 U	18400 U
2-Methylnaphthalene	µg/Kg	20000 U	20000 U
2-Methylphenol	µg/Kg	31200 U	31200 U
2-Nitroaniline	µg/Kg	200000 U	200000 U
2-Nitrophenol	µg/Kg	20400 U	20400 U
3,3'-Dichlorobenzidine	µg/Kg	200000 U	200000 U
3-Nitroaniline	µg/Kg	200000 U	200000 U
4,6-Dinitro-2-methylphenol	µg/Kg	200000 U	200000 U
4-Bromophenylphenylether	µg/Kg	40800 U	40800 U
4-Chloro-3-methylphenol	µg/Kg	200000 U	200000 U
4-Chloroaniline	µg/Kg	200000 U	200000 U
4-Chlorophenylphenylether	µg/Kg	23600 U	23600 U
4-Nitroaniline	µg/Kg	44400 U	44400 U
4-Nitrophenol	µg/Kg	200000 U	200000 U
Acenaphthene	µg/Kg	9600 U	9600 U
Acenaphthylene	µg/Kg	20000 U	20000 U
Anthracene	µg/Kg	20000 U	20000 U
Benzo(a)anthracene	µg/Kg	20000 U	20000 U
Benzo(a)pyrene	µg/Kg	20000 U	20000 U
Benzo(b)fluoranthene	µg/Kg	20000 U	20000 U
Benzo(g,h,i)perylene	µg/Kg	20000 U	20000 U
Benzo(k)fluoranthene	µg/Kg	20000 U	20000 U
BenzoicAcid	µg/Kg	40000 U	40000 U
bis(2-Chloroethoxy)methane	µg/Kg	14800 U	14800 U
bis(2-Chloroethyl)ether	µg/Kg	44800 U	44800 U
bis(2-Chloroisopropyl)ether	µg/Kg	13200 U	13200 U
bis(2-Ethylhexyl)phthalate	µg/Kg	52900	106000
Butylbenzylphthalate	µg/Kg	34400 U	34400 U
Carbazole	µg/Kg	20000 U	20000 U
Chrysene	µg/Kg	20000 U	20000 U
Dibenzo(a,h)anthracene	µg/Kg	20000 U	20000 U
Dibenzofuran	µg/Kg	20400 U	20400 U
Diethylphthalate	µg/Kg	21200 U	21200 U
Dimethylphthalate	µg/Kg	22000 U	22000 U
Di-n-butylphthalate	µg/Kg	28800 U	28800 U
Di-n-octylphthalate	µg/Kg	36400 U	36400 U
Fluoranthene	µg/Kg	20000 U	20000 U
Fluorene	µg/Kg	4800 U	4800 U
Hexachlorobenzene	µg/Kg	24000 U	24000 U
Hexachlorobutadiene	µg/Kg	15200 U	15200 U
Hexachlorocyclopentadiene	µg/Kg	200000 U	200000 U

* Data qualifier included with concentration value

U: Undetected

NA: Not Analyzed

Table 4-126
Summary of Drain Oil Sample Results
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Drain04-W-3719	Drain03-W-3720
		Concentration*	Concentration*
Hexachloroethane	µg/Kg	26400 U	26400 U
Indeno(1,2,3-cd)pyrene	µg/Kg	20000 U	20000 U
Isophorone	µg/Kg	19200 U	19200 U
m,p-Cresols	µg/Kg	40000 U	40000 U
Naphthalene	µg/Kg	20000 U	20000 U
Nitrobenzene	µg/Kg	24400 U	24400 U
N-Nitroso-di-n-propylamine	µg/Kg	27200 U	27200 U
N-Nitrosodiphenylamine	µg/Kg	26800 U	26800 U
Pentachlorophenol	µg/Kg	200000 U	200000 U
Phenanthrene	µg/Kg	20000 U	20000 U
Phenol	µg/Kg	15200 U	15200 U
Pyrene	µg/Kg	20000 U	20000 U
Pesticides			
4,4'-DDD	µg/Kg	252 U	252 U
4,4'-DDE	µg/Kg	216 U	216 U
4,4'-DDT	µg/Kg	456 U	456 U
Aldrin	µg/Kg	206 U	206 U
alpha-BHC	µg/Kg	139 U	139 U
alpha-Chlordane	µg/Kg	244 U	244 U
beta-BHC	µg/Kg	114 U	114 U
delta-BHC	µg/Kg	114 U	114 U
Dieldrin	µg/Kg	206 U	206 U
Endosulfan I	µg/Kg	96.2 U	96.2 U
Endosulfan II	µg/Kg	186 U	186 U
Endosulfan Sulfate	µg/Kg	220 U	220 U
Endrin	µg/Kg	242 U	242 U
Endrin Aldehyde	µg/Kg	242 U	242 U
Endrin Ketone	µg/Kg	260 U	260 U
gamma-BHC (Lindane)	µg/Kg	99.8 U	99.8 U
gamma-Chlordane	µg/Kg	128 U	128 U
Heptachlor	µg/Kg	127 U	127 U
Heptachlor Epoxide	µg/Kg	108 U	108 U
Methoxychlor	µg/Kg	1610 U	1610 U
Toxaphene	µg/Kg	15000 U	15000 U
PCBs			
Aroclor-1016	µg/Kg	10000 U	10000 U
Aroclor-1221	µg/Kg	28200 U	28200 U
Aroclor-1232	µg/Kg	16700 U	16700 U
Aroclor-1242	µg/Kg	16700 U	16700 U
Aroclor-1248	µg/Kg	10000 U	10000 U
Aroclor-1254	µg/Kg	214000	83800
Aroclor-1260	µg/Kg	10000 U	10000 U
Metals			
Aluminum	mg/Kg	7.1 U	NA
Antimony	mg/Kg	0.33 U	NA

* Data qualifier included with concentration value

U: Undetected

NA: Not Analyzed

Table 4-126
Summary of Drain Oil Sample Results
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Drain04-W-3719	Drain03-W-3720
		Concentration*	Concentration*
Arsenic	mg/Kg	0.2 U	NA
Barium	mg/Kg	0.15	NA
Beryllium	mg/Kg	0.023 U	NA
Boron	mg/Kg	0.725	NA
Cadmium	mg/Kg	0.103	NA
Calcium	mg/Kg	10.3	NA
Chromium	mg/Kg	0.245	NA
Cobalt	mg/Kg	0.124	NA
Copper	mg/Kg	1.8	NA
Iron	mg/Kg	3.85	NA
Lead	mg/Kg	0.169	NA
Lithium	mg/Kg	0.021 U	NA
Magnesium	mg/Kg	1.89	NA
Manganese	mg/Kg	0.139	NA
Mercury	mg/Kg	0.044	NA
Nickel	mg/Kg	1.69	NA
Potassium	mg/Kg	2.76	NA
Selenium	mg/Kg	0.31 U	NA
Silver	mg/Kg	0.006	NA
Sodium	mg/Kg	3.48	NA
Thallium	mg/Kg	0.008	NA
Vanadium	mg/Kg	6.36	NA
Zinc	mg/Kg	2.66	NA
Radionuclides			
Actinium-227	pCi/g	-0.0836 U	NA
Alpha	pCi/g	NA	NA
Americium-241	pCi/g	-0.0109 U	NA
Beta	pCi/g	NA	NA
Cesium-137	pCi/g	-0.0011 U	NA
Cobalt-60	pCi/g	0.00103 U	NA
Plutonium-238	pCi/g	NA	NA
Plutonium-239/240	pCi/g	NA	NA
Potassium-40	pCi/g	NA	NA
Protactinium-231	pCi/g	0.119 U	NA
Radium-226	pCi/g	0.0935	NA
Radium-228	pCi/g	NA	NA
Radium-228 gamma	pCi/g	0.0757 U	NA
Strontium-90	pCi/g	NA	NA
Thorium-228 alpha	pCi/g	0.237 U	NA
Thorium-228 gamma	pCi/g	0.0291	NA
Thorium-230	pCi/g	0.142 U	NA
Thorium-232	pCi/g	-0.00162 U	NA
TotalActivity	pCi/g	NA	NA
Uranium-233/234	pCi/g	0.0174 U	NA
Uranium-235 gamma	pCi/g	0.0385 U	NA

* Data qualifier included with concentration value

U: Undetected

NA: Not Analyzed

Table 4-126
Summary of Drain Oil Sample Results
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Drain04-W-3719	Drain03-W-3720
		Concentration*	Concentration*
Uranium-235/236 alpha	pCi/g	-0.0287 U	NA
Uranium-238 alpha	pCi/g	-0.0263 U	NA
Uranium-238 gamma	pCi/g	0.39 U	NA

* Data qualifier included with concentration value

U: Undetected

NA: Not Analyzed

Table 4-127
Exposure Unit 16
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	41	313	27500	41
Antimony	mg/Kg	41	0.287 BN	68 N	24
Arsenic	mg/Kg	41	0.84 J	49.7	41
Barium	mg/Kg	41	61.5 N	3990 *	41
Beryllium	mg/Kg	41	0.15 B	1.28	37
Boron	mg/Kg	41	4.94 BN	11700	38
Cadmium	mg/Kg	41	0.144 B	236	35
Calcium	mg/Kg	41	530	204000 *	41
Chromium	mg/Kg	41	3.6 J	814 *N	41
Cobalt	mg/Kg	41	4.36	107 *	37
Copper	mg/Kg	41	11.3	8290 *N	41
Iron	mg/Kg	41	2980	561000	41
Lead	mg/Kg	41	5.86	8020 N*	40
Lithium	mg/Kg	41	1.43 J	42.8 N	38
Magnesium	mg/Kg	41	71.3 J	27700 *	41
Manganese	mg/Kg	41	6.8	4020 *	41
Mercury	mg/Kg	41	0.012 N*	285 *	41
Nickel	mg/Kg	41	2.8 J	8890 *E	41
Potassium	mg/Kg	41	304 J	5640	41
Selenium	mg/Kg	41	0.48 J	6.39 B	34
Silver	mg/Kg	41	0.08 B	15.3	35
Sodium	mg/Kg	41	51.4	3430	41
Thallium	mg/Kg	41	0.035 B	0.532 BN	27
Vanadium	mg/Kg	41	1.4 J	110 *N	40
Zinc	mg/Kg	41	7.1 J	18000	41
Nitroaromatics					
1,3,5-Trinitrobenzene	µg/Kg	9	--	--	0
2,4,6-Trinitrotoluene	µg/Kg	9	--	--	0
2,4-Dinitrotoluene	µg/Kg	58	--	--	0
2,6-Dinitrotoluene	µg/Kg	58	--	--	0
2-Amino-4,6-dinitrotoluene	µg/Kg	9	--	--	0
2-Nitrotoluene	µg/Kg	9	--	--	0
3-Dinitrobenzene	µg/Kg	9	--	--	0
3-Nitrotoluene	µg/Kg	9	--	--	0
4-Amino-2,6-dinitrotoluene	µg/Kg	9	--	--	0
4-Nitrotoluene	µg/Kg	9	--	--	0
HMX	µg/Kg	9	--	--	0
Nitrobenzene	µg/Kg	58	--	--	0
RDX	µg/Kg	9	--	--	0
Tetryl	µg/Kg	9	--	--	0
PAHs					
Acenaphthene	µg/Kg	58	36	1500	10
Acenaphthylene	µg/Kg	58	15.7 J	45.2 J	4

* Data qualifier included with concentration value

Table 4-127
Exposure Unit 16
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	58	3.1 J	521 J	20
Benzo(a)anthracene	μg/Kg	58	8.39	9080	25
Benzo(a)pyrene	μg/Kg	58	8.8 J	9330	24
Benzo(b)fluoranthene	μg/Kg	58	11.1 J	11600	28
Benzo(g,h,i)perylene	μg/Kg	58	7.69	3770	21
Benzo(k)fluoranthene	μg/Kg	58	5.89	7910	16
Chrysene	μg/Kg	58	6.67	8000	27
Dibenzo(a,h)anthracene	μg/Kg	58	4	47	4
Fluoranthene	μg/Kg	58	5 J	13100	40
Fluorene	μg/Kg	58	5.8 J	236 J	11
Indeno(1,2,3-cd)pyrene	μg/Kg	58	6.8	3740	22
Naphthalene	μg/Kg	58	28.2 J	680 J	9
Phenanthrene	μg/Kg	58	4.07 J	6710 J	33
Pyrene	μg/Kg	58	8.56	13300	35
PCBs					
Aroclor-1016	μg/Kg	31	--	--	0
Aroclor-1221	μg/Kg	31	--	--	0
Aroclor-1232	μg/Kg	31	--	--	0
Aroclor-1242	μg/Kg	31	--	--	0
Aroclor-1248	μg/Kg	31	70	70	1
Aroclor-1254	μg/Kg	31	285	84900	12
Aroclor-1260	μg/Kg	31	15.4 JP	18700	18
Pesticides					
4,4'-DDD	μg/Kg	27	1.1 JP	100	6
4,4'-DDE	μg/Kg	27	1.5 J	43.8	9
4,4'-DDT	μg/Kg	27	1.8 J	60900	9
Aldrin	μg/Kg	27	3.7 J	5 J	2
alpha-BHC	μg/Kg	27	2.1 J	5.5 J	2
alpha-Chlordane	μg/Kg	27	2 J	180 J	3
beta-BHC	μg/Kg	27	1 J	4.6 J	2
delta-BHC	μg/Kg	27	0.88	6.5 J	4
Dieldrin	μg/Kg	27	4.1 J	420	3
Endosulfan I	μg/Kg	27	0.93 J	6.2 J	2
Endosulfan II	μg/Kg	27	--	--	0
Endosulfan sulfate	μg/Kg	27	14 J	39 J	2
Endrin	μg/Kg	27	1.3 J	11 J	3
Endrin aldehyde	μg/Kg	27	2.6 J	160 E	6
Endrin ketone	μg/Kg	27	16 J	80	3
gamma-BHC (Lindane)	μg/Kg	27	0.53 JP	3.7 J	3
gamma-Chlordane	μg/Kg	27	1.7 J	1.7 J	1
Heptachlor	μg/Kg	27	1.5 J	8.5 J	3
Heptachlor epoxide	μg/Kg	27	0.44 J	12 J	6
Methoxychlor	μg/Kg	27	--	--	0
Toxaphene	μg/Kg	27	--	--	0

* Data qualifier included with concentration value

Table 4-127
Exposure Unit 16
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	61	0.654	1.02	3
Alpha	pCi/g	60	4.95	162	60
Americium-241	pCi/g	61	0.159	0.159	1
Beta	pCi/g	60	11.2	148	60
Cesium-137	pCi/g	61	0.0237	1.5	50
Cobalt-60	pCi/g	61	--	--	0
Plutonium-238	pCi/g	11	--	--	0
Plutonium-239/240	pCi/g	11	--	--	0
Potassium-40	pCi/g	10	14.7	24.2	10
Protactinium-231	pCi/g	61	--	--	0
Radium-226	pCi/g	61	0.424	10.3	61
Radium-228	pCi/g	61	0.196	1.44	59
Strontium-90	pCi/g	11	0.74	0.74	1
Thorium-228	pCi/g	61	0.365	1.98	56
Thorium-230	pCi/g	61	0.586	12.9	61
Thorium-232	pCi/g	61	0.235	1.62	60
Total Activity	pCi/g	18	23.6	23.6	1
Total Uranium	µg/g	18	0.612	39.6	18
Uranium-234	pCi/g	61	0.477 J	86.2	61
Uranium-235	pCi/g	61	0.0804	6.99	35
Uranium-238	pCi/g	61	0.365	88.9	61
Semivolatile Organics					
1,2,4-Trichlorobenzene	µg/Kg	58	--	--	0
1,2-Dichlorobenzene	µg/Kg	58	--	--	0
1,3-Dichlorobenzene	µg/Kg	58	--	--	0
1,4-Dichlorobenzene	µg/Kg	58	--	--	0
2,4,5-Trichlorophenol	µg/Kg	58	--	--	0
2,4,6-Trichlorophenol	µg/Kg	58	--	--	0
2,4-Dichlorophenol	µg/Kg	58	--	--	0
2,4-Dimethylphenol	µg/Kg	58	--	--	0
2,4-Dinitrophenol	µg/Kg	58	--	--	0
2-Chloronaphthalene	µg/Kg	58	--	--	0
2-Chlorophenol	µg/Kg	58	--	--	0
2-Methyl-4,6-dinitrophenol	µg/Kg	58	--	--	0
2-Methylnaphthalene	µg/Kg	51	9.4 J	629	14
2-Nitroaniline	µg/Kg	58	--	--	0
2-Nitrophenol	µg/Kg	58	--	--	0
3,3'-Dichlorobenzidine	µg/Kg	58	--	--	0
3-Nitroaniline	µg/Kg	58	--	--	0
4-Bromophenylphenylether	µg/Kg	58	--	--	0
4-Chloro-3-methylphenol	µg/Kg	58	--	--	0
4-Chloroaniline	µg/Kg	58	--	--	0
4-Chlorophenylphenylether	µg/Kg	58	--	--	0

* Data qualifier included with concentration value

Table 4-127
Exposure Unit 16
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
4-Nitroaniline	μg/Kg	58	--	--	0
4-Nitrophenol	μg/Kg	58	--	--	0
Benzoic Acid	μg/Kg	13	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	58	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	58	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	58	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	58	41.9 J	179000	30
Butylbenzylphthalate	μg/Kg	58	1610 J	295000	4
Carbazole	μg/Kg	58	10 J	271 J	7
Dibenzofuran	μg/Kg	58	11.3 J	74.8 J	8
Diethylphthalate	μg/Kg	58	--	--	0
Dimethylphthalate	μg/Kg	58	332 J	332 J	1
Di-n-butylphthalate	μg/Kg	58	27.8 J	23200 J	7
Di-n-octylphthalate	μg/Kg	58	2160 J	2160 J	1
Diphenylamine	μg/Kg	38	--	--	0
Hexachlorobenzene	μg/Kg	58	--	--	0
Hexachlorobutadiene	μg/Kg	58	--	--	0
Hexachlorocyclopentadiene	μg/Kg	58	--	--	0
Hexachloroethane	μg/Kg	58	--	--	0
Isophorone	μg/Kg	58	--	--	0
m,p-Cresols	μg/Kg	51	334 J	825	2
N-Nitroso-di-n-propylamine	μg/Kg	58	--	--	0
N-Nitrosodiphenylamine	μg/Kg	20	--	--	0
o-Cresol	μg/Kg	58	--	--	0
p-Cresol	μg/Kg	7	220 J	220 J	1
Pentachlorophenol	μg/Kg	58	723 J	723 J	1
Phenol	μg/Kg	58	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	35	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	35	--	--	0
1,1,2-Trichloroethane	μg/Kg	35	--	--	0
1,1-Dichloroethane	μg/Kg	35	--	--	0
1,1-Dichloroethene	μg/Kg	35	0.739 J	5.31	2
1,2-Dichloroethane	μg/Kg	35	--	--	0
1,2-Dichloropropane	μg/Kg	35	1.55 J	1.55 J	1
2-Butanone	μg/Kg	35	2.2 J	2660	10
2-Hexanone	μg/Kg	35	595	595	1
4-Methyl-2-pentanone	μg/Kg	35	--	--	0
Acetone	μg/Kg	35	10.6	6740	14
Benzene	μg/Kg	35	0.38 J	1.7 J	2
Bromodichloromethane	μg/Kg	35	--	--	0
Bromoform	μg/Kg	35	--	--	0
Bromomethane	μg/Kg	35	--	--	0
Carbon disulfide	μg/Kg	35	2.7 J	84.9	6

* Data qualifier included with concentration value

Table 4-127
Exposure Unit 16
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Carbon tetrachloride	μg/Kg	35	0.86 J	0.86 J	1
Chlorobenzene	μg/Kg	35	2.11	2.11	1
Chloroethane	μg/Kg	35	--	--	0
Chloroform	μg/Kg	35	0.34 J	0.34 J	1
Chloromethane	μg/Kg	35	--	--	0
cis-1,2-Dichloroethene	μg/Kg	28	0.99 J	413	6
cis-1,3-Dichloropropene	μg/Kg	35	--	--	0
Dibromochloromethane	μg/Kg	30	--	--	0
Ethylbenzene	μg/Kg	35	0.63 J	138 J	7
Methylene chloride	μg/Kg	35	155 J	680 J	3
Styrene	μg/Kg	35	228	228	1
Tetrachloroethene	μg/Kg	35	0.345 J	1000	13
Toluene	μg/Kg	35	0.6 J	387	12
trans-1,2-Dichloroethene	μg/Kg	28	1.3 J	86.9	2
trans-1,3-Dichloropropene	μg/Kg	35	--	--	0
Trichloroethene	μg/Kg	35	0.93 J	217 J	10
Vinyl chloride	μg/Kg	35	48.8 J	48.8	1
Xylenes (total)	μg/Kg	35	2.62	603	10

* Data qualifier included with concentration value

Table 4-128
Exposure Unit 16
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	2	8570	19900	2
Antimony	mg/Kg	2	0.21 J	0.43 J	2
Arsenic	mg/Kg	2	2.9	5.8	2
Barium	mg/Kg	2	108 J	141 J	2
Beryllium	mg/Kg	2	0.45 J	0.79	2
Boron	mg/Kg	2	3.1 J	6.4 J	2
Cadmium	mg/Kg	2	--	--	0
Calcium	mg/Kg	2	8820	23300	2
Chromium	mg/Kg	2	9.9 J	17.2 J	2
Cobalt	mg/Kg	2	8.8	9.7	2
Copper	mg/Kg	2	67.5	74.6	2
Iron	mg/Kg	2	24300	24900	2
Lead	mg/Kg	2	13	14.4	2
Lithium	mg/Kg	2	12.9	37.4	2
Magnesium	mg/Kg	2	2240	3180	2
Manganese	mg/Kg	2	400	3590	2
Mercury	mg/Kg	2	0.15 J	0.15 J	1
Nickel	mg/Kg	2	14.7	20.4	2
Potassium	mg/Kg	2	621 J	1060 J	2
Selenium	mg/Kg	2	0.25 J	0.25 J	1
Silver	mg/Kg	2	--	--	0
Sodium	mg/Kg	2	113	147	2
Thallium	mg/Kg	2	0.13 J	0.13 J	1
Vanadium	mg/Kg	2	16.8	17.4	2
Zinc	mg/Kg	2	40 J	91.5 J	2
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	2	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	2	--	--	0
2,4-Dinitrotoluene	μg/Kg	2	--	--	0
2,6-Dinitrotoluene	μg/Kg	2	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	2	--	--	0
2-Nitrotoluene	μg/Kg	2	--	--	0
3-Dinitrobenzene	μg/Kg	2	--	--	0
3-Nitrotoluene	μg/Kg	2	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	2	--	--	0
4-Nitrotoluene	μg/Kg	2	--	--	0
HMX	μg/Kg	2	--	--	0
Nitrobenzene	μg/Kg	2	--	--	0
RDX	μg/Kg	2	--	--	0
Tetryl	μg/Kg	2	--	--	0
PAHs					
Acenaphthene	μg/Kg	2	43 J	43 J	1
Acenaphthylene	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-128
Exposure Unit 16
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	2	1.2	33 J	2
Benzo(a)anthracene	μg/Kg	2	2.3	42 J	2
Benzo(a)pyrene	μg/Kg	2	2.5	4.7 J	2
Benzo(b)fluoranthene	μg/Kg	2	5.8	11 J	2
Benzo(g,h,i)perylene	μg/Kg	2	4.5	6.6 J	2
Benzo(k)fluoranthene	μg/Kg	2	2.2	4.7 J	2
Chrysene	μg/Kg	2	--	--	0
Dibenzo(a,h)anthracene	μg/Kg	2	--	--	0
Fluoranthene	μg/Kg	2	8.6	29 J	2
Fluorene	μg/Kg	2	30 J	30 J	1
Indeno(1,2,3-cd)pyrene	μg/Kg	2	2.3	2.3	1
Naphthalene	μg/Kg	2	110 J	110 J	1
Phenanthrene	μg/Kg	2	6.9	57 J	2
Pyrene	μg/Kg	2	6.3	30 J	2
PCBs					
Aroclor-1016	μg/Kg	2	--	--	0
Aroclor-1221	μg/Kg	2	--	--	0
Aroclor-1232	μg/Kg	2	--	--	0
Aroclor-1242	μg/Kg	2	--	--	0
Aroclor-1248	μg/Kg	2	--	--	0
Aroclor-1254	μg/Kg	2	--	--	0
Aroclor-1260	μg/Kg	2	--	--	0
Pesticides					
4,4'-DDD	μg/Kg	2	--	--	0
4,4'-DDE	μg/Kg	2	13 J	13 J	1
4,4'-DDT	μg/Kg	2	--	--	0
Aldrin	μg/Kg	2	--	--	0
alpha-BHC	μg/Kg	2	--	--	0
alpha-Chlordane	μg/Kg	2	63 J	450 EP	2
beta-BHC	μg/Kg	2	--	--	0
delta-BHC	μg/Kg	2	2.3 J	2.3 J	1
Dieldrin	μg/Kg	2	130 J	850 E	2
Endosulfan I	μg/Kg	2	--	--	0
Endosulfan II	μg/Kg	2	--	--	0
Endosulfan sulfate	μg/Kg	2	--	--	0
Endrin	μg/Kg	2	--	--	0
Endrin aldehyde	μg/Kg	2	--	--	0
Endrin ketone	μg/Kg	2	--	--	0
gamma-BHC (Lindane)	μg/Kg	2	--	--	0
gamma-Chlordane	μg/Kg	2	--	--	0
Heptachlor	μg/Kg	2	1.6 J	2.9 J	2
Heptachlor epoxide	μg/Kg	2	0.86 J	0.86 J	1
Methoxychlor	μg/Kg	2	23	23	1
Toxaphene	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-128
Exposure Unit 16
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	1	--	--	0
Alpha	pCi/g	1	12	12	1
Americium-241	pCi/g	1	--	--	0
Beta	pCi/g	1	29.8	29.8	1
Cesium-137	pCi/g	1	--	--	0
Cobalt-60	pCi/g	1	--	--	0
Protactinium-231	pCi/g	1	--	--	0
Radium-226	pCi/g	1	0.72	0.72	1
Radium-228	pCi/g	1	0.888	0.888	1
Thorium-228	pCi/g	1	1.08	1.08	1
Thorium-230	pCi/g	1	1.12	1.12	1
Thorium-232	pCi/g	1	1.39	1.39	1
Total Activity	pCi/g	1	--	--	0
Total Uranium	μg/g	1	1.78	1.78	1
Uranium-234	pCi/g	1	0.773	0.773	1
Uranium-235	pCi/g	1	0.313	0.313	1
Uranium-238	pCi/g	1	0.661	0.661	1
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	2	--	--	0
1,2-Dichlorobenzene	μg/Kg	2	--	--	0
1,3-Dichlorobenzene	μg/Kg	2	--	--	0
1,4-Dichlorobenzene	μg/Kg	2	--	--	0
2,4,5-Trichlorophenol	μg/Kg	2	--	--	0
2,4,6-Trichlorophenol	μg/Kg	2	--	--	0
2,4-Dichlorophenol	μg/Kg	2	--	--	0
2,4-Dimethylphenol	μg/Kg	2	--	--	0
2,4-Dinitrophenol	μg/Kg	2	--	--	0
2-Chloronaphthalene	μg/Kg	2	--	--	0
2-Chlorophenol	μg/Kg	2	--	--	0
2-Methyl-4,6-dinitrophenol	μg/Kg	2	--	--	0
2-Nitroaniline	μg/Kg	2	--	--	0
2-Nitrophenol	μg/Kg	2	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	2	--	--	0
3-Nitroaniline	μg/Kg	2	--	--	0
4-Bromophenylphenylether	μg/Kg	2	--	--	0
4-Chloro-3-methylphenol	μg/Kg	2	--	--	0
4-Chloroaniline	μg/Kg	2	--	--	0
4-Chlorophenylphenylether	μg/Kg	2	--	--	0
4-Nitroaniline	μg/Kg	2	--	--	0
4-Nitrophenol	μg/Kg	2	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	2	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	2	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	2	--	--	0

* Data qualifier included with concentration value

Table 4-128
Exposure Unit 16
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Ethylhexyl)phthalate	μg/Kg	2	--	--	0
Butylbenzylphthalate	μg/Kg	2	--	--	0
Carbazole	μg/Kg	2	--	--	0
Dibenzofuran	μg/Kg	2	--	--	0
Diethylphthalate	μg/Kg	2	--	--	0
Dimethylphthalate	μg/Kg	2	--	--	0
Di-n-butylphthalate	μg/Kg	2	--	--	0
Di-n-octylphthalate	μg/Kg	2	--	--	0
Hexachlorobenzene	μg/Kg	2	--	--	0
Hexachlorobutadiene	μg/Kg	2	--	--	0
Hexachlorocyclopentadiene	μg/Kg	2	--	--	0
Hexachloroethane	μg/Kg	2	--	--	0
Isophorone	μg/Kg	2	--	--	0
N-Nitroso-di-n-propylamine	μg/Kg	2	--	--	0
N-Nitrosodiphenylamine	μg/Kg	2	--	--	0
o-Cresol	μg/Kg	2	--	--	0
p-Cresol	μg/Kg	2	--	--	0
Pentachlorophenol	μg/Kg	2	--	--	0
Phenol	μg/Kg	2	--	--	0
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	3	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	3	--	--	0
1,1,2-Trichloroethane	μg/Kg	3	--	--	0
1,1-Dichloroethane	μg/Kg	3	--	--	0
1,1-Dichloroethene	μg/Kg	3	--	--	0
1,2-Dichloroethane	μg/Kg	3	--	--	0
1,2-Dichloroethene	μg/Kg	2	--	--	0
1,2-Dichloropropane	μg/Kg	3	--	--	0
2-Butanone	μg/Kg	3	--	--	0
2-Hexanone	μg/Kg	3	--	--	0
4-Methyl-2-pentanone	μg/Kg	3	--	--	0
Acetone	μg/Kg	3	7.42	7.42	1
Benzene	μg/Kg	3	--	--	0
Bromodichloromethane	μg/Kg	3	--	--	0
Bromoform	μg/Kg	3	--	--	0
Bromomethane	μg/Kg	3	--	--	0
Carbon disulfide	μg/Kg	3	--	--	0
Carbon tetrachloride	μg/Kg	3	--	--	0
Chlorobenzene	μg/Kg	3	--	--	0
Chloroethane	μg/Kg	3	--	--	0
Chloroform	μg/Kg	3	--	--	0
Chloromethane	μg/Kg	3	--	--	0
cis-1,2-Dichloroethene	μg/Kg	1	--	--	0
cis-1,3-Dichloropropene	μg/Kg	3	--	--	0

* Data qualifier included with concentration value

Table 4-128
Exposure Unit 16
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Dibromochloromethane	μg/Kg	3	--	--	0
Ethylbenzene	μg/Kg	3	--	--	0
Methylene chloride	μg/Kg	3	--	--	0
Styrene	μg/Kg	3	--	--	0
Tetrachloroethene	μg/Kg	3	--	--	0
Toluene	μg/Kg	3	--	--	0
trans-1,2-Dichloroethene	μg/Kg	1	--	--	0
trans-1,3-Dichloropropene	μg/Kg	3	--	--	0
Trichloroethene	μg/Kg	3	--	--	0
Vinyl chloride	μg/Kg	3	--	--	0
Xylenes (total)	μg/Kg	3	--	--	0

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Antimony	mg/Kg	5.03	DRAIN01-S-3701	11 N
			DRAIN03-S-3705	48.1 BN
			DRAIN04-S-3707	68 N
			DRAIN06-S-3711	5.4 N
			DRAIN07-S-3712	26.9
			DRAIN08-S-3713	37.1
			DRAIN09-S-3714	23.3
			DRAIN10-S-3715	56.8
			PIPE74S-2068	11.7 N
Arsenic	mg/Kg	7.14	DRAIN01-S-3701	15.2 *N
			DRAIN02-S-3703	15.3 *N
			DRAIN03-S-3705	14 *N
			DRAIN04-S-3707	16.5 *N
			DRAIN06-S-3711	23.4
			DRAIN07-S-3712	15.2
			DRAIN08-S-3713	29.5
			DRAIN09-S-3714	49.7
			DRAIN10-S-3715	38.8
			DRAIN11-S-3716	48.9
			DRAIN12-S-3717	15
			MH02S-2002	9.19
			MH03S-2005	7.52 N
			MH04S-2007	9.57 N
			PIPE23S-2055	7.73 N
			PIPE33S-2059	10.3
			PIPE47S-2063	21.4 N
			PIPE74S-2068	9.72
Barium	mg/Kg	246	C7-NFSS-SL-SUMP1	268 J
			DRAIN01-S-3701	731 *N
			DRAIN03-S-3705	1100 *N
			DRAIN04-S-3707	1140 *N
			DRAIN06-S-3711	2100 *N
			DRAIN07-S-3712	1350 *
			DRAIN08-S-3713	2290 *
			DRAIN09-S-3714	674 *
			DRAIN10-S-3715	2410 *
			DRAIN11-S-3716	3990 *
			PIPE15S-2054	248 N
			PIPE74S-2068	274 N

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Boron	mg/Kg	31.4	DRAIN01-S-3701	163 N*
			DRAIN03-S-3705	7580 N*
			DRAIN04-S-3707	7390 N*
			DRAIN06-S-3711	11700
			DRAIN07-S-3712	474
			DRAIN08-S-3713	594
			DRAIN09-S-3714	260
			DRAIN10-S-3715	443
			DRAIN11-S-3716	72.4
			DRAIN12-S-3717	36.1
			MH02S-2002	68.1
Cadmium	mg/Kg	1.89	DRAIN01-S-3701	11.4 *
			DRAIN02-S-3703	2.47 *
			DRAIN03-S-3705	199 *
			DRAIN04-S-3707	73.1 *
			DRAIN06-S-3711	31.1 *
			DRAIN07-S-3712	17.2
			DRAIN08-S-3713	236
			DRAIN09-S-3714	40.5
			DRAIN10-S-3715	31.2
			DRAIN11-S-3716	24.4
			DRAIN12-S-3717	6.1
			MH03S-2005	2.36
			MH09S-2017	6.08
			PIPE74S-2068	4.56
Calcium	mg/Kg	59400	C7-NFSS-SL-ST9	72400
			DRAIN02-S-3703	91500 *
			DRAIN12-S-3717	71300
			MH03S-2005	90100 *
			MH04S-2007	204000 *
			MH16S-2026	60300 J
Chromium	mg/Kg	472	DRAIN03-S-3705	814 *N
			DRAIN04-S-3707	771 *N
			DRAIN08-S-3713	761
			MH04S-2007	517
Cobalt	mg/Kg	21.3	DRAIN03-S-3705	94 *
			DRAIN04-S-3707	107 *
			DRAIN06-S-3711	75.3 *
			DRAIN07-S-3712	36.7
			DRAIN08-S-3713	24.8
			DRAIN09-S-3714	31.7
			DRAIN11-S-3716	46.8

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Copper	mg/Kg	184	DRAIN01-S-3701	508 *N
			DRAIN03-S-3705	4940 *N
			DRAIN04-S-3707	8290 *N
			DRAIN06-S-3711	3290 E
			DRAIN07-S-3712	1090
			DRAIN08-S-3713	915
			DRAIN09-S-3714	3940
			DRAIN10-S-3715	1130
			DRAIN11-S-3716	835
			MH03S-2005	806
			MH04S-2007	191
			MH09S-2017	252 N
Iron	mg/Kg	37800	C7-NFSS-SL-ST9	38500
			DRAIN01-S-3701	170000 *
			DRAIN02-S-3703	42700 *
			DRAIN03-S-3705	186000 *
			DRAIN04-S-3707	463000 *
			DRAIN06-S-3711	55400 *
			DRAIN07-S-3712	199000
			DRAIN08-S-3713	266000
			DRAIN09-S-3714	243000
			DRAIN10-S-3715	325000
			DRAIN11-S-3716	561000
			DRAIN12-S-3717	38300
			MH03S-2005	72100 *
			MH04S-2007	47500 *
			MH08S-2015	42600
			PIPE74S-2068	49600

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Lead	mg/Kg	121	C7-NFSS-SL-PIPE2	132
			C7-NFSS-SL-SUMP2	258
			DRAIN03-S-3705	1610 N*
			DRAIN04-S-3707	8020 N*
			DRAIN06-S-3711	1970 *E
			DRAIN07-S-3712	2440
			DRAIN08-S-3713	1130
			DRAIN09-S-3714	824
			DRAIN10-S-3715	718
			DRAIN11-S-3716	737
			DRAIN12-S-3717	270
			MH03S-2005	1230 N
			MH04S-2007	157 N
			PIPE33S-2059	530
			PIPE42S-2062	153
			PIPE63S-2065	317 N
			PIPE74S-2068	1530
Manganese	mg/Kg	814	C7-NFSS-SL-ST9	1290
			DRAIN01-S-3701	900 *
			DRAIN03-S-3705	1120 *
			DRAIN04-S-3707	4020 *
			DRAIN07-S-3712	1060 *
			DRAIN08-S-3713	1170 *
			DRAIN09-S-3714	1380 *
			DRAIN10-S-3715	1950 *
			DRAIN11-S-3716	3020 *
			DRAIN14-S-3719	1220 *
			MH12S-2020	883
			MH29S-2033	1310 *
			PIPE23S-2055	1090 *
			PIPE33S-2059	858

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Mercury	mg/Kg	0.47	C7-NFSS-SL-PIPE1	1.2 J
			C7-NFSS-SL-PIPE2	0.99 J
			C7-NFSS-SL-SUMP1	0.99 J
			C7-NFSS-SL-SUMP2	0.56 J
			DRAIN01-S-3701	6.93 *
			DRAIN02-S-3703	1.48 *
			DRAIN03-S-3705	285 *
			DRAIN04-S-3707	219 *
			DRAIN06-S-3711	216
			DRAIN07-S-3712	136 *
			DRAIN08-S-3713	10.4 *
			DRAIN09-S-3714	3.56 *
			DRAIN10-S-3715	1.99 *
			DRAIN11-S-3716	23.8 *
			DRAIN12-S-3717	2.53 *
			MH09S-2017	9.49
			MH16S-2026	0.498 J
Nickel	mg/Kg	51.9	DRAIN01-S-3701	233 *E
			DRAIN02-S-3703	58.2 *E
			DRAIN03-S-3705	7520 *E
			DRAIN04-S-3707	8890 *E
			DRAIN06-S-3711	3220
			DRAIN07-S-3712	740
			DRAIN08-S-3713	376
			DRAIN09-S-3714	1030
			DRAIN10-S-3715	825
			DRAIN11-S-3716	408
			MH02S-2002	52.5
			MH03S-2005	80.7
			MH04S-2007	63.8
			MH08S-2015	65.4 N
			MH09S-2017	61.8 N
Potassium	mg/Kg	5070	MH03S-2005	5640

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	1.87	C7-NFSS-SL-PIPE1	2.7 J
			C7-NFSS-SL-PIPE2	2.1 J
			C7-NFSS-SL-SS10	2.2
			C7-NFSS-SL-ST6	4.6
			C7-NFSS-SL-ST9	2.5
			C7-NFSS-SL-SUMP1	2.4 J
			DRAIN06-S-3711	2.33
			DRAIN08-S-3713	1.92 B
			MH02S-2002	3.57 B
			MH04S-2007	3.97 N
			MH29S-2033	4.4 N
			PIPE23S-2055	2.79 BN
			PIPE33S-2059	6.39 B
			PIPE41S-2060	2.16 B
			PIPE42S-2062	2.63 B
			PIPE63S-2065	2.85 BN
			PIPE72S-2066	4.96 N
Silver	mg/Kg	0.742	C7-NFSS-SL-ST9	1.1 J
			DRAIN03-S-3705	5.9
			DRAIN04-S-3707	11.5
			DRAIN06-S-3711	15
			DRAIN07-S-3712	15.3
			DRAIN08-S-3713	2.26
			DRAIN09-S-3714	8.27
			DRAIN10-S-3715	1.07
			DRAIN11-S-3716	0.811 B
			MH09S-2017	3.03
			SUMP02S-2069	0.863 *E
Sodium	mg/Kg	679	C7-NFSS-SL-SS10	1920
			DRAIN03-S-3705	1220 N
			DRAIN04-S-3707	854 N
			DRAIN06-S-3711	1200 E*
			DRAIN07-S-3712	1760
			DRAIN08-S-3713	927
			DRAIN09-S-3714	3430
			DRAIN10-S-3715	1790
Thallium	mg/Kg	0.356	C7-NFSS-SL-PIPE1	0.4 J
			PIPE47S-2063	0.532 BN

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Vanadium	mg/Kg	60.6	DRAIN01-S-3701	63.7 *N
			DRAIN02-S-3703	61 *N
			DRAIN03-S-3705	88 *N
			DRAIN04-S-3707	110 *N
			DRAIN06-S-3711	62.8 *
			DRAIN08-S-3713	81.2
			DRAIN10-S-3715	92.2
			DRAIN11-S-3716	97.2
			MH03S-2005	69.1
Zinc	mg/Kg	405	DRAIN01-S-3701	2240 *N
			DRAIN02-S-3703	537 *N
			DRAIN03-S-3705	6770 *N
			DRAIN04-S-3707	6890 *N
			DRAIN06-S-3711	2970 *
			DRAIN07-S-3712	3020
			DRAIN08-S-3713	18000
			DRAIN09-S-3714	4660
			DRAIN10-S-3715	2300
			DRAIN11-S-3716	2690
			DRAIN12-S-3717	646
			MH02S-2002	639
			MH03S-2005	671
			MH04S-2007	779
			MH09S-2017	644
			PIPE74S-2068	1370
PAHs				
Acenaphthene	µg/Kg	--	C7-NFSS-SL-PIPE1	880
			C7-NFSS-SL-PIPE2	51 J
			C7-NFSS-SL-SS10	36
			C7-NFSS-SL-ST6	1500
			C7-NFSS-SL-ST9	49
			C7-NFSS-SL-SUMP1	310 J
			C7-NFSS-SL-SUMP2	830 J
			DRAIN07-S-3712	218 J
			MH03S-2005	347
			MH04S-2007	123

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Anthracene	$\mu\text{g/Kg}$	--	C7-NFSS-SL-PIPE1	55
			C7-NFSS-SL-PIPE2	3.1 J
			C7-NFSS-SL-SS10	5.7
			C7-NFSS-SL-ST6	150
			C7-NFSS-SL-ST9	6.7 J
			C7-NFSS-SL-SUMP1	21 J
			C7-NFSS-SL-SUMP2	68 J
			DRAIN07-S-3712	521 J
			MH02S-2002	73.9
			MH03S-2005	432
			MH04S-2007	300
			MH29S-2033	27.9 J
			MH33S-2037	24 J
			MH41S-2042	42.8 J
			MH42S-2044	164 J
			MH45S-2050	30.9 J
			MH46S-2053	79.8 J
			PIPE33S-2059	42.8 J
			PIPE63S-2065	95.6
			SUMP07S-2070	5.6 J
Benzo(a)anthracene	$\mu\text{g/Kg}$	399	DRAIN07-S-3712	1270
			DRAIN10-S-3715	941
			DRAIN11-S-3716	419 J
			MH03S-2005	9080
			MH04S-2007	5600
			MH42S-2044	697
			PIPE63S-2065	478
Benzo(a)pyrene	$\mu\text{g/Kg}$	618	DRAIN07-S-3712	1020
			DRAIN10-S-3715	1030
			MH03S-2005	9330
			MH04S-2007	5290
			MH09S-2017	4160
			MH42S-2044	874
Benzo(b)fluoranthene	$\mu\text{g/Kg}$	1090	DRAIN02-S-3703	1700 JP
			DRAIN07-S-3712	2170
			DRAIN10-S-3715	2590
			MH03S-2005	11600
			MH04S-2007	7390
			MH09S-2017	3600
			MH29S-2033	1240
			MH42S-2044	1470

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Benzo(g,h,i)perylene	$\mu\text{g/Kg}$	179	C7-NFSS-SL-ST6	340
			C7-NFSS-SL-SUMP2	180 J
			DRAIN07-S-3712	549 J
			DRAIN10-S-3715	651
			MH03S-2005	3770
			MH04S-2007	2500
			MH29S-2033	201
			MH41S-2042	197
			MH42S-2044	542
			MH45S-2050	202
			MH46S-2053	335
Benzo(k)fluoranthene	$\mu\text{g/Kg}$	381	PIPE33S-2059	297
			MH03S-2005	7910
			MH04S-2007	6450
			PIPE63S-2065	482
Chrysene	$\mu\text{g/Kg}$	470	C7-NFSS-SL-ST6	530
			DRAIN02-S-3703	1950 J
			DRAIN07-S-3712	1430
			DRAIN10-S-3715	1100
			DRAIN11-S-3716	563 J
			MH03S-2005	8000
			MH04S-2007	5410
			MH09S-2017	2330
			MH29S-2033	712
			MH42S-2044	796
Dibenzo(a,h)anthracene	$\mu\text{g/Kg}$	--	C7-NFSS-SL-PIPE1	21
			C7-NFSS-SL-SS10	4
			C7-NFSS-SL-ST6	47
			C7-NFSS-SL-SUMP2	21 J
Fluoranthene	$\mu\text{g/Kg}$	696	C7-NFSS-SL-ST6	940
			DRAIN02-S-3703	6370
			DRAIN06-S-3711	2580 J
			DRAIN07-S-3712	2780
			DRAIN10-S-3715	1010 J
			MH03S-2005	13100
			MH04S-2007	7180
			MH09S-2017	3990
			MH42S-2044	1250
			PIPE63S-2065	900

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Fluorene	$\mu\text{g/Kg}$	--	C7-NFSS-SL-PIPE1	90
			C7-NFSS-SL-SS10	6.2
			C7-NFSS-SL-ST6	92
			C7-NFSS-SL-ST9	9.4
			C7-NFSS-SL-SUMP2	18 J
			DRAIN01-S-3701	94.5 J
			DRAIN07-S-3712	236 J
			MH03S-2005	98.1 J
			MH04S-2007	37.5 J
			PIPE57S-2064	5.8 J
			PIPE63S-2065	54.8 J
Indeno(1,2,3-cd)pyrene	$\mu\text{g/Kg}$	265	DRAIN07-S-3712	490 J
			DRAIN10-S-3715	704
			MH03S-2005	3740
			MH04S-2007	2320
			MH29S-2033	280
			MH41S-2042	396
			MH42S-2044	1190
			MH46S-2053	565
			PIPE33S-2059	441
			PIPE63S-2065	336
Naphthalene	$\mu\text{g/Kg}$	--	C7-NFSS-SL-PIPE1	310
			C7-NFSS-SL-ST6	210
			C7-NFSS-SL-SUMP2	680 J
			DRAIN01-S-3701	88.7 J
			MH02S-2002	164
			MH03S-2005	28.2 J
			MH45S-2050	38.1 J
			PIPE47S-2063	42.8
			PIPE57S-2064	45.3

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Phenanthrene	μg/Kg	169	C7-NFSS-SL-PIPE1	210
			C7-NFSS-SL-ST6	290
			C7-NFSS-SL-SUMP1	170 J
			C7-NFSS-SL-SUMP2	450 J
			DRAIN01-S-3701	285
			DRAIN02-S-3703	6710 J
			DRAIN07-S-3712	2430
			DRAIN10-S-3715	375 J
			DRAIN11-S-3716	339 J
			MH02S-2002	408
			MH03S-2005	1830
			MH04S-2007	893
			MH09S-2017	1810
			MH42S-2044	559
			MH45S-2050	200
			MH46S-2053	398
			PIPE33S-2059	173
			PIPE63S-2065	584
Pyrene	μg/Kg	1000	DRAIN02-S-3703	8190 P
			DRAIN07-S-3712	2820
			MH03S-2005	13300
			MH04S-2007	7330
			MH09S-2017	3760
			MH42S-2044	1650
			PIPE74S-2068	1340
PCBs				
Aroclor-1254	μg/Kg	58.3	DRAIN02-S-3703	300
			DRAIN03-S-3705	73900
			DRAIN04-S-3707	33900
			DRAIN06-S-3711	22600 h
			DRAIN07-S-3712	84900
			DRAIN08-S-3713	28500
			DRAIN09-S-3714	12600
			DRAIN10-S-3715	29900
			DRAIN11-S-3716	3370
			DRAIN12-S-3717	1050
			DRAIN13-S-3718	812
			DRAIN14-S-3719	285

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Aroclor-1260	μg/Kg	21.7	C7-NFSS-SL-ST6	860
			C7-NFSS-SL-SUMP1	460
			C7-NFSS-SL-SUMP2	2200 E
			DRAIN01-S-3701	18700
			DRAIN03-S-3705	10300
			DRAIN06-S-3711	2910 h
			DRAIN07-S-3712	14600
			DRAIN08-S-3713	3890
			DRAIN09-S-3714	2140
			DRAIN10-S-3715	5070
			DRAIN11-S-3716	1120
			DRAIN12-S-3717	305
			DRAIN13-S-3718	126
			DRAIN14-S-3719	104
			MH42S-2044	28.2 J
			PIPE15S-2054	304
			SUMP19S-2073	348
Pesticides				
4,4'-DDD	μg/Kg	--	C7-NFSS-SL-PIPE1	17 J
			C7-NFSS-SL-PIPE2	24 J
			C7-NFSS-SL-ST6	2.3
			C7-NFSS-SL-SUMP1	100
			C7-NFSS-SL-SUMP2	6.3
			SUMP32S-2075	1.1 JP
4,4'-DDE	μg/Kg	1.38	C7-NFSS-SL-PIPE1	18 J
			C7-NFSS-SL-PIPE2	29 J
			C7-NFSS-SL-ST6	8.5
			C7-NFSS-SL-SUMP1	38 J
			C7-NFSS-SL-SUMP2	11
			DRAIN02-S-3703	43.8 J
			PIPE57S-2064	4.3 P
			PIPE72S-2066	2 JP
SUMP32S-2075	1.5 J			
4,4'-DDT	μg/Kg	2.26	C7-NFSS-SL-PIPE1	54 J
			C7-NFSS-SL-PIPE2	52 J
			C7-NFSS-SL-ST6	10 J
			C7-NFSS-SL-SUMP1	390
			C7-NFSS-SL-SUMP2	48 J
			DRAIN02-S-3703	188
			DRAIN03-S-3705	29200
			DRAIN04-S-3707	60900
Aldrin	μg/Kg	--	C7-NFSS-SL-SUMP1	5 J
			C7-NFSS-SL-SUMP2	3.7 J

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
alpha-BHC	μg/Kg	--	C7-NFSS-SL-PIPE1	2.1 J
			C7-NFSS-SL-SUMP1	5.5 J
alpha-Chlordane	μg/Kg	--	C7-NFSS-SL-PIPE1	63 J
			C7-NFSS-SL-PIPE2	180 J
			C7-NFSS-SL-SUMP1	2 J
beta-BHC	μg/Kg	--	C7-NFSS-SL-SUMP1	4.6 J
			C7-NFSS-SL-SUMP2	1 J
delta-BHC	μg/Kg	--	C7-NFSS-SL-PIPE1	3.9 J
			C7-NFSS-SL-PIPE2	6.5 J
			C7-NFSS-SL-SUMP2	0.95 J
			SUMP32S-2075	0.88
Dieldrin	μg/Kg	0.638	C7-NFSS-SL-PIPE1	130
			C7-NFSS-SL-PIPE2	420
			C7-NFSS-SL-SUMP1	4.1 J
Endosulfan I	μg/Kg	--	C7-NFSS-SL-SUMP1	6.2 J
			C7-NFSS-SL-SUMP2	0.93 J
Endosulfan sulfate	μg/Kg	--	C7-NFSS-SL-SUMP1	39 J
			C7-NFSS-SL-SUMP2	14 J
Endrin	μg/Kg	--	C7-NFSS-SL-ST6	8.9 J
			C7-NFSS-SL-ST9	1.3 J
			C7-NFSS-SL-SUMP1	11 J
Endrin aldehyde	μg/Kg	--	C7-NFSS-SL-PIPE1	19 J
			C7-NFSS-SL-PIPE2	51 J
			C7-NFSS-SL-ST6	49
			C7-NFSS-SL-ST9	2.6 J
			C7-NFSS-SL-SUMP1	28 J
			C7-NFSS-SL-SUMP2	160 E
Endrin ketone	μg/Kg	--	C7-NFSS-SL-ST6	21
			C7-NFSS-SL-SUMP1	16 J
			C7-NFSS-SL-SUMP2	80
gamma-BHC (Lindane)	μg/Kg	--	C7-NFSS-SL-SUMP1	3.7 J
			DRAIN14-S-3719	0.954 J
			SUMP32S-2075	0.53 JP
Heptachlor	μg/Kg	--	C7-NFSS-SL-PIPE1	1.5 J
			C7-NFSS-SL-PIPE2	7.7 J
			C7-NFSS-SL-SUMP1	8.5 J
Heptachlor epoxide	μg/Kg	--	C7-NFSS-SL-PIPE1	5.5 J
			C7-NFSS-SL-PIPE2	7.4 J
			C7-NFSS-SL-ST6	11 J
			C7-NFSS-SL-SUMP1	12 J
			C7-NFSS-SL-SUMP2	8.3 J
			SUMP32S-2075	0.44 J
Radionuclides				

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Alpha	pCi/g	22.4	DRAIN03-S-3705	61.6
			DRAIN07-S-3712	34.2
			DRAIN08-S-3713	27.6
			DRAIN10-S-3715	25.3
			MH02S-2002	28.6
			MH03S-2005	63.2
			MH04S-2007	38.9
			MH07S-2012	37.6
			MH07S-3682	39.5
			MH08S-2015	33.7
			MH08S-3684	38.4
			MH09S-2017	86.5
			MH12S-2020	32.4
			MH16S-2026	37.8 J
			MH24S-2031	27.6
			MH30S-2034	23
			MH41S-2042	100
			MH41S-3690	62.6
			MH42S-2044	52.6
			MH43S-2046	162
			MH43S-3688	76.1
			MH44S-2048	86.3
			MH45S-2050	138
			MH45S-3686	115
			MH46S-2053	78.8
			PIPE33S-2059	36.3
			PIPE74S-2068	49.2
			PIPE74S-3692	58.3

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	38.6	DRAIN03-S-3705	52.4
			MH03S-2005	51.1
			MH07S-2012	51.2
			MH07S-3682	51.4
			MH08S-2015	44.6
			MH08S-3684	41.6
			MH09S-2017	70.5
			MH16S-2026	41.6 J
			MH41S-2042	86.1
			MH41S-3690	56.2
			MH42S-2044	48.1
			MH43S-2046	148
			MH43S-3688	78.6
			MH44S-2048	68.5
			MH45S-2050	87.8
			MH45S-3686	87.4
			MH46S-2053	74.1
			PIPE74S-2068	46.9
			PIPE74S-3692	50.8
Cesium-137	pCi/g	0.389	DRAIN03-S-3705	0.461
			MH03S-2005	1.5
			MH04S-2007	0.569
			MH22S-2029	0.63
			MH24S-2031	0.795
			MH29S-2033	0.483
			MH37S-2040	0.424
			MH41S-2042	0.699
			MH41S-3690	1.15
			MH43S-3688	0.783
			MH44S-2048	0.55
			MH46S-2053	0.721
			PIPE33S-2059	0.495
			PIPE57S-2064	0.58
Potassium-40	pCi/g	--	MH08S-2015	24.2
			MH09S-2017	18.3
			SUMP02S-2069	16.1
			SUMP07S-2070	19.4
			SUMP13S-2071	14.7
			SUMP14S-2072	17.3
			SUMP19S-2073	18.6
			SUMP25S-2074	18.7 J
			SUMP32S-2075	18.5
			SUMP35S-2078	19.1

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/g	2.43	MH03S-2005	10.3
			MH04S-2007	3.11
			MH09S-2017	4.84
			MH12S-2020	4.44
			MH41S-2042	3.13
			MH41S-3690	2.74
			MH45S-2050	5.98
			MH45S-3686	6.61
			MH46S-2053	3.18
Radium-228	pCi/g	1.14	PIPE33S-2059	2.48
			MH07S-2012	1.44
			MH07S-3682	1.2
			MH08S-2015	1.25
			MH12S-2020	1.21
Strontium-90	pCi/g	--	DRAIN09-S-3714	0.74
Thorium-228	pCi/g	1.31	MH07S-2012	1.98
			MH07S-3682	1.7
			MH08S-3684	1.47
			MH12S-2020	1.44
			MH45S-3686	1.43
Thorium-230	pCi/g	5.58	MH03S-2005	12.9
			MH04S-2007	7.44
			MH09S-2017	9.8
			MH43S-3688	8.26
			MH45S-2050	8.26
			MH45S-3686	8.44
Thorium-232	pCi/g	1.23	MH12S-2020	1.62
Total Activity	pCi/g	--	MH45S-3686	23.6
Total Uranium	µg/g	6.47	DRAIN03-S-3705	7.21
			DRAIN07-S-3712	17.9
			MH07S-3682	12.9
			MH08S-3684	14.1
			MH41S-3690	24.4
			MH43S-3688	19.5
			MH45S-3686	16.1
			PIPE74S-3692	39.6

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-234	pCi/g	3.57	DRAIN03-S-3705	26.2
			DRAIN04-S-3707	7.42
			DRAIN06-S-3711	5.73
			DRAIN07-S-3712	10.4 J
			DRAIN08-S-3713	9.34 J
			DRAIN09-S-3714	7.96 J
			DRAIN10-S-3715	6.8
			MH03S-2005	8.55
			MH04S-2007	9.03
			MH07S-2012	8.05
			MH07S-3682	13.1
			MH08S-2015	7.26
			MH08S-3684	12.3
			MH09S-2017	31.4
			MH16S-2026	11.4 J
			MH24S-2031	8.11
			MH30S-2034	4.47
			MH33S-2037	9.81
			MH41S-2042	38.8
			MH41S-3690	24.5
			MH42S-2044	9.04
			MH43S-2046	86.2
			MH43S-3688	18.3
			MH44S-2048	36.2
			MH45S-2050	9.76
			MH45S-3686	13.4
			MH46S-2053	16.8
			PIPE74S-2068	22.2
			PIPE74S-3692	45.3
			SUMP07S-2070	3.8

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.309	DRAIN03-S-3705	6.99
			DRAIN04-S-3707	1.36
			DRAIN06-S-3711	2.01
			DRAIN07-S-3712	0.658
			DRAIN08-S-3713	0.366
			DRAIN09-S-3714	0.388
			DRAIN10-S-3715	0.468
			MH03S-2005	0.413
			MH04S-2007	0.554
			MH07S-2012	0.578
			MH07S-3682	2.16
			MH08S-2015	0.444
			MH08S-3684	0.614
			MH09S-2017	1.47
			MH16S-2026	0.682 J
			MH24S-2031	0.56
			MH30S-2034	0.311
			MH33S-2037	0.42
			MH41S-2042	2.02
			MH41S-3690	3.79
			MH42S-2044	0.327
			MH43S-2046	5.35
			MH43S-3688	1.58
			MH44S-2048	1.86
			MH45S-2050	0.552
			MH45S-3686	1.29
			MH46S-2053	0.837
			PIPE74S-2068	0.8
			PIPE74S-3692	3.59

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-238	pCi/g	3.08	DRAIN03-S-3705	28.5
			DRAIN04-S-3707	6.42
			DRAIN06-S-3711	5.3
			DRAIN07-S-3712	12 J
			DRAIN08-S-3713	9.9 J
			DRAIN09-S-3714	8.54 J
			DRAIN10-S-3715	7.79
			MH03S-2005	7.97
			MH04S-2007	7.91
			MH07S-2012	7.78
			MH07S-3682	11.7
			MH08S-2015	7.24
			MH08S-3684	13
			MH09S-2017	29.8
			MH16S-2026	10.3 J
			MH24S-2031	7.18
			MH30S-2034	3.94
			MH41S-2042	34.1
			MH41S-3690	24.8
			MH42S-2044	9.19
			MH43S-2046	88.9
			MH43S-3688	17.4
			MH44S-2048	33.1
			MH45S-2050	11.2
			MH45S-3686	12.3
			MH46S-2053	17.2
			PIPE74S-2068	20.3
			PIPE74S-3692	45.5
			SUMP07S-2070	4.37
Semivolatile Organics				
2-Methylnaphthalene	µg/Kg	--	DRAIN01-S-3701	629
			MH02S-2002	242
			MH03S-2005	20.4 J
			MH04S-2007	15.8 J
			MH08S-2015	12.9 J
			MH12S-2020	19.8 J
			MH33S-2037	15.6 J
			MH45S-2050	55.8
			MH46S-2053	12.6 J
			PIPE33S-2059	16.1 J
			PIPE47S-2063	60.5
			PIPE57S-2064	67.7
			PIPE63S-2065	23.5 J
			PIPE72S-2066	9.4 J

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
bis(2-Ethylhexyl)phthalate	$\mu\text{g/Kg}$	31300	DRAIN03-S-3705	31600 J
			DRAIN06-S-3711	36600 BJ
			DRAIN07-S-3712	37900
			DRAIN08-S-3713	39400
			DRAIN09-S-3714	179000
			DRAIN11-S-3716	66800
			DRAIN13-S-3718	50600 J
			MH09S-2017	31600
Butylbenzylphthalate	$\mu\text{g/Kg}$	--	DRAIN04-S-3707	56100 J
			DRAIN06-S-3711	295000
			DRAIN07-S-3712	2380 J
			DRAIN08-S-3713	1610 J
Carbazole	$\mu\text{g/Kg}$	--	MH03S-2005	271 J
			MH04S-2007	203 J
			MH45S-2050	158 J
			PIPE33S-2059	251 J
			PIPE57S-2064	10 J
			PIPE63S-2065	196 J
			PIPE72S-2066	146 J
Dibenzofuran	$\mu\text{g/Kg}$	--	MH02S-2002	74.8 J
			MH03S-2005	64.8 J
			MH12S-2020	11.3 J
			MH46S-2053	21.4 J
			PIPE33S-2059	11.3 J
			PIPE47S-2063	15.1 J
			PIPE57S-2064	20.9 J
			PIPE63S-2065	38.8 J
Di-n-butylphthalate	$\mu\text{g/Kg}$	--	DRAIN08-S-3713	759 J
			DRAIN10-S-3715	1070 J
			DRAIN11-S-3716	487 J
			DRAIN12-S-3717	412 J
			DRAIN13-S-3718	23200 J
			MH09S-2017	822 J
			PIPE57S-2064	27.8 J
p-Cresol	$\mu\text{g/Kg}$	--	C7-NFSS-SL-ST9	220 J
Volatile Organics				
1,1-Dichloroethene	$\mu\text{g/Kg}$	3.46	DRAIN09-S-3714	5.31
2-Butanone	$\mu\text{g/Kg}$	49.3	DRAIN01-S-3701	64.3
			DRAIN02-S-3703	2660
			DRAIN04-S-3707	1060 J
			PIPE74S-2068	57
			PIPE74S-3692	832

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Acetone	$\mu\text{g/Kg}$	206	DRAIN01-S-3701	317
			DRAIN02-S-3703	6740
			DRAIN03-S-3705	1790
			DRAIN04-S-3707	1810
			DRAIN06-S-3711	1380
			DRAIN13-S-3718	813
			PIPE74S-3692	2080
Benzene	$\mu\text{g/Kg}$	--	MH09S-2017	1.7 J
			SUMP13S-2071	0.38 J
Carbon disulfide	$\mu\text{g/Kg}$	--	DRAIN01-S-3701	7.66 J
			MH08S-2015	2.7 J
			MH09S-2017	84.9
			MH12S-2020	3.5 J
			PIPE74S-2068	19.5 J
			PIPE74S-3692	61.3
cis-1,2-Dichloroethene	$\mu\text{g/Kg}$	--	DRAIN02-S-3703	413
			DRAIN07-S-3712	22.2
			DRAIN10-S-3715	122 J
			MH22S-2029	2.4
			MH45S-2050	0.99 J
			PIPE74S-3692	9.71
Ethylbenzene	$\mu\text{g/Kg}$	--	DRAIN01-S-3701	15.5
			DRAIN03-S-3705	138 J
			DRAIN09-S-3714	0.63 J
			DRAIN10-S-3715	1.8
			DRAIN13-S-3718	43.6 J
			PIPE74S-2068	14.4
			PIPE74S-3692	7.95
Methylene chloride	$\mu\text{g/Kg}$	--	C7-NFSS-SL-PIPE2	680 J
			DRAIN03-S-3705	324 J
			DRAIN13-S-3718	155 J
Tetrachloroethene	$\mu\text{g/Kg}$	--	DRAIN04-S-3707	210 J
			DRAIN06-S-3711	1000
			DRAIN07-S-3712	56.4
			DRAIN08-S-3713	2.88
			DRAIN09-S-3714	1.51 J
			DRAIN10-S-3715	918
			DRAIN11-S-3716	1.32
			DRAIN12-S-3717	0.345 J
			MH22S-2029	13.5
			MH45S-2050	0.71 J
			PIPE74S-2068	13.1
			PIPE74S-3692	431
			SUMP13S-2071	2.7

* Data qualifier included with concentration value

Table 4-129
Exposure Unit 16
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Toluene	$\mu\text{g/Kg}$	8.89	DRAIN02-S-3703	56.1 J
			DRAIN03-S-3705	85.3 J
			DRAIN04-S-3707	387
			DRAIN06-S-3711	75.4 J
			DRAIN13-S-3718	37.4 J
			PIPE74S-2068	156
			PIPE74S-3692	62.1
trans-1,2-Dichloroethene	$\mu\text{g/Kg}$	--	DRAIN02-S-3703	86.9
			DRAIN10-S-3715	1.3 J
Trichloroethene	$\mu\text{g/Kg}$	--	DRAIN02-S-3703	142
			DRAIN03-S-3705	133 J
			DRAIN04-S-3707	217 J
			DRAIN06-S-3711	104 J
			DRAIN07-S-3712	47
			DRAIN08-S-3713	1.87
			DRAIN10-S-3715	183
			MH22S-2029	4.8
			MH45S-2050	0.93 J
Xylenes (total)	$\mu\text{g/Kg}$	--	PIPE74S-3692	28.4
			DRAIN01-S-3701	84
			DRAIN03-S-3705	603
			DRAIN04-S-3707	293
			DRAIN06-S-3711	557
			DRAIN08-S-3713	3.88
			DRAIN09-S-3714	2.62
			DRAIN10-S-3715	7.93
			DRAIN13-S-3718	227
			PIPE74S-2068	64
			PIPE74S-3692	12

* Data qualifier included with concentration value

Table 4-130
Exposure Unit 16
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	C7-NFSS-SO-PIPE1	19900
Copper	mg/Kg	49.3	C7-NFSS-SO-PIPE1	74.6
			C7-NFSS-SO-PIPE2	67.5
Lithium	mg/Kg	36.8	C7-NFSS-SO-PIPE1	37.4
Thallium	mg/Kg	--	C7-NFSS-SO-PIPE2	0.13 J
PAHs				
Anthracene	μg/Kg	8	C7-NFSS-SO-PIPE2	33 J
Fluorene	μg/Kg	2.9	C7-NFSS-SO-PIPE2	30 J
Naphthalene	μg/Kg	--	C7-NFSS-SO-PIPE2	110 J
Pesticides				
4,4'-DDE	μg/Kg	--	C7-NFSS-SO-PIPE2	13 J
alpha-Chlordane	μg/Kg	--	C7-NFSS-SO-PIPE1	63 J
			C7-NFSS-SO-PIPE2	450 EP
delta-BHC	μg/Kg	--	C7-NFSS-SO-PIPE2	2.3 J
Dieldrin	μg/Kg	--	C7-NFSS-SO-PIPE1	130 J
			C7-NFSS-SO-PIPE2	850 E
Heptachlor	μg/Kg	--	C7-NFSS-SO-PIPE1	1.6 J
			C7-NFSS-SO-PIPE2	2.9 J
Heptachlor epoxide	μg/Kg	--	C7-NFSS-SO-PIPE1	0.86 J
Methoxychlor	μg/Kg	--	C7-NFSS-SO-PIPE2	23
Radionuclides				
Beta	pCi/g	28.9	SB-PIPE74-7.0-3657	29.8
Thorium-232	pCi/g	1.24	SB-PIPE74-7.0-3657	1.39
Uranium-235	pCi/g	0.0847	SB-PIPE74-7.0-3657	0.313
Volatile Organics				
Acetone	μg/Kg	--	SB-PIPE74-7.0-3657	7.42

* Data qualifier included with concentration value

Table 4-131
Exposure Unit 9
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	13	7580 E*	24300	13
Antimony	mg/Kg	13	0.504 BN	0.696 BN	3
Arsenic	mg/Kg	13	1.9 N*	5.39 E	13
Barium	mg/Kg	13	53.1 *	229 *	13
Beryllium	mg/Kg	13	0.408 BE*	1.15	13
Boron	mg/Kg	13	2.86 B	14.9	13
Cadmium	mg/Kg	13	0.064 B	0.32 B	11
Calcium	mg/Kg	13	2360	62100 *	13
Chromium	mg/Kg	13	10.8 *N	28.9	13
Cobalt	mg/Kg	13	4.38 *	12.1	13
Copper	mg/Kg	13	17.2	34.8	13
Iron	mg/Kg	13	14700 E*	29800	13
Lead	mg/Kg	13	4.4 E	47.5 E	13
Lithium	mg/Kg	13	12.1	28.9	13
Magnesium	mg/Kg	13	1860	25900 *	13
Manganese	mg/Kg	13	287	1590 *	13
Mercury	mg/Kg	13	0.01 B*	0.048	13
Nickel	mg/Kg	13	10.7 *	28.7	13
Potassium	mg/Kg	13	666 *	3350 N	13
Selenium	mg/Kg	13	0.314 B	1.76	12
Silver	mg/Kg	13	0.048 BE	0.716 E	12
Sodium	mg/Kg	13	54.4 E*	196 E*	13
Thallium	mg/Kg	13	0.056 B	0.138	12
Vanadium	mg/Kg	13	21.1 E*N	46.8	13
Zinc	mg/Kg	13	17.5	81.8	13
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	3	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	3	--	--	0
2,4-Dinitrotoluene	μg/Kg	6	--	--	0
2,6-Dinitrotoluene	μg/Kg	6	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	3	--	--	0
2-Nitrotoluene	μg/Kg	3	--	--	0
3-Dinitrobenzene	μg/Kg	3	--	--	0
3-Nitrotoluene	μg/Kg	3	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	3	--	--	0
4-Nitrotoluene	μg/Kg	3	--	--	0
HMX	μg/Kg	3	--	--	0
Nitrobenzene	μg/Kg	6	--	--	0
RDX	μg/Kg	3	--	--	0
Tetryl	μg/Kg	3	--	--	0
PAHs					
Acenaphthene	μg/Kg	6	--	--	0
Acenaphthylene	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-131
Exposure Unit 9
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	4	--	--	0
Benzo(a)anthracene	μg/Kg	4	0.571 J	0.571 J	1
Benzo(a)pyrene	μg/Kg	4	--	--	0
Benzo(b)fluoranthene	μg/Kg	4	--	--	0
Benzo(g,h,i)perylene	μg/Kg	4	--	--	0
Benzo(k)fluoranthene	μg/Kg	4	--	--	0
Chrysene	μg/Kg	4	0.913 J	0.913 J	1
Dibenzo(a,h)anthracene	μg/Kg	4	--	--	0
Fluoranthene	μg/Kg	4	0.747 JP	1.46 J	2
Fluorene	μg/Kg	6	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	4	--	--	0
Naphthalene	μg/Kg	6	--	--	0
Phenanthrene	μg/Kg	4	2.02 J	2.02 J	1
Pyrene	μg/Kg	4	1.79 JP	1.79 JP	1
PCBs					
Aroclor-1016	μg/Kg	13	--	--	0
Aroclor-1221	μg/Kg	13	--	--	0
Aroclor-1232	μg/Kg	13	--	--	0
Aroclor-1242	μg/Kg	13	--	--	0
Aroclor-1248	μg/Kg	13	--	--	0
Aroclor-1254	μg/Kg	13	2.9 J	2.9 J	1
Aroclor-1260	μg/Kg	13	12.7 P	12.7 P	1
Pesticides					
4,4'-DDD	μg/Kg	3	--	--	0
4,4'-DDE	μg/Kg	3	--	--	0
4,4'-DDT	μg/Kg	3	0.739 J	0.739 J	1
Aldrin	μg/Kg	3	--	--	0
alpha-BHC	μg/Kg	3	--	--	0
alpha-Chlordane	μg/Kg	3	--	--	0
beta-BHC	μg/Kg	3	--	--	0
delta-BHC	μg/Kg	3	--	--	0
Dieldrin	μg/Kg	3	--	--	0
Endosulfan I	μg/Kg	3	--	--	0
Endosulfan II	μg/Kg	3	--	--	0
Endosulfan sulfate	μg/Kg	3	--	--	0
Endrin	μg/Kg	3	--	--	0
Endrin aldehyde	μg/Kg	3	--	--	0
Endrin ketone	μg/Kg	3	--	--	0
gamma-BHC (Lindane)	μg/Kg	3	--	--	0
gamma-Chlordane	μg/Kg	3	--	--	0
Heptachlor	μg/Kg	3	--	--	0
Heptachlor epoxide	μg/Kg	3	--	--	0
Methoxychlor	μg/Kg	3	--	--	0
Toxaphene	μg/Kg	3	--	--	0

* Data qualifier included with concentration value

Table 4-131
Exposure Unit 9
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	21	1.08	1.08	1
Alpha	pCi/g	21	5.41	83.3	21
Americium-241	pCi/g	21	--	--	0
Beta	pCi/g	21	12.9	49.7	21
Cesium-137	pCi/g	21	0.0369	0.234	10
Cobalt-60	pCi/g	21	--	--	0
Potassium-40	pCi/g	18	9.08	28.4	18
Protactinium-231	pCi/g	21	--	--	0
Radium-226	pCi/g	21	0.378	17.8	21
Radium-228	pCi/g	21	0.603	1.5	20
Thorium-228	pCi/g	21	0.495	1.76	21
Thorium-230	pCi/g	21	0.54	30.5	21
Thorium-232	pCi/g	21	0.413	1.52	21
Total Uranium	μg/g	21	0.878	13.5	21
Uranium-234	pCi/g	21	0.37	2.95	21
Uranium-235	pCi/g	21	0.154	0.214	2
Uranium-238	pCi/g	21	0.27	2.95	21
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	6	--	--	0
1,2-Dichlorobenzene	μg/Kg	6	--	--	0
1,3-Dichlorobenzene	μg/Kg	6	--	--	0
1,4-Dichlorobenzene	μg/Kg	6	--	--	0
2,4,5-Trichlorophenol	μg/Kg	6	--	--	0
2,4,6-Trichlorophenol	μg/Kg	6	--	--	0
2,4-Dichlorophenol	μg/Kg	6	--	--	0
2,4-Dimethylphenol	μg/Kg	6	--	--	0
2,4-Dinitrophenol	μg/Kg	6	--	--	0
2-Chloronaphthalene	μg/Kg	6	--	--	0
2-Chlorophenol	μg/Kg	6	21.7 J	21.7 J	1
2-Methyl-4,6-dinitrophenol	μg/Kg	4	--	--	0
2-Methylnaphthalene	μg/Kg	6	--	--	0
2-Nitroaniline	μg/Kg	6	--	--	0
2-Nitrophenol	μg/Kg	6	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	4	--	--	0
3-Nitroaniline	μg/Kg	6	--	--	0
4-Bromophenylphenylether	μg/Kg	4	--	--	0
4-Chloro-3-methylphenol	μg/Kg	6	--	--	0
4-Chloroaniline	μg/Kg	6	--	--	0
4-Chlorophenylphenylether	μg/Kg	4	--	--	0
4-Nitroaniline	μg/Kg	4	--	--	0
4-Nitrophenol	μg/Kg	6	--	--	0
Benzoic Acid	μg/Kg	3	--	--	0
bis(2-Chloroethoxy)methane	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-131
Exposure Unit 9
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethyl)ether	μg/Kg	6	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	6	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	4	--	--	0
Butylbenzylphthalate	μg/Kg	4	--	--	0
Carbazole	μg/Kg	4	--	--	0
Dibenzofuran	μg/Kg	6	--	--	0
Diethylphthalate	μg/Kg	6	--	--	0
Dimethylphthalate	μg/Kg	6	--	--	0
Di-n-butylphthalate	μg/Kg	4	--	--	0
Di-n-octylphthalate	μg/Kg	4	--	--	0
Diphenylamine	μg/Kg	1	--	--	0
Hexachlorobenzene	μg/Kg	4	--	--	0
Hexachlorobutadiene	μg/Kg	6	--	--	0
Hexachlorocyclopentadiene	μg/Kg	6	--	--	0
Hexachloroethane	μg/Kg	6	--	--	0
Isophorone	μg/Kg	6	--	--	0
m,p-Cresols	μg/Kg	6	19.7 J	19.7 J	1
N-Nitroso-di-n-propylamine	μg/Kg	6	--	--	0
N-Nitrosodiphenylamine	μg/Kg	3	--	--	0
o-Cresol	μg/Kg	6	--	--	0
Pentachlorophenol	μg/Kg	4	--	--	0
Phenol	μg/Kg	6	28.1 J	28.1 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	13	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	13	--	--	0
1,1,2-Trichloroethane	μg/Kg	13	--	--	0
1,1-Dichloroethane	μg/Kg	13	--	--	0
1,1-Dichloroethene	μg/Kg	13	8.4	8.4	1
1,2-Dichloroethane	μg/Kg	13	--	--	0
1,2-Dichloropropane	μg/Kg	13	--	--	0
2-Butanone	μg/Kg	13	--	--	0
2-Hexanone	μg/Kg	13	--	--	0
4-Methyl-2-pentanone	μg/Kg	13	--	--	0
Acetone	μg/Kg	13	--	--	0
Benzene	μg/Kg	13	0.15 J	0.52 J	2
Bromodichloromethane	μg/Kg	13	--	--	0
Bromoform	μg/Kg	13	--	--	0
Bromomethane	μg/Kg	13	--	--	0
Carbon disulfide	μg/Kg	13	--	--	0
Carbon tetrachloride	μg/Kg	13	--	--	0
Chlorobenzene	μg/Kg	13	--	--	0
Chloroethane	μg/Kg	13	--	--	0
Chloroform	μg/Kg	13	--	--	0
Chloromethane	μg/Kg	13	--	--	0

* Data qualifier included with concentration value

Table 4-131
Exposure Unit 9
Surface Soil (0-0.5') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
cis-1,3-Dichloropropene	μg/Kg	13	--	--	0
Dibromochloromethane	μg/Kg	13	--	--	0
Ethylbenzene	μg/Kg	13	--	--	0
Methylene chloride	μg/Kg	13	--	--	0
Styrene	μg/Kg	13	--	--	0
Tetrachloroethene	μg/Kg	13	--	--	0
Toluene	μg/Kg	13	0.38 J	0.38 J	1
trans-1,3-Dichloropropene	μg/Kg	13	--	--	0
Trichloroethene	μg/Kg	13	--	--	0
Vinyl chloride	μg/Kg	13	--	--	0
Xylenes (total)	μg/Kg	13	--	--	0

* Data qualifier included with concentration value

Table 4-132
Exposure Unit 9
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	18400	SS903-2083	24300
Beryllium	mg/Kg	1	SS903-2083	1.15
Boron	mg/Kg	10.1	SS904-2087	14.9
			SS905-2089	10.9
			SS906-2091	11.2
			SS907-2093	10.2
			SS908-2095	12.1
			SS909-2097	10.4 *
			SS910-2099	12.6 *
Calcium	mg/Kg	45200	SS910-2099	62100 *
Chromium	mg/Kg	24.3	SS903-2083	28.9
Copper	mg/Kg	34.7	SS903-2083	34.8
Lithium	mg/Kg	27.9	SS903-2083	28.9
			SS907-2093	28.1 N
Magnesium	mg/Kg	10200	SS910-2099	25900 *
			SS-EU093-3342	11000 *
Potassium	mg/Kg	1820	SS903-2083	2790 N
			SS904-2087	3350 N
			SS905-2089	2320 N
			SS906-2091	2730 N
			SS907-2093	2550 N
			SS908-2095	2920 N
			SS909-2097	2590 *
			SS910-2099	2710 *
			SS-EU092-3341	2310 *
Selenium	mg/Kg	0.37	SS-EU093-3342	2470 *
			SS901-2079	0.515 BN
			SS902-2081	0.468 BN
			SS903-2083	1.12
			SS905-2089	1.76
			SS906-2091	1.01
			SS907-2093	0.534 BN
			SS908-2095	1.21
			SS909-2097	0.454 B
Silver	mg/Kg	0.27	SS910-2099	0.591 B
			SS-EU092-3341	0.572 B
			SS-EU093-3342	0.56 B
Silver	mg/Kg	0.27	SS905-2089	0.716 E

* Data qualifier included with concentration value

Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SS901-2079	0.056 B
			SS902-2081	0.124
			SS903-2083	0.106 B
			SS905-2089	0.108 B
			SS906-2091	0.098 B
			SS907-2093	0.138
			SS908-2095	0.131
			SS909-2097	0.123
			SS910-2099	0.128
			SS-EU091-3340	0.061 BE
			SS-EU092-3341	0.095 BE
			SS-EU093-3342	0.122 E
Vanadium	mg/Kg	34	SS903-2083	46.8
			SS907-2093	35.4
PCBs				
Aroclor-1254	µg/Kg	--	SS-EU093-3342	2.9 J
Aroclor-1260	µg/Kg	--	SS908-2095	12.7 P
Pesticides				
4,4'-DDT	µg/Kg	--	SS-EU093-3342	0.739 J
Radionuclides				
Alpha	pCi/g	--	SD911-2101	18.5
			SD912-2103	18.7
			SD914-2108	24.5
			SD915-2109	14.4
			SD916-2113	11.1
			SD917-2115	10.4
			SD918-2117	7.61
			SS901-2079	8.57
			SS902-2081	11.8
			SS903-2083	13.8
			SS904-2087	13.3 J
			SS905-2089	17
			SS906-2091	15.7
			SS907-2093	17.9
			SS908-2095	12.5
			SS909-2097	16
			SS910-2099	12.4
			SS913-2105	83.3
			SS-EU091-3340	7.86
			SS-EU092-3341	5.41
			SS-EU093-3342	7.4

* Data qualifier included with concentration value

Table 4-132
Exposure Unit 9
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	--	SD911-2101	32.8
			SD912-2103	28.9
			SD914-2108	43.4
			SD915-2109	28.9
			SD916-2113	28.2
			SD917-2115	23.3
			SD918-2117	21.1
			SS901-2079	16.6
			SS902-2081	20.8
			SS903-2083	28
			SS904-2087	23.8 J
			SS905-2089	31.4
			SS906-2091	23.3
			SS907-2093	33.2
			SS908-2095	28.4
			SS909-2097	31.3
			SS910-2099	24.1
			SS913-2105	49.7
			SS-EU091-3340	13.3
			SS-EU092-3341	12.9
			SS-EU093-3342	17.7
Radium-226	pCi/g	0.921	SD911-2101	0.968
			SD914-2108	0.985
			SD915-2109	0.944
			SS904-2087	0.981
			SS905-2089	2.07
			SS906-2091	1.84
			SS913-2105	17.8
Radium-228	pCi/g	1.26	SD911-2101	1.5
			SS903-2083	1.33
Thorium-230	pCi/g	1.6	SD915-2109	1.65
			SS904-2087	1.61 J
			SS905-2089	2.14
			SS906-2091	3.1
			SS913-2105	30.5
Thorium-232	pCi/g	1.24	SD914-2108	1.46
			SS905-2089	1.52
Total Uranium	μg/g	3.94	SD911-2101	4.45
			SD912-2103	4.36
			SS903-2083	4.01
			SS905-2089	13.5
			SS913-2105	4.07
Uranium-234	pCi/g	1.68	SS905-2089	2.95

* Data qualifier included with concentration value

Table 4-132
Exposure Unit 9
Surface Soil (0-0.5') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Uranium-235	pCi/g	0.0847	SD917-2115	0.154
			SS905-2089	0.214
Uranium-238	pCi/g	1.36	SD912-2103	1.39
			SD914-2108	1.5
			SS905-2089	2.95
			SS913-2105	1.66
Semivolatile Organics				
2-Chlorophenol	μg/Kg	--	SS907-2093	21.7 J
m,p-Cresols	μg/Kg	--	SS907-2093	19.7 J
Phenol	μg/Kg	--	SS907-2093	28.1 J
Volatile Organics				
1,1-Dichloroethene	μg/Kg	--	SS910-2099	8.4
Benzene	μg/Kg	--	SS901-2079	0.15 J
			SS905-2089	0.52 J
Toluene	μg/Kg	--	SS905-2089	0.38 J

* Data qualifier included with concentration value

Table 4-133
Exposure Unit 9
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Metals					
Aluminum	mg/Kg	26	4960 E*	24300	26
Antimony	mg/Kg	26	0.504 BN	0.894 BN	4
Arsenic	mg/Kg	26	1.16 NE	5.39 E	26
Barium	mg/Kg	26	21.8 *	234 *	26
Beryllium	mg/Kg	26	0.252 BE*	1.15	26
Boron	mg/Kg	26	2.86 B	14.9	26
Cadmium	mg/Kg	26	0.064 B	0.32 B	23
Calcium	mg/Kg	26	2360	62100 *	26
Chromium	mg/Kg	26	7.2	28.9	26
Cobalt	mg/Kg	26	4.07	14.4 *	26
Copper	mg/Kg	26	11.4	53.3 J	26
Iron	mg/Kg	26	11300 E*	29800	26
Lead	mg/Kg	26	3.81 N	47.5 E	26
Lithium	mg/Kg	26	8.47 BN	28.9	26
Magnesium	mg/Kg	26	1860	25900 *	26
Manganese	mg/Kg	26	115	1740 J	26
Mercury	mg/Kg	26	0.006 B*	0.048	26
Nickel	mg/Kg	26	9.66	28.7	26
Potassium	mg/Kg	26	666 *	3560 N	26
Selenium	mg/Kg	26	0.205 BN	1.76	25
Silver	mg/Kg	26	0.039 BE	0.716 E	25
Sodium	mg/Kg	26	46.9 J	304 E*	26
Thallium	mg/Kg	26	0.04 B	0.164 E	25
Vanadium	mg/Kg	26	12.9 E*N	46.8	26
Zinc	mg/Kg	26	17.5	81.8	26
Nitroaromatics					
1,3,5-Trinitrobenzene	μg/Kg	6	--	--	0
2,4,6-Trinitrotoluene	μg/Kg	6	--	--	0
2,4-Dinitrotoluene	μg/Kg	12	--	--	0
2,6-Dinitrotoluene	μg/Kg	12	--	--	0
2-Amino-4,6-dinitrotoluene	μg/Kg	6	--	--	0
2-Nitrotoluene	μg/Kg	6	--	--	0
3-Dinitrobenzene	μg/Kg	6	--	--	0
3-Nitrotoluene	μg/Kg	6	--	--	0
4-Amino-2,6-dinitrotoluene	μg/Kg	6	--	--	0
4-Nitrotoluene	μg/Kg	6	--	--	0
HMX	μg/Kg	6	--	--	0
Nitrobenzene	μg/Kg	12	--	--	0
RDX	μg/Kg	6	--	--	0
Tetryl	μg/Kg	6	--	--	0
PAHs					
Acenaphthene	μg/Kg	12	--	--	0
Acenaphthylene	μg/Kg	12	--	--	0

* Data qualifier included with concentration value

Table 4-133
Exposure Unit 9
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Anthracene	μg/Kg	8	--	--	0
Benzo(a)anthracene	μg/Kg	8	0.571 J	0.571 J	1
Benzo(a)pyrene	μg/Kg	8	--	--	0
Benzo(b)fluoranthene	μg/Kg	8	--	--	0
Benzo(g,h,i)perylene	μg/Kg	8	--	--	0
Benzo(k)fluoranthene	μg/Kg	8	--	--	0
Chrysene	μg/Kg	8	0.913 J	0.913 J	1
Dibenzo(a,h)anthracene	μg/Kg	8	--	--	0
Fluoranthene	μg/Kg	8	0.747 JP	1.46 J	2
Fluorene	μg/Kg	12	--	--	0
Indeno(1,2,3-cd)pyrene	μg/Kg	8	--	--	0
Naphthalene	μg/Kg	12	--	--	0
Phenanthrene	μg/Kg	8	2.02 J	2.02 J	1
Pyrene	μg/Kg	8	1.79 JP	1.79 JP	1
PCBs					
Aroclor-1016	μg/Kg	26	--	--	0
Aroclor-1221	μg/Kg	26	--	--	0
Aroclor-1232	μg/Kg	26	--	--	0
Aroclor-1242	μg/Kg	26	--	--	0
Aroclor-1248	μg/Kg	26	--	--	0
Aroclor-1254	μg/Kg	26	2.9 J	2.9 J	1
Aroclor-1260	μg/Kg	26	12.7 P	12.7 P	1
Pesticides					
4,4'-DDD	μg/Kg	6	--	--	0
4,4'-DDE	μg/Kg	6	--	--	0
4,4'-DDT	μg/Kg	6	0.739 J	2.1	3
Aldrin	μg/Kg	6	--	--	0
alpha-BHC	μg/Kg	6	--	--	0
alpha-Chlordane	μg/Kg	6	--	--	0
beta-BHC	μg/Kg	6	--	--	0
delta-BHC	μg/Kg	6	--	--	0
Dieldrin	μg/Kg	6	--	--	0
Endosulfan I	μg/Kg	6	--	--	0
Endosulfan II	μg/Kg	6	--	--	0
Endosulfan sulfate	μg/Kg	6	--	--	0
Endrin	μg/Kg	6	--	--	0
Endrin aldehyde	μg/Kg	6	--	--	0
Endrin ketone	μg/Kg	6	--	--	0
gamma-BHC (Lindane)	μg/Kg	6	--	--	0
gamma-Chlordane	μg/Kg	6	--	--	0
Heptachlor	μg/Kg	6	--	--	0
Heptachlor epoxide	μg/Kg	6	--	--	0
Methoxychlor	μg/Kg	6	--	--	0
Toxaphene	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-133
Exposure Unit 9
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	35	1.08	1.08	1
Alpha	pCi/g	35	5.41	83.3	35
Americium-241	pCi/g	35	--	--	0
Beta	pCi/g	35	11.5	49.7	35
Cesium-137	pCi/g	35	0.0193 J	0.331	13
Cobalt-60	pCi/g	35	--	--	0
Potassium-40	pCi/g	29	9.08	28.4	29
Protactinium-231	pCi/g	35	--	--	0
Radium-226	pCi/g	35	0.378	17.8	35
Radium-228	pCi/g	35	0.486	1.5	34
Thorium-228	pCi/g	35	0.495	1.76	34
Thorium-230	pCi/g	35	0.473 J	30.5	34
Thorium-232	pCi/g	35	0.382 J	1.69 J	35
Total Activity	pCi/g	5	--	--	0
Total Uranium	μg/g	35	0.576	13.5	35
Uranium-234	pCi/g	35	0.37	2.95	35
Uranium-235	pCi/g	35	0.15	0.214	3
Uranium-238	pCi/g	35	0.27	2.95	35
Semivolatile Organics					
1,2,4-Trichlorobenzene	μg/Kg	12	--	--	0
1,2-Dichlorobenzene	μg/Kg	12	--	--	0
1,3-Dichlorobenzene	μg/Kg	12	--	--	0
1,4-Dichlorobenzene	μg/Kg	12	--	--	0
2,4,5-Trichlorophenol	μg/Kg	12	--	--	0
2,4,6-Trichlorophenol	μg/Kg	12	--	--	0
2,4-Dichlorophenol	μg/Kg	12	--	--	0
2,4-Dimethylphenol	μg/Kg	12	--	--	0
2,4-Dinitrophenol	μg/Kg	12	--	--	0
2-Chloronaphthalene	μg/Kg	12	--	--	0
2-Chlorophenol	μg/Kg	12	21.7 J	21.7 J	1
2-Methyl-4,6-dinitrophenol	μg/Kg	8	--	--	0
2-Methylnaphthalene	μg/Kg	12	--	--	0
2-Nitroaniline	μg/Kg	12	--	--	0
2-Nitrophenol	μg/Kg	12	--	--	0
3,3'-Dichlorobenzidine	μg/Kg	8	--	--	0
3-Nitroaniline	μg/Kg	12	--	--	0
4-Bromophenylphenylether	μg/Kg	8	--	--	0
4-Chloro-3-methylphenol	μg/Kg	12	--	--	0
4-Chloroaniline	μg/Kg	12	--	--	0
4-Chlorophenylphenylether	μg/Kg	8	--	--	0
4-Nitroaniline	μg/Kg	8	--	--	0
4-Nitrophenol	μg/Kg	12	--	--	0
Benzoic Acid	μg/Kg	6	--	--	0

* Data qualifier included with concentration value

Table 4-133
Exposure Unit 9
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
bis(2-Chloroethoxy)methane	μg/Kg	12	--	--	0
bis(2-Chloroethyl)ether	μg/Kg	12	--	--	0
bis(2-Chloroisopropyl)ether	μg/Kg	12	--	--	0
bis(2-Ethylhexyl)phthalate	μg/Kg	8	--	--	0
Butylbenzylphthalate	μg/Kg	8	--	--	0
Carbazole	μg/Kg	8	--	--	0
Dibenzofuran	μg/Kg	12	--	--	0
Diethylphthalate	μg/Kg	12	--	--	0
Dimethylphthalate	μg/Kg	12	--	--	0
Di-n-butylphthalate	μg/Kg	8	--	--	0
Di-n-octylphthalate	μg/Kg	8	--	--	0
Diphenylamine	μg/Kg	2	--	--	0
Hexachlorobenzene	μg/Kg	8	--	--	0
Hexachlorobutadiene	μg/Kg	12	--	--	0
Hexachlorocyclopentadiene	μg/Kg	12	--	--	0
Hexachloroethane	μg/Kg	12	--	--	0
Isophorone	μg/Kg	12	--	--	0
m,p-Cresols	μg/Kg	12	19.7 J	19.7 J	1
N-Nitroso-di-n-propylamine	μg/Kg	12	--	--	0
N-Nitrosodiphenylamine	μg/Kg	6	--	--	0
o-Cresol	μg/Kg	12	--	--	0
Pentachlorophenol	μg/Kg	8	--	--	0
PETN	μg/Kg	1	--	--	0
Phenol	μg/Kg	12	28.1 J	28.1 J	1
Volatile Organics					
1,1,1-Trichloroethane	μg/Kg	26	--	--	0
1,1,2,2-Tetrachloroethane	μg/Kg	26	--	--	0
1,1,2-Trichloroethane	μg/Kg	26	--	--	0
1,1-Dichloroethane	μg/Kg	26	--	--	0
1,1-Dichloroethene	μg/Kg	26	8.4	8.4	1
1,2-Dichloroethane	μg/Kg	26	--	--	0
1,2-Dichloropropane	μg/Kg	26	--	--	0
2-Butanone	μg/Kg	26	--	--	0
2-Hexanone	μg/Kg	26	--	--	0
4-Methyl-2-pentanone	μg/Kg	26	--	--	0
Acetone	μg/Kg	26	--	--	0
Benzene	μg/Kg	26	0.15 J	0.52 J	2
Bromodichloromethane	μg/Kg	26	--	--	0
Bromoform	μg/Kg	26	--	--	0
Bromomethane	μg/Kg	26	--	--	0
Carbon disulfide	μg/Kg	26	--	--	0
Carbon tetrachloride	μg/Kg	26	--	--	0
Chlorobenzene	μg/Kg	26	--	--	0
Chloroethane	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-133
Exposure Unit 9
Subsurface Soil (0-10') Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Chloroform	μg/Kg	26	0.36 J	0.36 J	1
Chloromethane	μg/Kg	26	--	--	0
cis-1,2-Dichloroethene	μg/Kg	26	--	--	0
cis-1,3-Dichloropropene	μg/Kg	26	--	--	0
Dibromochloromethane	μg/Kg	26	--	--	0
Ethylbenzene	μg/Kg	26	--	--	0
Methylene chloride	μg/Kg	26	--	--	0
Styrene	μg/Kg	26	--	--	0
Tetrachloroethene	μg/Kg	26	--	--	0
Toluene	μg/Kg	26	0.2 J	0.58 J	5
trans-1,2-Dichloroethene	μg/Kg	26	--	--	0
trans-1,3-Dichloropropene	μg/Kg	26	--	--	0
Trichloroethene	μg/Kg	26	--	--	0
Vinyl chloride	μg/Kg	26	--	--	0
Xylenes (total)	μg/Kg	26	--	--	0

* Data qualifier included with concentration value

Table 4-134
Exposure Unit 9
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Metals				
Aluminum	mg/Kg	19100	SB903-2085-2.0	19800
			SS903-2083	24300
Beryllium	mg/Kg	1	SS903-2083	1.15
Boron	mg/Kg	10.1	SB902-2082-2.0	12.2
			SB903-2085-2.0	13.7
			SB904-2088-3.0	10.4
			SB905-2090-2.0	14.7
			SB-EU093-3322-2.0	12.6 E*N
			SS904-2087	14.9
			SS905-2089	10.9
			SS906-2091	11.2
			SS907-2093	10.2
			SS908-2095	12.1
Chromium	mg/Kg	25.8	SS909-2097	10.4 *
			SS910-2099	12.6 *
Lead	mg/Kg	37.6	SS903-2083	28.9
Magnesium	mg/Kg	14800	SS906-2091	47.5 E
Potassium	mg/Kg	2860	SS910-2099	25900 *
			SB902-2082-2.0	3070 N
			SB903-2085-2.0	3560 N
			SB-EU093-3322-2.0	3270 *
			SS904-2087	3350 N
			SS908-2095	2920 N

* Data qualifier included with concentration value

Table 4-134
Exposure Unit 9
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Selenium	mg/Kg	0.37	SB902-2082-2.0	0.531 BN
			SB903-2085-2.0	1.15
			SB904-2088-3.0	0.777
			SB905-2090-2.0	0.987
			SB906-2092-3.0	0.623 B
			SB907-2094-2.5	0.429 BN
			SB908-2096-2.5	0.62 B
			SB909-2098-2.0	0.636 B
			SB910-2100-2.0	0.411 B
			SB-EU091-3320-2.0	0.681 J
			SB-EU093-3322-2.0	0.431 B
			SS901-2079	0.515 BN
			SS902-2081	0.468 BN
			SS903-2083	1.12
			SS905-2089	1.76
			SS906-2091	1.01
			SS907-2093	0.534 BN
			SS908-2095	1.21
			SS909-2097	0.454 B
			SS910-2099	0.591 B
			SS-EU092-3341	0.572 B
			SS-EU093-3342	0.56 B
Silver	mg/Kg	0.27	SS905-2089	0.716 E

* Data qualifier included with concentration value

Table 4-134
Exposure Unit 9
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Thallium	mg/Kg	--	SB901-2080-2.0	0.04 B
			SB902-2082-2.0	0.143
			SB903-2085-2.0	0.144
			SB904-2088-3.0	0.064 B
			SB905-2090-2.0	0.107 B
			SB906-2092-3.0	0.067 B
			SB907-2094-2.5	0.119
			SB908-2096-2.5	0.154
			SB909-2098-2.0	0.117
			SB910-2100-2.0	0.141
			SB-EU091-3320-2.0	0.083 J
			SB-EU092-3321-2.0	0.067 BE
			SB-EU093-3322-2.0	0.164 E
			SS901-2079	0.056 B
			SS902-2081	0.124
			SS903-2083	0.106 B
			SS905-2089	0.108 B
			SS906-2091	0.098 B
			SS907-2093	0.138
			SS908-2095	0.131
			SS909-2097	0.123
			SS910-2099	0.128
			SS-EU091-3340	0.061 BE
			SS-EU092-3341	0.095 BE
			SS-EU093-3342	0.122 E
Vanadium	mg/Kg	35.2	SB902-2082-2.0	35.9
			SB903-2085-2.0	37.1
			SS903-2083	46.8
			SS907-2093	35.4
Pesticides				
4,4'-DDT	µg/Kg	--	SB-EU092-3321-2.0	2.1
			SB-EU093-3322-2.0	1.14 J
			SS-EU093-3342	0.739 J
Radionuclides				
Alpha	pCi/g	15.1	SB902-2082-2.0	16.9
			SB905-2090-2.0	17.3
			SD911-2101	18.5
			SD912-2103	18.7
			SD914-2108	24.5
			SS905-2089	17
			SS906-2091	15.7
			SS907-2093	17.9
			SS909-2097	16
			SS913-2105	83.3

* Data qualifier included with concentration value

Table 4-134
Exposure Unit 9
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Beta	pCi/g	28.9	SB902-2082-2.0	31.5
			SB903-2085-2.0	30.7
			SB913-2474-1.5	29.5
			SD911-2101	32.8
			SD914-2108	43.4
			SS905-2089	31.4
			SS907-2093	33.2
			SS909-2097	31.3
			SS913-2105	49.7
Radium-226	pCi/g	1.2	SB905-2090-2.0	1.68
			SS905-2089	2.07
			SS906-2091	1.84
			SS913-2105	17.8
Radium-228	pCi/g	1.26	SD911-2101	1.5
			SS903-2083	1.33
Thorium-230	pCi/g	1.39	SB905-2090-2.0	2.1
			SB-EU093-3322-2.0	1.51
			SD915-2109	1.65
			SS904-2087	1.61 J
			SS905-2089	2.14
			SS906-2091	3.1
			SS913-2105	30.5
Thorium-232	pCi/g	1.24	SB913-2474-1.5	1.39
			SB-EU091-3320-2.0	1.69 J
			SD914-2108	1.46
			SS905-2089	1.52
Total Uranium	µg/g	3.58	SB905-2090-2.0	12.2
			SB913-2474-1.5	3.67
			SD911-2101	4.45
			SD912-2103	4.36
			SS903-2083	4.01
			SS905-2089	13.5
			SS913-2105	4.07
Uranium-234	pCi/g	1.66	SB913-2474-1.5	1.72
			SS905-2089	2.95
Uranium-235	pCi/g	0.0847	SB908-2096-2.5	0.15
			SD917-2115	0.154
			SS905-2089	0.214
Uranium-238	pCi/g	1.34	SB913-2474-1.5	1.77
			SB-EU093-3322-2.0	1.39
			SD912-2103	1.39
			SD914-2108	1.5
			SS905-2089	2.95
			SS913-2105	1.66

* Data qualifier included with concentration value

Table 4-134
Exposure Unit 9
Subsurface Soil (0-10') SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Semivolatile Organics				
2-Chlorophenol	μg/Kg	--	SS907-2093	21.7 J
m,p-Cresols	μg/Kg	--	SS907-2093	19.7 J
Phenol	μg/Kg	--	SS907-2093	28.1 J
Volatile Organics				
Benzene	μg/Kg	--	SS901-2079	0.15 J
			SS905-2089	0.52 J
Toluene	μg/Kg	--	SB901-2080-2.0	0.25 J
			SB904-2088-3.0	0.58 J
			SB905-2090-2.0	0.37 J
			SB909-2098-2.0	0.2 J
			SS905-2089	0.38 J

* Data qualifier included with concentration value

Table 4-135
Exposure Unit 9
Surface Water Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides, Dissolved					
Actinium-227, Dissolved	pCi/L	10	--	--	0
Americium-241, Dissolved	pCi/L	10	16.9	16.9	1
Cesium-137, Dissolved	pCi/L	10	--	--	0
Cobalt-60, Dissolved	pCi/L	10	--	--	0
Protactinium-231, Dissolved	pCi/L	10	--	--	0
Radium-226, Dissolved	pCi/L	10	0.404	0.752	6
Radium-228, Dissolved	pCi/L	10	--	--	0
Thorium-228, Dissolved	pCi/L	10	0.441	0.441	1
Thorium-230, Dissolved	pCi/L	10	0.063 J	0.263	6
Thorium-232, Dissolved	pCi/L	10	--	--	0
Uranium-234, Dissolved	pCi/L	10	4.77	19 J	10
Uranium-235, Dissolved	pCi/L	10	0.409	0.978 J	6
Uranium-238, Dissolved	pCi/L	10	4.96	18.2 J	10
Radionuclides, Total					
Actinium-227	pCi/L	10	--	--	0
Alpha	pCi/L	10	7.48	53.7 J	10
Americium-241	pCi/L	10	--	--	0
Beta	pCi/L	10	14.5	50.2	10
Cesium-137	pCi/L	10	--	--	0
Cobalt-60	pCi/L	10	--	--	0
Protactinium-231	pCi/L	10	--	--	0
Radium-226	pCi/L	10	0.36	2.21	9
Radium-228	pCi/L	10	--	--	0
Thorium-228	pCi/L	10	0.0823	0.251 J	4
Thorium-230	pCi/L	10	0.0917	0.226	5
Thorium-232	pCi/L	10	0.087	0.111	3
Total Uranium	µg/L	10	9.92	48.3	10
Uranium-234	pCi/L	10	5.21	17.7 J	10
Uranium-235	pCi/L	10	0.202	0.964	8
Uranium-238	pCi/L	10	4.4	16.5 J	10

* Data qualifier included with concentration value

Table 4-136
Exposure Unit 9
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides, Dissolved				
Americium-241, Dissolved	pCi/L	--	SW920-2122	16.9
Thorium-228, Dissolved	pCi/L	0.405	SW912-2104	0.441
Uranium-234, Dissolved	pCi/L	6.07	SW911-2102	9.18
			SW911-2105	8.07
			SW912-2104	18.1
			SW914-2109	11.7
			SW915-2112	10.1
			SW916-2114	8.9
			SW919-2120	19 J
			SW920-2122	6.43
Uranium-235, Dissolved	pCi/L	0.634	SW912-2104	0.774
			SW919-2120	0.978 J
Uranium-238, Dissolved	pCi/L	5.23	SW911-2102	8.23
			SW911-2105	7.11
			SW912-2104	16.7
			SW914-2109	10.2
			SW915-2112	9.03
			SW916-2114	7.73
			SW919-2120	18.2 J
			SW920-2122	6.54
Radionuclides, Total				
Alpha	pCi/L	12.2	SW911-2102	14.9
			SW911-2105	18.2
			SW912-2104	20.9
			SW914-2109	25.5
			SW915-2112	24
			SW916-2114	16.9
			SW918-2118	14.2
			SW919-2120	53.7 J
			SW920-2122	17.4
Beta	pCi/L	12.3	SW911-2102	19.4
			SW911-2105	16.2
			SW912-2104	50.2
			SW914-2109	16.3
			SW915-2112	15.8
			SW916-2114	15.3
			SW917-2116	14.5
			SW918-2118	17.9
			SW919-2120	39 J
			SW920-2122	18.2

* Data qualifier included with concentration value

Table 4-136
Exposure Unit 9
Surface Water SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radium-226	pCi/L	0.487	SW911-2102	0.652
			SW912-2104	2.21
			SW915-2112	0.685
			SW916-2114	0.686
			SW917-2116	0.607
			SW918-2118	0.899
			SW919-2120	0.924
Thorium-232	pCi/L	--	SW914-2109	0.087
			SW918-2118	0.111
			SW919-2120	0.0957 J
Total Uranium	µg/L	12.5	SW911-2102	24
			SW911-2105	21.9
			SW912-2104	16.4
			SW914-2109	28.9
			SW915-2112	46.9
			SW916-2114	20.2
			SW919-2120	48.3
Uranium-234	pCi/L	5.78	SW920-2122	18
			SW911-2102	12.4
			SW911-2105	10.5
			SW912-2104	16
			SW914-2109	15.1
			SW915-2112	8.08
			SW916-2114	11.4
Uranium-235	pCi/L	0.529	SW919-2120	17.7 J
			SW920-2122	7.62
			SW911-2105	0.964
			SW912-2104	0.778
			SW914-2109	0.756
Uranium-238	pCi/L	4.81	SW918-2118	0.567
			SW919-2120	0.91 J
			SW911-2102	8.98
			SW911-2105	8.51
			SW912-2104	15.9
			SW914-2109	12.3
			SW915-2112	7.32
			SW916-2114	10.4
			SW918-2118	4.91
			SW919-2120	16.5 J
			SW920-2122	6.65

* Data qualifier included with concentration value

Table 4-137
Exposure Unit 9
Sediment Sample Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Number of Samples	Minimum Detect*	Maximum Detect*	Results > Detection Limit
Radionuclides					
Actinium-227	pCi/g	2	--	--	0
Alpha	pCi/g	2	19.8	21.7	2
Americium-241	pCi/g	2	--	--	0
Beta	pCi/g	2	31.9	38.1	2
Cesium-137	pCi/g	2	0.101	0.175	2
Cobalt-60	pCi/g	2	--	--	0
Potassium-40	pCi/g	2	22.2	22.5	2
Protactinium-231	pCi/g	2	--	--	0
Radium-226	pCi/g	2	1.08	1.09	2
Radium-228	pCi/g	2	1.08	1.16	2
Thorium-228	pCi/g	2	1.22	1.38	2
Thorium-230	pCi/g	2	1.32	1.4	2
Thorium-232	pCi/g	2	1.11	1.11	2
Total Uranium	μg/g	2	2.65	3.83	2
Uranium-234	pCi/g	2	1.49	2.48	2
Uranium-235	pCi/g	2	0.138	0.138	1
Uranium-238	pCi/g	2	1.31	1.86	2

* Data qualifier included with concentration value

Table 4-138
Exposure Unit 9
Sediment SRC Summary
Niagara Falls Storage Site Remedial Investigation

Parameter	Units	Background Screening Value	Samples That Exceed Background Screening Value	Concentration*
Radionuclides				
Potassium-40	pCi/g	--	SD919-2119	22.5
			SD920-2121	22.2
Radium-228	pCi/g	1.14	SD919-2119	1.16
Thorium-228	pCi/g	1.31	SD920-2121	1.38

* Data qualifier included with concentration value

Table 5-1
Summary of Slug Test Results for the Upper and Lower Water-Bearing Zones
Niagara Falls Storage Site

Well	Surface Elevation (ft amsl)	Depth (ft BGS)	Screen (ft BGS)		Hydraulic Conductivity K (cm/s)	Date of Test
			Top	Bottom		
Lower Water-Bearing Zone						
A23A	319.74	80.5	44.2	80.5	4.96E-05	2001
A56	323.40	40.4	30.4	40.4	2.83E-05	2001
A57	323.90	80	40	80	7.61E-06	2001
BH15	318.06	104.5	94.5	104.5	2.00E-05	Unknown
BH49	318.18	50.9	30.9	50.9	1.37E-06	2001
BH50	316.80	44	30.5	44	5.00E-05	Unknown
BH51	318.86	43.4	23.4	43.4	7.52E-06	2001
BH57	320.70	101.5	91.5	101.5	9.68E-07	Unknown
BH59	318.39	38.8	24.1	38.8	2.91E-07	2001
BH61	315.91	46	31.9	46	2.81E-05	2001
BH63	320.83	48	38	48	2.20E-05	2001
OW03A	318.63	37.4	27.4	37.4	2.30E-05	2001
OW08A	316.87	44.6	32.7	43	9.07E-06	2001
OW10A	317.88	41.5	36.5	41.5	1.54E-06	2001
OW13A	319.24	41.1	29.4	39.7	2.74E-04	2001
OW15A	318.09	45.5	39	44	1.11E-04	2001
OW19D	316.86	48.2	36.2	48.2	1.68E-04	2001
OW20D	318.86	48.5	38.5	48.5	4.17E-06	2001
Upper Water-Bearing Zone						
505	316.00	18.5	10	18.5	2.81E-07	2001
606	320.20	18	18	8	1.75E-07	2001
816	319.3	15	10	15	9.75E-06	2001
201A	318.74	15	5	15	6.02E-06	2001
203A	319.19	15	5	15	1.84E-05	2001
213A	319.16	15	5	15	2.43E-06	2001
215A	317.90	10	5	10	2.99E-06	2001
302A	318.30	15	5	15	1.01E-06	2001
303A	319.00	15	5	15	2.83E-06	2001
404A	321.60	24.7	14.7	24.7	2.20E-06	2001
411A	319.40	17	7	17	5.92E-07	2001
415A	319.00	15	10	15	7.37E-07	2001
603A	318.60	20	10	20	5.58E-07	2001
606A	320.20	20	8.7	18.7	4.21E-06	2003
808A	317.60	17	7	17	2.43E-06	2001
810A	317.4	15	5	15	6.07E-07	2001
A43	321.7	14	9.4	14	1.00E-03	Unknown
A45	323.21	20	15.4	20	3.37E-02	2003
A50	320.92	23	18.4	23	2.17E-04	Unknown
A52	320.07	15	10.4	15	9.58E-03	2003

Table 5-1
Summary of Slug Test Results for the Upper and Lower Water-Bearing Zones
Niagara Falls Storage Site

Well	Surface Elevation (ft amsl)	Depth (ft BGS)	Screen (ft BGS)		Hydraulic Conductivity K (cm/s)	Date of Test
			Top	Bottom		
Upper Water-Bearing Zone (continued)						
B02W020S	318.92	19.4	10	19.4	4.20E-06	Unknown
BH49A	318.82	19.5	14.6	19.5	2.81E-06	2001
OW01B	318.90	17	5.3	15.3	5.19E-07	2003
OW02B	318.54	20	15	20	1.96E-04	2003
OW03B	318.68	15	9.5	14.5	3.16E-07	2003
OW04B	317.07	17	12	17	1.60E-03	2003
OW06B	318.85	17	12	17	5.48E-07	2001
OW07B	316.39	13	8	13	1.19E-06	2003
OW08B	316.92	12	5.5	10.5	1.86E-05	2003
OW10B	317.98	29	18.7	29	8.41E-07	2001
OW11B	317.16	12.5	7.5	12.5	2.13E-05	2003
OW12B	318.15	10.8	5.8	10.8	3.17E-06	2003
OW13B	319.06	14	9	14	3.21E-06	2001
OW14B	318.25	15.1	10.1	15.1	7.26E-06	2003
OW15B	318.17	12	7	12	3.84E-05	2003
OW16B	317.96	11.9	6.9	11.9	2.07E-05	2003
OW17B	318.27	16.9	11.9	16.9	1.99E-06	2003
OW18B	319.12	16.6	11.9	16.6	1.40E-06	2003
OW20S	318.92	22	12	22	2.90E-07	2001

Table 6-1 Physical Properties of Selected Organic Compounds

Organic Compound	Half-Life per Media		K _{oc} (L/Kg) ^(b)	K _d ^(b) (L/Kg)	Solubility ^(c) (mg/L)	Vapor Pressure ^(c) (mm Hg)
	Media	Half-Life Range ^(a)				
Volatile Organic Compounds						
2-Butanone	Water	1-7 days	4.50E+00	3.00E-02	2.7E+05	70 @ 20°C
Acetone	Water	1-7 days	5.80E-01	3.36E-03	1.0E+06	180 @ 20°C
Benzene	Soil/Water/GW	5-16 days/10 days-2 yrs	6.20E+01	3.60E-01	2.E+03	60 @ 15°C
Carbon Disulfide	Water	< 2 days	---	---	slight	300 @ 20°C
cis-1,2-DCE	Soil/GW	1-6 mos/2 mos-8 yrs	3.60E+01	2.10E-01	3.5E+03	200 @ 35°C
trans-1,2-DCE	GW	2 mos-8 yrs	3.80E+01	2.20E-01	6.3E+03	200 @ 14°C
Ethylbenzene	Water	3-10 days	2.00E+02	1.16E+00	1.7E+02	7.02 @ 20°C
Methylene Chloride	Soil/Water/GW	1-4 wks/2-8 wks	1.00E+01	5.80E-02	1.3E+04	229.7 @ 10°C
Tetrachloroethene	Soil/Water/GW	0.5-1 yr/1-2 yrs	2.70E+02	1.57E+00	2.0E+02	10 @ 13.8°C
Toluene	Water	4-22 days	1.40E+02	8.10E-01	5.3E+02	22 @ 20°C
Trichloroethene	Soil/Water/GW	0.5-1 yr/11 mos-4.5 yrs	9.40E+01	5.50E-01	1.1E+03	35.2 @ 10°C
Vinyl Chloride	Water/GW	1-6 mos/2-95 mos	1.90E+01	1.10E-01	2.8E+03	2,580 @ 20°C
Xylenes	Water	1-4 wks	2.00E+02	1.16E+00	1.6E+02	6.6 @ 25°C
Semivolatile Organic Compounds						
bis(2-ethylhexyl)phthalate	Soi/Sediment/Water	5-23 days	1.51E+07	8.76E+04	0.4	2.0E-7 @ 20° C
Carbazole	Soil	---	3.39E+03	1.97E+01	1 @ 20° C	7.0E-4 @ 20°C
Phenol	Soil/Water/GW	1 -10 days/0.2-2.4 days/ 0.5-7 days	2.90E+01	1.70E-01	8.2E+4 @ 15° C	0.2 @ 20°C
Polyaromatic Hydrocarbons						
Anthracene	Water	0.5-1.7 hours	2.40E+04	1.39E+02	0.041	1.95E-4 @ 20° C
Benz(a)anthracene	Soil/Sediment/Water/GW	0.3-1.9 yrs/1-3 hrs/ 0.6-3.7 yrs	3.98E+05	2.31E+03	0.014	5E-9 @ 20° C
Benzo(a)pyrene	Soil/Sediment/Water/GW	0.2-1.5 yrs/0.4-1 hrs/ 0.3-2.9 yrs	1.02E+06	5.92E+03	4.00E-03	5.49E-9 @ 25° C
Benzo(b)fluoranthene	Soil/Water/GW	1-1.7 yrs/0.3-30 days/2-3.3 yrs	1.23E+06	7.13E+03	1.20E-03	5.0E-7 @ 20° C
Benzo(g,h,i)perylene	Water	1.6-1.8 yrs	3.86E+06	2.24E+04	2.60E-04	1.01E-10 @ 25° C
Benzo(k)fluoranthene	Soil/Sediment/Water/GW	2.5-5.9 yrs/0.2-20 days/ 5-12 yrs	1.23E+06	7.13E+03	5.50E-04	9.59E-11 @ 25° C
Chrysene	Sediment/Water	4-13 hrs	4.00E+05	2.32E+03	1.60E-03	6.3E-7 @ 20° C
Dibenz(a,h)anthracene	Soil/Water/GW	1-2.6 yrs/0.25-33 days/ 2-5.2 yrs	3.80E+06	2.20E+04	5.00E-04	1E-10 @ 20° C
Fluorene	Water	32-60 days	7.90E+03	4.58E+01	1.69	1.95E-4 @ 35° C
Indeno(1,2,3-cd)pyrene	Soil/Sediment/Water/GW	1.6-2 yrs/125-250 days/ 3.3-4 yrs	3.47E+06	2.01E+04	0.062	1E-10 @ 25° C
Pyrene	Water	0.7-2 hrs	6.80E+04	3.94E+02	0.14	3.5E-3 @ 8° C

Table 6-1 Physical Properties of Selected Organic Compounds

Organic Compound	Half-Life per Media		K _{oc} (L/Kg) ^(b)	K _d ^(b) (L/Kg)	Solubility ^(c) (mg/L)	Vapor Pressure ^(c) (mm Hg)
	Media	Half-Life Range ^(a)				
Pesticides						
4,4'-DDD	Soil/Sediment	---	1.00E+06	5.80E+03	0.16 @ 24° C	1.02E-6 @ 30° C
4,4'-DDE	Soil/Sediment	---	4.47E+06	2.59E+04	0.0013	6.49E-6 @ 30° C
4,4'-DDT	Soil/Sediment	---	2.63E+06	1.53E+04	0.0012	1.9E-7 @ 20° C
Aldrin	Soil/Sediment	3 wks-1.6 yrs	2.45E+06	1.42E+04	0.011	2.31E-5 @ 20° C
Alpha-chlordane	GW	1.5-7.6 yrs	1.20E+05	6.96E+02	0.051	4.6E-4 @ 25° C
Gamma-chlordane	Soil	0.8-3.8 yrs	1.20E+05	6.96E+02	0.056	1E-5 @ 20° C
Alpha-BHC	Water	14-135 days	1.23E+03	7.13E+00	1.63	2.5E-5 @ 20°C
Beta-BHC	Water	14-124 days	1.26E+03	7.31E+00	5 @ 20° C	2.8E-7 @ 20° C
Delta-BHC	Soil	14-100 days	1.17E+04	6.81E+01	0.12	1.7E-5 @ 20° C
Gamma-BHC	GW	6-240 days	1.07E+03	6.21E+00	2	5.57E-5 @ 25° C
Dieldrin	Soil/Sediment/Water/GW	0.5-3 yrs/1 day-6 yrs	2.14E+04	1.24E+02	0.2	3.1E-6 @ 20° C
Endosulfan I	Sediment	0.2-9 days	2.14E+03	1.24E+01	0.53	1E-5 @ 25° C
Endosulfan II *	Water/GW	0.2-9 days	2.14E+03	1.24E+01	0.28	1E-5 @ 25° C
Endosulfan sulfate *	Water/GW	0.2-9 days	2.14E+03	1.24E+01	0.12	---
Endrin	Soil	4-14 yrs	1.23E+04	7.13E+01	0.26	7E-7 @ 25° C
Endrin aldehyde *	Soil	4-14 yrs	1.23E+04	7.13E+01	0.26	2E-7 @ 25° C
Heptachlor epoxide	Soil/Water/GW	33-552 days/ 1-1,104 days	8.32E+04	4.83E+02	0.275	2.6E-6 @ 20° C
Polychlorinated Biphenyls						
Aroclor 1248	Soil	>50 days	3.10E+05	1.80E+03	0.05 @ 20° C	4.94E-4 @ 25° C
Aroclor 1254	Soil/Sediment	>50 days	3.10E+05	1.80E+03	0.012	6E-5 @ 20°C
Aroclor 1260	Soil	>50 days	3.10E+05	1.80E+03	0.08 @ 24° C	4.05E-5 @ 25° C
Note: Table modified from Table 10-1 from <i>Report of Results for the Phase II Remedial Investigation at the LOOW</i> (EA 2002).						
L/Kg - liters per kilogram						
mg/L - milligrams per liter						
mm - millimeters						
(a) Mackay et al. (1992a, 1992b, 1993, 1995)						
(b) K _{oc} and K _d from EPA Region IX or ORNL (2001)						
(c) Solubility and vapor pressure at 25°C unless noted otherwise: EPA Region 9 (2001), ORNL (2001), Howard (1989, 1990, 1991), Howard et al. (1991), NIOSH.						
--- Not available or unknown						

Table 6-2 Physical Properties of Selected Metals

Metal	Atomic Weight (g/mol)	Solubility Limit (mg/L)	Distribution Coefficient (K_d)	
			(ft ³ /g)	(L/kg)
Arsenic	74.9216	3.0E+04	1.6E-03	4.5E+01
Barium	137.33	7.0E-03	8.5E-03	2.4E+02
Boron	10.81	1.0E+04	8.4E-05	2.4E+00
Cadmium	112.41	1.5E-01	2.1E-02	1.8E+02
Iron	55.847	1.0E+04	5.8E-03	1.6E+02
Lead	207.2	6.0E-02	1.3E-01	3.7E+03
Molybdenum	95.94	1.3E+00	7.6E-04	2.2E+01
Manganese	54.9380	1.7E+00	2.2E-02	6.2E+02
Nickel	58.71	6.8E+02	6.1E-02	1.7E+03
Note: Information extracted from Table 4-5 from <i>Groundwater Flow and Contaminant Transport Modeling, NFSS</i> (HGL 2006)				
mg/L - milligrams per liter				
ft ³ /g - cubic feet per gram				
g/mol - grams per mole				

Table 6-3 Physical Properties of Selected Radionuclides

		Uranium-Radium Series ^(a)					Actinium Series ^(a)			Thorium Series ^(a)			Other Radionuclides ^(b)			
Physical Property	Units	²³⁸ U	²³⁴ U	²³⁰ Th	²²⁶ Ra	²¹⁰ Pb	²³⁵ U	²³¹ Pa	²²⁷ Ac	²³² Th	²²⁸ Ra	²²⁸ Th	¹³⁷ Cs	²³⁹ Pu	²⁴⁰ Pu	⁹⁰ Sr
Atomic Weight	g/mol	238	234	230	226	210	235	231	227	232	228	228	133	239	240	88
Half-Life	years	4.5E+09	2.4E+05	7.7E+04	1.6E+03	2.2E+01	7.0E+08	3.3E+04	2.2E+01	1.4E+10	5.8E+00	1.9E+00	3.0E+01	2.4E+04	6.5E+03	2.9E+01
Decay Constant	1/day	4.2E-13	7.8E-09	2.5E-08	1.2E-06	8.6E-05	2.7E-12	5.8E-08	8.6E-05	1.4E-13	3.3E-04	1.0E-03	---	---	---	---
Specific Activity	Ci/g	3.4E-07	6.2E-03	2.1E-02	1.0E+00	7.6E+01	2.2E-06	4.7E-02	7.2E+01	1.1E-07	2.7E+02	8.2E+02	8.8E+01	6.3E-02	2.3E-01	1.4E+02
Solubility Limit	mg/L	3.1E+02	3.1E+02	8.0E-05	8.0E-03	6.0E-02	3.1E+02	4.0E-03	---	8.0E-05	8.0E-03	8.0E-05	---	low	---	---
Distribution Coefficient (K _d)	L/kg	3.6E+00	3.6E+00	7.8E+02	2.7E+02	3.6E+04	3.6E+00	1.5E+03	4.5E+02	7.8E+02	2.7E+02	7.8E+02				
	ft ³ /g	1.3E-04	1.3E-04	2.8E-02	9.6E-03	1.3E+00	1.3E-04	5.3E-02	1.6E-02	2.8E-02	9.6E-03	2.8E-02	3.5E-02	1.6E-01	1.6E-01	1.2E-03
g/mol - grams per mole																
Ci/g - Curies per gram																
mg/L - milligrams per liter																
ft ³ /g - cubic feet per gram																
(a) Information for decay series extracted from Table 4-5 from <i>Groundwater Flow and Contaminant Transport Modeling, NFSS</i> (HGL 2006)																
(b) Information obtained from the Risk Assessment Information System (ORNL 2001) and Argonne National Laboratory Human Health Fact Sheets.																
--- Not available or unknown																

Table 6-4. Summary of Groundwater Flow and Transport Modeling Results for Radionuclides

Radionuclide	Screening Level (SL) (pCi/L)	Maximum Concentration Milestone ^a	Groundwater Flow and Transport Model Layer												Comments
			Brown Clay Till			Glacio-Lacustrine Clay			Alluvial Sand and Gravel			Queenston Formation			
			Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	
Uranium-238 Decay Series															
²³⁸ U	6.32	1 st Occurrence > SL	0	300	SE of IWCS near boundary of EUs 10 and 11 (utilities)	200	7.6	SE of IWCS near boundary of EUs 10 and 11 (utilities)	1,150	7	E of Bldg. 411 and IWCS in EU 11	1,700	6.8	E of Bldg. 411 and IWCS in EU 11	Levels continue to increase through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	2,460	Beneath IWCS - south side of Bldg. 411	1,000	71	Beneath IWCS - south side of Bldg. 411	1,000	5 (<SL)	E of Bldg. 411 and IWCS in EU 11	1,000	1.6 (<SL)	E of Bldg. 411 and IWCS in EU 11	
		End of Modeled Timeframe	10,000	31,100	Beneath IWCS - at Bldg. 411	10,000	10,500	Beneath IWCS - south side of Bldg. 411	10,000	3,990	Beneath IWCS - south side of Bldg. 411	10,000	1,710	Beneath IWCS - south side of Bldg. 411	
²³⁴ U	8.94	1 st Occurrence > SL	0	300	SE of IWCS near boundary of EUs 10 and 11 (utilities)	150	13	E of Bldg. 411 and IWCS in EU 11	450	10	E of Bldg. 411 and IWCS in EU 11	850	9.5	E of Bldg. 411 and IWCS in EU 11	Levels continue to increase through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	2,480	Beneath IWCS - south side of Bldg. 411	1,000	143	E of Bldg. 411 and IWCS in EU 11	1,000	34	E of Bldg. 411 and IWCS in EU 11	1,000	13	E of Bldg. 411 and IWCS in EU 11	
		End of Modeled Timeframe	10,000	31,300	Beneath IWCS - at Bldg. 411	10,000	10,500	Beneath IWCS - south side of Bldg. 411	10,000	4,000	Beneath IWCS - south side of Bldg. 411	10,000	1,720	Beneath IWCS - south side of Bldg. 411	
²³⁰ Th	0.39	1 st Occurrence > SL	0	1.0	SW corner of EU 7 near EU 7/EU 10 boundary	5,750	0.4	Beneath IWCS - south side of Bldg. 411	9,000	0.4	Beneath IWCS - south side of Bldg. 411	Never > SL	---	---	Levels continue to slightly increase in 10,000 years after entering BCT, GLC and ASG. Never exceeds SL in QF.
		FS ARAR Timeframe	1,000	0.99	SW corner of EU 7 near EU 7/EU 10 boundary	1,000	0.003 (<SL)	E of Bldg. 411 and IWCS in EU 11	1,000	0.0006 (<SL)	E of Bldg. 411 and IWCS in EU 11	1,000	0.0002 (<SL)	E of Bldg. 411 and IWCS in EU 11	
		End of Modeled Timeframe	10,000	7	Beneath IWCS - south side of Bldg. 411	10,000	1.8	Beneath IWCS - south side of Bldg. 411	10,000	0.6	Beneath IWCS - south side of Bldg. 411	10,000	0.26	Beneath IWCS - south side of Bldg. 411	
²²⁶ Ra	1.31	1 st Occurrence > SL	1,450	1.3	SW corner of EU 7 near EU 7/EU 10 boundary	7,750	1.4	Beneath IWCS - south side of Bldg. 411	Never>SL	---	---	Never>SL	---	---	Levels continues to increase in activity through 10,000 years after entering BCT and GLC. Never exceeds SL in ASG and QF.
		FS ARAR Timeframe	1,000	1.0 (<SL)	SW corner of EU 7 near EU 7/EU 10 boundary	1,000	0.001 (<SL)	E of Bldg. 411 and IWCS in EU 11	1,000	0.0002 (<SL)	E of Bldg. 411 and IWCS in EU 11	1,000	0.0005 (<SL)	E of Bldg. 411 and IWCS in EU 11	
		End of Modeled Timeframe	10,000	14	Beneath IWCS - south side of Bldg. 411	10,000	1.8	Beneath IWCS - south side of Bldg. 411	10,000	0.86	Beneath IWCS - south side of Bldg. 411	10,000	0.002	Beneath IWCS - south side of Bldg. 411	
²¹⁰ Pb	NA	Initial Time	0	0	---	0	0	---	0	0	---	0	0	---	Levels continue to increase slightly through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	0.007	SW corner of EU 7 near EU 7/EU 10 boundary	1,000	0	---	1,000	0	---	1,000	0	---	
		End of Modeled Timeframe	10,000	0.1	Beneath IWCS - south side of Bldg. 411	10,000	0.02	Beneath IWCS - south side of Bldg. 411	10,000	0.006	Beneath IWCS - south side of Bldg. 411	10,000	0.002	Beneath IWCS - south side of Bldg. 411	

Table 6-4. Summary of Groundwater Flow and Transport Modeling Results for Radionuclides

Radionuclide	Screening Level (SL) (pCi/L)	Maximum Concentration Milestone ^a	Groundwater Flow and Transport Model Layer												Comments
			Brown Clay Till			Glacio-Lacustrine Clay			Alluvial Sand and Gravel			Queenston Formation			
			Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration (pCi/L) ^b	Location of Concentration Milestone	
Uranium-235 Decay Series															
²³⁵ U	0.51	1 st Occurrence > SL	0	30	SE of IWCS near boundary of EUs 10 and 11 (utilities)	100	0.6	E of Bldg. 411 and IWCS in EU 11	350	0.7	E of IWCS in EU 11	650	0.6	E of Bldg. 411 and IWCS in EU 11	Levels continue to increase through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	455	Beneath IWCS - south side of Bldg. 411	1,000	16	E of Bldg. 411 and IWCS in EU 11	1,000	3.6	E of Bldg. 411 and IWCS in EU 11	1,000	1.4	E of Bldg. 411 and IWCS in EU 11	
		End of Modeled Timeframe	10,000	4,540	Beneath IWCS - south side of Bldg. 411	10,000	1,170	Beneath IWCS - south side of Bldg. 411	10,000	405	Beneath IWCS - south side of Bldg. 411	10,000	187	Beneath IWCS - south side of Bldg. 411	
²³¹ Pa	NA	Initial Time	0	0	---	0	0	---	0	0	---	0	0	---	Levels continue to increase slightly through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	0.007	Beneath IWCS - south side of Bldg. 411	1,000	0.0004	E of Bldg. 411 and IWCS in EU 11	1,000	0	---	1,000	0	---	
		End of Modeled Timeframe	10,000	1.4	Beneath IWCS - south side of Bldg. 411	10,000	0.22	Beneath IWCS - south side of Bldg. 411	10,000	0.07	Beneath IWCS - south side of Bldg. 411	10,000	0.03	Beneath IWCS - south side of Bldg. 411	
²²⁷ Ac	NA	Initial Time	0	0	---	1,800	0.01	Beneath IWCS - south side of Bldg. 411	3,100	0.01	Beneath IWCS - south side of Bldg. 411	4,600	0.01	Beneath IWCS - south side of Bldg. 411	Levels continue to increase slightly through 10,000 years after entering each layer.
		FS ARAR Timeframe	1,000	0.02	SE of Bldg. 411 and IWCS in EU 11	1,000	0.001	E of Bldg. 411 and IWCS in EU 11	1,000	0.0002	E of Bldg. 411 and IWCS in EU 11	1,000	0	---	
		End of Modeled Timeframe	10,000	4.63	Beneath IWCS - south side of Bldg. 411	10,000	0.74	Beneath IWCS - south side of Bldg. 411	10,000	0.24	Beneath IWCS - south side of Bldg. 411	10,000	0.09	Beneath IWCS - south side of Bldg. 411	
Thorium-232															
²³² Th	0.229	1 st Occurrence > SL	0	0	---	0	0	---	0	0	---	0	0	---	Never enters groundwater at detectable levels.
		FS ARAR Timeframe	1,000	0	---	1,000	0	---	1,000	0	---	1,000	0	---	
		End of Modeled Timeframe	10,000	0	---	10,000	0	---	10,000	0	---	10,000	0	---	
pCi/L - picoCuries per liter ARAR- Applicable or Relevant and Appropriate Requirement SL - Screening Level a - For radionuclides that have no SL, the first occurrence>SL is not applicable. Instead, the concentration at the initial time (0 years) is presented. b - Concentrations of "0" represent modeled values of 10 ⁻⁵ or less.															

Table 6-5. Summary of Groundwater Flow and Transport Modeling Results for Metals and Organic Compounds

Constituent	Screening Level (SL) (µg/L)	Maximum Concentration Milestone ^a	Groundwater Flow and Transport Model Layer												Comments
			Brown Clay Till			Glacio-Lacustrine Clay			Alluvial Sand and Gravel			Queenston Formation			
			Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	
Metals															
Antimony	2.4	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Antimony never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---		
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Arsenic	10	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Arsenic never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Barium	42.8	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Barium never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Boron	4,750	1 st Occurrence > SL	0	25,000	Plume in central portion of EU 4	---	---	---	---	---	---	---	---	---	Boron plumes occur in EUs 4 and 13 with the maximum concentrations in EU 4 decreasing to below the SL in 7,750 years.
		1 st Occurrence < SL	7,750	4,640	Plume in central portion of EU 4	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	18,000	Plume in central portion of EU 4	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	3,480	Plume in central portion of EU 4	10,000	---	---	10,000	---	---	10,000	---	---	
Cadmium	2.32	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Cadmium never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Iron	9,280	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Iron never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Lead	0.935	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Lead never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Metals (continued)															
Manganese	966	1 st Occurrence > SL	0	1,250	Plume in eastern portion of EU 3	---	---	---	---	---	---	---	---	---	One manganese plume exists in the eastern portion of EU3, into EU 4. The plume does not move or change in 10,000 years. Constituent selected for
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	1,250	Plume in eastern portion of EU 3	1,000	---	---	1,000	---	---	1,000	---	---	

Table 6-5. Summary of Groundwater Flow and Transport Modeling Results for Metals and Organic Compounds

Constituent	Screening Level (SL) (µg/L)	Maximum Concentration Milestone ^a	Groundwater Flow and Transport Model Layer												Comments
			Brown Clay Till			Glacio-Lacustrine Clay			Alluvial Sand and Gravel			Queenston Formation			
			Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	
		End of Modeled Timeframe	10,000	1,250	Plume in eastern portion of EU 3	10,000	---	---	10,000	---	---	10,000	---	---	modeling based on relative concentration in residues and potential to leach.
Molybdenum	40	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Molybdenum never exceeds the SL in any layers. Constituent selected for modeling based on relative concentration in residues and potential to leach.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Volatile Organic Compounds															
PCE	5	1 st Occurrence > SL	0	100,000	Plume in central portion of EU 4	50	32.4	Plume in central portion of EU 4	---	---	---	---	---	---	One PCE plume exists in the central portion of EU 4 with the maximum concentration decreasing to below the SL in 100 years in model layer 1 and 2.
		1 st Occurrence < SL	150	4.92	Plume in central portion of EU 4	100	2.39	Plume in central portion of EU 4	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
TCE	5	1 st Occurrence > SL	0	20,000	Plume in central portion of EU 4	50	259	Plume in central portion of EU 4	50	16.1	Plume in central portion of EU 4	---	---	---	One TCE plume exists in the central portion of EU 4 with the maximum concentrations dropping below the SL in all layers in 200 years.
		1 st Occurrence < SL	200	2.55	Plume in central portion of EU 4	150	2.56	Plume in central portion of EU 4	100	2.9	Plume in central portion of EU 4	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
cis-1,2-DCE	70	1 st Occurrence > SL	0	12,000	Plume in central portion of EU 4	50	703	Plume in central portion of EU 4	---	---	---	---	---	---	One Cis-1,2-DCE plume exists in the central portion of EU 4 with maximum concentrations dropping below the SL in 200 years in layer 1 and 150 years in layer 2.
		1 st Occurrence < SL	200	12.6	Plume in central portion of EU 4	150	15.2	Plume in central portion of EU 4	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Vinyl Chloride	2	1 st Occurrence > SL	0	1,500	Plume in central portion of EU 4	50	4,100	Plume in central portion of EU 4	50	360	Plume in central portion of EU 4	50	126	Plume in central portion of EU 4	One vinyl chloride plume exists in the central portion of EU 4 with maximum concentrations dropping below the SL in all layers in 300 years.
		1 st Occurrence < SL	300	0.218	Plume in central portion of EU 4	250	0.955	Plume in central portion of EU 4	250	0.171	Plume in central portion of EU 4	200	1.18	Plume in central portion of EU 4	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
Semivolatile Organic Compounds															
bis-2-ethylhexylphthalate	6	1 st Occurrence > SL	0	12	Plume east of the IWCS in EU 10	---	---	---	---	---	---	---	---	---	One BEHP plume occurs in EU 10, just east of the IWCS. The plume does not move or change in 10,000 years.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	12	Plume east of the IWCS in EU 10	1,000	---	---	1,000	---	---	1,000	---	---	
		End of Modeled Timeframe	10,000	12	Plume east of the IWCS in EU 10	10,000	---	---	10,000	---	---	10,000	---	---	
Methylene Chloride	5	1 st Occurrence > SL	---	---	---	---	---	---	---	---	---	---	---	---	Methylene chloride never exceeds the SL in any layers.
		1 st Occurrence < SL	---	---	---	---	---	---	---	---	---	---	---	---	
		FS ARAR Timeframe	1,000	---	---	1,000	---	---	1,000	---	---	1,000	---	---	

Table 6-5. Summary of Groundwater Flow and Transport Modeling Results for Metals and Organic Compounds

Constituent	Screening Level (SL) (µg/L)	Maximum Concentration Milestone ^a	Groundwater Flow and Transport Model Layer												Comments
			Brown Clay Till			Glacio-Lacustrine Clay			Alluvial Sand and Gravel			Queenston Formation			
			Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	Elapsed Time (years)	Maximum Concentration	Location of Concentration Milestone	
		End of Modeled Timeframe	10,000	---	---	10,000	---	---	10,000	---	---	10,000	---	---	
ARAR- Applicable or Relevant and Appropriate Requirement SL - Screening Level															

Table 7-1 Sitewide SRC Summary and COC/ROC Identification (Subsistence Farmer Scenario)

	EU1				EU2			EU3			EU4				EU5				EU6			EU7				EU8				EU9				EU10				EU11				EU12				EU13			EU14			EU15		EU16			EU17					EU17D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	GW	SB	SS	SW	GW	SB	SS	GW	SB	SS	GW	SB	SS	SW	GW	SB	SD	SS	SW	GW	SB	SS	SW	GW	SB	SS	SW	SB	SD	SS	SW	GW	SB	SS	SW	GW	SB	SS	SW	GW	SB	SS	GW	SB	SS	SD	SW	SB	SD	SW	GW	SB	SD	SS	SW	SB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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