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Buffalo District

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NIAGARA FALLS STORAGE SITE

Formerly Utilized Sites Remedial Action Program

2011
ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

November 2012

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Acronyms and Abbreviations

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
ANL	Argonne National Laboratory
ARAR	applicable or relevant and appropriate requirement
ASTM	American Society for Testing and Materials
BOP	Balance of Plant
CAP88-PC	Clean Air Act Assessment Package – 1988 (USEPA)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DoD	Department of Defense
DoD QSM	Department of Defense Quality Systems Manual for Environmental Laboratories
DOH	Department of Health
EML	Environmental Measurements Laboratory
ESP	environmental surveillance program
ft	feet
FS	feasibility study
FUSRAP	Formerly Utilized Sites Remedial Action Program
IWCS	interim waste containment structure
KAPL	Knolls Atomic Power Laboratory
km	kilometers
LOOW	Lake Ontario Ordnance Works
MCL	maximum contaminant level
MDA	Minimal Detectable Activity
MED	Manhattan Engineer District
MEI	Maximally Exposed off-site Individual
m	meters
m^3	cubic meter
µg/g	micrograms per gram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
mg/g	milligrams per gram
NCRP	National Council on Radiation Protection and Measurements
NEPA	National Environmental Policy Act
NESHAPs	National Emission Standards for Hazardous Air Pollutants (USEPA)
NFSS	Niagara Falls Storage Site
NTUs	nephelometric turbidity units
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OSL	optically stimulated luminescence
OUs	operable units
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
pCi/g	picocuries per gram
pCi/L	picocuries per liter
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision

Acronyms and Abbreviations (continued)

SCO	soil clean-up objective
SDWA	Safe Drinking Water Act
TDS	total dissolved solids
TED	total effective dose
TETLD	tissue-equivalent thermo luminescent dosimeter
TLD	thermo luminescent dosimeter
TOGS	Division of Water Technical and Operational Guidance Series
U	Lab Qualifier – non-detect
U of R	University of Rochester
USACE	United States Army Corps of Engineers
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
USNRC	United States Nuclear Regulatory Commission
VOC	Volatile Organic Compound

Units of Measurement and Conversion Factors - Radioactivity

Parameter	Conventional Units	SI Units	Conversion Factor
Dose	millirem (mrem)	milliSievert (mSv)	1 mrem = 0.01 mSv
Activity	picoCurie (pCi)	becquerel (Bq)	1 pCi = 0.037 Bq

Units of Measurement and Conversion Factors - Mass, Length, Area, and Volume

Parameter	SI Units	English Units	Conversion Factor
Mass	gram (g)	Ounce (oz)	1 g = 0.035 oz
	kilogram (kg)	Pound (lb)	1 kg = 2.2046 lb
Length	centimeter (cm)	Inch (in.)	1 cm = 0.394 in.
	meter (m)	foot (ft)	1 m = 3.281 ft
	kilometer (km)	mile (mi.)	1 km = 0.621 mi.
Area	hectare (ha)	acre	1 ha = 2.47 acres
Volume	milliliter (ml)	Fluid ounce (fl. oz.)	1 ml = 0.0338 fl. oz.
	liter (L)	gallon (gal)	1 L = 0.264 gal
	cubic meter (m^3)	Cubic yard (yd^3)	1 m^3 = 1.307 yd^3

EXECUTIVE SUMMARY

Purpose: The purpose of this technical memorandum is to document the scientific methods, criteria, data, and findings of the Environmental Surveillance Program (ESP) at the Niagara Falls Storage Site (NFSS). The ESP quantifies and evaluates radiological, chemical, and water quality data from the environment at the NFSS. This program is executed by the U.S. Army Corps of Engineers (USACE) Buffalo District in support of our mission under Formerly Utilized Sites Remedial Action Program (FUSRAP) to protect human health and the environment at the NFSS. This technical memorandum is published annually by the Buffalo District.

Site Description and Background: The NFSS is located at 1397 Pletcher Road in the Town of Lewiston, NY, approximately 19 miles (30.6 km) north of Buffalo, NY. The NFSS is a federally-owned property that is 191 acres in size. The NFSS was originally part of a World War II explosives plant called the Lake Ontario Ordnance Works (LOOW) which was approximately 7,500 acres in size. Between 1944 and 1954 the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC) (a predecessor to the U.S. Department of Energy (USDOE)) brought radioactive wastes and residues to the LOOW Site. Through the 1970s the AEC gradually consolidated its operations and sold excess property to the public. In the 1980s the USDOE constructed a 10-acre Interim Waste Containment Structure (IWCS) on the NFSS to contain the radioactive wastes and residues.

In 1974, the AEC instituted the FUSRAP and in October 1997, Congress transferred the management of FUSRAP from the USDOE to the USACE. USACE is administering and executing cleanup at eligible FUSRAP sites pursuant to the provisions of the Energy and Water Development Appropriation Act, 1998 (Title I, Public Law 105-62, 111 Stat. 1320, 1326). USDOE shall be responsible for surveillance, operation and maintenance, including monitoring and enforcement of any institutional controls two years after USACE has achieved site closeout. In addition to investigating and remediating site contaminants at the NFSS, the USACE has been given responsibility for maintaining the site and conducting the ESP. Environmental surveillance activities initiated in 1981 by the USDOE have evolved over the years to ensure that radioactive residues and wastes buried within the IWCS, as well as other on-site soil and groundwater contamination, are not a threat to human health and the environment. The program includes monitoring air, water, and sediments for radiological and chemical parameters.

In December 2007 and April 2011, the USACE Buffalo District completed a Remedial Investigation Report and Remedial Investigation Report Addendum, respectively, for the NFSS that defined the nature and extent of contaminants on the NFSS and assessed potential long-term risks associated with those contaminants. Based upon findings from these investigations and public input, the USACE further enhanced the ESP to monitor those protective engineered controls that are in place for the IWCS, to ensure that they are functioning properly.

Additional information about the site and the ESP is available on the USACE Buffalo District website: http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite.aspx.

Scope: The 2011 Environmental Surveillance Technical Memorandum presents the results of data

obtained from samples collected during the 2011 monitoring period. To assess the data, the report compares the surveillance data with federal and state regulatory guidance and criteria. All data tables and the majority of figures referenced in the text are included at the end of the technical memorandum.

Key Findings: The 2011 data confirm that site controls are continuing to perform as designed and are fully protective of human health and the environment.

To evaluate environmental surveillance data, USDOE, U.S. Environmental Protection Agency (USEPA), and New York State Department of Environmental Conservation (NYSDEC) criteria, standards, and guidelines are used for comparison purposes. Results of the 2011 surveillance program show:

- Potential NFSS-related radiation is considerably below the USDOE maximum allowable dose rates to the public. Radiological findings for external gamma radiation, radon gas and airborne particulate dose are consistent with results from previous years. Site radon-222 and radon-222 flux measurements taken on the IWCS were below the USDOE off-site limit of 3.0 pCi/L and the flux standard of 20 pCi/m^2/s, respectively. The calculated dose to a receptor from external gamma radiation and airborne particulates is below the USDOE guideline of 25 mrem/year (excluding radon) for all pathways. In addition, the dose from airborne particulates to a receptor from airborne particulates is below 10 mrem/year, the maximum individual dose specified by the USEPA.

- Several metals in surface water and sediment exceeded the New York State (NYS) Class B Surface Water Criteria and Unrestricted Use Soil Cleanup Objectives (SCOs), respectively. One upstream sediment sampling location exhibited polycyclic aromatic hydrocarbon (PAHs) that exceeded the NYS Unrestricted Use SCOs but were below the NYS Restricted Use SCOs (with one exception). Tritium concentrations in two sediment samples also exceeded the USDOE criterion for tritium.

- Total uranium concentrations in nine groundwater monitoring wells exceeded 27 picocuries per liter (pCi/L), the USEPA safe drinking water maximum contaminant level (MCL) and NYS Department of Health drinking water standard. (ESP sampling results are compared to federal and state drinking water standards as a conservative basis for evaluation. Most groundwater at the NFSS site classifies as GSA saline groundwaters and is neither used nor suitable as a public drinking water supply, based on analytical results for iron, sodium and sulfates that were found to be consistently above NYSDEC groundwater standards.) All nine of the wells are screened in the upper water bearing zone: five of these wells (A42, A45, MW935, OW04B, OW11B) are located in the vicinity of the IWCS, two are situated near the northwest corner of the site (505, MW921), and two are located near the eastern boundary of the site (302A, MW313). Only well MW935 exhibited a first-time exceedance.

- Only one well, OW11B, shows an increasing trend in total uranium concentrations. Relative to the IWCS, well OW11B is situated approximately 200 feet to the east (upgradient) and on the other side of the Central Drainage Ditch. The source of the uranium in well OW11B is believed to be residual contamination from former operations in this area, which included a railroad bed and a decontamination pad used during construction of the IWCS. In the fall of 2012, USACE plans to

perform additional field work (including test pits and new monitoring wells) in the vicinity of well OW11B to locate the source of this groundwater contamination.

- A dense, non-aqueous phase liquid (DNAPL) plume is present in the northern portion of the site; however, the plume is bound and the data indicate that it does not extend off-site.

Long-Term Remedy: In addition to executing the ESP at the NFSS, the USACE Buffalo District is executing an environmental investigation to determine the long-term remedy for the contaminants at the NFSS. This investigation is being conducted in accordance with the federal cleanup process created by Congress and developed by the USEPA. This process was authorized under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). USACE is conducting remedial investigation/feasibility study (RI/FS) pursuant to the protocols set forth in the CERCLA.

USACE has implemented a focused CERCLA Feasibility Study process and has established three separate operable units (OUs): the IWCS OU, the Balance of Plant (BOP) (site soils and infrastructure) OU, and the Groundwater OU. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 Code of Federal Regulations [CFR] Section 300.430[a][ii][A]) states that sites be remediated in OUs when phased analysis is necessary. The OU approach to the Feasibility Study process allows USACE to address in succession the IWCS (high-activity radioactive residues), BOP OU, and Groundwater OU.

A Feasibility Study is currently underway for the IWCS to identify and evaluate a wide range of long-term remedies to address the FUSRAP-related material in the structure. Following completion of the Feasibility Study, the USACE will identify and document a preferred long-term remedy (the Proposed Plan) for the IWCS. Additional Feasibility Studies and Proposed Plans for the BOP, and groundwater will follow. After public comment on the Proposed Plans, the USACE will select a long-term remedy for the IWCS, BOP, and groundwater and document this decision in their respective Records of Decision (RODs). Following completion of the RODs, the USACE will implement the long-term remedy through remedial design, construction, operations, and any required long-term monitoring.

1.0 INTRODUCTION

The Niagara Falls Storage Site (NFSS) is being addressed by the U.S. Army Corps of Engineers (USACE) as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP), in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. The site is located in the town of Lewiston, New York, north of Buffalo (Figure 1).

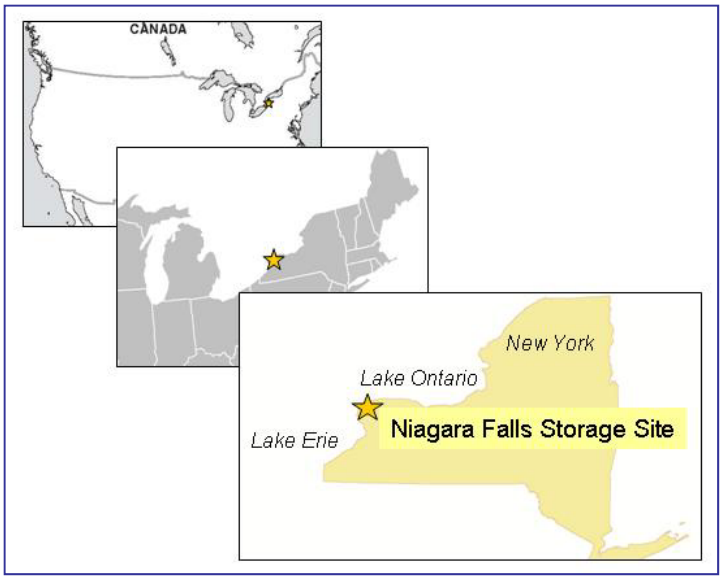

Figure 1: Location of Niagara Falls Storage Site

The USACE Buffalo District is responsible for the NFSS. The USACE conducts an environmental surveillance program and performs site operations, maintenance, and monitoring to ensure protection of human health and the environment. These activities are ongoing across the site, including at the Interim Waste Containment Structure (IWCS), which contains radiologically contaminated materials from cleanup actions conducted by the U.S. Department of Energy (USDOE) more than 20 years ago. The Environmental Surveillance Program (ESP) is the focus of this report.

1.1 Brief History of the Niagara Falls Storage Site

The NFSS represents a portion of the former Lake Ontario Ordnance Works (LOOW) that was used by the USACE Manhattan Engineer District (MED) and U.S. Atomic Energy Commission (AEC) to store radioactive residues and other materials beginning in 1944. Nearly all the radioactive residues in the IWCS at NFSS originated from uranium processing activities conducted for MED and AEC at two locations: the Linde Air Products facility in Tonawanda, New York, and the Mallinckrodt Chemical Works refinery in St. Louis, Missouri. Other residues (called F-32) were generated from past processing activities at the Middlesex Sampling Plant in New Jersey.

The first materials sent to NFSS for storage were low-grade radioactive residues from processing pitchblende ore at the Linde Air Products facility. These residues resulted from processing ores with different uranium (U_3O_8) contents, and they are categorized as follows:

- R-10 residues: from processing ore with 3.5% U_3O_8,
- L-30 residues: from processing ore with 10% U_3O_8, and
- L-50 residues: from processing ore with 7% U_3O_8.

The specific U_3O_8 content for the F-32 residues was not found in historical documents; however, the amounts of radium-226 (Ra-226) and thorium-230 (Th-230) in these residues were reported as 0.2 curies (Ci) for each radionuclide.

Beginning in 1949, highly radioactive residues from uranium processing at the Mallinckrodt Chemical Works – referred to as the K-65 residues – were shipped to NFSS in 208-L (55-gal) drums for storage. The uranium ore from which these residues were generated contained 35 to 60% U_3O_8. These K-65 residues were subsequently transferred from the 208-L (55-gal) drums to a large concrete tower onsite, referred to as

Building 434, from 1950 to 1952. The residues remained in Building 434 until the 1980s when they were transferred by USDOE to the IWCS. The K-65 residues represent the main hazard at the IWCS. If left uncontained, the high levels of Ra-226 in these residues would emit substantial external gamma radiation and release radon-222 (Rn-222) gas to air. Without controls, the doses from external gamma irradiation and inhalation of Rn-222 progeny could harm anyone nearby.

In addition to these residues, radioactive wastes from a number of other federal government programs were sent to NFSS decades ago for storage or disposal. These included radioactive wastes from two locations in the state of New York (Knolls Atomic Power Laboratory [KAPL] in Schenectady and the University of Rochester), and the Middlesex Sampling Plant in New Jersey. Radioactively contaminated materials from decommissioning wartime plants were also sent to the site for storage, including equipment from the Linde facility. Uranium and thorium billets and rods processed at other private facilities were also sent to NFSS for interim storage.

From 1981 to 1992, USDOE performed a number of cleanup activities at the site and nearby areas, which are termed vicinity properties. The radioactive materials generated by these activities were placed in an engineered structure on the west side of the NFSS property, the IWCS (see Figure 2). Within the IWCS, the more highly contaminated residues (K-65, L-30, L-50, and F-32) were placed in existing concrete structures that had been part of the freshwater treatment plant for the LOOW site during the 1940s. The L-50 residues were placed in Buildings 413 and 414, which are cylindrical structures 18-m (60-ft) in diameter made of reinforced concrete that had been used as clarifier tanks at the treatment plant. The remaining residues were placed in several bays of the reinforced concrete basement of Building 411; because it was part of the original freshwater treatment plant, this building was designed to securely hold liquids. The K-65 residues are in Bays A and C, and the combined L-30 and F-32 residues are in Bays B, C, and D of this building. The locations of the residues in the IWCS are also indicated in Figure 2.

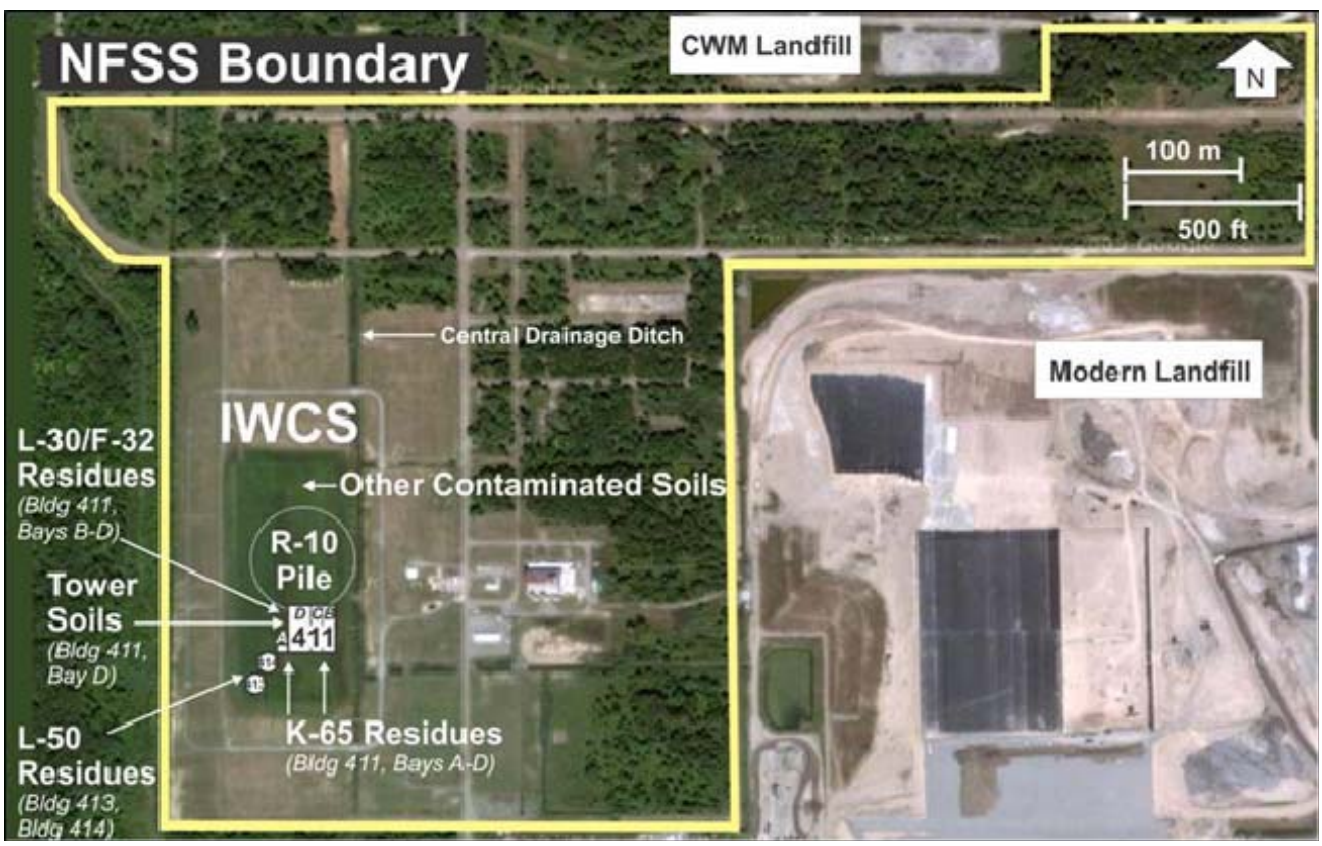

Figure 2: Location of the IWCS (and Former Buildings) and Stored Residues at NFSS

Contaminated soil and debris from the USDOE cleanup of the site and vicinity properties were placed together with the R-10 residues within the IWCS and then compacted to increase stability. Soils that were contaminated by the K-65 residues during interim storage, referred to as tower soils, were placed in the north end of Bay D. The USDOE addressed the R-10 residues in the same manner as contaminated soil due to their similar radionuclide concentrations. Additional contaminated soils and debris were placed in the remaining areas of the IWCS in a manner to ensure the stability of the structure.

The IWCS was constructed by installing a clay dike and cutoff wall around the areas containing all the consolidated wastes. The dike and wall were built while USDOE was conducting interim remedial actions at the site, and the wall was tied into the underlying clay formation. A multi-layered cap was placed over the contents after the cleanup actions were completed. These past USDOE actions are described in further detail in the Remedial Investigation Report (USACE 2007) and the references cited therein.

In September 1986, USDOE issued a record of decision (ROD) under the National Environmental Policy Act (NEPA) to store the consolidated residues and other contaminated materials in the IWCS at the NFSS. That ROD identified the IWCS as an acceptable interim solution, with a projected service life of 25 to 50 years. This represented the time frame during which the IWCS was considered safe for containing the radioactive residues and other wastes until a decision on their final disposition could be made. The service life of 25 to 50 years identified in the ROD specifically applies to the IWCS cap; the design service life of the clay dike and cutoff walls surrounding the IWCS and the natural glaciolacustrine clay beneath the IWCS was identified as 200 to 1,000 years by Bechtel National, Inc. (BNI) (BNI 1986).

1.2 Overview of Environmental Surveillance Program

The Environmental Surveillance Program (ESP) at the NFSS was initiated by the USDOE in 1981 prior to the construction of the IWCS. Air, water, and external gamma radiation (and later streambed sediments) were monitored to ensure protection of human health and the environment from radioactive residues and wastes buried within the IWCS, as well as other on-site soil and groundwater contamination. In 1997, when responsibility for FUSRAP was transferred to the USACE, the USACE's Buffalo District continued to follow the USDOE ESP with some revisions over the years. The USACE reports its findings annually in the form of this technical memorandum, which are posted to the NFSS website at: http://www.lrb.usace.army.mil/Missions/HTRW/FUSRAP/NiagaraFallsStorageSite.aspx.

The surveillance program has been designed to achieve the following objectives:

- to ensure protection of human health and the environment
- to verify compliance with environmental regulatory standards
- to verify that the IWCS is performing as designed

To meet these objectives, USACE monitors environmental media and regularly reassesses the adequacy of the program, making the necessary adjustments to the program, as warranted. Several modifications have been made to the surveillance program over time. These changes are identified on Tables 1, 2, and 3, which show that the latest enhancements to the ESP were implemented during the fall of 2010.

Currently, the ESP is comprised of the following sampling activities:

- Annual radon-222 monitoring through the placement of 183 radon flux canisters on the IWCS protective cap and at background locations.
- Semi-annual radon monitoring through the placement of detectors at 26 locations around the IWCS, site perimeter, and off-site.

- Semi-annual external gamma radiation monitoring through the placement of detectors at 26 locations around the IWCS, site perimeter, and off-site.
- Semi-annual surface water and sediment sampling at a total of 11 points along the West Drainage Ditch, Central Drainage Ditch, and east (upstream) of the Central Drainage Ditch; one location is sampled on a quarterly basis.
- Semi-annual groundwater monitoring from 39 monitoring wells for radiological, metals, anions, and water quality parameters; four of these wells are also monitored for volatile organic compounds (VOCs); two wells are sampled on a quarterly basis.
- Quarterly water level measurements in 101 monitoring wells throughout the site to monitor the groundwater flow directions in the upper and lower water-bearing zones.

In addition to the collection and analysis of environmental samples, the ESP includes the calculation of dose to off-site receptors from airborne emissions of site soils using annual weather data from the Niagara Falls International Airport. In the future, e.g., for the 2012 ESP Technical Memorandum, wind speed data from the on-site meteorological station, which began operating in June 2011, may be used for this calculation. The dose to off-site receptors based on gamma radiation measurements is also calculated and summed with the airborne emissions dose to determine the cumulative dose to the public from the NFSS.

1.3 Regional Hydrogeology

Within 50 feet of the ground surface, the NFSS and surrounding vicinity are underlain by two water-bearing zones separated by an aquitard or confining unit. The two water-bearing zones are identified as the upper water-bearing zone and the lower water-bearing zone and are described in more detail below.

1.3.1 Upper Water-bearing Zone

The upper water-bearing zone is present in the surficial Brown Clay Unit, which is situated above the Gray Clay Unit (Figure 3). The Brown Clay Unit consists of a clayey silt and silty clay groundmass with occasional sand and gravel lenses. Coarse-grained deposits are present sporadically along the undulating contact between the Brown Clay Unit and the Gray Clay Unit. A geostatistical analysis of these coarse grained lenses in the upper water-bearing zone was performed to assess their continuity or whether they 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 upper water-bearing zone are intermittent and vertically and horizontally discontinuous, vary considerably in thickness, color, texture, extent, and saturation, and are not horizontally continuous over distances greater than 15 to 20 feet (4.57 to 6.1 meters) and vertical distances of 4 to 6 feet (1.22 to 1.83 meters). As a result, the occurrence of groundwater varies across the site (i.e., proximate wells may have noticeably different water levels depending on sand lens presence or not).

The horizontal hydraulic conductivity of the upper water-bearing zone, 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 are typically higher than wells in the silty clay (a range of 9.5×10^{-7} to 1.27×10^{-2} cm/s is evident).

Vertical hydraulic conductivity values for the Brown Clay Unit were reported to be 6×10^{-7} cm/sec, which reflects the fine grained lithology.

Regional groundwater flow in the upper water-bearing zone is to the northwest towards Lake Ontario, although flow in the upper zone is interrupted by surface water drainage ditches of significant depth and vegetative growth that promotes evapotranspiration in the summer periods. Smaller tributary ditches appear to have a lesser influence on site-wide groundwater flow. The average horizontal gradients (or downward slope of the groundwater surface) in the upper water-bearing zone typically range between

0.0012 and 0.0074 ft/ft; the gradient varies seasonally and with the scale of the measurement (i.e., regional flow across the site versus near the Central Drainage Ditch). This gradient reflects the flat lake plain environment surrounding the site.

1.3.2 Gray Clay Unit

Underlying the Brown Clay Unit is the Gray Clay Unit, which consists of glacio-lacustrine clay and acts as an aquitard that separates the upper water-bearing zone from the lower water-bearing zone (Figure 3). For purposes of classification, wells that terminate in the Gray Clay Unit are considered representative of the upper water-bearing zone. The Gray Clay Unit hydraulically separates the upper and lower water-bearing zones and minimizes transport between the two zones.

1.3.3 Lower Water-bearing Zone

The lower water-bearing zone consists of unconsolidated glacial sediments (Alluvial Sand and Gravel and Red Silt Till) that overlie the upper fractured portion of the Queenston Formation (Figure 3). A regional groundwater divide (the Lockport Escarpment) 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.

The lower water-bearing zone extends from the bottom of the Gray Clay Unit to the bottom of the weathered zone of the Queenston Formation. The entire zone varies from 10 feet to 38.5 feet (3.05 to 11.73 meters) in thickness and consists of the stratified sands and gravels of the Alluvial Sand and Gravel Unit, the dense silt and sands of the Red Silt Unit, and the weathered and fractured upper portions of the Queenston Formation, which observed in the upper 10 feet of the bedrock. The lower water-bearing zone has higher permeability and more lateral continuity than the upper water-bearing zone.

In the Alluvial Sand and Gravel Unit, the horizontal hydraulic conductivity ranges from 1.3×10^{-3} to 9×10^{-6} cm/sec. Well yields in the lower water-bearing zone are less than seven gallons per minute in the fractured portion of the Queenston Formation, which is consistent with observed hydraulic conductivities that geometrically average 2.2×10^{-5} cm/sec. 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. Based on NFSS boring logs, the Red Silt Unit is absent from at least six boreholes at scattered locations suggesting this limiting factor may be of only local significance at NFSS.

The lower water-bearing zone generally shows a westerly to northwesterly flow with gradients varying typically between 0.002 to 0.0043 ft/ft. The gradient is more uniform in the lower zone and does not show flow perturbations that were previously observed from the mining of the Glaciolacustrine Clay west of the NFSS. By comparing historical potentiometry to current data, the local landfill operations (e.g., Modern and Chemical Waste Management) are not influencing flow patterns in the lower water-bearing zone under the NFSS.

1.3.4 Surface Water Drainage

Prior to site development, surface drainage from the NFSS entered Four Mile, Six Mile, and Twelve Mile Creeks, which all flow northward to Lake Ontario. During the 1940s, drainage modifications routed surface water to a series of linear ditches that eventually coalesce into the Central Drainage Ditch north of the site. The Central Drainage Ditch enters into Four Mile Creek approximately 3 miles northwest of the NFSS. The vegetation that grows in the on-site ditches during the summer months dewaters the ditches via evapotranspiration between rainfall events. Groundwater elevations in wells proximal to the ditches are

notably lower throughout the summer and early fall due to higher localized evapotranspiration (i.e., the wetland vegetation in and along the ditches create a significant moisture deficit in the surrounding soils). Low baseflow conditions in the site ditches between rainfall events also indicate that groundwater does not significantly discharge into the ditches (i.e., surface drainage is the main contributor to flow).

Localized on-site flow towards the Central Drainage Ditch east of the IWCS is consistently apparent due to the unique flow boundary conditions in this area (i.e., IWCS cut-off wall, low recharge due to a sloped [well drained] land surface, and proximate ditch). Other site ditches show various degrees of influence on groundwater levels, which are accounted for on the potentiometric map, where data allow. The drainage ditches at the NFSS have accumulated sediment and organic matter since their original installation; up to 10 feet of material may be present in some on-site ditches. Consequently, the ditches do not fully penetrate the upper water-bearing zone and some groundwater may pass beneath the ditches during prolonged high-groundwater periods. This flow would be seasonally interrupted by evapotranspiration stresses during the growing season.

1.3.5 Contaminant Transport Mechanism

A groundwater flow velocity of 38 cm/y (15 in/y) was estimated at the NFSS in 1994 (USDOE 1994b). More recent Remedial Investigation modeling estimated an average flow velocity of 28 cm/yr (11 in/yr) in off-site areas; this value is based upon the regional gradients and variable hydraulic conductivities presented in USACE (2008). Such velocities will vary based on local conditions (i.e., the spatial scale of hydraulic conductivity and gradient estimations used). These velocity values do not represent contaminant migration rates since contaminant-soil partitioning retards (or slows) the rate of contaminant flow (transport) with respect to groundwater flow. This partitioning causes contaminants to adsorb, or bind, to local fine-grained soils in the upper water-bearing zone and aquitard sediments. For example, uranium has a NFSS-specific soil partitioning value (122 mL/g) that would produce an approximate movement of 2.6 cm/y (1.0 in/yr) when the groundwater moves at 28 cm/y (11 in/yr).

Vertical gradients derived from heads in monitoring well pairs usually vary with seasonality and show flow from the upper zone to the lower zone dominating the first, second, and fourth quarterly measurements. However, during third quarter, nearly half of the groundwater elevations in the lower system were greater than those measured in the upper system. This seasonal variation in the direction and magnitude of vertical gradients will affect vertical flow between water-bearing zones and the long-term transport potential of contaminants between water-bearing zones, thereby maintaining the upper zone as the primary transport pathway at the NFSS.

In summary, the flow in the upper water-bearing zone is governed by low horizontal and vertical gradients interrupted by seasonal dewatering from evapotranspiration, which further limits advection; horizontal flow is enhanced locally by non-contiguous sand lenses. The groundwater flow in the lower water-bearing zone is predominantly horizontal due to confining gray clay or glacio-lacustrine clay unit that also mitigates the vertical transport of contaminants from the upper water-bearing zone. These hydrologic mechanisms, along with soil partitioning, limit the movement of potentially soluble contaminants in the upper water bearing zone, which is apparent through the proximity of groundwater impacts to historical sources. Most impacts are characterized by small plumes proximate to their historical sources (e.g., residue storage areas, operational corridors, or residue runoff areas) rather than large-scale contiguous plumes of distinctive concentration gradients advancing from distal sources.

2.0 REGULATORY GUIDELINES

The primary regulatory guidelines that affect activities at FUSRAP sites are found in federal statutes and in federal, state, and local regulations. Regulatory criteria that are used to evaluate the results of the NFSS ESP are summarized below. USDOE guidelines continue to be identified in the technical memorandum; however, the USACE is not under the authority of the USDOE orders or directives and can rely on other applicable federal or state regulations in relation to surveillance of the IWCS.

The standards and criteria provided herein are for comparative purposes only. Applicable or relevant and appropriate requirements (ARARs) and media-specific clean-up goals will be evaluated independently and presented in future CERCLA decision documents that will be available for public comment.

2.1 Radioactive Constituents in Air

USDOE guidelines and USEPA standards are used to evaluate the calculated maximum doses from external gamma radiation and airborne particulate releases, in addition to the measured concentrations of radon gas in air.

2.1.1 US Department of Energy Order 458.1

USDOE Order 458.1 (June 2011) effectively replaces USDOE Order 5400.5 and establishes requirements to protect the public and the environment against undue risk from radiation associated with radiological activities conducted under the control of USDOE pursuant to the Atomic Energy Act of 1954, as amended. The dose limit of 100 millirem (mrem) above background in a year from all sources (excluding radon) is specified in this Order as the maximum allowable exposure to the public from USDOE activities. Included in the cumulative dose calculation are the doses from external gamma radiation and airborne particulate releases. Contributions from other pathways, such as ingestion, also are included.

USDOE limits for radon concentrations in air from operations at USDOE-owned and USDOE-operated facilities are also presented in Order 458.1. Based on the radioactive constituents in the wastes contained in the IWCS, it is unlikely that radon-220 would be emitted from the IWCS since the radon-220 half-life is approximately 55.6 seconds and this isotope would decay prior to permeating through the IWCS cap. It is, however, possible that radon-222 with a half-life of 3.8 days could be emitted. The USDOE limit for an annual average radon-222 concentration at the site boundary, not including background, is 3.0 pCi/L. To provide a conservative basis for comparison, on-site radon concentrations are evaluated against the off-site limit of 3.0 pCi/L.

2.1.2 US Environmental Protection Agency Clean Air Act

The USEPA also has a guidance action level of 4.0 pCi/L for radon concentrations for indoor air (homes and buildings), providing another conservative basis for comparison. Although this limit is specific to indoor air, it provides a conservative basis for comparison to the outdoor air results obtained during environmental surveillance activities. For further comparison, the average radon level in U.S. homes is about 1.25 pCi/L and the average outdoor value is 0.4 pCi/L (NCRP 2009).

Section 112 of the Clean Air Act authorized the USEPA to promulgate the National Emission Standards for Hazardous Air Pollutants (NESHAPs) which are provided in 40 Code of Federal Regulations (CFR) Part 61. 40 CFR Part 61 Subparts H and Q are relevant to the NFSS and are summarized below:

- 40 CFR 61.92, Subpart H, National Emission Standards for Emissions of Radionuclides Other Than Radon from USDOE Facilities: Emissions of radionuclides to the ambient air from USDOE

facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem per year.

- 40 CFR 61.192, Subpart Q, National Emission Standards for Radon Emissions from USDOE Facilities: No source at a USDOE facility shall emit into the air more than 20 picocuries per square meter per second (pCi/(m2-sec)) (1.9 pCi/(ft2-sec)) of radon-222 as an average for the entire source.

At the NFSS, USACE demonstrates compliance with 40 CFR 61.92 (Subpart H) by running the USEPA-approved CAP88-PC air dispersion model with site-specific input values, such as average radionuclide concentrations in soil and average annual wind speed data. Compliance with 40 CFR 61.192 (Subpart Q) is verified by annual monitoring of the IWCS cap for release of radon-222 flux.

2.2 Radioactive and Chemical Constituents in Groundwater

Federal and state regulatory criteria for evaluating the measured concentrations of radionuclides and chemicals in groundwater at the NFSS are provided in the following sections.

Although most groundwater at the NFSS classifies as GSA saline groundwaters and is not used as a public drinking water supply, sampling results are compared to federal drinking water standards and NYS Water Quality criteria as a conservative basis for evaluation of analytical results.

2.2.1 Federal Safe Drinking Water Act for Chemicals and Radionuclides

The Safe Drinking Water Act (SDWA) is the primary federal law applicable to the operation of a public water system and the development of drinking water quality standards [*USEPA Drinking Water Regulations and Health Advisories* (*USEPA* 1996)]. The regulations in 40 CFR Part 141 (National Primary Drinking Water Regulations) set maximum permissible levels, known as maximum contaminant levels (MCLs), for organic, inorganic, radionuclide (including uranium and combined radium) and microbial contaminants in drinking water.

The established (promulgated) MCL for combined concentrations of radium-226 and radium-228 is 5 pCi/L. The MCL for total uranium is 30 µg/L (or approximately 27 pCi/L). Thorium-228, -230 and -232 utilize an adjusted gross alpha MCL of 15 pCi/L excluding radon and uranium but including radium-226 (Federal Register, December 7, 2000).

Among the new parameters added to the ESP in the fall of 2010, only plutonium-238 and -239/240 are alpha emitters and are included in the 15 pCi/L MCL. The remaining parameters are beta emitters. The MCL for beta emitters is provided in terms of a dose, 4 mrem per year that is converted to a concentration using an assumed drinking water rate. The concentrations derived to meet 4 mrem/year are calculated consistent with the December 2000 rulemaking for the National Primary Drinking Water Regulations for Radionuclides and are as follows:

- strontium-90, 8 pCi/L
- tritium, 20,000 pCi/L
- cesium-137, 200 pCi/L
- technetium-99, 900 pCi/L

2.2.2 New York State Department of Environmental Conservation Groundwater Criteria for Chemicals and Radionuclides

Shallow groundwater resources at NFSS demonstrate uniformly poor groundwater quality and availability

in the general region. Regional studies and studies conducted near the site (La Sala 1968, Wehran 1977, and Acres American 1981) conclude that local groundwater quality is poor because of high mineralization. Additionally, local studies (Wehran, 1977 and Acres American, 1981) indicate that the low permeability of the upper water bearing zone does not provide sustainable production quantities to standard wells for water supply use. On-site permeability testing at NFSS confirms the low permeability.

In 1988, the USDOE conducted a well survey and found eight wells within three miles (4.8 km) of the site. These eight wells are used mainly for irrigation and none of them are drinking water wells (USDOE 1994b).

In 2007, the Niagara County Department of Health (DOH) updated its well inventory to include 9 potable wells (2 of which were a sole source for drinking water), 8 non-potable wells, 20 abandoned wells and 77 idle wells within the survey area. Based on the USDOE report and the recent Niagara County DOH inventory, groundwater is not the main source of drinking water; however, the New York State Department of Environmental Conservation (NYSDEC) Class GA groundwater standards were conservatively used to compare to analytical results. Groundwater at NFSS consistently exceeds sodium and sulfate Class GA standards. Both the upper and lower water-bearing zones at the NFSS exhibit over 1000 mg/L Total Dissolved Solids (TDS) and commonly exhibit over 100 mg/L chloride, which indicates that the site groundwater can be classified as saline or Class GSA (NYCRR 701.16).

NYSDEC has adopted the federal SDWA standards into its own regulations in Title 6 New York Codes of Rules and Regulations (NYCRR) Parts 700-705, "Water Quality Regulations for Surface and Groundwater" (NYSDEC 1996). In addition, NYSDEC has independently established standards for some constituents. These standards are provided in the Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, “Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.”

In addition, the New York State DOH, per 10 NYCRR Part 5, Subpart 5-1, establishes a 4 mrem per year maximum allowable dose for manmade radionuclides and a 30 µg/L MCL for uranium. It is noted that these standards apply to community water systems, which is not applicable to groundwater at the site. Furthermore, since they are identical to the federal SDWA criteria, only NYS criteria are referenced in the analytical results tables discussed in Section 4.0.

2.3 Radioactive and Chemical Constituents in Sediment

Federal and state regulatory criteria for evaluating the measured concentrations of radionuclides and chemicals in soil are used for comparison to detected concentrations in sediment at the NFSS. As noted in the Baseline Risk Assessment for the Remedial Investigation, surface water and moist sediments may only be present during part of the year in the on-site drainage ditches, which limits the numbers and types of aquatic biota that survive in the ditches. Therefore, sediment sample results are compared to values developed for protection of human health for soil exposure.

2.3.1 US Department of Energy Order 458.1 for Radionuclides

Section 4h.(1) of USDOE Order 458.1 specifies that ”radiological activities must be conducted in a manner such that radiation exposure to members of the public from management and storage of radioactive waste complies with as low as reasonable achievable (ALARA) process requirements and does not result in a total effective dose (TED) greater than 25 mrem (0.25 mSv) in a year from all exposure pathways and radiation sources associated with the waste, except for transportation and radon and its decay products.”

In addition, Section k of USDOE Order 458.1 specifies that the “release or clearance of property with the potential to contain residual radioactive material must be conducted in accordance with the requirements in paragraph 4.k. of this Order,” and continues within the same section to specify “the following dose

constraints for DOE residual radioactive material must be applied to each specific clearance of property for any actual or likely future use of the property: (a) Real property – a TED of 25 mrem (0.25 mSv) above background in any calendar year." Assuming an annual maximum TED of 25 mrem, the allowable maximum concentration of each radionuclide is calculated except for radium and thorium, which are assigned a pre-approved limit of 5 pCi/g.

2.3.2 Nuclear Regulatory Commission Dose-Based Screening Levels for Radionuclides (10 Code of Federal Regulations Part 20)

Sediment analytical results are compared to surface soil screening levels (or dose-based screening levels) presented in NRC document NUREG-1757 (NRC 2006). This document provides guidance on compliance with radiological criteria for NRC license termination in accordance with 10 CFR 20, Subpart E. These surface soil screening values require that the radiological dose to a member of the public using the site for any purposes, including farming, is less than 25 mrem/year. The use of these dose-based screening levels is overly protective to human health because actual exposures to sediment would be much lower than the intense and chronic exposure assumed in developing these screening values. Furthermore, these screening values are in addition to background concentrations (i.e., do not include background concentrations) so where available, background concentrations have been added to the dose-based screening level for comparison to sediment results.

2.3.3 New York State Department of Environmental Conservation Unrestricted Use Recommended Soil Clean-up Objectives for Chemicals

New York State regulatory criteria found in Title 6 of the Office Compilation of New York Codes, Rules and Regulations Part 375 (6 NYCRR 375) Unrestricted Use Soil Cleanup Objectives (SCOs) are compared to sediment analytical data. When appropriate, Restricted Use (Industrial) SCOs are also cited for comparison to results.

Unrestricted Use SCOs from 6 NYCRR 375 for certain metal and polycyclic aromatic hydrocarbons (PAHs) constituents are based on a survey of soil background concentrations performed in New York State. It should be noted that sediment background concentrations would differ from soil background in many instances.

2.4 Radioactive and Chemical Constituents in Surface Water

Surface water samples collected from site drainage ditches are compared to NYSDEC standards presented in 6 NYCRR Part 703 Surface Water and Groundwater Quality Standards for Class B water aquatic life. NYSDEC Class B water classification is utilized because the on-site Central Drainage and West Drainage Ditches discharge into Four Mile Creek, which is classified by New York State as a Class B water source (USACE, 1999). If a standard for Class B water is not available for a specific parameter, the corresponding standard for groundwater or Class A water is used, as appropriate.

A review of NYS (both NYSDEC and NYS DOH) standards for radionuclides indicates that they are similar to the federal SDWA criteria discussed in Section 2.2.1. For example, per TOGS 1.1.1, the criteria for radium-226 and radium-228 is 5 pCi/L and thorium (alpha emitter) is 15 pCi/L; and per 10 NYCRR Part 5, Subpart 5-1, the maximum dose for manmade radionuclides (beta emitters) is 4 mrem and the criteria for uranium is 30 µg/L.

These NYS Standards are identical to federal SDWA criteria, so only NYS criteria are presented in the results tables. Also, it is noted that surface water collected in the drainage ditches at the site is not a source of drinking water, and the standards for radionuclides are applicable to public water systems that provide

drinking water to communities, as well as Class A surface water, which is considered a source of drinking water.

3.0 SAMPLING LOCATIONS AND LABORATORY ANALYTICAL METHODS

3.1 Sampling Locations and Rationale

The purpose of the ESP is to ensure the protection of human health and the environment by monitoring the IWCS, as well as other site media, for the release of hazardous constituents.

To monitor the integrity of the IWCS, USACE collects:

- Annual radon-222 flux data through the placement of 180 radon flux canisters on the IWCS protective cap at discrete grid intersections and at 3 off-site (background) locations, shown on Figure 4;
- Semi-annual groundwater samples from 30 monitoring wells (13 wells screened in the lower water-bearing zone and 17 screened in the upper water-bearing zone) located in the vicinity of the IWCS (two wells are sampled on a quarterly basis) at the locations shown on Figure 5; and
- Semi-annual radon and external gamma radiation samples by placing Radtrak® detectors and optically stimulated luminescence (OSL) dosimeters, respectively, at seven locations around the perimeter of the IWCS, as shown on Figure 6.

In addition, USACE collects:

- Semi-annual groundwater samples from nine monitoring wells screened in the upper water-bearing zone at the locations shown on Figure 5 (note that well MW922 is sampled only if well MW921 is dry);
- Semi-annual radon and external gamma radiation samples by placing Radtrak® detectors and OSL dosimeters, respectively, at 16 locations within and around the perimeter of the site and at 3 off-site (background) locations, as shown on Figure 6; and
- Semi-annual surface water and sediment sampling from a total of 11 locations shown on Figure 7 along the West Drainage Ditch, Central Drainage Ditch, and east (upstream) of the Central Drainage Ditch (one location is sampled on a quarterly basis);
    - SWSD009, SWSD021, SWSD023 and SWSD024 were selected as “upstream” locations because they are located at the site boundary where surface water flows on to NFSS from offsite;
    - SWSD010, SWSD011, SWSD022, and SWSD025 are situated along the Central Drainage Ditch; and,
    - WDD1, WDD2, and WDD3 are located along the West Drainage Ditch.

In addition, USACE performs quarterly water level measurements in 101 monitoring wells throughout the site to monitor the groundwater flow directions in the upper and lower water-bearing zones (Figures 13 and 14).

3.2 Laboratory Analytical Methods

The laboratory analytical methods associated with the groundwater, surface water, and sediment samples described above are presented in the following table:

Parameter	Analytical Method	
	Groundwater and Surface Water	**Sediment**
Volatile Organic Compounds	SW 846 8260	SW 846 8260
Pesticides	SW 846 8081	SW 846 8081
Polychlorinated Biphenyls	SW 846 8082	SW 846 8082
Polycyclic Aromatic Hydrocarbons	SW 846 8270	SW 846 8270
Metals	SW 846 6020, 7470	SW 846 6020, 7470
Cesium-137	DOE Ga-01/EPA 901.1m	DOE Ga-01/EPA 901.1m
Plutonium-238, 239/240, **Iso-uranium** **Iso-thorium**	EPA 907/HASL-300m	EPA 907/HASL-300m
Strontium-90	EPA 905 /ASTM D5811-95	EPA 905 /ASTM D5811-95
Technitium-99	HASL 300 / RP-550m	HASL 300 / RP-550m
Tritium	EPA 906.0	EPA 906 / RP-580
Radium-226	SM 7500 / EPA 903.1	SM 7500 / EPA 901.1m
Radium-228	EPA 904	EPA 904 / EPA 901.1m
Anions • **Chloride** • **Fluoride** • **Nitrate/Nitrite** • **Ortho-phosphate** • **Sulfate**	EPA 300.0	
Water Quality • **Alkalinity** • **Total Dissolved Solids**	SM-2320B SM-2540C	

Standard analytical methods approved and published by USEPA and the American Society for Testing and Materials (ASTM) are used for chemical (i.e., all non-radiological) analyses. The laboratories conducting the radiological analyses adhere to USEPA, National Urban Security Technology (formerly the Laboratory Environmental Measurements Laboratory (EML)) and ASTM standard methods. Radiological and chemical laboratories are accredited through the Department of Defense (DoD) Environmental Laboratory Accredited Program (ELAP). That accreditation is based on conformance to the DoD Quality Systems Manual (DoD QSM) for Environmental Laboratories.

All environmental surveillance activities at the NFSS are conducted in accordance with the following documents:

- EPA/540/S-95/504, Groundwater Issue Low Flow (Minimal Drawdown) Groundwater Sampling Procedures;
- EM 1110-2-1421, Groundwater Hydrology;
- ASTM D5608-10, Standard Practices for Decontamination of Field Equipment Used at Low Level Radioactive Waste Sites; and
- Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP).

4.0 ANALYTICAL DATA AND INTERPRETATION OF RESULTS

The 2011 ESP groundwater, surface water, sediment, airborne particulate, radon, and gamma radiation data are presented and evaluated in this section. It is important to note that analytical results for radioactive constituents may be expressed as negative numbers. Negative numbers can occur when the average background activity of the laboratory counting instrument exceeds the measured sample activity because the background activity is subtracted from the measured sample activity to calculate the analytical result. Furthermore, for the purpose of interpretation, all values below the laboratory's minimum detectable activity (MDA) are interpreted as having unknown values between zero and the MDA, and are referred to herein as non-detects.

4.1 Site-Related Cumulative Dose

USDOE Order 458.1 establishes requirements to protect the public and the environment against undue risk from radiation associated with radiological activities conducted under the control of DOE. The annual dose limit of 100 millirem (mrem) above background from all sources (excluding radon) is specified in this Order.

To establish the annual cumulative dose to the public, doses at specific off-site receptor locations are determined by combining (1) the calculated external gamma radiation doses based on gamma radiation dose measurements taken at the NFSS site perimeter and (2) modeled doses from airborne particulate releases using soil data from the remedial investigation and annual average wind speed. The doses from the modeled airborne particulate releases also are compared to the individual dose standard of 10 mrem per year specified in 40 CFR Part 61.92, Subpart H.

Additional details are provided in the following sections.

4.1.1 External Gamma Radiation

In 2011, external gamma radiation dose rates were measured continuously for the year using OSL dosimeters. The 2011 results, including both raw data and data corrected for background, are presented in Table 4.

The data are used to calculate the exposure (dose rate) to external gamma radiation for the receptor, considered to be the nearest resident and the nearest commercial/industrial worker. The locations of these receptors are based on a 2005 canvas of the site vicinity. The receptor dose rate is a function of (1) the normalized annual OSL dose rate based on the semi-annual dose rates measured at the site fence line, (2) the distance of the receptor from the fence line, and (3) the amount of time the receptor spends at his respective location. Results of this calculation are expressed as a dose rate to the individual in mrem per year.

Based on the 2011 OSL dosimeter results, the dose rates to the receptors are consistent with results from previous years, as follows:

- 0.0348 mrem/year to a resident located 500 ft (152.4 meters) from the western perimeter fence, southwest of the site
- 0.0030 mrem/year to an off-site worker located 1,020 ft (310.9 meters) east of the site

Receptor dose rate calculations are presented in Section 4.1 of Appendix A. Trend graphs depicting external gamma dose rates at the NFSS and IWCS perimeters from 1998 thru 2011 are presented on Figures 8 and 9, respectively.

Between 1998 and 2011, the NYSDEC collected duplicate dosimeter measurements at eight locations on-site and two locations off-site. Appendix C presents the NYSDEC's summary of their monitoring program, which indicates that their results were within expected ranges. The NYSDEC has discontinued their gamma radiation monitoring program.

4.1.2 Airborne Particulate Dose

To determine the dose from airborne particulates potentially released from NFSS during 2011, airborne particulate release rates are calculated using soil data collected during the NFSS Remedial Investigation between 1999 and 2004 and weather data for the year 2011 collected at the Niagara Falls International Airport by the National Weather Service. Contributions from radon gas, which is not a particulate, are not considered in this calculation. The total airborne particulate release rate is input into the USEPA's CAP88-PC (Version 3.0) computer model to perform two calculations that:

1. Determine resultant doses from airborne particulates to individuals at the distances to the nearest residence and to the nearest commercial/industrial facility, as measured from a central location on site, based on prevailing wind direction. Doses are then corrected for commercial/industrial facility occupancy at an assumed rate of 40 hours/week for 50 weeks/year. Residential occupancy is assumed to be full-time (i.e., 24 hours/day and 365 days/year [366 days for a leap year]). The individual receiving the higher of these calculated doses is identified as the maximally exposed off-site individual (MEI) for airborne particulate dose.

2. Determine the airborne particulate collective dose to the population within 50 miles (80 km) of the site using a population file (2000 census data for New York State and 2001 census data for the Province of Ontario) to determine the number of people in circular grid sections radiating to 50 miles (80 km) from the center of site.

The first calculation (Appendix B) indicates that the 2011 airborne particulate dose to the MEI, a resident, 2,999 ft (914 meters) south-southwest of the site, was 0.0038 mrem. Consistent with results from previous years, this value is well below the 10 mrem per year standard, individual dose, specified in 40 CFR, Part 61.92, Subpart H.

The second calculation indicates that the annual airborne particulate collective dose to the population within 50 miles (80 km) of the site was 0.11 person-rem. This compares to an annual background dose to the same population of 5,425,000 person-rem. Census data are depicted on Figure 10. Details of the calculations, including methodology are presented in Appendix B.

4.1.3 Calculated Cumulative Dose

The cumulative dose to the MEI is calculated by adding the maximum external gamma dose to the maximum airborne particulate dose. Based on 2011 data, the cumulative dose is 0.0386 mrem (0.0348 mrem + 0.0038 mrem), which is significantly less than the DOE limit of 100 mrem per year (excluding radon) and the US average per capita background dose of approximately 620 mrem per year (NCRP 2009). (Please note that the US per capita dose from background radiation has been increased to 620 mrem/person due mainly to increased use of nuclear medical imaging.)

4.2 Radon Gas

Radon monitoring at NFSS is performed at a height that is representative of the human breathing zone (5.6 ft or 1.7 meters above ground level). Radon concentration diminishes significantly as distance from the ground increases and mixing with ambient air takes place.

Based on the radioactive constituents in the wastes contained in the IWCS, it is unlikely that radon-220 would be emitted from the IWCS; however, it is possible that radon-222 would be emitted. Air surveillance is conducted to determine the concentration of radon gas at NFSS using Radtrak® detectors that are designed to measure alpha particle emissions from both isotopes of radon (radon-220 and radon-222) and to collect passive, integrated data throughout the period of exposure. Because radon-220 is not a contaminant of concern at NFSS (due to the relatively low concentrations of radium-228 and the short half-life of radon-220), all concentrations are conservatively assumed to be radon-222. Results of semi-annual monitoring for 2011 are presented in Table 5. The corresponding surveillance locations are shown on Figure 6.

Consistent with results from previous years, all site radon-222 results from the 2011 ESP were well below the USDOE off-site limit of 3.0 pCi/L above background. Results presented are without background subtracted and ranged from non-detect (less than 0.2 pCi/L) to 0.3 pCi/L. The background locations results were all non-detect (less than 0.2 pCi/L). The site average of 0.200 pCi/L (non-detects included in average) is comparable to that of the background average of less than 0.200 pCi/L and to that of the average outdoor value of 0.4 pCi/L (USEPA 1993).

4.3 Radon-222 Flux

Measurement of radon-222 flux provides an indication of the rate of radon-222 emission from a surface. Radon-222 flux is measured with activated charcoal canisters placed on a grid spaced 49.2 ft (15-meters) on center across the surface of the IWCS for a 24-hour exposure period. Sample locations are shown on Figure 4.

Measured results in 2011 for radon flux, presented on Table 6, ranged from non-detect to 0.2793 pCi/m^2/s, with an average result (of detects and non-detects) of 0.02946 pCi/m^2/s. Background measurements were all non-detect. As in previous years, these results are well below the 20.0 pCi/m^2/s standard specified in 40 CFR Part 61, Subpart Q, are comparable to background, and demonstrate the effectiveness of the containment to mitigate the release of radon-222.

4.4 Surface Water

In 2011, surface water samples were collected semi-annually (spring and fall) from all 11 designated locations except location SWSD025, which is sampled quarterly (winter and summer). Sample locations are presented on Figure 7.

A summary of the surface water sample collection effort for 2011 is as follows:

- Spring samples were collected between April 18 and April 25, 2011
- Fall samples were collected between October 17 and October 19, 2011
- Winter and summer samples were also collected from SWSD025 on February 14 and August 17, 2011, respectively
- Analytical parameters included radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238), metals, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides. (Note: winter and summer samples from SWSD025 are analyzed for radionuclides and metals only)

All surface water samples are measured for turbidity prior to submission to the laboratory for analysis. If turbidity measurements are greater than 50 nephelometric turbidity units (NTUs), the sample is filtered and both the filtered and unfiltered samples are submitted to the laboratory for analysis. Otherwise, only the

unfiltered sample is collected and analyzed.

Details of the findings are presented in the following sections.

4.4.1 Surface Water Radiological Findings

In 2011, a total of 34 surface water samples were collected and analyzed for radionuclides, as follows:

- 11 unfiltered and five filtered samples in the spring (16 total)
- two additional spring samples collected from SWSD025 during a "high water" event (filtered and unfiltered) (two total)
- 11 unfiltered and two filtered samples in the fall (13 total)
- two unfiltered (winter and summer) samples and one filtered sample (summer only) from SWSD025 (three total)

In general, the 2011 analytical results for radionuclides in surface water, which are presented on Table 7, were:

- Below NYS Class B surface water criteria (or if not available, Class A or drinking water criteria)
- Comparable to past results

Details are presented in the following sections.

Radium

The 2011 analytical results for radium-226 and combined radium-226 and radium-228 in surface water were well below the state drinking water limit of 3 pCi/L and 5 pCi/L, respectively. Among the 2011 data:

- Radium-226 analytical results showed that 31 samples were non-detect and 3 samples were detects (all of them unfiltered), with concentrations of 0.226 pCi/L (SWSD025), 0.361 pCi/L (SWSD010), and 0.497 pCi/L (SWSD021); and,
- Radium-228 analytical results showed that 25 samples were non-detect and 9 samples were detects, with concentrations ranging from 0.669 pCi/L (SWSD021 filtered) to 1.07 pCi/L (WDD1 filtered).

These results are consistent with historical data.

Thorium

Thorium was not detected in the majority of samples analyzed, and among the detections, the concentrations were well below 15 pCi/L, the state drinking water limit (for gross alpha radiation). Some of the samples were rejected due to detections in the method blank or method blank bias. The results are as follows:

- Thorium-228 analytical results showed 19 non-detects, 5 rejected samples, and 10 detects with a maximum concentration of 1.19 pCi/L (SWSD024);
- Thorium-230 analytical results showed 22 non-detects, 2 rejected samples, and 10 detects with a maximum concentration of 0.64 pCi/L (SWSD025); and,
- Thorium-232 analytical results showed 30 non-detects and 4 detects with a maximum concentration of 0.302 pCi/L (SWSD025).

These results are consistent with historical data.

Uranium

Total uranium concentrations in surface water are calculated by adding isotopic uranium concentrations. The 2011 data showed that total uranium concentrations ranged from 0.987 pCi/L to 16.802 pCi/L, which are below 27 pCi/L (equivalent to 30 micrograms per liter), the total uranium state drinking water limit. Among the 2011 data:

- Uranium-234 analytical results showed all detections with a maximum concentration of 9.16 pCi/L (SWSD021);
- Uranium-235 analytical results showed 17 non-detects and 17 detects with a maximum concentration of 0.876 pCi/L (SWSD025); and,
- Uranium-238 analytical results showed all detections with a maximum concentration of 7.35 pCi/L (SWSD021).

These data are consistent with historical data.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

The analytical results for cesium-137, plutonium-238, plutonium-239/240, strontium-90, and technetium-99 were non-detect (and below their respective state drinking water criteria). Tritium was detected at 8 locations at concentration ranging from 428 pCi/L and 1,535 pCi/L, which are well below 20,000 pCi/L, the tritium State drinking water standard.

4.4.2 Surface Water Chemical Findings

In general, the 2011 analytical results for chemicals in surface water were:

- Below criteria for the majority of metals, VOCs, and pesticides and all PAHs and PCBs
- Comparable to past results

Metals

In 2011, a total of 32 surface water samples were collected and analyzed for metals, as follows:

- 11 unfiltered and four filtered samples in the spring (15 total)
- two additional spring samples collected from SWSD025 during a “high water” event (filtered and unfiltered) (two total)
- 11 unfiltered and one filtered samples in the fall (12 total)
- two unfiltered (winter and summer) samples and one filtered sample (summer only) from SWSD025 (three total)

The 2011 analytical results for metals in surface water indicated that several surface water samples exceeded NYSDEC criteria for aluminum, iron, magnesium, and sodium. A few samples also exceeded the criteria for antimony, chromium, manganese, selenium, and vanadium. The analytical findings are presented on Table 8. The analytical findings are comparable to past results.

VOCs

In 2011, a total of 22 surface water samples were collected and analyzed for VOCs, as follows:

- 11 unfiltered in the spring
- 11 unfiltered in the fall

The 2011 analytical results were generally non-detect for VOCs (Table 9). A few locations indicated low levels of typical lab contaminants, such as acetone, 2-butanone, and chloroform. Additionally, sampling locations SWSD010, SWSD011, SWSD022, and SWSD025 exhibited trace levels of chlorinated solvent compounds, findings that are similar to past results at most of these sampling locations. The detection of 5.6 micrograms per liter (μg/L) tetrachloroethylene at SWSD022 slightly exceeds the state drinking water limit of 5 μg/L (and 1 μg/L, which is the Class B surface water guidance value for tetrachloroethylene).

PAHs, PCBs and Pesticides

In 2011, a total of 22 surface water samples were collected and analyzed for PAHs, PCBs, and pesticides, as follows:

- 11 unfiltered in the spring
- 11 unfiltered in the fall

The 2011 analytical results were non-detect for PAHs and PCBs. Several pesticides slightly exceeded their respective Class B surface water standards; however, the standards for these pesticides are on the order of parts per trillion, which is very low. The analytical findings are presented on Table 10.

4.5 Sediment

Sediment samples were collected from all 11 designated locations in the spring and fall (i.e., semi-annually) of 2011 except location SWSD025, which also is sampled in the winter and summer (i.e., quarterly). Sampling locations are presented on Figure 7.

A summary of the sediment sample collection effort for 2011 is as follows:

- A total of 24 sediment samples were collected; two sediment samples, one in the spring and one in the fall, from each of the 11 sampling locations; and two additional samples, one in the summer and one in the winter, from location SWSD025
- Spring samples were collected between April 18 and April 25, 2011
- Fall samples were collected between October 17 and October 19, 2011
- Location SWSD025 was also sampled on February 14 and August 17, 2011 (winter and summer)
- Analytical parameters include radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238), metals, VOCs, PAHs, PCBs, and pesticides. (Note: winter and summer samples from SWSD025 are analyzed for radionuclides and metals only)

Details of the findings are presented in the following sections.

4.5.1 Sediment Radiological Findings

The 2011 analytical results for radionuclides in sediment are presented on Table 11. In general, the results were:

- Below criteria (with two exceptions, both for tritium)
- Comparable to past results

Radium

The 2011 analytical results for combined radium-226 and radium-228 in sediment were well below 5 pCi/g (above background), the allowable limit in accordance with USDOE Order 458.1. Among the 2011 data:

- Radium-226 was detected in all 24 samples with concentrations that ranged from 0.871 pCi/g (SWSD023) to 1.77 pCi/g (SWSD022)
- Radium-228 was detected in all 24 samples with concentrations that ranged from 0.455 pCi/g (SWSD025) to 1.89 pCi/g (SWSD021)

These results are consistent with historical data, as shown on Figure 11, which graphs total radium (radium-226 and radium-228) concentrations in sediment between 1997 and 2011.

Thorium

Thorium-228 was detected in all 24 sediment samples collected in 2011, with concentrations ranging from 0.816 pCi/g (SWSD023) to 1.69 pCi/g (SWSD022). These detections are fairly low, consistent with the previous year's findings (that ranged from 0.50 pCi/g to 1.533 pCi/g), and less than the USDOE Order 458.1 criterion of 5 pCi/g above on-site background.

Thorium-230 was detected in all 24 sediment samples collected in 2011, with fairly low concentrations ranging from 0.44 pCi/g (SWSD023) to 1.65 pCi/g (SWSD022). These data are fairly low, consistent with historical data (last year's findings ranged from 0.70 pCi/g to 1.611 pCi/g), and less than the USDOE criterion of 5 pCi/g above on-site background.

Thorium-232 was detected all 24 sediment samples collected in 2011. The concentrations ranged from 0.683 pCi/g (SWSD023) to 1.33 pCi/g (WDD1), which are fairly low, consistent with historical data (the previous year's findings ranged from 0.286 pCi/g to 1.525 pCi/g), and are less than the USDOE criterion of 5 pCi/g above on-site background.

Uranium

The 2011 analytical results for uranium isotopes, uranium-234, uranium-235 and uranium-238, in sediment showed detections in the majority of samples collected. Among the detections, the concentrations ranged from 0.058 pCi/g to 2.95 pCi/g, which is within the ranges established by historical analytical data, as shown on Figure 12. All isotopic uranium concentrations in sediment are well below their respective USDOE Order 458.1 criteria.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

In 2011, a total of 24 samples were collected for analysis for cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, and tritium. The analytical data showed the following:

- Cesium-137
  - 11 of the 24 samples were non-detect
  - Among the 13 detections, the concentrations ranged from 0.054 pCi/g to 0.127 pCi/g, which are well below the criterion of 11 pCi/g above on-site background for cesium-137

- Plutonium-238 and Plutonium-239/240
  - All of the analytical results were non-detect and therefore, are less than their respective criteria

- Strontium-90
  - 21 samples were non-detect
  - Detections were recorded at three locations: 0.26 pCi/g at SWSD024, 0.277 pCi/g at SWSD025 and 0.288 pCi/g at WDD1
  - All three of the detections are less than the criterion of 1.7 pCi/g above on-site background for strontium-90

- Technetium-99
  - 14 samples were non-detect
  - The remaining 10 samples were rejected based on the following explanation from the laboratory: "The Tc-99 results may have contamination from Mo-99 in the tracer. We have talked to our vendor for this tracer in regards to improving the purity of the tracer in the future."

- Tritium
  - 22 samples were non-detect
  - The two sample detections, 389 pCi/g at SWSD010 and 426 pCi/g at SWSD025, exceed 110 pCi/g, the USDOE Order 458.1 criterion.

4.5.2 Sediment Chemical Findings

The 2011 analytical results for chemicals in sediment are presented on Tables 12 through 14 and are summarized below.

Metals

Several metals, including copper, lead, manganese, mercury, nickel, silver, and zinc, exceed the NYS Unrestricted Use SCOs, similar to findings from the past three years (metals monitoring began in 2008). Although the NYS Restricted Use SCOs are not shown on Table 12, all of the analytical results for metals are below the Restricted Use SCOs.

VOCs

As shown on Table 13, there are several detections of 2-butanone, methylene chloride, and acetone in the sediment samples collected in 2011. Since these VOCs are used as solvents in the laboratory, their presence is most likely due to laboratory contamination. Many of these detections are "J" flagged by the laboratory meaning that the concentrations are estimated because they are below the reporting limit.

PAHs

The analytical results for PAHs are below their respective NYS Unrestricted Use SCOs except for the spring sample collected at SWSD010 and the fall sample collected at SWSD023 where two and six PAHs, respectively, exceed NYS Unrestricted Use SCOs. Both PAHs at SWSD010 and five of the six (i.e., all except benzo(a)pyrene) were below the Restricted Use SCOs. Since sampling at SWSD023 began in the fall of 2008, little historical data is available for comparison, although concentrations of benzo(a)pyrene and indeno(1,2,3-cd)pyrene detected in 2009 exceeded their respective NYS Unrestricted SCOs. The PAHs detected at SWSD010 and SWSD023 and at other sediment sampling locations in the past are characteristic of fuel oil. Sampling location SWSD023 is an upstream sampling location that receives runoff from property owned and operated by Modern. The analytical findings for PAHs in sediment are shown on Table 14.

PCBs

The analytical results for PCBs are non-detect except for the fall sample collected at SWSD023, which exhibited a total PCB concentration of 86 micrograms per kilogram (µg/kg). This result is less than 100 µg/kg, the NYS Unrestricted Use SCO. The analytical findings are shown on Table 14.

Pesticides

The analytical results for pesticides are predominantly non-detect. Among the detections, only the fall sample collected at SWSD023 exhibits a parameter, 4,4-DDE, at a concentration (4.3 µg/kg) that exceeds the NYS Unrestricted Use SCO (3.3 µg/kg). Although not shown in Table 14, this result is below 120,000 µg/kg, the NYS Restricted Use SCO

4.6 Groundwater

A total of 39 monitoring wells are sampled semi-annually (spring and fall); two of these wells, OW04A and OW04B, also are sampled quarterly (winter and summer). Sampling locations are presented on Figure 5. Water levels are measured on a quarterly basis in 101 wells.

Highlights of the groundwater sample collection effort in 2011 are as follows:

- All groundwater samples were collected using low flow collection techniques
- The semi-annual sampling took place between April 18 and May 4, 2011, and October 17 and October 24, 2011; wells OW04A and OW04B also were sampled on February 14 and August 16, 2011
- Groundwater samples were collected from 39 monitoring wells in the spring event, with well MW921 replacing MW922, which was dry
- Groundwater samples were collected from 38 monitoring wells in the fall (well 505 was dry) although well OW12B produced enough water for limited radionuclide analyses only; well A45 was inadvertently sampled twice in the spring (April 21 and 25)
- Water level measurements were recorded from 101 wells
- Groundwater samples were analyzed for radionuclides (cesium-137, plutonium-238, plutonium-239/240, strontium-90, technetium-99, tritium, radium-226, radium-228, thorium-228, thorium-230, thorium-232, uranium-234, uranium-235, and uranium-238), metals, VOCs (4 wells only), and water quality parameters (such as alkalinity and total dissolved solids).

For comparative purposes, the NYSDEC Class GA (groundwater, which is considered potable) water quality standards (hereafter referred to as NYSDEC drinking water standards) are utilized. It is noted that groundwater at the NFSS is not a source of drinking water and is naturally a Class GSA saline water.

Details of the findings are presented in the following sections.

4.6.1 Groundwater Level Measurements

Groundwater levels were measured in 101 wells using an electronic depth-to-water meter. Potentiometric data were recorded from 59 wells in the upper water bearing zone (including 10 new wells installed in 2009) and 42 wells in the lower water bearing zone (including six bedrock wells). Water level measurements are presented on Table 15.

Figures 13 through 16 show the piezometric surfaces and groundwater flow directions in the upper and lower units during seasonally high and low groundwater conditions. Groundwater contours initially are hand drawn to account for site features (e.g., the IWCS and drainage ditches) and then digitized using

ArcGIS® to present the groundwater flow directions and gradients.

The screened intervals for wells completed in the upper water bearing zone range from 3.02 to 27.6 ft (0.92 to 8.4 meters) below ground surface, while screened intervals for wells completed in the lower water bearing zone range from 22.4 to 104.5 ft (6.8 to 31.9 meters) below ground surface. The 101 groundwater monitoring wells are located throughout the NFSS and provide significant areal coverage for groundwater flow characterization.

In the upper water-bearing zone, the depth to water ranged from -0.63 to 19.44 ft (-0.19 to 6.93 meters) below ground surface during 2011 (the negative value reflects a minor artesian condition at well OW-07B in April). The quarterly water-level fluctuations in the upper water-bearing zone averaged 2.47 ft (0.75 meters) and showed high and low elevations on April 18, 2011, and August 16, 2010, respectively. In the lower groundwater system, the depth to water ranged from 1.57 to 14.88 ft (0.48 to 4.54 meters) below ground surface during 2011. Quarterly water-level fluctuations in the lower groundwater system averaged 1.01 ft (0.31 meters) and showed high and low elevations on April 18, 2011 and October 17, 2011, respectively.

The high-water elevations in the upper system ranged from 301.04 to 319.14 ft (91.76 to 97.27 meters) above mean sea level, whereas the low-water condition ranged from 297.93 to 318.39 ft (90.81 to 97.04 meters). The high-water elevation in the lower system ranged from 306.72 to 318.04 ft (93.49 to 96.94 meters) above mean sea level, whereas the low-water condition ranged from 301.62 to 315.44 ft (91.93 to 96.15 meters).

Water-level data indicate that the upper water-bearing zone responds more rapidly to the recharge and discharge seasons (wet and dry periods) than the lower confined groundwater system due to the intervening glacio-lacustrine clay aquitard. The two water-bearing zones demonstrate hydraulic separation through independent water-level responses, as exemplified by the temporally different seasonal high and low conditions. The high-stress (dry) summer conditions normally lower water levels in the upper water-bearing zone (i.e., August was the low-water period in the upper water-bearing due to wet weather in October) and the lower water-bearing zone usually lags by several months due to the hydraulic separation by the aquitard (i.e., October is the low-water period for the lower water-bearing zone).

In 2011, the upper and lower water bearing zones had coincident seasonal high conditions in May, whereas the low-water periods for were August and October, respectively. This condition was derived from higher fall-season precipitation in 2011 that increased upper water-bearing zone wells during a period when they normally would be lower (e.g., both the Buffalo and Rochester International Airports received 5.2 inches (0.13 meters) of rain in October, 2011). In addition, the drier winter of 2010-2011 precluded snowpack accumulations that normally elevate upper water-bearing zone heads in February, thus the spring-season elevations did not evolve until May.

4.6.2 Groundwater Field Parameters

Prior to sampling, field parameters were measured at each well using a calibrated water quality meter. Field parameters include temperature, pH, specific conductance, oxidation-reduction potential, turbidity, and dissolved oxygen. The results are summarized on Table 16.

4.6.3 Groundwater Quality Parameters

At the NFSS, water quality in the upper water-bearing zone is indicative of low recharge to a hydraulically slow flow system, which produces poor-quality (near-saline) groundwater containing high total dissolved solids and calcium/magnesium sulfates. Water quality in the lower water-bearing zone is poor due to high total dissolved solids. It is likely that the lower groundwater system receives recharge along the base of the

Niagara Escarpment, situated approximately 2 miles (3.2 km) south of the site (USDOE 1994b) and, to a lesser extent, via downward flow from the upper unit during spring recharge. Table 17 presents water quality parameter data for 2011.

Analytical results for sulfate were consistently above the NYS Class GA groundwater quality standards, while chloride and fluoride exceeded the NYS standards in only a few samples.

Sampling of wells during the RI confirm that groundwater in the area is naturally saline and of poor quality because of high mineralization (see La Sala 1968; Wehran 1977; Acres American 1981). Groundwater at the NFSS is not used as a public water supply and is definable as a Class GSA water, although the comparison to the drinking water standards continues to be used to provide a conservative evaluation of groundwater analytical results.

4.6.4 Groundwater Radiological Findings

The 2011 analytical results for radionuclides in groundwater are presented on Table 18. In general, the majority of the results were:

- Non-detect or below criteria
- Consistent with historical results suggesting that groundwater is contaminated with uranium from legacy residue/waste handling and/or surface-storage practices

Uranium

The 2011 analytical results for isotopic uranium showed that the majority of wells exhibited detections of one or more isotopes of uranium. Among these detections, total uranium exceeded the state drinking water standard in nine wells, which are all screened in the upper water bearing zone. Five of these wells (A42, A45, MW935, OW04B, OW11B) are located in the vicinity of the IWCS, two are situated near the northwest corner of the site (505, MW921), and two are located near the eastern boundary of the site (302A, MW313). Concentrations in these nine wells ranged from approximately 27 pCi/L (A45) to 378 pCi/L (OW11B).

The range of total uranium concentrations differentiated by upper and lower water bearing zone is presented in the following tables:

2011 Total Uranium Findings

Location	Concentration Range (pCi/L)
26 wells sampled in upper water-bearing zone	Non-detect – 377.66
13 wells sampled in the lower water-bearing zone	Non-detect – 10.63

Generally, the 2011 total uranium analytical results are consistent with the historical data, as shown on Figures 17 and 18, and although the analytical data are compared to drinking water standards, groundwater at the NFSS is not a source of drinking water and is naturally a Class GSA saline water. Declining to dynamic steady-state (i.e., annually fluctuating about a mean) uranium trends in wells surrounding the IWCS are indicative of attenuating legacy sources (i.e., surface stored wastes) that impacted soil and groundwater prior to the IWCS construction. Analysis of trends for total uranium in groundwater are discussed in more detail in Section 4.6.6.

Radium

The 2011 analytical results for combined radium-226 and radium-228 showed that among the 81 samples analyzed, 50 were non-detect, 24 were less than 1 pCi/L, and 7 were greater than 1 pCi/L. Well A55 exhibited the maximum concentration, 1.537 pCi/L; well A55 is screened in the lower-water bearing zone and is situated near the southwest corner of the IWCS. This result is below 5 pCi/L, the state drinking water standard. The 2011 analytical data is consistent with historical data.

The range of radium concentrations differentiated by upper and lower water bearing zone is presented in the following tables:

2011 Radium-226 Findings

Location	Concentration (pCi/L)
26 wells sampled in upper water-bearing zone	Non-detect – 0.405
13 wells sampled in lower water-bearing zone	Non-detect – 1.25

2011Radium-228 Findings

Location	Concentration (pCi/L)
26 wells sampled in upper water-bearing zone	Non-detect – 1.11
13 wells sampled in lower water-bearing zone	Non-detect – 1.13

2011 Total Radium-226 and Radium-228 Findings

Location	Concentration (pCi/L)
26 wells sampled in upper water-bearing zone	Non-detect – 1.11
13 wells sampled in lower water-bearing zone	Non-detect – 1.537

Thorium

The 2011 analytical data for thorium-228, thorium-230, and thorium-232 showed that the majority of the samples were non-detect and several were rejected due to method blank bias. Among the detections, concentrations ranged from 0.053 pCi/L of thorium-232 in well MW313 to 1.21 pCi/L of thorium-228 in well A50. These results are similar to the previous year and the detected concentrations are below 15 pCi/L, the federal/state drinking water criterion.

Cesium-137, Plutonium-238 and 239/240, Strontium-90, Technetium-99, and Tritium

During the 2011 sampling event, a total of 81 samples were submitted for analysis for cesium-137, strontium-90, technetium-99, and tritium and a total of 82 samples were submitted for analysis for plutonium-238 and 239/240. Due to poor water production in well OW12B, limited analysis (plutonium only) was performed on the fall groundwater sample.

With one exception, all of the data were non-detect. Strontium-90 was detected in well OW12A, a well screened in the lower-water bearing zone and situated southeast of the IWCS, at a concentration of 1.03 pCi/l, which is considerably less than the state drinking water standard of 8 pCi/L.

4.6.5 Groundwater Chemical Findings

Though most groundwater at the NFSS site classifies as GSA saline groundwaters and is not used as a public drinking water supply, sampling results are compared to federal/state drinking water criteria as a conservative

baseline.

Metals

The 2011 analytical results for metals in groundwater are presented on Table 19. Metals that exceed state drinking water criteria are discussed below:

- Arsenic – Detected in lower water-bearing zone wells OW03A, OW04A, OW05A, OW07A, OW11A, OW12A, OW13A, and OW15A (spring and/or fall sampling events) at concentrations that exceeded the criterion of 10 µg/L;
- Boron – Detected in wells in lower water-bearing zone 415A, MW863, and OW15A (spring and/or fall sampling events) at concentrations that exceeded the criterion of 1,000 µg/L;
- Iron – Detected in more than half the wells sampled (both upper and lower water-bearing zones in the spring and/or fall sampling events) at concentrations exceeding the criterion of 300 µg/L;
- Magnesium – Detected in all wells at concentrations exceeding the guidance value of 35,000 µg/L;
- Manganese – Detected in several wells sampled (both upper and lower water-bearing zones) at concentrations exceeding the criterion of 300 µg/L;
- Selenium – Detected in upper water-bearing zone wells 505 and MW921 at a concentration that exceeded the criterion of 10 µg/L; and,
- Sodium – Detected at concentrations that exceeded the criterion of 20,000 µg/L at all locations sampled.

Several elevated metals are indicative of both the reduction-oxidation states (redox) of the groundwater at the site and the residence time of the groundwater in the water bearing zones (i.e., in contact with glacial sediments). A slightly reducing environment is evident in the lower water-bearing zone due to the presence of arsenic, iron and manganese, all of which become more soluble as the redox potential varies between an oxygenated and anoxic environment (i.e., these are indicator elements of lower or threshold redox conditions).

In addition, high concentrations of metals and anions without primary drinking-water criteria (e.g., calcium, magnesium, and potassium) in the lower water-bearing zone indicate high mineralization and thus long residence times in the confined aquifer, which allows the geochemical saturation of groundwater with naturally occurring cations dissolved from glacial sediments. This hydrogeologic setting has produced a groundwater condition that meets the NYS Drinking Water classification of GSA for the site.

VOCs

VOC analysis in groundwater is limited to two areas of the site where previous sampling has indicated the presence of VOC contamination: well 201A located south of former Building 401 and wells 411A, 415A, and MW934 located in the acidification area in the northeast portion of the site. Analytical results for VOCs are presented in Table 20 and discussed below:

- No VOCs were detected in well 201A;
- Cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene in wells 411A and 415A exceeded their respective state drinking water standards; and,
- Chloroform and/or methylene chloride, common laboratory contaminants, were detected in wells 415A and MW934 in exceedance of state drinking water standards.

4.6.6 Groundwater Trend Analysis

Total uranium groundwater concentrations (pCi/L) over the course of the USACE Environmental Surveillance Program (1997 through 2011) were subjected to the Mann-Kendall test to determine if any surveillance well shows a statistically significant upward trend in concentration. Before long-term trends can be evaluated, seasonal or repetitive cyclical trends should be identified as they can account for changes in concentration over time. Temporal data plots were inspected to identify seasonality, or predictable increases or decreases in concentration within a time cycle. The data, collected primarily in the spring and fall, do not indicate a consistent repeating pattern and as such did not support the use of the seasonal Kendall test.

The Mann-Kendall test, described in the EPA document: *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (USEPA, March 2009) and USACE Engineer Manual: *Environmental Quality – Environmental Statistics* (USACE, January 2008), is an accepted method for identifying the presence of a significant upward trend at surveillance wells. Under this method it is assumed that no discernible linear trend exists in concentration data over time (null hypothesis). To test this hypothesis the Mann-Kendall statistic (test statistic) is determined. The test statistic is a function of the sample data which quantifies the probability associated with the relative magnitudes of the sample data for a given statistical sample size (n). The significance of this probability is determined by comparison to the critical value, a threshold value of statistical significance. The critical value is determined based on a 95% level of confidence associated with the standard normal distribution. If the test statistic exceeds the critical value, the null hypothesis is rejected and the alternative hypothesis (concentrations are trending) accepted. For small statistical sample sizes ($n \leq 10$) a slightly different procedure is utilized, in which the probability is calculated directly and compared to the selected level of significance (0.05 for a 95% level of confidence); in this case, the null hypothesis is rejected if the probability is less than the level of significance. Rejection of the null hypothesis is considered to be strong evidence of a trend (increasing or decreasing); if the null hypothesis is not rejected there is insufficient evidence for identifying a significant, non-zero trend. The test's statistical power (ability to accurately reject the null hypothesis) is limited by the statistical sample size of data collected from the wells. As additional data is collected through the surveillance program the statistical power of the test will increase.

No increasing or decreasing trends in total uranium concentrations were identified in 8 of 13 wells used for analysis of trending near the IWCS. A decreasing trend in total uranium concentrations was identified at wells A45, A50, OW06B, and OW18B while an increasing trend was identified at well OW11B. The previous evaluation (1997 through 2010), had determined a non-definitive increasing trend for well OW07B; however with the inclusion of 2011 sampling data this determination is no longer supported.

Total Uranium Groundwater Concentration Trend Evaluation
(Spring and Fall data from 1997 to 2011)

Well	Sample Size (n)	Test Statistic	Critical Value
B02W20S	19	0.84	1.64
A45	19	-2.94	-1.64
A50	19	-1.75	-1.64
OW04B	25	-0.70	-1.64
OW06B	20	-3.08	-1.64
OW13B	13	0.31	1.64
OW15B	19	-0.70	-1.64
OW17B	18	-1.36	-1.64
A42	19	0.10	1.64
OW04A	12	-0.14	-1.64
OW11B	17	2.39	1.64

Well	Sample Size (n)	Test Probability	Level of Significance
OW18B	9	0.04	0.05
BH49A	10	0.15	0.05
OW07B	9	0.18	0.05

Radium-226 concentrations (pCi/L) in groundwater are not evaluated for trending in this memorandum. Radium-226 groundwater concentrations over the course of the USACE Environmental Surveillance Program (1997 through 2011) are predominantly less than the laboratory detection limit, precluding the accurate assessment of trends.

5.0 CONCLUSIONS

The objective of the ESP is to monitor the air, groundwater, surface water, and sediment for the release of contaminants to ensure the protection of the human health and the environment. To achieve this objective, the USACE:

- Calculates the annual cumulative dose to the nearest receptor from NFSS sources based on (1) measured total external gamma radiation and (2) modeled airborne particulate dose using Remedial Investigation Report soil data and annual meteorological data
- Measures radon gas concentrations at several locations around the property boundary and radon flux on top of the IWCS
- Analyzes surface water, and sediment samples for radionuclides, metals, VOCs, PAHs, pesticides, and PCBs
- Analyzes groundwater samples for radionuclides, metals, and VOCs

The results of the 2011 ESP found that most contaminant concentrations were below regulatory standards and criteria. Several metals in surface water and sediment exceeded the NYS surface water criteria and Unrestricted Use SCOs, respectively. Most metals in sediment were generally below the NYS Restricted Use SCOs. One upstream sediment sampling location exhibited PAHs that exceeded the NYS Unrestricted Use SCOs but were below the NYS Restricted Use SCOs (with one exception). Tritium concentrations in two sediment samples also exceeded the USDOE criterion for tritium.

Total uranium concentrations in groundwater in nine on-site wells exceed the drinking water standard: all of these wells are screened in the upper water bearing zone, five of these wells are located in the vicinity of the IWCS, two are situated near the northwest corner of the site, and two are located near the eastern boundary of the site. Among these wells, only well OW11B exhibits increasing concentrations over time. The source of the uranium in well OW11B is believed to be residual contamination from former operations in this area, which included a railroad bed and a decontamination pad used during construction of the IWCS. In the fall of 2012, USACE plans to perform additional field work (including test pits and new monitoring wells) in the vicinity of well OW11B to locate the source of this groundwater contamination. With the exception of well OW11B, wells that monitor IWCS integrity exhibit either no trend or a decreasing trend of total uranium concentrations.

In summary, the 2011 ESP showed that site controls are continuing to perform as designed and the site is fully protective of human health and the environment.

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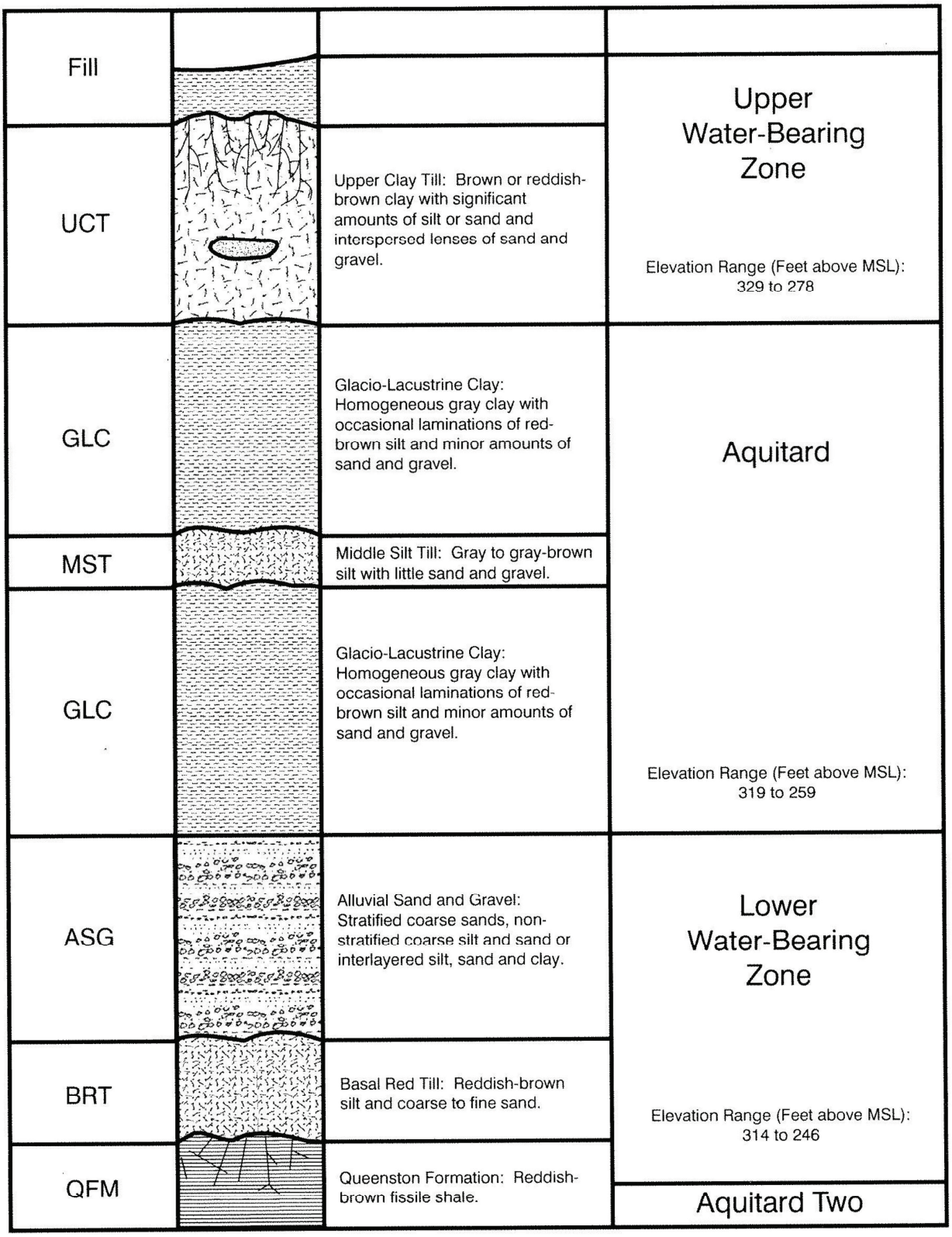
Wehran Engineering Corporation, 1977. *Hydrogeologic Investigation: Chem-trol Pollution Services, Inc., Townships of Porter and Lewiston, Niagara County, New York.*

FIGURES



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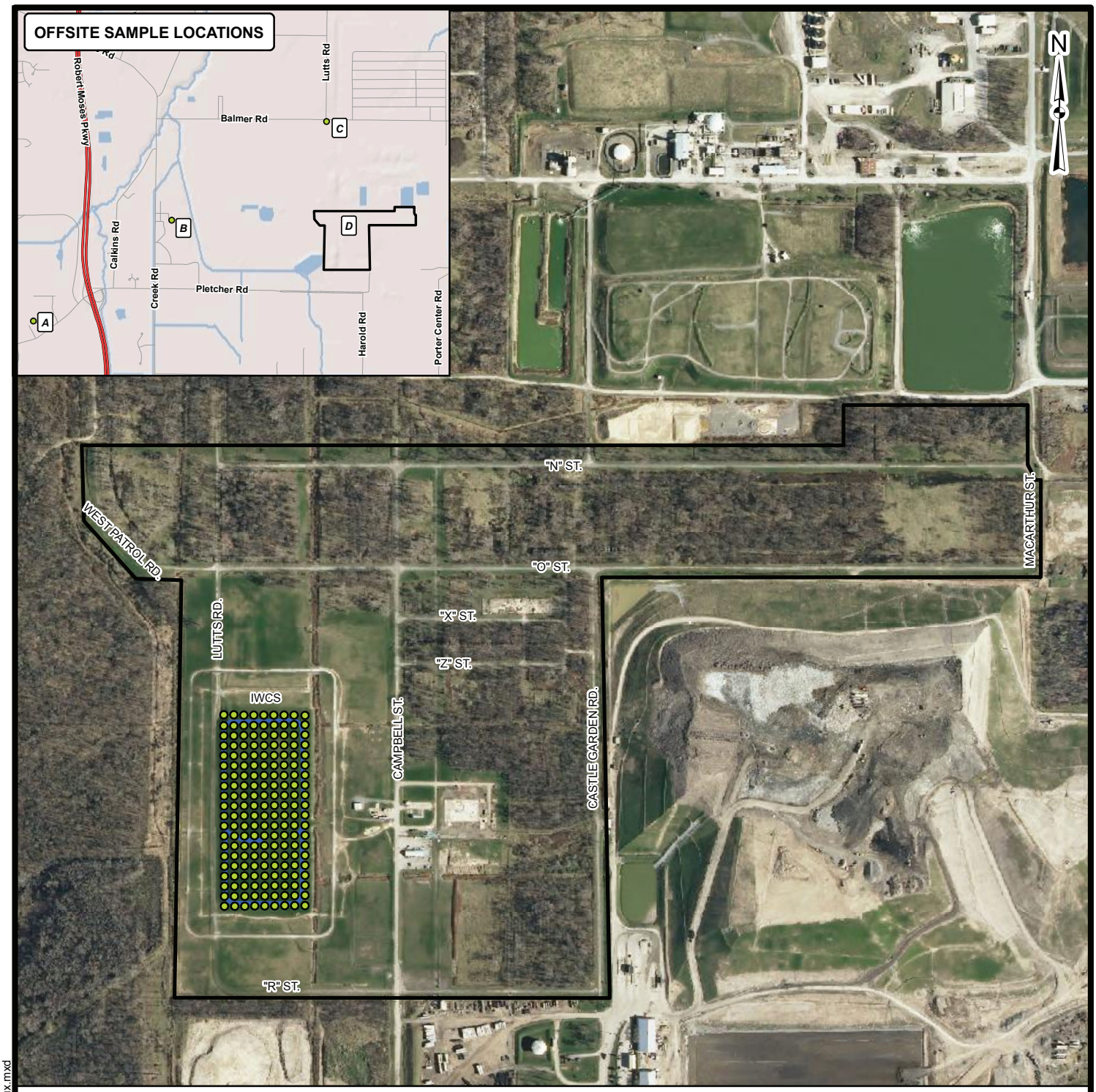
SCHEMATIC OF CONCEPTUALIZED HYDROSTRATIGRAPHY

Name: Figure03_Hydrostratigraphy.mxd
Drawn By: H5TDESPM
Date Saved: 07 Sep 2012
Time Saved: 3:42:40 PM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 3

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure03_Hydrostratigraphy.mxd



Legend

- Radon Flux Location
- NFSS Site Boundary
- IWCS Cutoff Wall

A - Lewiston Water Pollution Control Center
B - Lewiston Porter School Campus
C - Balmer Road Location
D - Niagara Falls Storage Site

Locations A, B, and C are background locations for Radon Flux Sampling.

0 350 700 1,400 Feet

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LOCATIONS OF RADON FLUX MEASUREMENTS ON THE IWCS

Name: Figure04_RadonFlux.mxd
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Date Saved: 01 Oct 2012
Time Saved: 9:59:33 AM

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FIGURE 4

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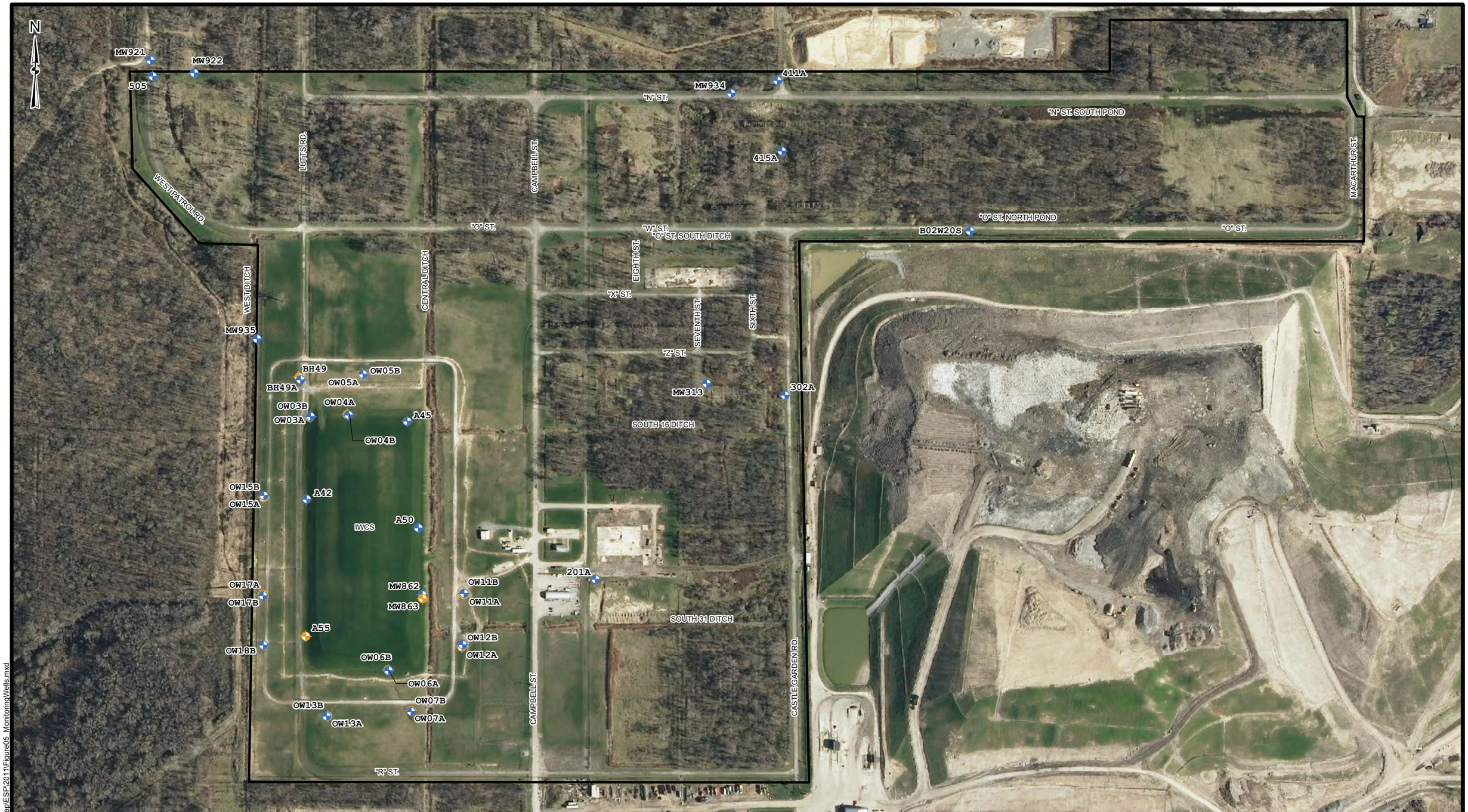

Legend

Groundwater Sampling Locations

- Monitoring Well (Lower Water Bearing Zone)
- Monitoring Well (Upper Water Bearing Zone)
- NFSS Site Boundary

0 175 350 700 Feet

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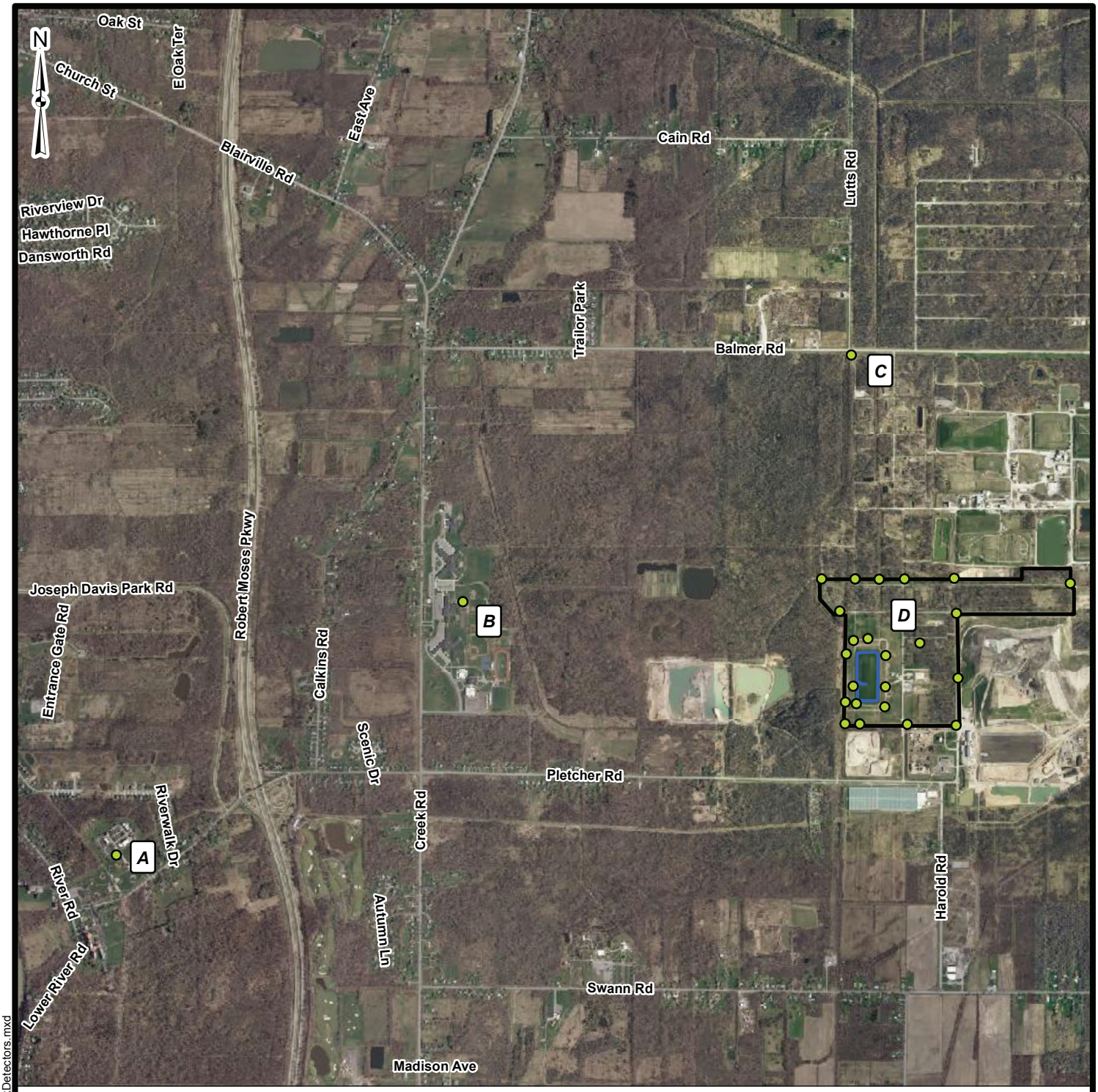
ESP GROUNDWATER SAMPLING LOCATION MAP

Name: Figure05_MonitoringWells.mxd
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 8:38:38 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 5

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure05_MonitoringWells.mxd



Legend

- OSL's / RadTrack Detectors
- IWCS Cutoff Wall
- NFSS Site Boundary

A - Lewiston Water Pollution Control Center
B - Lewiston Porter School Campus
C - Balmer Road Location
D - Niagara Falls Storage Site

Locations A, B, and C are background locations for OSL, RadTrack and Radon Flux Sampling.

0 0.25 0.5 1 Miles

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LOCATION OF RADTRACK DETECTORS AND OSL'S

Name: Figure06_RadTrackDetectors.mxd
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Date Saved: 07 Sep 2012
Time Saved: 3:53:02 PM

NIAGARA FALLS STORAGE SITE
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FIGURE 6

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure06_RadTrackDetectors.mxd

Legend

- Surface Water/Sediment Sample Location
- NFSS Site Boundary

0 175 350 700 Feet

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Name: Figure07_SurfaceWaterSediment.mxd
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 9:23:24 AM

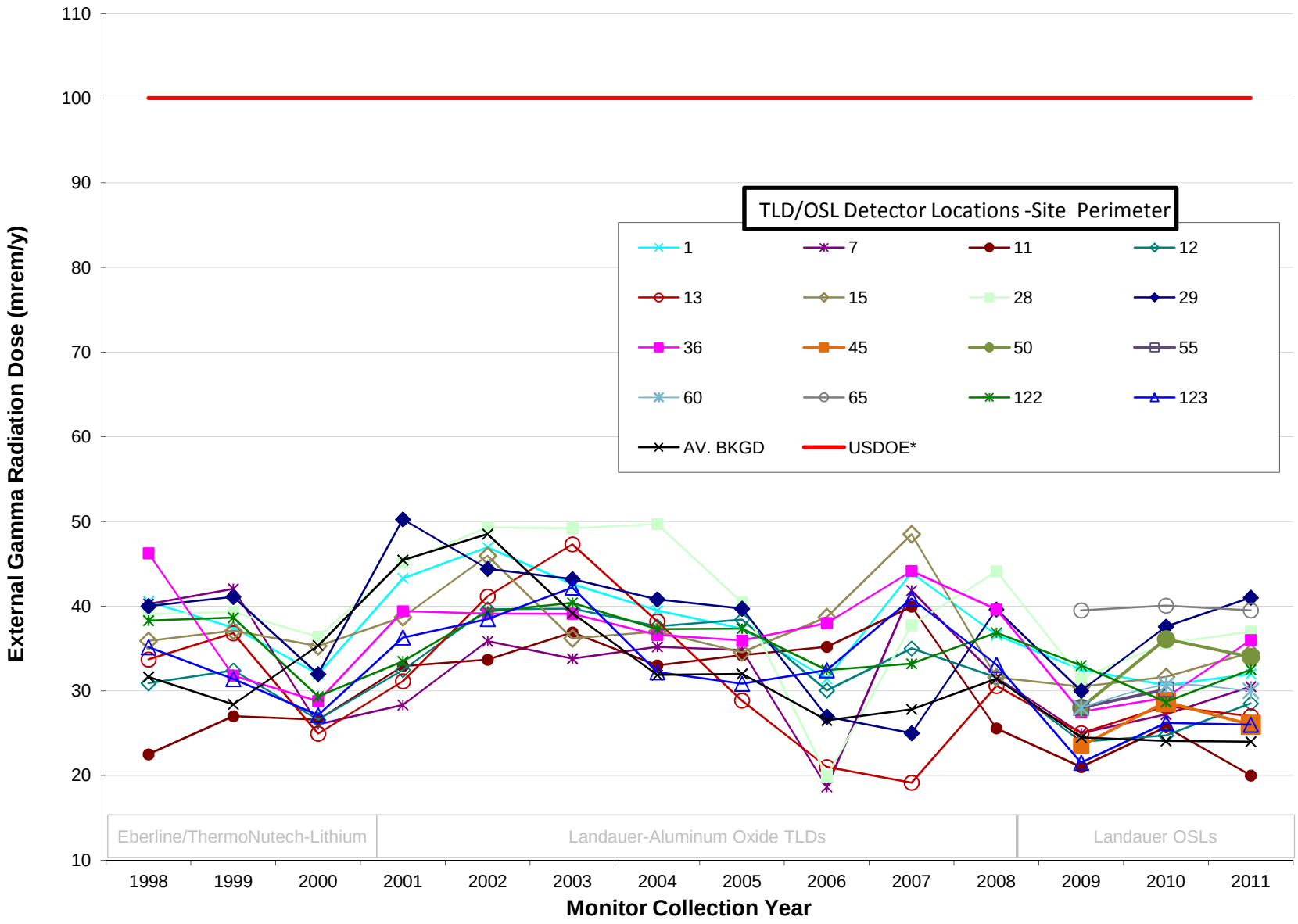
ESP SURFACE WATER AND SEDIMENT
SAMPLING LOCATION MAP

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 7

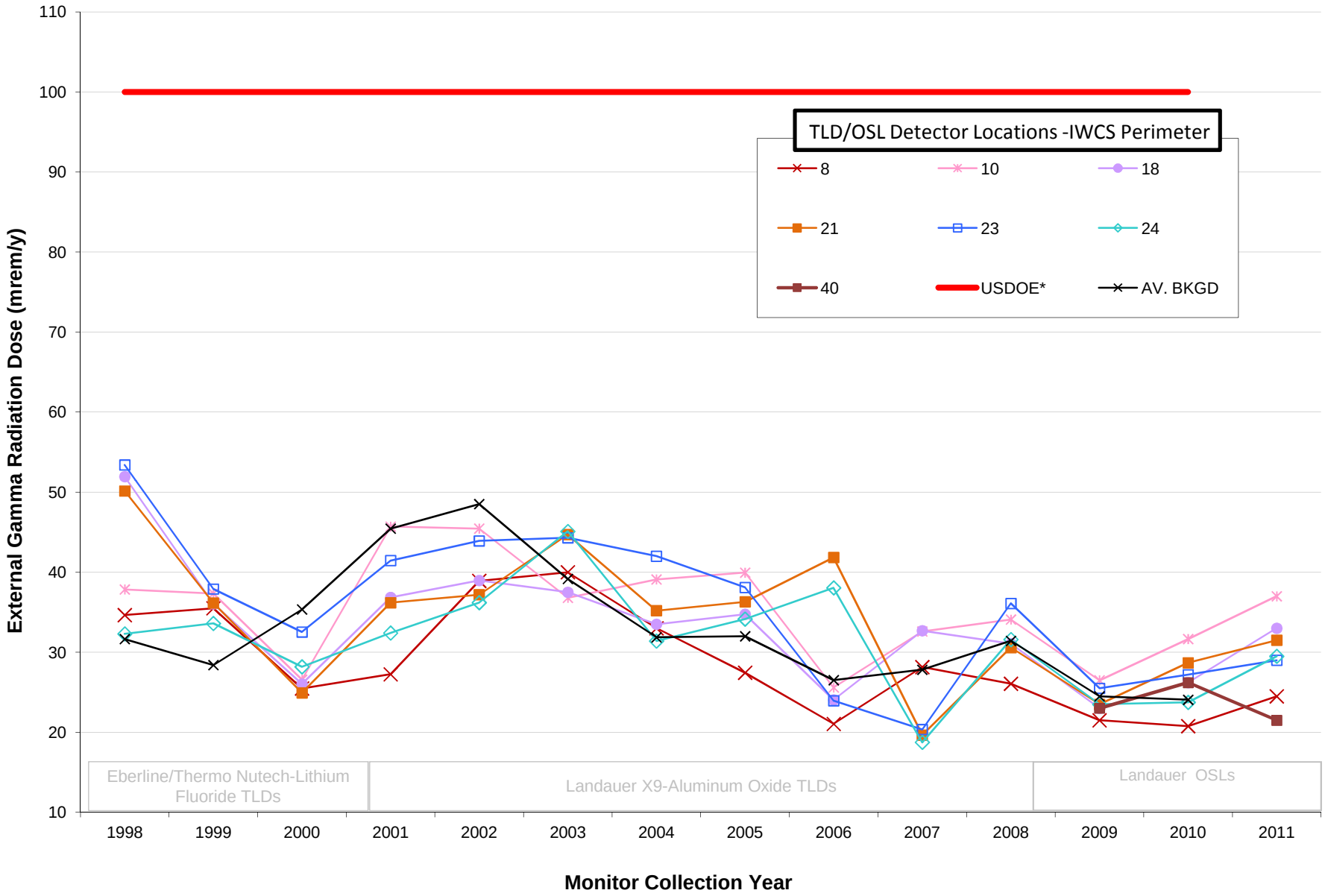
Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure07_SurfaceWaterSediment.mxd

FIGURE 8: EXTERNAL GAMMA RADIATION DOSE RATES AT NFSS PERIMETER



*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background but the value for each detector location includes background.

FIGURE 9: EXTERNAL GAMMA RADIATION DOSE RATES AT IWCS PERIMETER



*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background but the value shown for each detector location includes background.

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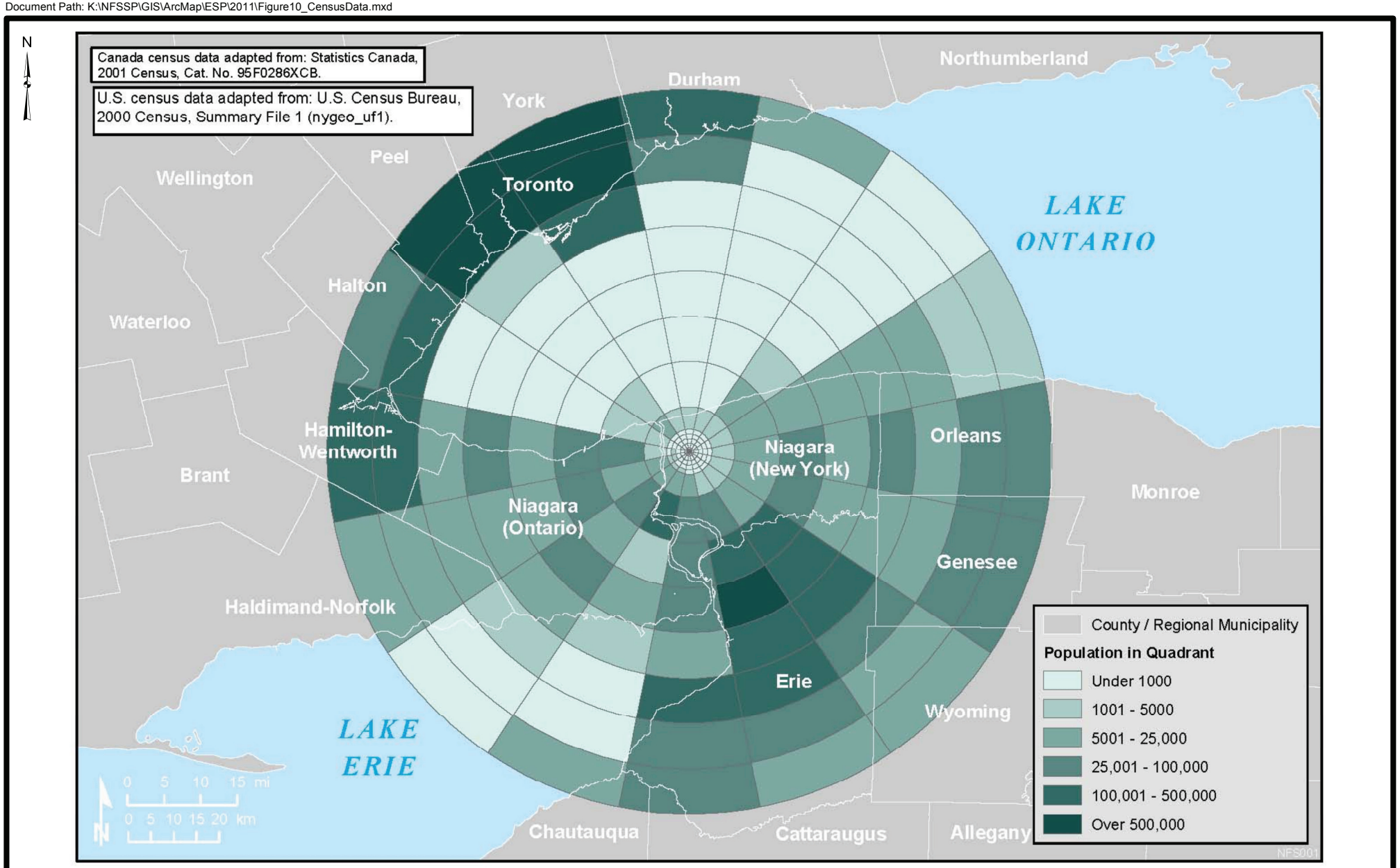
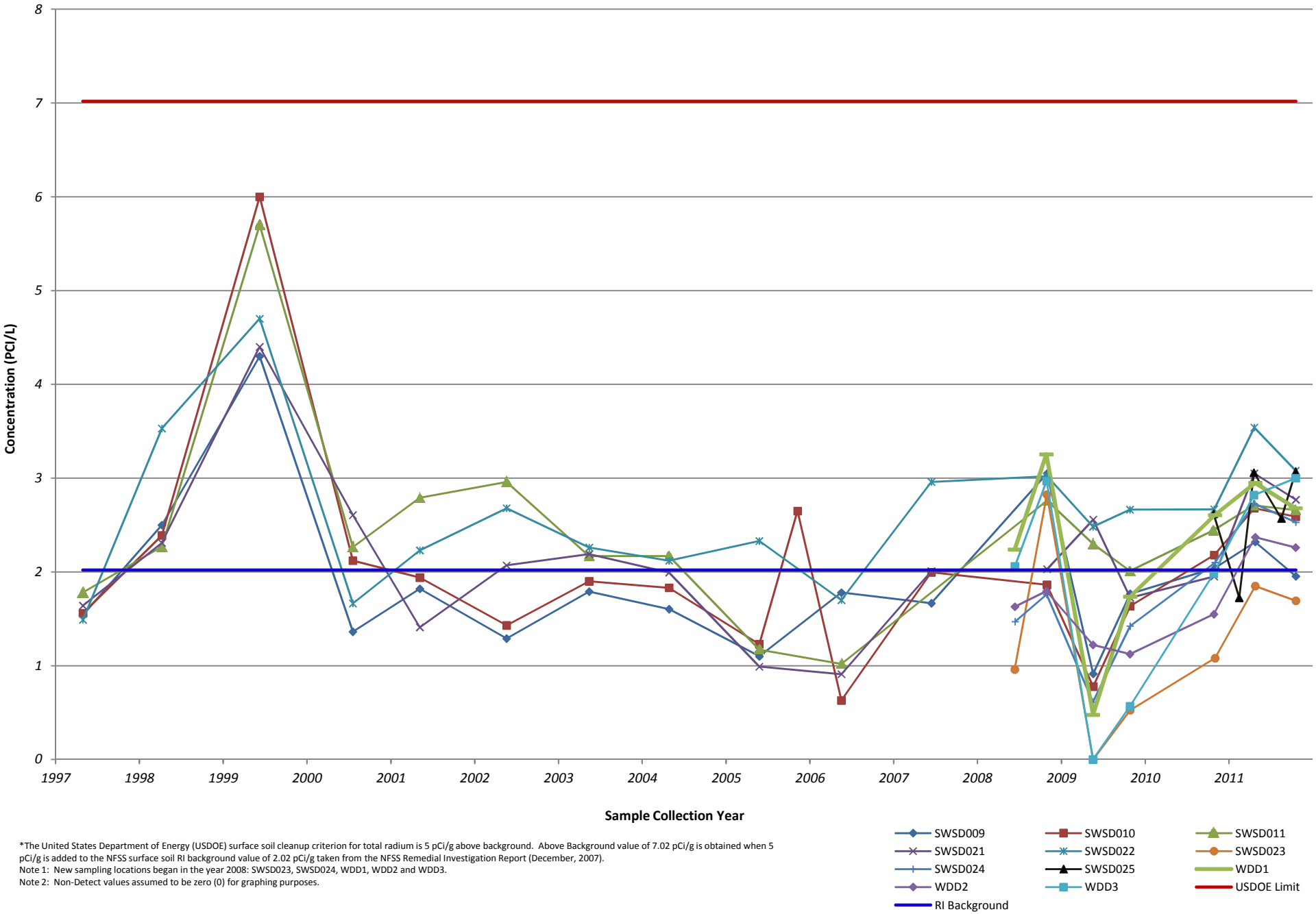


US Army Corps of Engineers Buffalo District U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NY	CENSUS DATA	
Document Name: Figure10_CensusData.mxd Drawn By: H5TDESPM Date Saved: 10 Sep 2012 Time Saved: 8:01:25 AM	NIAGARA FALLS STORAGE SITE LEWISTON, NEW YORK	FIGURE 10

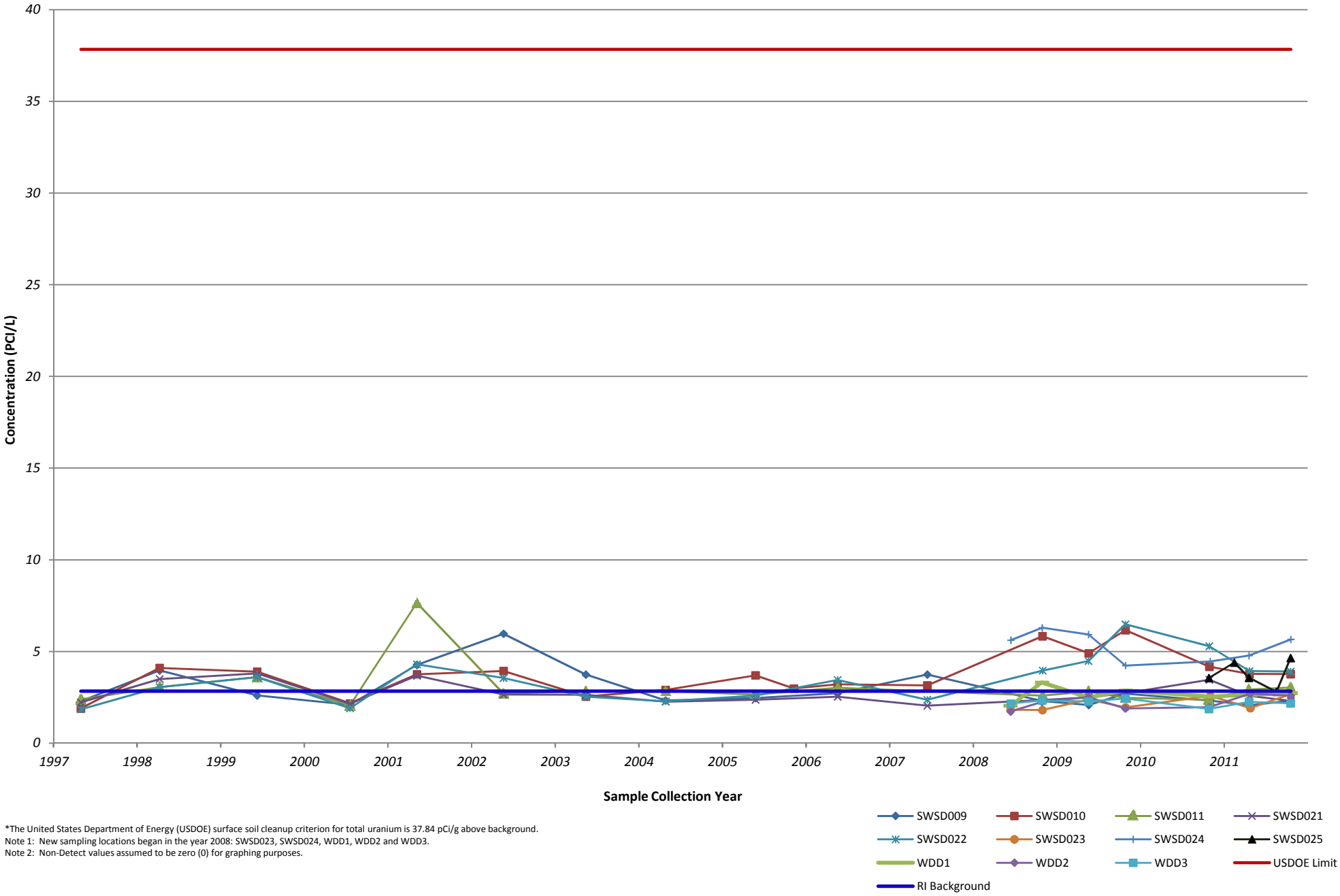
FIGURE 11
TOTAL RADIUM CONCENTRATIONS IN SEDIMENT
(1997 - 2011)



*The United States Department of Energy (USDOE) surface soil cleanup criterion for total radium is 5 pCi/g above background. Above Background value of 7.02 pCi/g is obtained when 5 pCi/g is added to the NFSS surface soil RI background value of 2.02 pCi/g taken from the NFSS Remedial Investigation Report (December, 2007).
Note 1: New sampling locations began in the year 2008: SWSD023, SWSD024, WDD1, WDD2 and WDD3.
Note 2: Non-Detect values assumed to be zero (0) for graphing purposes.

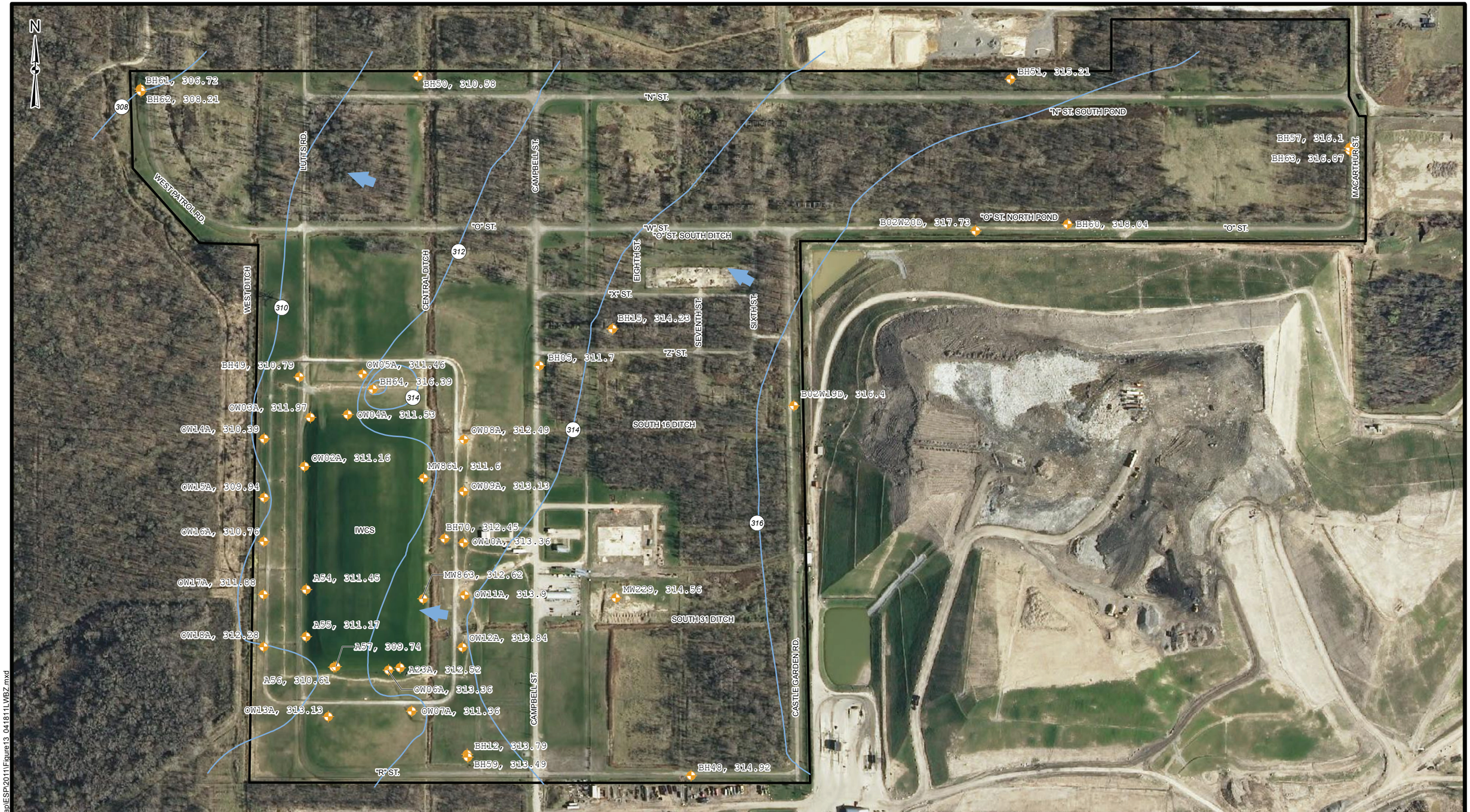
K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Radium (Sediment), 10/3/2012

FIGURE 12
TOTAL URANIUM CONCENTRATIONS IN SEDIMENT
(1997 - 2011)



*The United States Department of Energy (USDOE) surface soil cleanup criterion for total uranium is 37.84 pCi/g above background.
Note 1: New sampling locations began in the year 2008: SWSD023, SWSD024, WDD1, WDD2 and WDD3.
Note 2: Non-Detect values assumed to be zero (0) for graphing purposes.

K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Uranium (Sediment), 10/3/2012



Legend

- Monitoring Well (Lower Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

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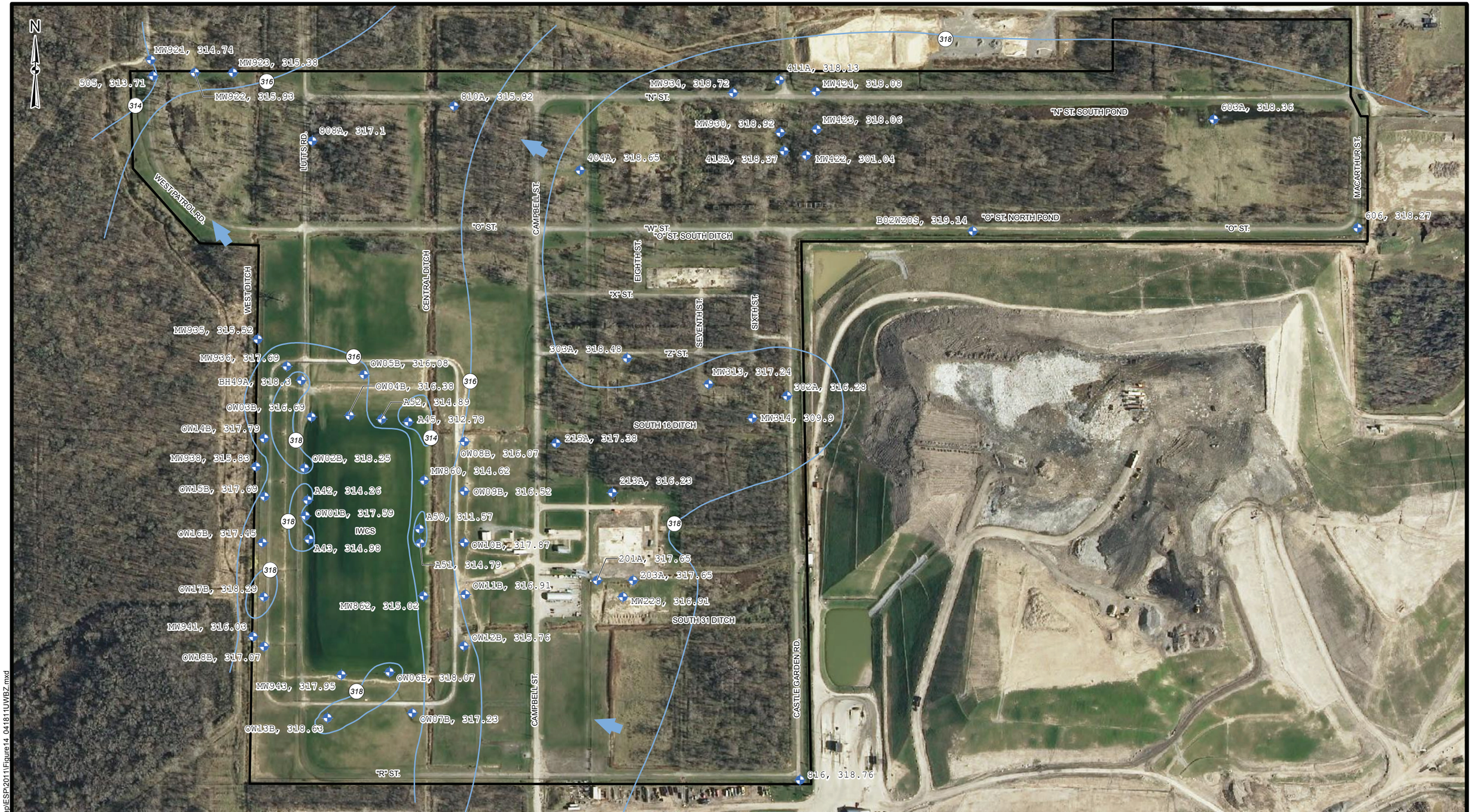
GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE LOWER WATER BEARING ZONE (APRIL 18, 2011 - SEASONAL HIGH)

Name: Figure13_041811LWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 11:21:35 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 13

Document Path: K:\NFSSP\GIS\ArcMap\ESP2011\Figure13_041811LWBZ.mxd



Legend

- Monitoring Well (Upper Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

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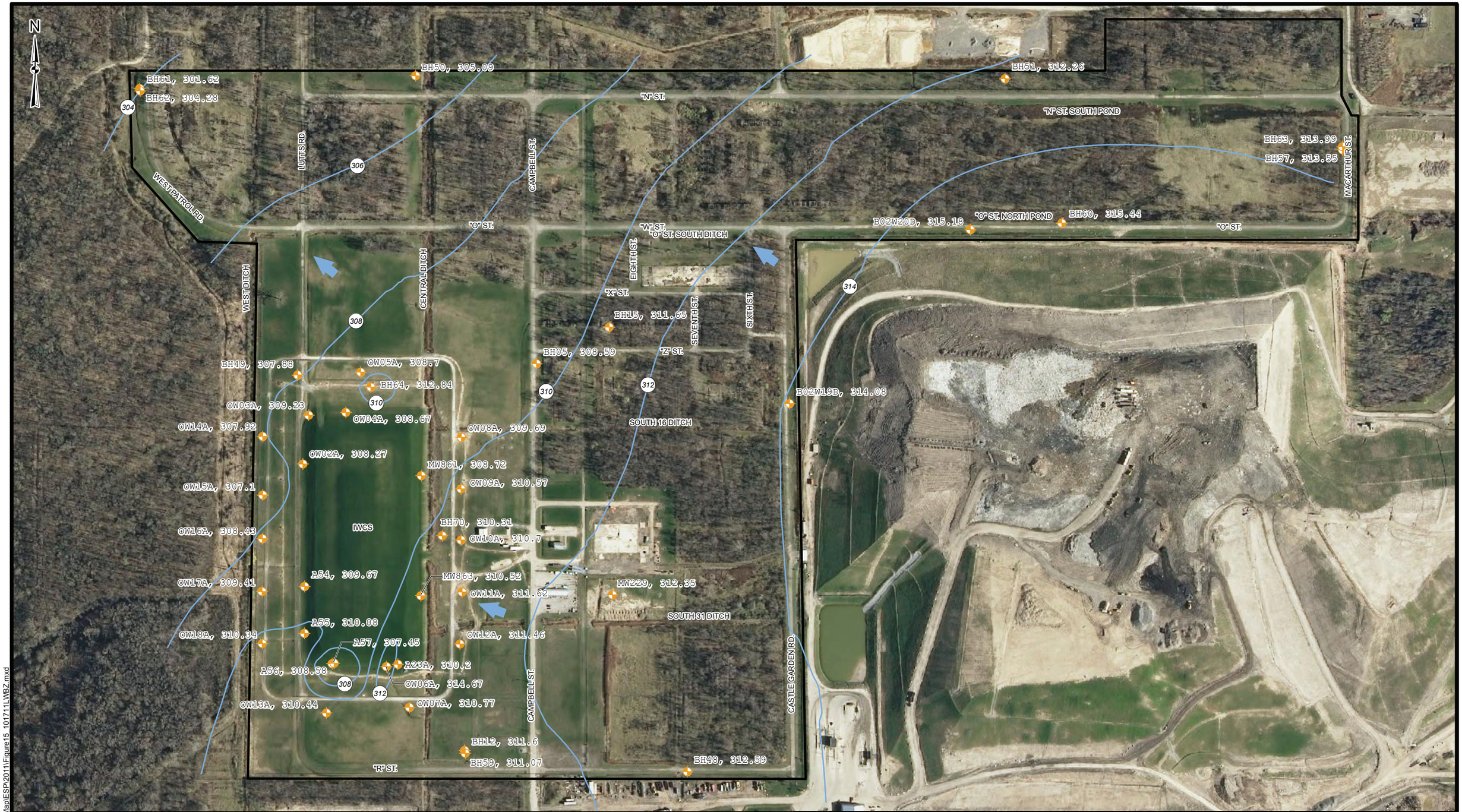
GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE UPPER WATER BEARING ZONE (APRIL 18, 2011 - SEASONAL HIGH)

Name: Figure14_041811UWBZ.mxd
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 11:21:38 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 14

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure14_041811UWBZ.mxd



Legend

- Monitoring Well (Lower Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

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GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE LOWER WATER BEARING ZONE (OCTOBER 17, 2011 - SEASONAL LOW)

Name: Figure15_101711LWBZ.mxd
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Date Saved: 01 Oct 2012
Time Saved: 11:21:40 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 15

Document Path: K:\NFSSP\GIS\ArcMap\ESP2011\Figure15_101711LWBZ.mxd

Legend

- Monitoring Well (Upper Water Bearing Zone)
- Groundwater Potentiometric Surface (ft amsl)
- Groundwater Flow Direction
- NFSS Site Boundary

NOTES:
1) All elevations are represented in NGVD 88.

0 175 350 700 Feet

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GROUNDWATER POTENTIOMETRIC SURFACE MAP FOR THE UPPER WATER BEARING ZONE (AUGUST 16, 2011 - SEASONAL LOW)

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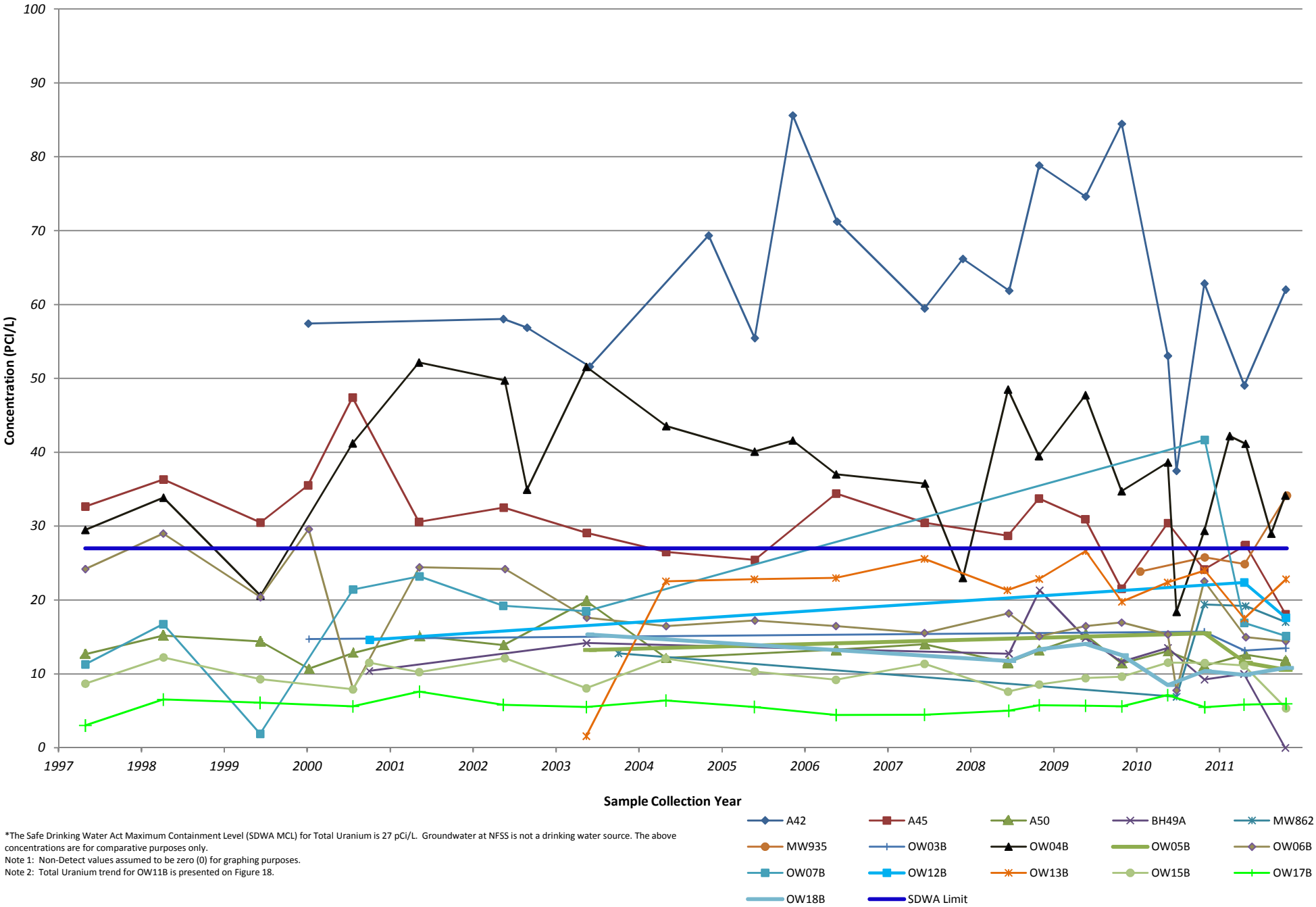
Drawn By: H5TDESPM
Date Saved: 01 Oct 2012
Time Saved: 11:29:37 AM

NIAGARA FALLS STORAGE SITE
LEWISTON, NEW YORK

FIGURE 16

Document Path: K:\NFSSP\GIS\ArcMap\ESP\2011\Figure16_081611UWBZ.mxd

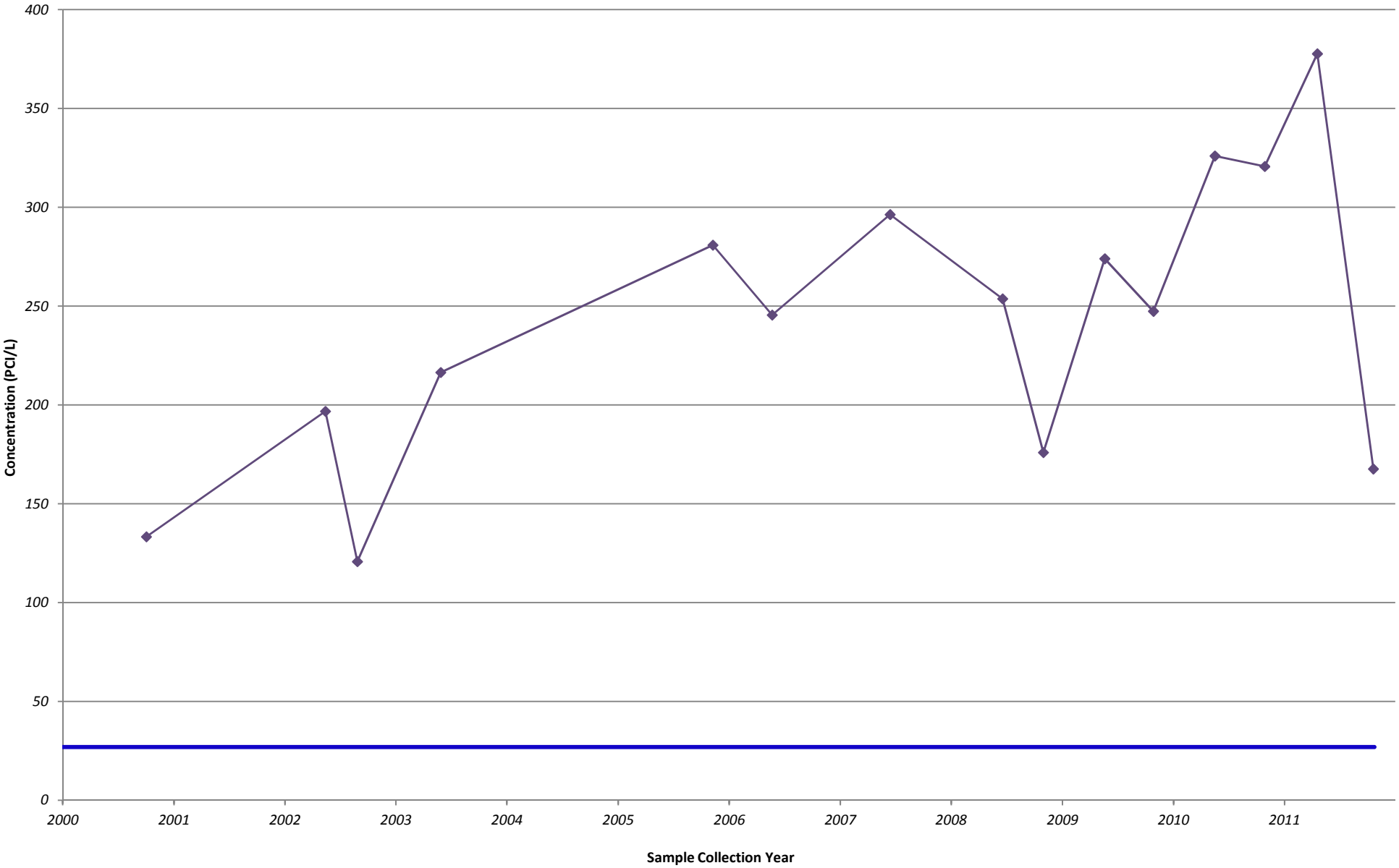
FIGURE 17
TOTAL URANIUM CONCENTRATIONS IN UPPER WATER BEARING ZONE MONITORING WELLS (1997 - 2011)



*The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Uranium is 27 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.
Note 1: Non-Detect values assumed to be zero (0) for graphing purposes.
Note 2: Total Uranium trend for OW11B is presented on Figure 18.

K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Uranium (UWBZ Wells), 10/3/2012

FIGURE 18
TOTAL URANIUM CONCENTRATIONS IN UPPER WATER BEARING ZONE MONITORING WELL OW11B (2000 - 2011)



*The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Uranium is 27 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.
Note 1: Non-Detect values assumed to be zero (0) for graphing purposes.

OW11B — SDWA Limit

K:\NFSSP\GIS\ArcMap\ESP\2011
ESP_Graphs.xlsx, Total Uranium (OW11B), 10/3/2012

TABLES

Table 1: Evolution of NFSS Environmental Surveillance Plan

White background: annual sampling frequency
Blue background: quarterly measurement frequency
Yellow background: semi-annual sampling frequency

Parameter	1997	2000	2003	2008	2009	2010 (fall) (spring 2010 same as 2009)
Radon Flux (Radon-222 emissions)	-----	180 monitoring locations	183 monitoring locations	183 monitoring locations	183 monitoring locations	183 monitoring locations
OSLs (external gamma dose)	18 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	26 locations 1 duplicate location	26 locations 1 duplicate location
Radon-222, -220	18 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	20 locations 1 duplicate location	26 locations 1 duplicate location	26 locations 1 duplicate location
Groundwater level measurements	66 wells	66 wells	91 wells	91 wells	91 wells	101 wells
Groundwater Sampling	8 wells: BO2W20S, A45, A50, OW04B, OW06B, OW07B, OW15B, OW17B	8 wells (same)	8 wells (same)	18 wells: The 10 groundwater wells added to the ESP include: OW18B, 313, 505, 302A, A42, BH49A, OW04A, OW11B, 415A, and 201A NOTE: OW13B replaced OW07B in 2004	18 wells (same)	Spring 2010 - Same as 2009 Fall 2010 - See Table 2 for schedule
	Field Parameters: Dissolved oxygen, redox potential, turbidity, temperature, specific conductivity, pH	Field Parameters: Same	Field Parameters: Same	Field Parameters: Same	Field Parameters: Same	
	Water quality analytes: calcium, magnesium, potassium, sodium alkalinity, bicarbonate, carbonate, chloride, nitrate-nitrogen, nitrite-nitrogen, phosphate, sulfate, Total Dissolved Solids, sulfate	Water quality analytes: Same	Water quality analytes: Same	Water quality analytes: alkalinity(calcium carbonate) and total dissolved solids Anions: chloride, fluoride, nitrate, nitrite, ortho-phosphate, sulfate	Water quality analytes: Same Anions: Same	
	Radionuclides: Total uranium, radium, thorium	Radionuclides: Same	Radionuclides: Same	Radionuclides: Same (except analysis for Iso Uranium only for wells OW18B, 313, 505, 302A, A42, BH49A, OW04A, OW11B, and 415A and no radionuclide analysis for well 201A) Also added thorium-228	Radionuclides: Same	
	Metals: Copper, lead, vanadium	Metals: Same	Metals: Same	Metals: Target analyte list, boron, and lithium Volatile Organic Compounds (VOCs): Only wells 415A and 201A	Metals: Same VOCs: same	

Table 1 Continued: Evolution of NFSS Environmental Surveillance Plan

Parameter	1997	2000	2003	2008	2009	2010
Surface water:	SWSD009, SWSD010, SWSD011, SWSD021, SWSD022 Field Parameters: Dissolved oxygen, redox potential, turbidity, temperature, specific conductivity, pH Radionuclides: total uranium radium-226, -228 thorium-230, -232	Same 5 locations Field Parameters: Same Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-230, -232	Same 5 locations Field Parameters: Same Radionuclides: Same	Same 5 locations plus 5 additional locations: SWSD023, SWSD024, WDD1, WDD2, WDD3, Field Parameters: Same Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-228 (new), -230, -232 Metals: TAL metals, lithium, boron Organics: Polychlorinated Biphenyls (PCBs), pesticides, VOCs, Polycyclic Aromatic Hydrocarbons (PAHs)	Same 10 locations Field Parameters: Same Radionuclides: Same Metals: same Organics: same	Spring 2010 - Same as 2009 See Table 3 for Fall 2010 sampling schedule
Sediment:	SWSD011, SWSD021, SWSD010, SWSD022, SWSD009 Radionuclides: total uranium radium-226, -228 thorium-230, -232	Same 5 locations Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-230, -232	Same 5 locations Radionuclides: Same	Same 5 locations plus 5 additional locations: WDD1, WDD2, WDD3, SWSD023, SWSD024 Radionuclides: Uranium-234, -235, -238 radium-226, -228 thorium-228 (new), -230, -232 Metals: TAL metals, lithium, boron Organics: PCBs, pesticides, VOAs, PAHs	Same 10 locations Radionuclides: Same Metals: same Organics: same	Spring 2010 - Same as 2009 See Table 3 for Fall 2010 sampling schedule

Table 2
Environmental Surveillance Program
Groundwater Sampling

Well Location	UWBZ or LWBZ Well	Purpose	*Laboratory Analytical Parameters														**Field Parameters
			Iso Uranium	Iso Thorium	Radium -226	Radium -228	Strontium-90	Technetium-99	Cesium-137	Iso Plutionium	Tritium (H-3)	Metals	VOCs	Alkalinity	TDS	Anions	
A45	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW04A	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW04B	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
BH49A	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
BH49	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW05A	LWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW05B	UWBZ	N (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A50	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW862	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW863	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW11A	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW11B	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW12A	LWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW12B	UWBZ	E (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW06A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW06B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW13A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW13B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW07A	LWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW07B	UWBZ	S (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW03A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW03B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW15A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW15B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A42	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW17A	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW17B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
OW18B	UWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
A55	LWBZ	W (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
505	UWBZ	EU 1	X	X	X	X	X	X	X	X	X	X		X	X	X	X
415A	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW934	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
411A	UWBZ	EU 4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BO2W20S	UWBZ	EU 5	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW313	UWBZ	EU 8	X	X	X	X	X	X	X	X	X	X		X	X	X	X
302A	UWBZ	EU 8	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW921 or MW922[1]	UWBZ	EU1 (off-site)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW935	UWBZ	NW (IWCS)	X	X	X	X	X	X	X	X	X	X		X	X	X	X
201A	UWBZ	EU13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Duplicate	-	-	X	X	X	X	X	X	X	X	X	X		X	X	X	X

***Laboratory Analytical Parameters**

VOC - Volatile Organic Compounds
TDS - Total Dissolved Solids
Anions: Chloride
Fluoride
Nitrate
Nitrite
Phosphate
Sulfate

****Field Parameters:**

pH
Temperature
Specific conductivity
Oxidation-Reduction Potential
Dissolved oxygen
Turbidity (If the turbidity reading for a sample is 50 NTUs or greater, the sample will be filtered in the field and both filtered and unfiltered samples at that location will be submitted to the lab for analysis.)

UWBZ - upper water bearing zone
LWBZ - lower water-bearing zone

indicates new well and/or parameter (Fall 2010)
indicates not sampled

[1] MW921 was dry during the Fall 2010 sampling event so well MW922 was sampled as a substitute

Table 3

Environmental Surveillance Program
Surface Water and Sediment Sampling
Niagara Falls Storage Site

	*Laboratory Analytical Parameters														**Field Parameters
Sample Location	**Iso Uranium**	**Iso Thorium**	**Radium -226**	**Radium -228**	**Strontium-90**	**Technetium-99**	**Cesium-137**	**Iso Plutionium**	**Tritium (H-3)**	**Metals**	**PAHs**	**PCBs**	**Pesticides**	**VOCs**	
SWSD009	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD011	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD021	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD022	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD023	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD024	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SWSD025[1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WDD3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Duplicate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

***Laboratory Analytical Parameters:**
PAH - Polyaromatic Hydrocarbons

PCB - Polycyclic Biphenyls
VOC - Volatile Organic Compounds

indicates new location and/or parameter
indicates not sampled

[1]SWSD025 is located north of the IWCS and is sampled quarterly; summer and winter samples are analyzed for radionuclides and metals only.

****Field Parameters:**
pH
Temperature
Specific conductivity
Oxidation-Reduction Potential
Dissolved oxygen
Turbidity (If the turbidity reading for a sample is 50 NTUs or greater, the sample will be filtered in the field and both filtered and unfiltered samples at that location will be submitted to the lab for analysis.)

Table 4
2011 External Gamma Radiation Dose Rates
Niagara Falls Storage Site

Monitoring Location	Monitoring Station	Gross OSL[a] Data[b] (mrem) (12/21/2010 - 06/21/11)[c]	Gross OSL[a] Data[b] (mrem) (06/21/2011 - 12/21/11)[c]	Normalized Gross TLD Data[d] (mrem/yr)	CY2011 Net OSL[e] Data (mrem/yr)
NFSS Perimeter	1	14	16	30.0	6.0
	1	14	20	34.0	10.0
	7	12	21	33.0	9.0
	7	9	19	28.0	4.0
	11	8	13	21.0	-3.0
	11	7	12	19.0	-5.0
	12	12	17	29.0	5.0
	12	10	18	28.0	4.0
	13	13	16	29.0	5.0
	13	9	16	25.0	1.0
	15	16	17	33.0	9.0
	15	13	23*	36.0	12.0
	28	16	22	38.0	14.0
	28	13	23	36.0	12.0
	29	15	30*	45.0	21.0
	29	16	21	37.0	13.0
	32	11	17	28.0	4.0
	32	10	18	28.0	4.0
	36	12	21	33.0	9.0
	36	19	20	39.0	15.0
	45	10	18	28.0	4.0
	45	9	15	24.0	0.0
	50	17	16	33.0	9.0
	50	12	23	35.0	11.0
	55	12	13	25.0	1.0
	55	12	21	33.0	9.0
	60	15	21	36.0	12.0
	60	11	13	24.0	0.0
	65	17	23	40.0	16.0
	65	20	19	39.0	15.0
	122	13	19	32.0	8.0
	122	12	21	33.0	9.0
	123	11	19	30.0	6.0
	123	9	13	22.0	-2.0
IWCS Perimeter	8	8	13	21.0	-3.0
	8	12	16	28.0	4.0
	10	14	20	34.0	10.0
	10	14	26	40.0	16.0
	18	13	23	36.0	12.0
	18	12	18	30.0	6.0
	21	12	21	33.0	9.0
	21	11	19	30.0	6.0
	23	12	19	31.0	7.0
	23	13	14	27.0	3.0
	24	12	19*	31.0	7.0
	24	11	17	28.0	4.0
	40	10	13	23.0	-1.0
	40	6	14	20.0	-4.0
Background[f]	105	8	13	21.0	
	105	6	12	18.0	
	116	11	15	26.0	
	116	8	14	22.0	
	120	15	16	31.0	
	120	11	15	26.0	
Average Background		9.8	14.2	24.0	

a OSL - Optically Stimulated Luminescence dosimeters
b All data reported from the vendor are gross results in mrem per monitoring period.
c Exposure period date format mm/dd/yy.
d Gross data for each period are normalized to a daily dose rate, averaged, and then normalized for the length of the year (365 days).
e Net data are corrected by subtracting the average normalized background value.
f Background Locations: 105-Lewiston-Porter School, 116-Balmer Road and 120-Lewiston Water Pollution Control Center
* Dosimeter damaged in processing at laboratory, reported dose "laboratory best evaluation possible."

Table 5
2011 Radon Gas Concentrations[a]
Average Daily Concentration (pCi/L)[b]

Monitoring Location[c]	Station	12/21/2010-6/21/12[d]			6/21/2011-12/21/2011[d]		
NFSS Perimeter[g]	1	<0.2	±	0.02	<0.2	±	0.02
	7	<0.2	±	0.02	<0.2	±	0.02
	11	<0.2	±	0.02	<0.2	±	0.02
	12	<0.2	±	0.02	<0.2	±	0.02
	12 (dup[e])	<0.2	±	0.02	<0.2	±	0.02
	13	<0.2	±	0.02	<0.2	±	0.02
	15	<0.2	±	0.02	0.3	±	0.03
	28	<0.2	±	0.03	<0.2	±	0.02
	29	<0.2	±	0.02	0.2	±	0.02
	36	<0.2	±	0.02	<0.2	±	0.02
	45	<0.2	±	0.02	<0.2	±	0.02
	50	<0.2	±	0.02	<0.2	±	0.02
	55	<0.2	±	0.03	<0.2	±	0.02
	60	<0.2	±	0.02	<0.2	±	0.02
	65	<0.2	±	0.02	<0.2	±	0.02
	122	<0.2	±	0.02	<0.2	±	0.02
	123	<0.2	±	0.02	0.2	±	0.02
IWCS[f] Perimeter	8	<0.2	±	0.02	<0.2	±	0.02
	10	<0.2	±	0.03	<0.2	±	0.02
	18	<0.2	±	0.02	<0.2	±	0.02
	21	<0.2	±	0.02	<0.2	±	0.02
	23	<0.2	±	0.02	<0.2	±	0.02
	24	<0.2	±	0.02	<0.2	±	0.02
	40	<0.2	±	0.02	<0.2	±	0.02
Background	105	<0.2	±	0.02	<0.2	±	0.02
	116	<0.2	±	0.02	<0.2	±	0.02
	120	<0.2	±	0.02	<0.2	±	0.02

a. Radon gas concentrations were measured with RadTrak® detectors. These detectors measure the combined concentration of radon-220 and radon-222 in air.
b. pCi/L - picocuries per liter.
c. Monitoring locations are shown on site map.
d. Detectors were installed (start date) and removed (end date) on the dates listed.
e. A quality control duplicate is collected at the same time and location and is analyzed by the same method for evaluating precision in sampling and analysis.
f. Monitoring locations are at the perimeter of the interim waste containment structure (IWCS).
g. Monitoring locations are at the perimeter of the site with exception of monitoring location 123.

Note: DOE off-site limit for radon-222 concentration is 3.00 pCi/L above background.
(<0.2) Indicates detection limit is reported. Actual result is less than this value.
1 pCi = 0.037 becquerel

Table 6
2011 Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier[d]	Radon-222 Flux (pCi/m²/s)			MDA
1	U	0.03338	±	0.02026	0.05663	51	U	-0.003384	±	0.02589	0.05347
2	U	0.01177	±	0.02321	0.05652	52	U	0.03454	±	0.02183	0.06049
3	U	0.03286	±	0.03255	0.07182	53	U	0.04138	±	0.02213	0.06108
4	U	0.01417	±	0.02602	0.08493	54	U	0.003307	±	0.03384	0.08574
5	U	0.01581	±	0.02354	0.05741	55	U	0.06529	±	0.035	0.08773
6	U	0.03781	±	0.02976	0.06641	56	U	0.01508	±	0.01814	0.05207
7	U	0.04114	±	0.0322	0.08008	57	U	0.01293	±	0.02204	0.06003
8	U	0.01416	±	0.02601	0.08489	58	U	0.01179	±	0.04891	0.1136
9	U	0.0607	±	0.03346	0.08174	59	U	0.02034	±	0.01902	0.05403
10	U	0.03787	±	0.0236	0.06441	60	U	-0.01302	±	0.01984	0.03944
10-DUP[b]	U	0.03253	±	0.02253	0.06192	60-DUP[b]	U	0.004779	±	0.02152	0.0517
11	U	0.03986	±	0.02502	0.06405	61	U	0.024	±	0.03274	0.1013
12	U	0.02964	±	0.05378	0.1287	62	U	0.04415	±	0.03116	0.07408
13	U	0.03546	±	0.02253	0.06187	63	U	0.04355	±	0.03658	0.09112
14	U	0.04394	±	0.03649	0.08283	64	U	0.1324	±	0.07049	0.1827
15	U	0.002246	±	0.04355	0.09836	65	U	0.07566	±	0.03759	0.09396
16	U	0.01934	±	0.02456	0.06011	66	U	0.03616	±	0.02645	0.07135
17	U	0.01414	±	0.02189	0.05559	67	U	0.04424	±	0.02741	0.07405
18	U	0.01099	±	0.03245	0.07346	68	U	0.05014	±	0.05432	0.1411
19	U	0.0008845	±	0.05293	0.1123	69	U	0.0121	±	0.01838	0.04949
20	U	0.03795	±	0.02656	0.06602	70	U	0.02602	±	0.02282	0.06064
20-DUP[b]	U	0.0404	±	0.02757	0.0686	70-DUP[b]	U	-0.003219	±	0.02114	0.04736
21	U	0.0486	±	0.03135	0.07774	71	U	0.01565	±	0.02	0.05873
22	U	-0.01027	±	0.05701	0.1119	72	U	-0.01525	±	0.02207	0.02571
23	U	0.04107	±	0.02521	0.06791	73	U	0.04558	±	0.03186	0.07533
24	U	0.01275	±	0.02173	0.05919	74	U	0.03366	±	0.02896	0.06068
25	U	0.02192	±	0.04302	0.1116	75	U	0.01437	±	0.02224	0.05649
26	U	0.02337	±	0.02004	0.05629	76	U	0.01866	±	0.02105	0.06094
27	U	0.02795	±	0.02977	0.06258	77	U	0.0502	±	0.05375	0.1396
28	U	0.001923	±	0.02015	0.0512	78	U	0.003769	±	0.0174	0.04357
29	U	0.002297	±	0.04454	0.1006	79	U	0.03945	±	0.02513	0.06816
30	U	0.002503	±	0.01695	0.04227	80	U	0.03826	±	0.02562	0.07166
30-DUP[b]	U	0.008005	±	0.02361	0.0548	80-DUP[b]	U	0.06395	±	0.0374	0.08782
31	U	-0.01351	±	0.01387	0.02686	81	U	0.02229	±	0.02418	0.06447
32	U	0.03081	±	0.02917	0.07211	82	U	0.03911	±	0.02963	0.07375
33	U	-0.06003	±	0.05655	0.06942	83	U	0.07655	±	0.04984	0.121
34	U	0.03789	±	0.02681	0.06669	84	U	0.01198	±	0.06567	0.1434
35	U	-0.005431	±	0.02052	0.04758	85	U	0.04148	±	0.03213	0.07995
36	U	0.0925	±	0.0539	0.1509	86	U	0.01007	±	0.02868	0.06716
37	U	0.01468	±	0.0215	0.05455	87	U	0.04776	±	0.0349	0.08828
38	U	0.0005655	±	0.01434	0.03912	88	U	-0.02233	±	0.06263	0.1168
39	U	0.03819	±	0.02568	0.07184	89	U	0.006907	±	0.0141	0.04391
40	U	0.04225	±	0.0419	0.1226	90		0.04971	±	0.03387	0.08337
40-DUP[b]	U	-0.02875	±	0.0509	0.08727	90-DUP[b]		0.03342	±	0.03202	0.07312
41	U	0.000403	±	0.01994	0.04725	91	U	0.04155	±	0.02826	0.07995
42	U	0.005588	±	0.02743	0.06433	92	U	0.01159	±	0.06589	0.1437
43	U	0.04564	±	0.03172	0.07478	93	U	0.06981	±	0.03315	0.08852
44	U	0.01414	±	0.02251	0.05716	94	U	0.06069	±	0.03517	0.09597
45	U	0.03997	±	0.0275	0.07618	95	U	0.01323	±	0.05657	0.1313
46	U	0.02263	±	0.04367	0.1133	96	U	0.007246	±	0.02922	0.06558
47	U	0.05206	±	0.0275	0.07376	97	U	-0.002654	±	0.02475	0.05573
48	U	0.01482	±	0.02464	0.06018	98	U	0.05109	±	0.02988	0.08239
49	U	-0.01712	±	0.01821	0.03334	99	U	0.1847	±	0.0925	0.2253
50	U	0.04042	±	0.05051	0.1313	100	U	-0.002366	±	0.02052	0.04714
50-DUP[b]	U	0.02957	±	0.05494	0.1313	100-DUP[b]	U	0.06427	±	0.0338	0.08989

Table 6 (cont.)
2009 Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA
101	U	0.02001	±	0.02727	0.0738	151	U	0.01705	±	0.02231	0.05664
102	U	-0.03154	±	0.04853	0.07982	152	U	0.01141	±	0.0289	0.06491
103	U	0.00488	±	0.01867	0.0507	153	U	0.01668	±	0.0203	0.05927
104	U	0.04309	±	0.03197	0.07746	154	U	0.04915	±	0.03349	0.07678
105	U	0.07118	±	0.05761	0.1631	155	U	0.01039	±	0.02314	0.05622
106	U	0.07414	±	0.03591	0.09483	156	U	0.04996	±	0.03735	0.07926
107	U	-0.002328	±	0.02718	0.05962	157	U	0.01257	±	0.03874	0.0999
108	U	0.05619	±	0.03332	0.09155	158	U	0.0399	±	0.02847	0.07088
109	U	0.02475	±	0.06104	0.1444	159	U	0.05856	±	0.03501	0.08523
110	U	0.04913	±	0.02711	0.06932	160	U	-0.0001977	±	0.01918	0.04845
110-DUP[b]	U	0.05003	±	0.02971	0.08053	160-DUP[b]	U	0.03835	±	0.02748	0.06767
111	U	0.04041	±	0.02782	0.07105	161	**U**	-0.003065	±	0.01233	0.03367
112	U	0.02161	±	0.03389	0.08378	162	**U**	0.09474	±	0.04945	0.14
113	U	0.0262	±	0.05054	0.1312	163		0.2793	±	0.04722	0.06128
114	U	0.04102	±	0.02408	0.06738	164	**U**	0.06296	±	0.06078	0.1513
115	U	-0.001614	±	0.02896	0.06628	165	**U**	0.04809	±	0.0292	0.08024
116	U	0.01365	±	0.05662	0.1316	166	**U**	0.01334	±	0.03981	0.1027
117	U	0.01561	±	0.02721	0.06609	167	**U**	0.01826	±	0.02696	0.06926
118	U	0.001277	±	0.02328	0.0553	168	**U**	0.002348	±	0.04553	0.1028
119	U	0.05422	±	0.03632	0.09751	169	**U**	0.06558	±	0.03336	0.08997
120	U	-0.01144	±	0.06611	0.13	170	**U**	0.03394	±	0.03836	0.1148
120-DUP[b]	U	0.05791	±	0.06241	0.1621	170-DUP[b]	**U**	-0.001831	±	0.0611	0.1241
121	U	0.03336	±	0.03693	0.08269	171	**U**	-0.000203	±	0.01969	0.04974
122	U	0.03687	±	0.02396	0.06535	172	**U**	0.009667	±	0.02662	0.06518
123	U	0.009316	±	0.01534	0.04531	173	**U**	0.07041	±	0.06146	0.1591
124	U	0.03233	±	0.02202	0.06317	174	**U**	0.05492	±	0.0346	0.09129
125	U	-0.007389	±	0.03996	0.08552	175	**U**	0.03207	±	0.048	0.1248
126	U	0.005483	±	0.02262	0.05208	176		0.07684	±	0.02255	0.0325
127	U	0.04172	±	0.02489	0.0675	177	**U**	0.08421	±	0.05072	0.1436
128	U	0.01583	±	0.02276	0.0617	178	**U**	0.03884	±	0.02626	0.07347
129	U	0.04165	±	0.04124	0.1207	179	**U**	0.08559	±	0.06651	0.1439
130	U	0.01331	±	0.02667	0.0611	180		0.04584	±	0.01976	0.0409
130-DUP[b]	U	0.05748	±	0.02794	0.0746	180-DUP[b]	**U**	0.03522	±	0.02631	0.07253
131	U	0.02672	±	0.02092	0.05356	181[c]	**U**	0.01288	±	0.03844	0.09917
132	U	0.05686	±	0.02941	0.07439	182[c]	**U**	0.02071	±	0.05109	0.1208
133	U	-0.01015	±	0.05575	0.1093	183[c]	**U**	0.0101	±	0.05536	0.1209
134	U	0.04914	±	0.02853	0.0759	Average background	U	0.01456	(pCi/m²/s)		
135	U	0.03771	±	0.02506	0.06814						
136	U	0.03044	±	0.04566	0.1187						
137	U	0.03105	±	0.02011	0.05623						
138	U	-0.01585	±	0.02025	0.03809						
139	U	0.03356	±	0.02495	0.06979						
140	U	0.06801	±	0.05133	0.1438						
140-DUP[b]	U	0.02185	±	0.04216	0.1094						
141	U	0.04763	±	0.02884	0.07333						
142	U	0.0408	±	0.03085	0.07662						
143	U	0.01432	±	0.02098	0.05321						
144	U	0.02811	±	0.02006	0.05557						
145	U	0.004304	±	0.02117	0.05403						
146	U	-0.005624	±	0.02856	0.06855						
147	U	0.01411	±	0.01632	0.0476						
148	U	0.0006663	±	0.0221	0.05048						
149	U	0.004344	±	0.02137	0.05453						
150	U	0.04023	±	0.05035	0.1309						
150-DUP[b]	U	0.02242	±	0.04326	0.1123						

IWCS	Value	Units
Average[e]	0.02946	(pCi/m²/s)
High[f]	0.27930	(pCi/m²/s)
Low	-0.06003	(pCi/m²/s)

NOTE: The EPA Standard for Radon-222 Flux is 20 pCi/m²/sec

a. Radon-222 flux was performed on August 23-24, 2011

b. Every 10th canister is counted twice as a quality control (QC) duplicate to evaluate analytical precision.

c. Background: 181-Lewiston-Porter Central School
182-Lewiston Water Pollution Control Center
183-Balmer Rd. (CWM Secondary Gate)

d. Validated Qualifier: **U** - indicates that no analyte was detected (Non-Detect).

e. Average of all values (detects and non-detects)

f. Highest detectable finding.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.492 U	-0.527 U	-0.793 U	1.43 U	0.025 U
PLUTONIUM-238	PCI/L	15	-0.047 U	-0.072 U	-0.072 U	-0.037 U	-0.019 U
PLUTONIUM-239/240	PCI/L	15	-0.011 U	-0.074 U	0.017 U	0.029 U	0.109 U
RADIUM-226	PCI/L	3	0.284 U	0.0869 U	0.361	0.321 U	0.0728 U
RADIUM-228	PCI/L	5	0.893 J	0.521 U	0.896	0.598 U	0.83
TOTAL RADIUM	PCI/L	5	0.893	Not Detected	1.257	Not Detected	0.83
STRONTIUM-90	PCI/L	8	-0.032 U	0.219 U	0.645 U	-0.028 U	-0.715 U
TECHNETIUM-99	PCI/L	900	2.77 U	0.086 U	1.25 U	3.14 U	2.27 U
THORIUM-228	PCI/L	15	0.028 U	0.462	0.314	0.381 U	0.304 J
THORIUM-230	PCI/L	15	0.115 U	0.13 U	0.088 U	0.154 U	0.132 U
THORIUM-232	PCI/L	15	0.069 U	0.116	0.026 U	0.011 U	0.011 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-17.5 U	1,535	30 U	708	55.2 U
URANIUM-234	PCI/L	-	2.5	2.36	3.03	1.84	4.95
URANIUM-235	PCI/L	-	0.098	0.08 U	0.06 U	0.047 U	0.258
URANIUM-238	PCI/L	-	1.87	1.56	2.49	2.23	4.41
TOTAL URANIUM	PCI/L	27	4.468	3.92	5.52	4.07	9.618
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	-0.249 U	-1.07 U	Not Anaylzed	-0.537 U	Not Anaylzed
PLUTONIUM-238	PCI/L	15	-0.018 U	-0.164 U	Not Anaylzed	0.015 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	0.041 U	-0.034 U	Not Anaylzed	0.032 U	Not Anaylzed
RADIUM-226	PCI/L	3	0.26 U	0.29 U	Not Anaylzed	-0.079 U	Not Anaylzed
RADIUM-228	PCI/L	5	0.707 U	R	Not Anaylzed	0.238 U	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Analyzed	Not Detected	Not Analyzed
STRONTIUM-90	PCI/L	8	0.095 U	0.124 U	Not Anaylzed	0.163 U	Not Anaylzed
TECHNETIUM-99	PCI/L	900	R	-3.14 U	Not Anaylzed	-1.88 U	Not Anaylzed
THORIUM-228	PCI/L	15	0.036 U	0.519	Not Anaylzed	R	Not Anaylzed
THORIUM-230	PCI/L	15	0.102 U	0.158	Not Anaylzed	0.045 U	Not Anaylzed
THORIUM-232	PCI/L	15	-0.005 U	-0.023 U	Not Anaylzed	0.015 U	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	75.1 U	1,526	Not Anaylzed	428	Not Anaylzed
URANIUM-234	PCI/L	-	2.55	2.21	Not Anaylzed	2.11	Not Anaylzed
URANIUM-235	PCI/L	-	0.149	0.14 U	Not Anaylzed	0.367	Not Anaylzed
URANIUM-238	PCI/L	-	1.96	2.04	Not Anaylzed	1.72	Not Anaylzed
TOTAL URANIUM	PCI/L	27	4.659	4.25	Not Analyzed	4.197	Not Analyzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	2.35 U	-0.094 U	-1.55 U	-0.11 U	-0.797 U
PLUTONIUM-238	PCI/L	15	-0.018 U	0.013 U	0.011 U	0.066 U	-0.022 U
PLUTONIUM-239/240	PCI/L	15	-0.112 U	0.022 U	0.047 U	-0.018 U	-0.01 U
RADIUM-226	PCI/L	3	-0.135 U	0.497	0.768 U	0 U	0.431 U
RADIUM-228	PCI/L	5	0.68 U	0.852 J	0.135 U	0.136 U	0.65 U
TOTAL RADIUM	PCI/L	5	Not Detected	1.349	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.084 U	0.154 U	-0.096 U	0.282 U	0.197 U
TECHNETIUM-99	PCI/L	900	5.28 U	0.2 U	-3.02 U	1.65 U	-4.83 U
THORIUM-228	PCI/L	15	1.1 J	0.126 U	R	0.128 U	0.351 U
THORIUM-230	PCI/L	15	-0.074 U	0.18	0.061 U	0.103 U	0.056 U
THORIUM-232	PCI/L	15	0.049 U	0.066 U	0.005 U	0.023 U	0.011 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	689	55.1 U	-76.6 U	37.6 U	600
URANIUM-234	PCI/L	-	1.97	9.16	3.27	5.52	2.5
URANIUM-235	PCI/L	-	0.256	0.408	0.101 U	0.153	0.015 U
URANIUM-238	PCI/L	-	2.09	7.22	2.63	5.2	2.19
TOTAL URANIUM	PCI/L	27	4.316	16.788	5.9	10.873	4.69
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	-0.49 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	PCI/L	15	Not Anaylzed	0 U	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	-0.029 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-226	PCI/L	3	Not Anaylzed	-0.097 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-228	PCI/L	5	Not Anaylzed	0.669	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Analyzed	0.669	Not Analyzed	Not Analyzed	Not Analyzed
STRONTIUM-90	PCI/L	8	Not Anaylzed	0.447 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
TECHNETIUM-99	PCI/L	900	Not Anaylzed	3.13 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-228	PCI/L	15	Not Anaylzed	0 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-230	PCI/L	15	Not Anaylzed	0.084	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-232	PCI/L	15	Not Anaylzed	0 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	75.1 U	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-234	PCI/L	-	Not Anaylzed	9.06	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-235	PCI/L	-	Not Anaylzed	0.392	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-238	PCI/L	-	Not Anaylzed	7.35	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL URANIUM	PCI/L	27	Not Analyzed	16.802	Not Analyzed	Not Analyzed	Not Analyzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	1.39 U	-0.333 U	-1.15 U	-0.134 U	0.593 U
PLUTONIUM-238	PCI/L	15	0.113 U	-0.059 U	-0.009 U	-0.021 U	-0.271 U
PLUTONIUM-239/240	PCI/L	15	-0.05 U	0.047 U	-0.015 U	-0.001 U	0.097 U
RADIUM-226	PCI/L	3	0.0703 U	0.242 U	-0.12 U	0 U	0.226
RADIUM-228	PCI/L	5	0.842 U	0.328 U	0.83 U	1.02	0.262 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	1.02	0.226
STRONTIUM-90	PCI/L	8	0.397 U	-0.235 U	0.671 U	0.245 U	0.399 U
TECHNETIUM-99	PCI/L	900	4.6 U	1.98 U	1.74 U	-0.255 U	7.7
THORIUM-228	PCI/L	15	-0.032 U	R	0.266 J	1.19 J	0.459 J
THORIUM-230	PCI/L	15	0.223 J	0.024 U	0.035 U	0.155 U	0.64
THORIUM-232	PCI/L	15	0.013 U	0.096 U	0.035 U	0.103	0.302
TRITIUM (HYDROGEN-3)	PCI/L	20000	57.6 U	-53.3 U	944 J	43.4 U	232 U
URANIUM-234	PCI/L	-	2.01	0.886	5.28	6.83	5.39
URANIUM-235	PCI/L	-	0.038 U	0.03 U	0.344	0.313	0.876
URANIUM-238	PCI/L	-	1.49	0.542	4.35	5.2	5.91
TOTAL URANIUM	PCI/L	27	3.5	1.428	9.974	12.343	12.176
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
PLUTONIUM-238	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-226	PCI/L	3	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
RADIUM-228	PCI/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed
STRONTIUM-90	PCI/L	8	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
TECHNETIUM-99	PCI/L	900	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-228	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-230	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
THORIUM-232	PCI/L	15	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-234	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-235	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
URANIUM-238	PCI/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
TOTAL URANIUM	PCI/L	27	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	SWSD025	WDD1
Field Sample Identifier :			SWSD025	SWSD025H	SWSD025	SWSD025	WDD1
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	04/20/11	08/17/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.588 U	0.021 U	0.848 U	-1.18 U	-1.03 U
PLUTONIUM-238	PCI/L	15	0.046 U	0.022 U	-0.036 U	-0.113 U	-0.089 U
PLUTONIUM-239/240	PCI/L	15	-0.03 U	-0.029 U	-0.035 U	-0.058 U	0.013 U
RADIUM-226	PCI/L	3	0.167 U	0 U	0.243 U	0 U	0.138 U
RADIUM-228	PCI/L	5	0.693 U	0.83	0.21 U	R	0.841 J
TOTAL RADIUM	PCI/L	5	Not Detected	0.83	Not Detected	Not Detected	0.841
STRONTIUM-90	PCI/L	8	0.426 U	-0.068 U	0.358 U	0.152 U	0.247 U
TECHNETIUM-99	PCI/L	900	1.31 U	3.6 U	3.71 U	-2.37 U	R
THORIUM-228	PCI/L	15	0.035 U	0.287	0.238 U	0.473	0.153 U
THORIUM-230	PCI/L	15	R	0.135 U	0.216 U	0.021 U	0.412 J
THORIUM-232	PCI/L	15	0.035 U	0.079 U	0.03 U	0.135 U	0.066 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-20 U	105 U	-40.1 U	541	50.1 U
URANIUM-234	PCI/L	-	6.12	3.71	4.12	2.39	0.783
URANIUM-235	PCI/L	-	0.231	0.184	0.116 U	0 U	0.038 U
URANIUM-238	PCI/L	-	6.23	2.98	3.34	1.6	0.51
TOTAL URANIUM	PCI/L	27	12.581	6.874	7.46	3.99	1.293
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	0.747 U	-0.719 U	Not Anaylzed	-0.616 U
PLUTONIUM-238	PCI/L	15	Not Anaylzed	-0.021 U	0.07 U	Not Anaylzed	-0.033 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	SWSD025	WDD1
Field Sample Identifier :			SWSD025	SWSD025H	SWSD025	SWSD025	WDD1
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	04/20/11	08/17/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	-0.038 U	0.047 U	Not Anaylzed	-0.039 U
RADIUM-226	PCI/L	3	Not Anaylzed	0.0558 U	0 U	Not Anaylzed	-0.066 U
RADIUM-228	PCI/L	5	Not Anaylzed	0.302 U	0.0691 U	Not Anaylzed	1.07
TOTAL RADIUM	PCI/L	5	Not Analyzed	Not Detected	Not Detected	Not Analyzed	1.07
STRONTIUM-90	PCI/L	8	Not Anaylzed	0.221 U	0.026 U	Not Anaylzed	0.88 U
TECHNETIUM-99	PCI/L	900	Not Anaylzed	5.07 U	1.98 U	Not Anaylzed	R
THORIUM-228	PCI/L	15	Not Anaylzed	0.13 U	0.19 U	Not Anaylzed	0.094 U
THORIUM-230	PCI/L	15	Not Anaylzed	0.169	0.123 U	Not Anaylzed	R
THORIUM-232	PCI/L	15	Not Anaylzed	0.042 U	0.041 U	Not Anaylzed	0.039 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	130 U	10 U	Not Anaylzed	-32.6 U
URANIUM-234	PCI/L	-	Not Anaylzed	3.36	3.58	Not Anaylzed	0.825
URANIUM-235	PCI/L	-	Not Anaylzed	0.112	0.185	Not Anaylzed	0.015 U
URANIUM-238	PCI/L	-	Not Anaylzed	2.48	2.47	Not Anaylzed	0.434
TOTAL URANIUM	PCI/L	27	Not Analyzed	5.952	6.235	Not Analyzed	1.259

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.09 U	0.325 U	-2.22 U	-0.648 U	0 U
PLUTONIUM-238	PCI/L	15	-0.086 U	-0.035 U	0.043 U	0.019 U	-0.057 U
PLUTONIUM-239/240	PCI/L	15	0.048 U	-0.003 U	0.11 U	0.037 U	0.016 U
RADIUM-226	PCI/L	3	0.319 U	0 U	0 U	0.0828 U	0.0142 U
RADIUM-228	PCI/L	5	0.399 U	0.764 U	0.408 U	0.785 U	-0.281 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.057 U	-0.205 U	0.071 U	0.353 U	-0.508 U
TECHNETIUM-99	PCI/L	900	3.42 U	R	-5.01 U	1.25 U	-0.159 U
THORIUM-228	PCI/L	15	R	0.114 U	R	0.14 U	0.091 U
THORIUM-230	PCI/L	15	0.117 U	0.223 J	-0.079 U	0.152	0.22 U
THORIUM-232	PCI/L	15	0.047 U	0.049 U	0.059 U	0.076	0.031 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	168 U	-100 U	201 U	60.1 U	63 U
URANIUM-234	PCI/L	-	0.917	0.624	0.754	0.849	0.529
URANIUM-235	PCI/L	-	0.014 U	0.053	0.053 U	0.045	0.018 U
URANIUM-238	PCI/L	-	0.659	0.575	0.565	0.55	0.507
TOTAL URANIUM	PCI/L	27	1.576	1.252	1.319	1.444	1.036
RADIONUCLIDES (FILTERED)							
CESIUM-137	PCI/L	200	Not Anaylzed	0.126 U	Not Anaylzed	0.331 U	Not Anaylzed
PLUTONIUM-238	PCI/L	15	Not Anaylzed	0.001 U	Not Anaylzed	0.008 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 7
SURFACE WATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES (FILTERED)							
PLUTONIUM-239/240	PCI/L	15	Not Anaylzed	-0.007 U	Not Anaylzed	-0.002 U	Not Anaylzed
RADIUM-226	PCI/L	3	Not Anaylzed	0.225 U	Not Anaylzed	-0.056 U	Not Anaylzed
RADIUM-228	PCI/L	5	Not Anaylzed	0.393 U	Not Anaylzed	0.393 U	Not Anaylzed
TOTAL RADIUM	PCI/L	5	Not Analyzed	Not Detected	Not Analyzed	Not Detected	Not Analyzed
STRONTIUM-90	PCI/L	8	Not Anaylzed	0.64 U	Not Anaylzed	0.051 U	Not Anaylzed
TECHNETIUM-99	PCI/L	900	Not Anaylzed	4.19 U	Not Anaylzed	2.49 U	Not Anaylzed
THORIUM-228	PCI/L	15	Not Anaylzed	0.05 U	Not Anaylzed	0 U	Not Anaylzed
THORIUM-230	PCI/L	15	Not Anaylzed	0.264 J	Not Anaylzed	0.058 U	Not Anaylzed
THORIUM-232	PCI/L	15	Not Anaylzed	0.093 U	Not Anaylzed	0 U	Not Anaylzed
TRITIUM (HYDROGEN-3)	PCI/L	20000	Not Anaylzed	-22.5 U	Not Anaylzed	35.1 U	Not Anaylzed
URANIUM-234	PCI/L	-	Not Anaylzed	0.499	Not Anaylzed	0.737	Not Anaylzed
URANIUM-235	PCI/L	-	Not Anaylzed	0.032 U	Not Anaylzed	0.021 U	Not Anaylzed
URANIUM-238	PCI/L	-	Not Anaylzed	0.488	Not Anaylzed	0.648	Not Anaylzed
TOTAL URANIUM	PCI/L	27	Not Analyzed	0.987	Not Analyzed	1.385	Not Analyzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	590	780	310	720	160
ANTIMONY	UG/L	3	8.3	4.6	1.9 J	1.3 J	3.4
ARSENIC	UG/L	150	4.6	3.8	1.7	2.3	1.2
BARIUM	UG/L	1000	72	87	58	85	60
BERYLLIUM	UG/L	1100	0.1 U	0.1 U	0.1 U	0.1 U	0.1 J
BORON	UG/L	10000	350	430	260	340	230
CADMIUM	UG/L	5	0.42	0.29 J	0.19 J	0.22 J	0.27 J
CALCIUM	UG/L	-	170,000	170,000	98,000	110,000	93,000
CHROMIUM, TOTAL	UG/L	50	2.8 J	2.4 J	6.8	7.6	8
COBALT	UG/L	5	1.3 J	1.1 J	0.56 J	0.78 J	0.53 J
COPPER	UG/L	200	21	10	9.5	4.9	5.3
IRON	UG/L	300	760	1,200	570	1,100	330
LEAD	UG/L	25	8.3	4.2	3.9	1.7	0.85
LITHIUM	UG/L	-	25	29	13	20	9.1
MAGNESIUM	UG/L	35000	51,000	59,000	23,000	33,000	21,000
MANGANESE	UG/L	300	130	220	47	130	43
MERCURY	UG/L	0.7	0.027 U	0.036 J	0.027 U	0.027 U	0.052 U
NICKEL	UG/L	100	12	11	6	6.6	6.3
POTASSIUM	UG/L	-	13,000	12,000	5,500	7,500	4,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	9.8	8.2	3.4	5.1	2.4
SILVER	UG/L	50	0.21 J	0.18 U	0.18 U	0.18 U	0.82 J
SODIUM	UG/L	20000	150,000	130,000	97,000	110,000	43,000
THALLIUM	UG/L	8	0.066 U	0.066 U	0.066 U	0.35 J	0.068 J
VANADIUM	UG/L	14	16	4.8	3.5	2.5	1.4
ZINC	UG/L	2000	42	36	33	22	24
METALS (FILTERED)							
ALUMINUM	UG/L	100	62	Not Anaylzed	Not Anaylzed	4.7 J	Not Anaylzed
ANTIMONY	UG/L	3	8.1	Not Anaylzed	Not Anaylzed	2.3	Not Anaylzed
ARSENIC	UG/L	150	3.7	Not Anaylzed	Not Anaylzed	2.1	Not Anaylzed
BARIUM	UG/L	1000	58	Not Anaylzed	Not Anaylzed	80	Not Anaylzed
BERYLLIUM	UG/L	1100	0.1 U	Not Anaylzed	Not Anaylzed	0.1 U	Not Anaylzed
BORON	UG/L	10000	310	Not Anaylzed	Not Anaylzed	370	Not Anaylzed
CADMIUM	UG/L	5	0.12 J	Not Anaylzed	Not Anaylzed	0.11 U	Not Anaylzed
CALCIUM	UG/L	-	140,000	Not Anaylzed	Not Anaylzed	120,000	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	2.5 J	Not Anaylzed	Not Anaylzed	7.2	Not Anaylzed
COBALT	UG/L	5	1.8	Not Anaylzed	Not Anaylzed	0.48 J	Not Anaylzed
COPPER	UG/L	200	15	Not Anaylzed	Not Anaylzed	10	Not Anaylzed
IRON	UG/L	300	19 U	Not Anaylzed	Not Anaylzed	350	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	0.65	Not Anaylzed	Not Anaylzed	0.22 J	Not Anaylzed
LITHIUM	UG/L	-	22	Not Anaylzed	Not Anaylzed	14 J	Not Anaylzed
MAGNESIUM	UG/L	35000	32,000	Not Anaylzed	Not Anaylzed	29,000	Not Anaylzed
MANGANESE	UG/L	300	24	Not Anaylzed	Not Anaylzed	120	Not Anaylzed
MERCURY	UG/L	7.00E-04	0.052 U	Not Anaylzed	Not Anaylzed	0.052 U	Not Anaylzed
NICKEL	UG/L	100	10	Not Anaylzed	Not Anaylzed	22	Not Anaylzed
POTASSIUM	UG/L	-	13,000	Not Anaylzed	Not Anaylzed	7,100	Not Anaylzed
SELENIUM	UG/L	4.6	8.6	Not Anaylzed	Not Anaylzed	4.9	Not Anaylzed
SILVER	UG/L	50	0.072 U	Not Anaylzed	Not Anaylzed	0.072 U	Not Anaylzed
SODIUM	UG/L	20000	140,000	Not Anaylzed	Not Anaylzed	110,000	Not Anaylzed
THALLIUM	UG/L	8	0.066 U	Not Anaylzed	Not Anaylzed	0.066 U	Not Anaylzed
VANADIUM	UG/L	14	12	Not Anaylzed	Not Anaylzed	1.6 J	Not Anaylzed
ZINC	UG/L	2000	20 J	Not Anaylzed	Not Anaylzed	17 J	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	250	1,200	250	260	380
ANTIMONY	UG/L	3	0.98 J	0.52 U	0.68 J	0.52 U	1.3 J
ARSENIC	UG/L	150	2	1.2	0.95	1.1	2.1
BARIUM	UG/L	1000	80	71	50	60	96
BERYLLIUM	UG/L	1100	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	10000	460	46 J	83 J	190 J	410
CADMIUM	UG/L	5	0.2 J	0.11 U	0.12 J	0.11 J	0.22 J
CALCIUM	UG/L	-	120,000	110,000	96,000	95,000	160,000
CHROMIUM, TOTAL	UG/L	50	5.5	7.5	640	7.6	2.9 J
COBALT	UG/L	5	0.66 J	1.2 J	0.47 J	0.45 J	0.66 J
COPPER	UG/L	200	4	6.5	4.2	5.3	4
IRON	UG/L	300	880	1,900	450	420	1,100
LEAD	UG/L	25	0.78	1.1	0.3 J	1.4	1.1
LITHIUM	UG/L	-	19	7.5	13	8	17
MAGNESIUM	UG/L	35000	36,000	33,000	39,000	22,000	37,000
MANGANESE	UG/L	300	270	89	12	36	290
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	8.8	6	3.4 J	4.9	7.3
POTASSIUM	UG/L	-	7,000	2,300	3,700	3,900	7,700

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	5.6	1 J	1.7 J	1.1 J	5
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	88,000	43,000	22,000	20,000	120,000
THALLIUM	UG/L	8	0.13 J	0.066 U	0.066 U	0.066 J	0.066 U
VANADIUM	UG/L	14	0.93	2.9	0.2 U	1.7	1.4
ZINC	UG/L	2000	18 J	17 J	16 J	25	18 J
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ANTIMONY	UG/L	3	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ARSENIC	UG/L	150	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BARIUM	UG/L	1000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BERYLLIUM	UG/L	1100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BORON	UG/L	10000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CADMIUM	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CALCIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
COBALT	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
COPPER	UG/L	200	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
IRON	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
LITHIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MAGNESIUM	UG/L	35000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MANGANESE	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MERCURY	UG/L	7.00E-04	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
NICKEL	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
POTASSIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SELENIUM	UG/L	4.6	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SILVER	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SODIUM	UG/L	20000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
THALLIUM	UG/L	8	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
VANADIUM	UG/L	14	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ZINC	UG/L	2000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	100	14 J	220	120	340
ANTIMONY	UG/L	3	1.4 J	1.3 J	1.7 J	0.56 J	0.86 J
ARSENIC	UG/L	150	1.3	3.8	3.5	2.9	1
BARIUM	UG/L	1000	33	8.8 J	87	65	69
BERYLLIUM	UG/L	1100	0.1 U	0.1 U	0.1 U	0.1 U	0.056 U
BORON	UG/L	10000	120 J	250	920	300	550
CADMIUM	UG/L	5	0.11 U	0.23 J	0.24 J	0.21 J	0.17 J
CALCIUM	UG/L	-	98,000	70,000	100,000	150,000	93,000
CHROMIUM, TOTAL	UG/L	50	1.5 J	1.1 J	4.8	0.81 J	1.3 J
COBALT	UG/L	5	0.28 J	2.6	2.1	0.53 J	0.5 J
COPPER	UG/L	200	5	4.2	8.1	8.6	7.3
IRON	UG/L	300	170	1,900	440	240	880
LEAD	UG/L	25	0.87	0.096 U	1.3	0.35 J	1.1
LITHIUM	UG/L	-	11	7.9	33	17	9.1
MAGNESIUM	UG/L	35000	28,000	22,000	46,000	61,000	25,000
MANGANESE	UG/L	300	15	300	89	75	190
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.052 U	0.03 J	0.027 U
NICKEL	UG/L	100	6.1	7.4	16	6.5	4.8
POTASSIUM	UG/L	-	3,300	5,000	18,000	6,100	5,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	0.75 J	1.5 J	6.1	1.9 J	1.6 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.32 J
SODIUM	UG/L	20000	66,000	43,000	120,000	41,000	120,000
THALLIUM	UG/L	8	0.066 U	0.77 J	0.066 U	0.066 U	0.08 J
VANADIUM	UG/L	14	0.93	0.41 J	1.9	1.5	1
ZINC	UG/L	2000	34	18 J	53	51	34
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ANTIMONY	UG/L	3	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ARSENIC	UG/L	150	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BARIUM	UG/L	1000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BERYLLIUM	UG/L	1100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
BORON	UG/L	10000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CADMIUM	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CALCIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
COBALT	UG/L	5	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
COPPER	UG/L	200	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
IRON	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
LITHIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MAGNESIUM	UG/L	35000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MANGANESE	UG/L	300	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
MERCURY	UG/L	7.00E-04	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
NICKEL	UG/L	100	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
POTASSIUM	UG/L	-	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SELENIUM	UG/L	4.6	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SILVER	UG/L	50	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
SODIUM	UG/L	20000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
THALLIUM	UG/L	8	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
VANADIUM	UG/L	14	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed
ZINC	UG/L	2000	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	SWSD025	WDD1
Field Sample Identifier :			SWSD025	SWSD025H	SWSD025	SWSD025	WDD1
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	04/20/11	08/17/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	120	710	100	280	1,700
ANTIMONY	UG/L	3	1 J	2.5 J	1.4 J	1.1 J	0.6 J
ARSENIC	UG/L	150	1.3	2.3	3	2.2	1.4
BARIUM	UG/L	1000	68	61	76	95	40
BERYLLIUM	UG/L	1100	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	10000	300	200	700	430	61 J
CADMIUM	UG/L	5	0.11 U	0.41	0.21 J	0.12 J	0.11 J
CALCIUM	UG/L	-	110,000	94,000	170,000	130,000	53,000
CHROMIUM, TOTAL	UG/L	50	7.7	6.6	1.6 J	2.8 J	4 J
COBALT	UG/L	5	0.48 J	1.1 J	0.68 J	0.57 J	1 J
COPPER	UG/L	200	31	14	2.5	4.2	5.9
IRON	UG/L	300	240	1,100	1,400	930	2,300
LEAD	UG/L	25	1.2	12	0.35 J	0.88	2.3
LITHIUM	UG/L	-	11	11	35	20	7.9
MAGNESIUM	UG/L	35000	28,000	25,000	50,000	38,000	14,000
MANGANESE	UG/L	300	50	95	1,500	340	70
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	51	7.8	7.7	6.9	4.8
POTASSIUM	UG/L	-	5,200	5,800	9,200	7,400	11,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	SWSD025	WDD1
Field Sample Identifier :			SWSD025	SWSD025H	SWSD025	SWSD025	WDD1
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	04/20/11	08/17/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	3.3	3.9	4.2	5.2	0.58 U
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.2 J
SODIUM	UG/L	20000	94,000	69,000	210,000	110,000	23,000
THALLIUM	UG/L	8	0.066 U	0.11 J	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	1.4	6.4	0.74 J	0.98	3.5
ZINC	UG/L	2000	35	48	30	18 J	66
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	13 J	3.9 J	Not Anaylzed	46
ANTIMONY	UG/L	3	Not Anaylzed	3	1.1	Not Anaylzed	0.41 J
ARSENIC	UG/L	150	Not Anaylzed	1.6	2.4	Not Anaylzed	1.1
BARIUM	UG/L	1000	Not Anaylzed	48	81	Not Anaylzed	27
BERYLLIUM	UG/L	1100	Not Anaylzed	0.1 U	0.1 U	Not Anaylzed	0.1 U
BORON	UG/L	10000	Not Anaylzed	200	760	Not Anaylzed	65 J
CADMIUM	UG/L	5	Not Anaylzed	0.11 U	0.31 J	Not Anaylzed	0.11 U
CALCIUM	UG/L	-	Not Anaylzed	83,000	170,000	Not Anaylzed	50,000
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	6.4	6.2	Not Anaylzed	2.9 J
COBALT	UG/L	5	Not Anaylzed	0.39 J	0.7 J	Not Anaylzed	1.1
COPPER	UG/L	200	Not Anaylzed	7.6	2.5	Not Anaylzed	4.5
IRON	UG/L	300	Not Anaylzed	19 U	180	Not Anaylzed	200

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	SWSD025	WDD1
Field Sample Identifier :			SWSD025	SWSD025H	SWSD025	SWSD025	WDD1
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	04/20/11	08/17/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	0.33 J	0.096 U	Not Anaylzed	0.32 J
LITHIUM	UG/L	-	Not Anaylzed	9.2 J	29	Not Anaylzed	4.3 J
MAGNESIUM	UG/L	35000	Not Anaylzed	19,000	46,000	Not Anaylzed	13,000
MANGANESE	UG/L	300	Not Anaylzed	28	1,700	Not Anaylzed	47
MERCURY	UG/L	7.00E-04	Not Anaylzed	0.052 U	0.052 U	Not Anaylzed	0.052 U
NICKEL	UG/L	100	Not Anaylzed	4.9	8.4	Not Anaylzed	3.3 J
POTASSIUM	UG/L	-	Not Anaylzed	5,900	9,100	Not Anaylzed	11,000
SELENIUM	UG/L	4.6	Not Anaylzed	3.6	7.5	Not Anaylzed	0.79 J
SILVER	UG/L	50	Not Anaylzed	0.072 U	0.21 J	Not Anaylzed	0.072 U
SODIUM	UG/L	20000	Not Anaylzed	56,000	190,000	Not Anaylzed	22,000
THALLIUM	UG/L	8	Not Anaylzed	0.066 U	0.066 U	Not Anaylzed	0.066 U
VANADIUM	UG/L	14	Not Anaylzed	4.5	1.8	Not Anaylzed	1 J
ZINC	UG/L	2000	Not Anaylzed	18 J	20	Not Anaylzed	39

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	100	5 J	1,500	150	440	110
ANTIMONY	UG/L	3	0.88 J	0.52 U	0.52 U	0.52 U	0.63 J
ARSENIC	UG/L	150	30	1.6	2.2	1.1	2
BARIUM	UG/L	1000	7 J	44	34	42	31
BERYLLIUM	UG/L	1100	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	10000	770	81 J	150 J	67 J	120 J
CADMIUM	UG/L	5	0.11 J	0.15 J	0.12 J	0.11 U	0.14 J
CALCIUM	UG/L	-	95,000	56,000	96,000	55,000	110,000
CHROMIUM, TOTAL	UG/L	50	0.7 J	3.4 J	0.73 J	2 J	1.2 J
COBALT	UG/L	5	0.29 J	1.1 J	0.92 J	0.52 J	0.98 J
COPPER	UG/L	200	1.8 J	6.6	4.7	4.9	5.2
IRON	UG/L	300	710	2,200	320	600	380
LEAD	UG/L	25	0.096 U	2.3	0.24 J	1.6	0.26 J
LITHIUM	UG/L	-	9.5	7.3	11	5.2	9.4
MAGNESIUM	UG/L	35000	36,000	15,000	36,000	16,000	58,000
MANGANESE	UG/L	300	66	82	44	45	32
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.052 U	0.029 J
NICKEL	UG/L	100	4 J	4.8	5.5	4.8	6.6
POTASSIUM	UG/L	-	9,000	14,000	30,000	8,300	31,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.3 J	1 J	2.2	1.2 J	1.5 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	76,000	22,000	72,000	25,000	76,000
THALLIUM	UG/L	8	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.2 U	3.1	0.78 J	1	0.77 J
ZINC	UG/L	2000	14 J	56	48	43	48
METALS (FILTERED)							
ALUMINUM	UG/L	100	Not Anaylzed	16 J	Not Anaylzed	31	Not Anaylzed
ANTIMONY	UG/L	3	Not Anaylzed	0.56 J	Not Anaylzed	0.87 J	Not Anaylzed
ARSENIC	UG/L	150	Not Anaylzed	1.1	Not Anaylzed	0.91	Not Anaylzed
BARIUM	UG/L	1000	Not Anaylzed	32	Not Anaylzed	27	Not Anaylzed
BERYLLIUM	UG/L	1100	Not Anaylzed	0.1 U	Not Anaylzed	0.1 U	Not Anaylzed
BORON	UG/L	10000	Not Anaylzed	77 J	Not Anaylzed	54 J	Not Anaylzed
CADMIUM	UG/L	5	Not Anaylzed	0.11 U	Not Anaylzed	0.11 U	Not Anaylzed
CALCIUM	UG/L	-	Not Anaylzed	55,000	Not Anaylzed	53,000	Not Anaylzed
CHROMIUM, TOTAL	UG/L	50	Not Anaylzed	2 J	Not Anaylzed	2.3 J	Not Anaylzed
COBALT	UG/L	5	Not Anaylzed	1.4 J	Not Anaylzed	0.58 J	Not Anaylzed
COPPER	UG/L	200	Not Anaylzed	5.3	Not Anaylzed	4.4	Not Anaylzed
IRON	UG/L	300	Not Anaylzed	340	Not Anaylzed	120	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 8
SURFACE WATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD1	WDD2	WDD2	WDD3	WDD3
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]					
METALS (FILTERED)							
LEAD	UG/L	25	Not Anaylzed	0.39 J	Not Anaylzed	0.29 J	Not Anaylzed
LITHIUM	UG/L	-	Not Anaylzed	6.7	Not Anaylzed	3.7 J	Not Anaylzed
MAGNESIUM	UG/L	35000	Not Anaylzed	16,000	Not Anaylzed	15,000	Not Anaylzed
MANGANESE	UG/L	300	Not Anaylzed	61	Not Anaylzed	29	Not Anaylzed
MERCURY	UG/L	7.00E-04	Not Anaylzed	0.027 U	Not Anaylzed	0.052 U	Not Anaylzed
NICKEL	UG/L	100	Not Anaylzed	3.8 J	Not Anaylzed	2.9 J	Not Anaylzed
POTASSIUM	UG/L	-	Not Anaylzed	15,000	Not Anaylzed	7,900	Not Anaylzed
SELENIUM	UG/L	4.6	Not Anaylzed	0.58 U	Not Anaylzed	0.87 J	Not Anaylzed
SILVER	UG/L	50	Not Anaylzed	0.18 U	Not Anaylzed	0.072 U	Not Anaylzed
SODIUM	UG/L	20000	Not Anaylzed	21,000	Not Anaylzed	22,000	Not Anaylzed
THALLIUM	UG/L	8	Not Anaylzed	0.066 U	Not Anaylzed	0.066 U	Not Anaylzed
VANADIUM	UG/L	14	Not Anaylzed	0.66 J	Not Anaylzed	0.68 J	Not Anaylzed
ZINC	UG/L	2000	Not Anaylzed	52	Not Anaylzed	39	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/L	5	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	24	6.1 J	0.44 U	R	0.44 U
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	50	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	-	0.15 U	0.15 U	0.15 U	R	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.25 J	1
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	UG/L	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	7.7 J	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	1.5 J	0.61 J	0.4 U
METHYLCYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	2.9
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.57 J
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	UG/L	65	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/L	5	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	0.44 U	0.44 U	R	0.44 U	R
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	50	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	-	0.15 U	0.15 U	0.15 U	0.15 U	R
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	2.2	R
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	UG/L	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	5.6	0.26 U
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.36 J
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	2.5	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	UG/L	65	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/L	5	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	0.44 U	0.44 U	0.44 U	R	0.44 U
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	50	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	-	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.39 J	0.88 J	0.19 U	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.46 J
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	UG/L	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	1.4
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	UG/L	65	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/L	5	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	6.00E-04	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
ACETONE	UG/L	50	R	0.44 U	R	0.44 U	R
BENZENE	UG/L	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	50	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
CARBON DISULFIDE	UG/L	-	R	0.15 U	R	0.15 U	0.15 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 J	0.19 U	0.19 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.26 J	0.17 U	R	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
CYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	UG/L	5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
ETHYLBENZENE	UG/L	17	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
METHYL ACETATE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	UG/L	-	1 U	Not Anaylzed	1 U	Not Anaylzed	1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/L	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	1	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
TOLUENE	UG/L	6000	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.26 J	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	40	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	UG/L	65	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
1,1,2,2-TETRACHLOROETHANE	*UG/L*	5	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	*UG/L*	5	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	*UG/L*	1	0.27 U	0.27 U
1,1-DICHLOROETHANE	*UG/L*	5	0.25 U	0.25 U
1,1-DICHLOROETHENE	*UG/L*	5	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	*UG/L*	5	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	*UG/L*	5	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	*UG/L*	0.04	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	*UG/L*	6.00E-04	0.18 U	0.18 U
1,2-DICHLOROBENZENE	*UG/L*	5	0.25 U	0.25 U
1,2-DICHLOROETHANE	*UG/L*	0.6	0.19 U	0.19 U
1,2-DICHLOROPROPANE	*UG/L*	1	0.35 U	0.35 U
1,3-DICHLOROBENZENE	*UG/L*	5	0.21 U	0.21 U
1,4-DICHLOROBENZENE	*UG/L*	5	0.18 U	0.18 U
2-HEXANONE	*UG/L*	50	0.21 U	0.21 U
ACETONE	*UG/L*	50	0.44 U	R
BENZENE	*UG/L*	10	0.2 U	0.2 U
BROMOCHLOROMETHANE	*UG/L*	50	0.2 U	0.2 U
BROMODICHLOROMETHANE	*UG/L*	5	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
BROMOFORM	*UG/L*	50	0.33 U	0.33 U
BROMOMETHANE	*UG/L*	5	1.2 U	1.2 U
CARBON DISULFIDE	*UG/L*	-	0.15 U	0.15 U
CARBON TETRACHLORIDE	*UG/L*	5	0.36 U	0.36 U
CHLOROBENZENE	*UG/L*	5	0.22 U	0.22 U
CHLOROETHANE	*UG/L*	5	0.42 U	0.42 U
CHLOROFORM	*UG/L*	7	0.19 U	0.19 U
CHLOROMETHANE	*UG/L*	5	0.22 U	0.22 U
CIS-1,2-DICHLOROETHYLENE	*UG/L*	5	0.17 U	0.17 U
CIS-1,3-DICHLOROPROPENE	*UG/L*	0.4	0.17 U	0.17 U
CYCLOHEXANE	*UG/L*	-	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	*UG/L*	50	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	*UG/L*	5	0.24 U	0.24 U
ETHYLBENZENE	*UG/L*	17	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	*UG/L*	5	0.21 U	0.21 U
METHYL ACETATE	*UG/L*	-	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	*UG/L*	50	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	*UG/L*	-	0.4 U	0.4 U
METHYLCYCLOHEXANE	*UG/L*	-	Not Anaylzed	1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 9
SURFACE WATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
METHYLENE CHLORIDE	*UG/L*	200	0.2 U	0.2 U
STYRENE	*UG/L*	5	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	*UG/L*	10	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	*UG/L*	1	0.26 U	0.26 U
TOLUENE	*UG/L*	6000	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	*UG/L*	5	0.18 U	0.18 U
TRANS-1,3-DICHLOROPROPENE	*UG/L*	0.4	0.2 U	0.2 U
TRICHLOROETHANE	*UG/L*	5	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	*UG/L*	40	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	*UG/L*	5	0.26 U	0.26 U
VINYL CHLORIDE	*UG/L*	2	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	*UG/L*	65	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.17 U	0.17 U	0.18 U	0.18 U	0.17 U
ACENAPHTHENE	UG/L	5.3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
ACENAPHTHYLENE	UG/L	50	0.26 U	0.26 U	0.27 U	0.27 U	0.26 U
ANTHRACENE	UG/L	3.8	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.22 U	0.22 U	0.23 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.38 U	0.38 U	0.38 U	0.39 U	0.38 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	UG/L	0.002	0.27 U	0.27 U	0.28 U	0.28 U	0.27 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.42 U	0.42 U	0.42 U	0.43 U	0.42 U
FLUORENE	UG/L	0.54	0.3 U	0.3 U	0.31 U	0.31 U	0.3 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
NAPHTHALENE	UG/L	13	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U
PHENANTHRENE	UG/L	5	0.32 U	0.32 U	0.32 U	0.33 U	0.32 U
PYRENE	UG/L	4.6	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA-CHLORDANE	UG/L	-	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
CHLORDANE	UG/L	2.00E-05	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.0027 U	0.0027 U	0.021	0.0027 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.0035 U	0.0035 U	0.47	0.0035 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
HEPTACHLOR	UG/L	0.002	0.0028 U	0.0071 J	0.0028 U	0.0028 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	0.003	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	Not Anaylzed	0.1 U	Not Anaylzed	0.1 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.17 U	0.18 U	0.17 U	0.17 U	0.18 U
ACENAPHTHENE	UG/L	5.3	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U
ACENAPHTHYLENE	UG/L	50	0.26 U	0.27 U	0.26 U	0.26 U	0.27 U
ANTHRACENE	UG/L	3.8	0.38 U	0.38 U	0.38 U	0.38 U	0.39 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.19 U
BENZO(A)PYRENE	UG/L	0.0012	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.23 U	0.22 U	0.22 U	0.23 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.38 U	0.39 U	0.38 U	0.38 U	0.39 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	UG/L	0.002	0.27 U	0.28 U	0.27 U	0.27 U	0.28 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.42 U	0.43 U	0.42 U	0.42 U	0.43 U
FLUORENE	UG/L	0.54	0.3 U	0.31 U	0.3 U	0.3 U	0.31 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.28 U	0.28 U	0.28 U	0.28 U	0.29 U
NAPHTHALENE	UG/L	13	0.1 U	0.11 U	0.1 U	0.1 U	0.11 U
PHENANTHRENE	UG/L	5	0.32 U	0.33 U	0.32 U	0.32 U	0.33 U
PYRENE	UG/L	4.6	0.34 U	0.34 U	0.34 U	0.34 U	0.35 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.0045 J	0.002 U	0.002 U	0.002 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA-CHLORDANE	UG/L	-	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
CHLORDANE	UG/L	2.00E-05	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.0047 J	0.002 U	0.002 U	0.002 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.0089 J	0.003 U	0.003 U	0.003 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.014
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.45
ENDRIN KETONE	UG/L	5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
HEPTACHLOR	UG/L	0.002	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	0.003	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	Not Anaylzed	0.1 U	Not Anaylzed	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.17 U	0.17 U	0.18 U	0.17 U	0.18 U
ACENAPHTHENE	UG/L	5.3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
ACENAPHTHYLENE	UG/L	50	0.26 U	0.26 U	0.27 U	0.26 U	0.27 U
ANTHRACENE	UG/L	3.8	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	UG/L	0.002	0.27 U	0.27 U	0.28 U	0.27 U	0.28 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
FLUORANTHENE	UG/L	50	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
FLUORENE	UG/L	0.54	0.3 U	0.3 U	0.31 U	0.3 U	0.31 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
NAPHTHALENE	UG/L	13	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U
PHENANTHRENE	UG/L	5	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
PYRENE	UG/L	4.6	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA-CHLORDANE	UG/L	-	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
CHLORDANE	UG/L	2.00E-05	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.002 U	0.018	0.002 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
HEPTACHLOR	UG/L	0.002	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	0.003	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	Not Anaylzed	0.1 U	Not Anaylzed	0.1 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/L	4.7	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
ACENAPHTHENE	UG/L	5.3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
ACENAPHTHYLENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
ANTHRACENE	UG/L	3.8	0.38 U	0.38 U	0.38 U	0.37 U	0.38 U
BENZO(A)ANTHRACENE	UG/L	0.03	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
BENZO(A)PYRENE	UG/L	0.0012	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
BENZO(B)FLUORANTHENE	UG/L	0.002	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	UG/L	50	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
BENZO(K)FLUORANTHENE	UG/L	0.002	0.2 U	0.2 U	0.2 U	0.19 U	0.2 U
CHRYSENE	UG/L	0.002	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
DIBENZ(A,H)ANTHRACENE	UG/L	50	0.26 U	0.26 U	0.26 U	0.25 U	0.26 U
FLUORANTHENE	UG/L	50	0.42 U	0.42 U	0.42 U	0.41 U	0.42 U
FLUORENE	UG/L	0.54	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
INDENO(1,2,3-C,D)PYRENE	UG/L	0.002	0.28 U	0.28 U	0.28 U	0.27 U	0.28 U
NAPHTHALENE	UG/L	13	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
PHENANTHRENE	UG/L	5	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
PYRENE	UG/L	4.6	0.34 U	0.34 U	0.34 U	0.33 U	0.34 U
PESTICIDES							
ALDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
BETA-CHLORDANE	UG/L	-	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
CHLORDANE	UG/L	2.00E-05	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
ENDRIN	UG/L	0.002	0.016	0.0027 U	0.011	0.0027 U	0.01
ENDRIN ALDEHYDE	UG/L	5	0.42	0.0035 U	0.094	0.0035 U	0.12
ENDRIN KETONE	UG/L	5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
HEPTACHLOR	UG/L	0.002	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	0.003	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/L	0.03	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
TOXAPHENE	UG/L	6.00E-06	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/L	1.00E-06	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	UG/L	-	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	UG/L	-	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	UG/L	-	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	UG/L	-	0.1 U	Not Anaylzed	0.1 U	Not Anaylzed	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
POLYCYCLIC AROMATIC HYDROCARBON				
2-METHYLNAPHTHALENE	*UG/L*	4.7	0.17 U	0.17 U
ACENAPHTHENE	*UG/L*	5.3	0.25 U	0.25 U
ACENAPHTHYLENE	*UG/L*	50	0.26 U	0.26 U
ANTHRACENE	*UG/L*	3.8	0.38 U	0.38 U
BENZO(A)ANTHRACENE	*UG/L*	0.03	0.18 U	0.18 U
BENZO(A)PYRENE	*UG/L*	0.0012	0.23 U	0.23 U
BENZO(B)FLUORANTHENE	*UG/L*	0.002	0.22 U	0.22 U
BENZO(G,H,I)PERYLENE	*UG/L*	50	0.38 U	0.38 U
BENZO(K)FLUORANTHENE	*UG/L*	0.002	0.2 U	0.2 U
CHRYSENE	*UG/L*	0.002	0.27 U	0.27 U
DIBENZ(A,H)ANTHRACENE	*UG/L*	50	0.26 U	0.26 U
FLUORANTHENE	*UG/L*	50	0.42 U	0.42 U
FLUORENE	*UG/L*	0.54	0.3 U	0.3 U
INDENO(1,2,3-C,D)PYRENE	*UG/L*	0.002	0.28 U	0.28 U
NAPHTHALENE	*UG/L*	13	0.1 U	0.1 U
PHENANTHRENE	*UG/L*	5	0.32 U	0.32 U
PYRENE	*UG/L*	4.6	0.34 U	0.34 U
PESTICIDES				
ALDRIN	*UG/L*	0.001	0.003 U	0.003 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	Units	Criteria[1]		
PESTICIDES				
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	0.002	0.002 U	0.002 U
ALPHA ENDOSULFAN	UG/L	0.009	0.0031 U	0.0031 U
ALPHA-CHLORDANE	UG/L	50	0.0031 U	0.0031 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	0.007	0.003 U	0.003 U
BETA ENDOSULFAN	UG/L	50	0.003 U	0.003 U
BETA-CHLORDANE	UG/L	-	0.0031 U	0.0031 U
CHLORDANE	UG/L	2.00E-05	0.033 U	0.033 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/L	8.00E-05	0.003 U	0.003 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/L	7.00E-06	0.0026 U	0.0026 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/L	1.00E-05	0.0031 U	0.0031 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	0.008	0.002 U	0.002 U
DIELDRIN	UG/L	0.001	0.003 U	0.003 U
ENDOSULFAN SULFATE	UG/L	50	0.003 U	0.003 U
ENDRIN	UG/L	0.002	0.0027 U	0.0027 U
ENDRIN ALDEHYDE	UG/L	5	0.0035 U	0.0035 U
ENDRIN KETONE	UG/L	5	0.0031 U	0.0031 U
GAMMA BHC (LINDANE)	UG/L	0.008	0.002 U	0.002 U
HEPTACHLOR	UG/L	0.002	0.0028 U	0.0028 U
HEPTACHLOR EPOXIDE	UG/L	0.003	0.0032 U	0.0032 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 10
SURFACE WATER ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Surface Water	Surface Water
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
PESTICIDES				
METHOXYCHLOR	*UG/L*	0.03	0.003 U	0.003 U
TOXAPHENE	*UG/L*	6.00E-06	0.04 U	0.04 U
POLYCHLORINATED BIPHENYLS				
PCB, TOTAL	*UG/L*	1.00E-06	0.05 U	0.05 U
PCB-1016 (AROCHLOR 1016)	*UG/L*	-	0.03 U	0.03 U
PCB-1221 (AROCHLOR 1221)	*UG/L*	-	0.03 U	0.03 U
PCB-1232 (AROCHLOR 1232)	*UG/L*	-	0.04 U	0.04 U
PCB-1242 (AROCHLOR 1242)	*UG/L*	-	0.04 U	0.04 U
PCB-1248 (AROCHLOR 1248)	*UG/L*	-	0.03 U	0.03 U
PCB-1254 (AROCHLOR 1254)	*UG/L*	-	0.04 U	0.04 U
PCB-1260 (AROCHLOR 1260)	*UG/L*	-	0.04 U	0.04 U
PCB-1262 (AROCHLOR 1262)	*UG/L*	-	0.05 U	0.05 U
PCB-1268 (AROCHLOR 1268)	*UG/L*	-	Not Anaylzed	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) Class B surface water criteria (default to Groundwater or Class A standard if Class B is not provided). Sum of Radium-226 and Radium-228 (sum total of 5 pCi/l); Thorium (15 pCi/l for alpha emitters) . 10 NYCRR Part 5, Subpart 5-1 (NYSDOH); Total Uranium (30 ug/L or 27 pCi/L) total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, and H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.064	0.106	0.022 U	0.022 U	0.085
PLUTONIUM-238	PCI/G	2.5	0.004 U	0.014 U	-0.003 U	-0.041 U	-0.002 U
PLUTONIUM-239/240	PCI/G	2.3	0.002 U	0.008 U	0.004 U	0.018 U	-0.016 U
RADIUM-226	PCI/G	5	1.08	1.01	1.25	1.2	1.44
RADIUM-228	PCI/G	5	1.24	0.944	1.43	1.39	1.27
STRONTIUM-90	PCI/G	1.7	0.097 U	-0.0566 U	0.24 U	-0.0053 U	0.218 U
TECHNETIUM-99	PCI/G	19	0.511 U	R	-0.258 U	R	0.097 U
THORIUM-228	PCI/G	5	1.28	0.943 J	1.2	1.21 J	1.25
THORIUM-230	PCI/G	5	1.08	1.04 J	1.19	1.49 J	1.56
THORIUM-232	PCI/G	5	0.949	1.04	1.13	0.888	0.971
TRITIUM (HYDROGEN-3)	PCI/G	110	176 U	280 U	-25.1 U	389	48.3 U
URANIUM-234	PCI/G	13	0.998	1.19	1.9	1.89	1.38
URANIUM-235	PCI/G	8	0.067	0.084 U	0.084	0.057 U	0.07
URANIUM-238	PCI/G	14	1	1.13	1.79	1.88	1.48

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.104	0.025 U	0.006 U	0.029 U	-0.003 U
PLUTONIUM-238	PCI/G	2.5	-0.025 U	-0.008 U	0.014 U	0.005 U	0.014 U
PLUTONIUM-239/240	PCI/G	2.3	-0.09 U	0.003 U	0.032 U	-0.006 U	-0.014 U
RADIUM-226	PCI/G	5	1.15	1.16	1.3	1.77	1.55
RADIUM-228	PCI/G	5	1.51	1.89	1.47	1.77	1.53
STRONTIUM-90	PCI/G	1.7	0.0536 U	0.064 U	0.0958 U	0.207 U	0.0307 U
TECHNETIUM-99	PCI/G	19	2.38 U	-0.356 U	R	-0.319 U	R
THORIUM-228	PCI/G	5	1.25 J	1.44	1.59 J	1.31	1.69 J
THORIUM-230	PCI/G	5	1.41 J	1.32	1.03 J	1.25	1.65 J
THORIUM-232	PCI/G	5	0.914	1.32	1.28	0.981	1.3
TRITIUM (HYDROGEN-3)	PCI/G	110	316 U	22.5 U	55.3 U	168 U	345 U
URANIUM-234	PCI/G	13	1.46	1.26	0.873	1.93	1.92
URANIUM-235	PCI/G	8	0.145	0.061	0.131	0.097	0.141 U
URANIUM-238	PCI/G	14	1.43	1.26	1.3	1.91	1.99

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.074	0.02 U	0.064	0.033 U	0.066 U
PLUTONIUM-238	PCI/G	2.5	0.005 U	0.005 U	-0.009 U	0.012 U	0.003 U
PLUTONIUM-239/240	PCI/G	2.3	-0.018 U	0.009 U	-0.009 U	0.008 U	0.062 U
RADIUM-226	PCI/G	5	0.899	0.871	1.26	1.17	1.27
RADIUM-228	PCI/G	5	0.951	0.822	1.47	1.36	0.455 J
STRONTIUM-90	PCI/G	1.7	0.038 U	0.0088 U	0.26 J	0.016 U	0.347 U
TECHNETIUM-99	PCI/G	19	-0.071 U	R	0.517 U	R	0.1 U
THORIUM-228	PCI/G	5	0.916	0.816 J	1.2	1.29 J	1.14
THORIUM-230	PCI/G	5	0.871	0.44 J	1.13	1.11 J	1.49
THORIUM-232	PCI/G	5	0.823	0.683	1.09	1.2	1.11
TRITIUM (HYDROGEN-3)	PCI/G	110	75.2 U	298 U	85.3 U	330 U	2 U
URANIUM-234	PCI/G	13	0.911	1.41	2.48	2.51	2.43
URANIUM-235	PCI/G	8	0.062	0.061 U	0.127	0.2	0.256
URANIUM-238	PCI/G	14	0.937	1.26	2.17	2.95	1.71

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Field Sample Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	08/17/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/G	11	0.054	0.064	0.02 U	0.098	0.127
PLUTONIUM-238	PCI/G	2.5	-0.022 U	-0.022 U	-0.004 U	0.009 U	0.025 U
PLUTONIUM-239/240	PCI/G	2.3	-0.002 U	0.019 U	0 U	-0.016 U	0.024 U
RADIUM-226	PCI/G	5	1.49	1.29	1.55	1.41	1.27
RADIUM-228	PCI/G	5	1.57	1.28	1.52	1.54	1.41
STRONTIUM-90	PCI/G	1.7	0.109 U	0.277	0.112 U	0.288	-0.0102 U
TECHNETIUM-99	PCI/G	19	-0.356 U	0.558 U	R	0.374 U	R
THORIUM-228	PCI/G	5	1.24	1.04	1.56 J	1.2	1.62 J
THORIUM-230	PCI/G	5	1.11	0.527	1.06 J	1.07	1.18 J
THORIUM-232	PCI/G	5	0.904	0.964	1.17	1.1	1.33
TRITIUM (HYDROGEN-3)	PCI/G	110	186 U	0.0707 U	426	174 U	239 U
URANIUM-234	PCI/G	13	1.78	1.62	2.39	1.4	1.44
URANIUM-235	PCI/G	8	0.097	0.085 U	0.176	0.121	0.065 U
URANIUM-238	PCI/G	14	1.69	1.18	2.08	1.12	1.29

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 11
SEDIMENT ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-
Date of Sample :			04/25/11	10/18/11	04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**				
RADIONUCLIDES						
CESIUM-137	*PCI/G*	11	0.1	0.08	0.097	0.03 U
PLUTONIUM-238	*PCI/G*	2.5	-0.005 U	0.003 U	0.003 U	-0.004 U
PLUTONIUM-239/240	*PCI/G*	2.3	0 U	0.027 U	0 U	0 U
RADIUM-226	*PCI/G*	5	1.05	1.11	1.46	1.51
RADIUM-228	*PCI/G*	5	1.32	1.15	1.36	1.49
STRONTIUM-90	*PCI/G*	1.7	0.112 U	0.0384 U	0.171 U	0.119 U
TECHNETIUM-99	*PCI/G*	19	-0.654 U	R	0.02 U	R
THORIUM-228	*PCI/G*	5	1.05	1.4 J	1.12	1.23 J
THORIUM-230	*PCI/G*	5	0.959	1.06 J	1.19	1.09 J
THORIUM-232	*PCI/G*	5	0.841	1	1	0.837
TRITIUM (HYDROGEN-3)	*PCI/G*	110	-75.2 U	226 U	42.7 U	196 U
URANIUM-234	*PCI/G*	13	1.43	1.4	1.17	1.23
URANIUM-235	*PCI/G*	8	0.064	0.016 U	0.058	0.031 U
URANIUM-238	*PCI/G*	14	1.2	1.19	1.02	0.943

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	NS	14,000	18,000	19,000	15,000	25,000
ANTIMONY	MG/KG	NS	4.9	0.6	3.3	1.3	2.7
ARSENIC	MG/KG	13	5.4	6	7.7	6.8	7.3
BARIUM	MG/KG	350	120	130	160	93	180
BERYLLIUM	MG/KG	7.2	0.68 J	0.83 J	0.79 J	0.71 J	1.3 J
BORON	MG/KG	NS	17	19	29	18	35
CADMIUM	MG/KG	NS	1.8	1.7	2	1.3	1.8
CALCIUM	MG/KG	NS	51,000	55,000	45,000	33,000	61,000
CHROMIUM, TOTAL	MG/KG	NS	50	53	66	63	71
COBALT	MG/KG	NS	12	12	14	10	17
COPPER	MG/KG	50	68	80	130	67	65
IRON	MG/KG	NS	27,000	29,000	32,000	27,000	41,000
LEAD	MG/KG	63	58	61	96	55	55
LITHIUM	MG/KG	NS	24	34	29	31	32
MAGNESIUM	MG/KG	NS	12,000	14,000	13,000	11,000	14,000
MANGANESE	MG/KG	1600	660	680	710	560	1,500
MERCURY	MG/KG	0.18	0.16	0.35	0.2	0.2	0.15
NICKEL	MG/KG	30	31	31	39	27	42
POTASSIUM	MG/KG	NS	2,400	3,500	5,000	3,100	5,700

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	1.3 J	0.54 J	1.6 J	0.56 J	2 J
SILVER	*MG/KG*	2	0.39	0.31	0.39	0.32	0.45
SODIUM	*MG/KG*	NS	480	420	450	450	460
THALLIUM	*MG/KG*	NS	0.21 J	0.21 J	0.38 J	0.17 J	0.46 J
VANADIUM	*MG/KG*	NS	32	39	45	33	52
ZINC	*MG/KG*	109	290	340	430	320	360

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	NS	26,000	28,000	23,000	24,000	31,000
ANTIMONY	MG/KG	NS	0.96	0.47	0.18 J	6.3	2.8
ARSENIC	MG/KG	13	6.8	4.6	4.8	12	11
BARIUM	MG/KG	350	170	200	150	200	190
BERYLLIUM	MG/KG	7.2	1.1 J	1 J	0.92	1.2 J	1.1 J
BORON	MG/KG	NS	27	16	11	35	27
CADMIUM	MG/KG	NS	1.3	0.97	0.66	2	1.4
CALCIUM	MG/KG	NS	63,000	54,000	56,000	41,000	44,000
CHROMIUM, TOTAL	MG/KG	NS	64	50	36	84	77
COBALT	MG/KG	NS	16	15	13	18	18
COPPER	MG/KG	50	63	36	32	80	81
IRON	MG/KG	NS	39,000	42,000	42,000	45,000	49,000
LEAD	MG/KG	63	46	18	12	75	65
LITHIUM	MG/KG	NS	63	40	34	34	61
MAGNESIUM	MG/KG	NS	15,000	13,000	15,000	14,000	19,000
MANGANESE	MG/KG	1600	1,300	720	870	1,800	1,400
MERCURY	MG/KG	0.18	0.33	0.034 J	0.023 J	0.18	0.18
NICKEL	MG/KG	30	39	38	31	44	46
POTASSIUM	MG/KG	NS	5,100	5,200	3,900	5,500	5,600

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	1.1 J	0.72 J	0.4 J	2.7 J	0.95 J
SILVER	*MG/KG*	2	0.3	0.2 J	0.12 J	0.44 J	0.37
SODIUM	*MG/KG*	NS	450	190	190	670	420
THALLIUM	*MG/KG*	NS	0.43 J	0.31 J	0.21 J	0.43 J	0.48 J
VANADIUM	*MG/KG*	NS	45	49	37	55	54
ZINC	*MG/KG*	109	370	110	85	390	360

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	NS	14,000	18,000	12,000	30,000	27,000
ANTIMONY	MG/KG	NS	6.9	3.5	1.2	1	4.6
ARSENIC	MG/KG	13	8.3	10	5	12	11
BARIUM	MG/KG	350	130	150	99	220	190
BERYLLIUM	MG/KG	7.2	0.78 J	0.93 J	0.63 J	1.2 J	1 J
BORON	MG/KG	NS	29 U	21 U	17	26	32
CADMIUM	MG/KG	NS	2.2	2.1	1.2	1.6	1.7
CALCIUM	MG/KG	NS	52,000	64,000	16,000	37,000	43,000
CHROMIUM, TOTAL	MG/KG	NS	37	39	22	38	64
COBALT	MG/KG	NS	12	15	10	19	16
COPPER	MG/KG	50	120	120	43	82	68
IRON	MG/KG	NS	25,000	32,000	19,000	52,000	43,000
LEAD	MG/KG	63	150	130	28	44	63
LITHIUM	MG/KG	NS	23	42	20	55	39
MAGNESIUM	MG/KG	NS	19,000	25,000	7,200	18,000	14,000
MANGANESE	MG/KG	1600	580	700	330	860	1,300
MERCURY	MG/KG	0.18	0.29	0.16	0.095	0.24	0.2
NICKEL	MG/KG	30	45	48	26	45	40
POTASSIUM	MG/KG	NS	4,000	3,700	3,100	5,300	4,400

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	1.9 J	0.79 J	1.1 J	1.2 J	1.1 J
SILVER	*MG/KG*	2	0.93	0.52	0.27	0.37	0.65
SODIUM	*MG/KG*	NS	1,100	380	170	280	310
THALLIUM	*MG/KG*	NS	0.33 J	0.26 J	0.26 J	0.37 J	0.31 J
VANADIUM	*MG/KG*	NS	42	45	30	52	45
ZINC	*MG/KG*	109	760	690	290	580	340

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Field Sample Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	08/17/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	MG/KG	NS	24,000	19,000	30,000	21,000	31,000
ANTIMONY	MG/KG	NS	4.9	2.4	0.9	5	0.42 J
ARSENIC	MG/KG	13	11	8.8	9.8	3.9	4.5
BARIUM	MG/KG	350	190	140	170	170	200
BERYLLIUM	MG/KG	7.2	1.1 J	1.1 J	1.3 J	0.96 J	1.1 J
BORON	MG/KG	NS	32	39	25	28 U	29 U
CADMIUM	MG/KG	NS	2	1.4	1.3	0.93 J	0.83 J
CALCIUM	MG/KG	NS	47,000	39,000	48,000	27,000	40,000
CHROMIUM, TOTAL	MG/KG	NS	74	51	68	38	47
COBALT	MG/KG	NS	18	14	18	14	16
COPPER	MG/KG	50	78	61	75	48	54
IRON	MG/KG	NS	45,000	40,000	49,000	33,000	44,000
LEAD	MG/KG	63	77	47	64	25	30
LITHIUM	MG/KG	NS	34	32	54	33	58
MAGNESIUM	MG/KG	NS	16,000	13,000	19,000	9,900	17,000
MANGANESE	MG/KG	1600	1,300	890	1,100	1,100	1,100
MERCURY	MG/KG	0.18	0.24	0.14	0.17	0.084 J	0.078 J
NICKEL	MG/KG	30	45	36	44	34	42
POTASSIUM	MG/KG	NS	5,500	3,700	5,500	5,600	7,200

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Field Sample Identifier :			SWSD025	SWSD025	SWSD025	WDD1	WDD1
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	08/17/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	*MG/KG*	3.9	2.2 J	1.8 J	0.72 J	1.6 J	0.86 U
SILVER	*MG/KG*	2	0.55	0.36	0.32	6.2	0.27 J
SODIUM	*MG/KG*	NS	440	540	440	280 U	440
THALLIUM	*MG/KG*	NS	0.45 J	0.3 J	0.3 J	0.31 J	0.28 U
VANADIUM	*MG/KG*	NS	53	39	52	45	53
ZINC	*MG/KG*	109	420	290	400	200	250

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-
Date of Sample :			04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]				
METALS						
ALUMINUM	MG/KG	NS	15,000	17,000	23,000	16,000
ANTIMONY	MG/KG	NS	0.68	0.81	0.5	0.12 J
ARSENIC	MG/KG	13	4.7	5.4	4.2	6
BARIUM	MG/KG	350	150	120	170	100
BERYLLIUM	MG/KG	7.2	0.64 J	0.62 J	1 J	0.53 J
BORON	MG/KG	NS	23 U	20 U	24 U	11 U
CADMIUM	MG/KG	NS	0.87 J	0.64 J	1.1	0.48
CALCIUM	MG/KG	NS	25,000	32,000	21,000	49,000
CHROMIUM, TOTAL	MG/KG	NS	36	26	38	20
COBALT	MG/KG	NS	11	11	14	10
COPPER	MG/KG	50	61	40	43	27
IRON	MG/KG	NS	31,000	35,000	34,000	29,000
LEAD	MG/KG	63	18	14	23	8.8
LITHIUM	MG/KG	NS	24	35	34	28
MAGNESIUM	MG/KG	NS	8,200	9,900	9,800	11,000
MANGANESE	MG/KG	1600	1,500	1,600	950	1,200
MERCURY	MG/KG	0.18	0.06 J	0.044 J	0.074 J	0.019 J
NICKEL	MG/KG	30	33	24	32	23
POTASSIUM	MG/KG	NS	3,800	3,300	5,200	2,900

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 12
SEDIMENT ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD2	WDD2	WDD3	WDD3
Field Sample Identifier :			WDD2	WDD2	WDD3	WDD3
Sample Type :			Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-
Date of Sample :			04/25/11	10/18/11	04/19/11	10/18/11
Parameter	Units	Criteria[1]				
METALS						
SELENIUM	MG/KG	3.9	1.5 J	0.78 J	1.6 J	0.35 J
SILVER	MG/KG	2	0.33	0.36	0.2 J	0.1 J
SODIUM	MG/KG	NS	230 U	230	240 U	170
THALLIUM	MG/KG	NS	0.22 U	0.2 U	0.31 J	0.16 J
VANADIUM	MG/KG	NS	35	30	45	26
ZINC	MG/KG	109	290	150	220	71

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/KG	-	29 U	71 U	43 U	39 U	49 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	-	28 U	71 U	43 U	39 U	48 U
1,1,2-TRICHLOROETHANE	UG/KG	-	20 U	49 U	30 U	27 U	33 U
1,1-DICHLOROETHANE	UG/KG	270	19 U	47 U	29 U	27 U	33 U
1,1-DICHLOROETHENE	UG/KG	330	20 U	49 U	30 U	27 U	34 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	28 U	69 U	42 U	38 U	47 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	36 U	90 U	55 U	50 U	62 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	80 U	200 U	120 U	110 U	140 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	22 U	54 U	33 U	30 U	37 U
1,2-DICHLOROBENZENE	UG/KG	1100	22 U	56 U	34 U	31 U	38 U
1,2-DICHLOROETHANE	UG/KG	20	17 U	43 U	26 U	24 U	29 U
1,2-DICHLOROPROPANE	UG/KG	-	25 U	62 U	38 U	35 U	43 U
1,3-DICHLOROBENZENE	UG/KG	2400	20 U	49 U	30 U	27 U	34 U
1,4-DICHLOROBENZENE	UG/KG	1800	18 U	43 U	27 U	24 U	30 U
2-HEXANONE	UG/KG	-	32 U	77 U	48 U	44 U	54 U
ACETONE	UG/KG	50	51 U	990 J	76 U	690 J	86 U
BENZENE	UG/KG	60	15 U	37 U	23 U	21 U	26 U
BROMOCHLOROMETHANE	UG/KG	-	28 U	69 U	42 U	39 U	48 U
BROMODICHLOROMETHANE	UG/KG	-	15 U	37 U	22 U	20 U	25 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/KG	-	20 U	47 U	30 U	27 U	33 U
BROMOMETHANE	UG/KG	-	150 U	370 U	230 U	210 U	260 U
CARBON DISULFIDE	UG/KG	-	42 U	110 U	64 U	58 U	72 U
CARBON TETRACHLORIDE	UG/KG	760	18 U	45 U	27 U	25 U	31 U
CHLOROBENZENE	UG/KG	1100	16 U	39 U	24 U	22 U	27 U
CHLOROETHANE	UG/KG	-	170 U	410 U	250 U	230 U	280 U
CHLOROFORM	UG/KG	370	15 U	39 U	23 U	21 U	26 U
CHLOROMETHANE	UG/KG	-	21 U	52 U	32 U	29 U	36 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	20 U	49 U	30 U	27 U	34 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	13 U	32 U	20 U	18 U	23 U
CYCLOHEXANE	UG/KG	-	Not Anaylzed	240 U	Not Anaylzed	130 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/KG	-	16 U	39 U	24 U	21 U	26 U
DICHLORODIFLUOROMETHANE	UG/KG	-	18 U	45 U	28 U	25 U	31 U
ETHYLBENZENE	UG/KG	1000	19 U	47 U	29 U	27 U	33 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	16 U	39 U	24 U	22 U	27 U
METHYL ACETATE	UG/KG	-	Not Anaylzed	850	Not Anaylzed	750	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	64 U	160 U	96 U	87 U	260 J
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	25 U	60 U	37 U	34 U	42 U
METHYLCYCLOHEXANE	UG/KG	-	Not Anaylzed	240 U	Not Anaylzed	130 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/KG	50	41 U	310 J	110 J	120 J	220 J
STYRENE	UG/KG	-	15 U	37 U	22 U	20 U	25 U
TERT-BUTYL METHYL ETHER	UG/KG	930	23 U	56 U	34 U	31 U	38 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	22 U	54 U	33 U	30 U	37 U
TOLUENE	UG/KG	700	150	47 U	29 U	27 U	33 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	15 U	37 U	23 U	21 U	26 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	19 U	47 U	29 U	26 U	32 U
TRICHLOROETHANE	UG/KG	680	15 U	39 U	23 U	21 U	26 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	36 U	88 U	54 U	49 U	61 U
TRICHLOROFLUOROMETHANE	UG/KG	-	19 U	45 U	28 U	25 U	32 U
VINYL CHLORIDE	UG/KG	20	18 U	45 U	28 U	25 U	31 U
XYLENE (MIXED ISOMERS)	UG/KG	260	57 U	140 U	86 U	78 U	97 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/KG	-	110 U	36 U	26 U	66 U	54 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	-	110 U	36 U	26 U	66 U	54 U
1,1,2-TRICHLOROETHANE	UG/KG	-	76 U	25 U	18 U	46 U	37 U
1,1-DICHLOROETHANE	UG/KG	270	76 U	24 U	17 U	45 U	37 U
1,1-DICHLOROETHENE	UG/KG	330	79 U	25 U	18 U	46 U	38 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	110 U	35 U	25 U	65 U	53 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	140 U	45 U	33 U	84 U	69 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	300 U	100 U	72 U	190 U	150 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	84 U	27 U	20 U	50 U	41 U
1,2-DICHLOROBENZENE	UG/KG	1100	87 U	28 U	20 U	52 U	43 U
1,2-DICHLOROETHANE	UG/KG	20	68 U	22 U	15 U	40 U	33 U
1,2-DICHLOROPROPANE	UG/KG	-	97 U	32 U	23 U	59 U	48 U
1,3-DICHLOROBENZENE	UG/KG	2400	79 U	25 U	18 U	46 U	38 U
1,4-DICHLOROBENZENE	UG/KG	1800	68 U	22 U	16 U	41 U	34 U
2-HEXANONE	UG/KG	-	120 U	40 U	29 U	74 U	60 U
ACETONE	UG/KG	50	790	64 U	370 J	120 U	850 J
BENZENE	UG/KG	60	60 U	19 U	14 U	35 U	29 U
BROMOCHLOROMETHANE	UG/KG	-	110 U	35 U	25 U	65 U	53 U
BROMODICHLOROMETHANE	UG/KG	-	57 U	19 U	13 U	34 U	28 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/KG	-	76 U	25 U	18 U	46 U	37 U
BROMOMETHANE	UG/KG	-	600 U	190 U	140 U	350 U	290 U
CARBON DISULFIDE	UG/KG	-	170 U	53 U	38 U	99 U	81 U
CARBON TETRACHLORIDE	UG/KG	760	70 U	23 U	16 U	42 U	34 U
CHLOROBENZENE	UG/KG	1100	62 U	20 U	14 U	37 U	31 U
CHLOROETHANE	UG/KG	-	650 U	210 U	150 U	390 U	320 U
CHLOROFORM	UG/KG	370	60 U	19 U	14 U	36 U	29 U
CHLOROMETHANE	UG/KG	-	81 U	26 U	19 U	49 U	40 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	79 U	25 U	18 U	46 U	38 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	51 U	17 U	12 U	31 U	25 U
CYCLOHEXANE	UG/KG	-	350 U	Not Anaylzed	84 U	Not Anaylzed	180 U
DIBROMOCHLOROMETHANE	UG/KG	-	60 U	20 U	14 U	36 U	30 U
DICHLORODIFLUOROMETHANE	UG/KG	-	70 U	23 U	16 U	43 U	35 U
ETHYLBENZENE	UG/KG	1000	76 U	24 U	17 U	45 U	37 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	62 U	20 U	14 U	37 U	31 U
METHYL ACETATE	UG/KG	-	1,200	Not Anaylzed	680	Not Anaylzed	980
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	250 U	80 U	57 U	240 J	120 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	95 U	31 U	22 U	57 U	47 U
METHYLCYCLOHEXANE	UG/KG	-	350 U	Not Anaylzed	84 U	Not Anaylzed	180 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/KG	50	250 J	88 J	98 J	200 J	180 J
STYRENE	UG/KG	-	57 U	19 U	13 U	35 U	28 U
TERT-BUTYL METHYL ETHER	UG/KG	930	87 U	28 U	20 U	52 U	43 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	84 U	27 U	20 U	51 U	42 U
TOLUENE	UG/KG	700	76 U	24 U	77 J	45 U	37 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	60 U	19 U	14 U	35 U	29 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	73 U	24 U	17 U	44 U	36 U
TRICHLOROETHANE	UG/KG	680	60 U	19 U	14 U	36 U	29 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	140 U	45 U	32 U	83 U	68 U
TRICHLOROFLUOROMETHANE	UG/KG	-	73 U	23 U	17 U	43 U	35 U
VINYL CHLORIDE	UG/KG	20	70 U	23 U	16 U	43 U	35 U
XYLENE (MIXED ISOMERS)	UG/KG	260	220 U	72 U	51 U	130 U	110 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/KG	-	54 U	47 U	30 U	51 U	53 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	-	54 U	46 U	30 U	50 U	53 U
1,1,2-TRICHLOROETHANE	UG/KG	-	37 U	32 U	21 U	35 U	37 U
1,1-DICHLOROETHANE	UG/KG	270	37 U	32 U	20 U	34 U	36 U
1,1-DICHLOROETHENE	UG/KG	330	38 U	32 U	21 U	35 U	37 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	53 U	46 U	29 U	49 U	52 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	69 U	59 U	38 U	64 U	67 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	150 U	130 U	83 U	140 U	150 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	41 U	35 U	23 U	38 U	40 U
1,2-DICHLOROBENZENE	UG/KG	1100	43 U	37 U	23 U	40 U	42 U
1,2-DICHLOROETHANE	UG/KG	20	33 U	28 U	18 U	30 U	32 U
1,2-DICHLOROPROPANE	UG/KG	-	48 U	41 U	26 U	45 U	47 U
1,3-DICHLOROBENZENE	UG/KG	2400	38 U	32 U	21 U	35 U	37 U
1,4-DICHLOROBENZENE	UG/KG	1800	34 U	29 U	18 U	31 U	33 U
2-HEXANONE	UG/KG	-	60 U	52 U	33 U	56 U	59 U
ACETONE	UG/KG	50	470 J	820 J	53 U	1,200 J	94 U
BENZENE	UG/KG	60	29 U	25 U	16 U	27 U	28 U
BROMOCHLOROMETHANE	UG/KG	-	53 U	46 U	29 U	50 U	52 U
BROMODICHLOROMETHANE	UG/KG	-	28 U	24 U	15 U	26 U	27 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/KG	-	37 U	32 U	20 U	35 U	36 U
BROMOMETHANE	UG/KG	-	290 U	250 U	160 U	270 U	280 U
CARBON DISULFIDE	UG/KG	-	81 U	69 U	44 U	75 U	79 U
CARBON TETRACHLORIDE	UG/KG	760	34 U	29 U	19 U	32 U	33 U
CHLOROBENZENE	UG/KG	1100	31 U	26 U	17 U	28 U	30 U
CHLOROETHANE	UG/KG	-	320 U	270 U	170 U	300 U	310 U
CHLOROFORM	UG/KG	370	29 U	25 U	16 U	27 U	28 U
CHLOROMETHANE	UG/KG	-	40 U	34 U	22 U	37 U	100 J
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	38 U	33 U	21 U	35 U	37 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	25 U	22 U	14 U	24 U	25 U
CYCLOHEXANE	UG/KG	-	Not Anaylzed	150 U	Not Anaylzed	170 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/KG	-	30 U	25 U	16 U	28 U	29 U
DICHLORODIFLUOROMETHANE	UG/KG	-	35 U	30 U	19 U	32 U	34 U
ETHYLBENZENE	UG/KG	1000	37 U	32 U	20 U	34 U	36 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	31 U	26 U	17 U	28 U	30 U
METHYL ACETATE	UG/KG	-	Not Anaylzed	2,400	Not Anaylzed	2,700	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	120 U	100 U	66 U	110 U	150 J
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	47 U	40 U	26 U	43 U	45 U
METHYLCYCLOHEXANE	UG/KG	-	Not Anaylzed	150 U	Not Anaylzed	170 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/KG	50	77 U	160 J	140 J	170 J	190 J
STYRENE	UG/KG	-	28 U	24 U	16 U	26 U	28 U
TERT-BUTYL METHYL ETHER	UG/KG	930	43 U	37 U	24 U	40 U	42 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	42 U	36 U	23 U	39 U	41 U
TOLUENE	UG/KG	700	37 U	100 J	20 U	34 U	76 J
TRANS-1,2-DICHLOROETHENE	UG/KG	190	29 U	25 U	16 U	27 U	28 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	36 U	31 U	20 U	34 U	35 U
TRICHLOROETHANE	UG/KG	680	29 U	25 U	16 U	27 U	28 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	68 U	58 U	37 U	63 U	66 U
TRICHLOROFLUOROMETHANE	UG/KG	-	35 U	30 U	19 U	33 U	34 U
VINYL CHLORIDE	UG/KG	20	35 U	30 U	19 U	32 U	34 U
XYLENE (MIXED ISOMERS)	UG/KG	260	110 U	93 U	60 U	100 U	110 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/KG	-	44 U	64 U	63 U	46 U	40 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	-	44 U	64 U	63 U	45 U	40 U
1,1,2-TRICHLOROETHANE	UG/KG	-	30 U	44 U	43 U	31 U	27 U
1,1-DICHLOROETHANE	UG/KG	270	30 U	44 U	43 U	31 U	27 U
1,1-DICHLOROETHENE	UG/KG	330	31 U	45 U	44 U	32 U	28 U
1,2,3-TRICHLOROBENZENE	UG/KG	-	43 U	63 U	62 U	45 U	39 U
1,2,4-TRICHLOROBENZENE	UG/KG	-	56 U	82 U	80 U	58 U	50 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	-	120 U	180 U	180 U	130 U	110 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/KG	-	34 U	49 U	48 U	35 U	30 U
1,2-DICHLOROBENZENE	UG/KG	1100	35 U	51 U	49 U	36 U	31 U
1,2-DICHLOROETHANE	UG/KG	20	27 U	39 U	38 U	27 U	24 U
1,2-DICHLOROPROPANE	UG/KG	-	39 U	57 U	56 U	40 U	35 U
1,3-DICHLOROBENZENE	UG/KG	2400	31 U	45 U	44 U	32 U	28 U
1,4-DICHLOROBENZENE	UG/KG	1800	27 U	40 U	39 U	28 U	25 U
2-HEXANONE	UG/KG	-	49 U	72 U	70 U	51 U	44 U
ACETONE	UG/KG	50	860 J	110 U	1,100 J	370 J	500 J
BENZENE	UG/KG	60	24 U	34 U	34 U	24 U	21 U
BROMOCHLOROMETHANE	UG/KG	-	43 U	63 U	62 U	45 U	39 U
BROMODICHLOROMETHANE	UG/KG	-	23 U	33 U	33 U	24 U	21 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/KG	-	30 U	44 U	43 U	31 U	27 U
BROMOMETHANE	UG/KG	-	230 U	340 U	330 U	240 U	210 U
CARBON DISULFIDE	UG/KG	-	66 U	96 U	93 U	68 U	59 U
CARBON TETRACHLORIDE	UG/KG	760	28 U	41 U	40 U	29 U	25 U
CHLOROBENZENE	UG/KG	1100	25 U	36 U	35 U	26 U	22 U
CHLOROETHANE	UG/KG	-	260 U	380 U	370 U	270 U	230 U
CHLOROFORM	UG/KG	370	24 U	35 U	34 U	24 U	21 U
CHLOROMETHANE	UG/KG	-	32 U	47 U	46 U	33 U	29 U
CIS-1,2-DICHLOROETHYLENE	UG/KG	250	31 U	45 U	44 U	32 U	28 U
CIS-1,3-DICHLOROPROPENE	UG/KG	-	21 U	30 U	29 U	21 U	19 U
CYCLOHEXANE	UG/KG	-	140 U	Not Anaylzed	210 U	Not Anaylzed	130 U
DIBROMOCHLOROMETHANE	UG/KG	-	24 U	35 U	34 U	25 U	22 U
DICHLORODIFLUOROMETHANE	UG/KG	-	28 U	41 U	40 U	29 U	25 U
ETHYLBENZENE	UG/KG	1000	30 U	44 U	43 U	31 U	27 U
ISOPROPYLBENZENE (CUMENE)	UG/KG	-	25 U	36 U	35 U	26 U	22 U
METHYL ACETATE	UG/KG	-	1,200	Not Anaylzed	1,600	Not Anaylzed	1,200
METHYL ETHYL KETONE (2-BUTANONE)	UG/KG	120	98 U	140 U	140 U	100 U	88 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/KG	-	38 U	55 U	54 U	39 U	34 U
METHYLCYCLOHEXANE	UG/KG	-	140 U	Not Anaylzed	210 U	Not Anaylzed	130 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/KG	50	140 J	92 U	220 J	65 U	120 J
STYRENE	UG/KG	-	23 U	33 U	33 U	24 U	21 U
TERT-BUTYL METHYL ETHER	UG/KG	930	35 U	51 U	50 U	36 U	31 U
TETRACHLOROETHYLENE(PCE)	UG/KG	1300	34 U	49 U	48 U	35 U	30 U
TOLUENE	UG/KG	700	30 U	44 U	43 U	31 U	27 U
TRANS-1,2-DICHLOROETHENE	UG/KG	190	23 U	34 U	33 U	24 U	21 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	-	29 U	43 U	42 U	30 U	26 U
TRICHLOROETHANE	UG/KG	680	24 U	35 U	34 U	24 U	21 U
TRICHLOROETHYLENE (TCE)	UG/KG	470	55 U	81 U	79 U	57 U	50 U
TRICHLOROFLUOROMETHANE	UG/KG	-	29 U	42 U	41 U	30 U	26 U
VINYL CHLORIDE	UG/KG	20	28 U	41 U	40 U	29 U	25 U
XYLENE (MIXED ISOMERS)	UG/KG	260	88 U	130 U	130 U	91 U	79 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
1,1,2,2-TETRACHLOROETHANE	*UG/KG*	-	44 U	23 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	*UG/KG*	-	43 U	23 U
1,1,2-TRICHLOROETHANE	*UG/KG*	-	30 U	16 U
1,1-DICHLOROETHANE	*UG/KG*	270	30 U	16 U
1,1-DICHLOROETHENE	*UG/KG*	330	30 U	16 U
1,2,3-TRICHLOROBENZENE	*UG/KG*	-	43 U	23 U
1,2,4-TRICHLOROBENZENE	*UG/KG*	-	55 U	29 U
1,2-DIBROMO-3-CHLOROPROPANE	*UG/KG*	-	120 U	64 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	*UG/KG*	-	33 U	17 U
1,2-DICHLOROBENZENE	*UG/KG*	1100	34 U	18 U
1,2-DICHLOROETHANE	*UG/KG*	20	26 U	14 U
1,2-DICHLOROPROPANE	*UG/KG*	-	39 U	20 U
1,3-DICHLOROBENZENE	*UG/KG*	2400	30 U	16 U
1,4-DICHLOROBENZENE	*UG/KG*	1800	27 U	14 U
2-HEXANONE	*UG/KG*	-	49 U	26 U
ACETONE	*UG/KG*	50	77 U	390 J
BENZENE	*UG/KG*	60	23 U	12 U
BROMOCHLOROMETHANE	*UG/KG*	-	43 U	23 U
BROMODICHLOROMETHANE	*UG/KG*	-	23 U	12 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
BROMOFORM	*UG/KG*	-	30 U	16 U
BROMOMETHANE	*UG/KG*	-	230 U	120 U
CARBON DISULFIDE	*UG/KG*	-	65 U	34 U
CARBON TETRACHLORIDE	*UG/KG*	760	28 U	15 U
CHLOROBENZENE	*UG/KG*	1100	25 U	13 U
CHLOROETHANE	*UG/KG*	-	260 U	130 U
CHLOROFORM	*UG/KG*	370	23 U	12 U
CHLOROMETHANE	*UG/KG*	-	32 U	17 U
CIS-1,2-DICHLOROETHYLENE	*UG/KG*	250	31 U	16 U
CIS-1,3-DICHLOROPROPENE	*UG/KG*	-	20 U	11 U
CYCLOHEXANE	*UG/KG*	-	Not Anaylzed	75 U
DIBROMOCHLOROMETHANE	*UG/KG*	-	24 U	13 U
DICHLORODIFLUOROMETHANE	*UG/KG*	-	28 U	15 U
ETHYLBENZENE	*UG/KG*	1000	30 U	16 U
ISOPROPYLBENZENE (CUMENE)	*UG/KG*	-	25 U	13 U
METHYL ACETATE	*UG/KG*	-	Not Anaylzed	670
METHYL ETHYL KETONE (2-BUTANONE)	*UG/KG*	120	190 J	51 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	*UG/KG*	-	37 U	20 U
METHYLCYCLOHEXANE	*UG/KG*	-	Not Anaylzed	75 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 13
SEDIMENT ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
VOLATILE ORGANIC ANALYSES				
METHYLENE CHLORIDE	*UG/KG*	50	180 J	85 J
STYRENE	*UG/KG*	-	23 U	12 U
TERT-BUTYL METHYL ETHER	*UG/KG*	930	34 U	18 U
TETRACHLOROETHYLENE(PCE)	*UG/KG*	1300	33 U	18 U
TOLUENE	*UG/KG*	700	30 U	16 U
TRANS-1,2-DICHLOROETHENE	*UG/KG*	190	23 U	12 U
TRANS-1,3-DICHLOROPROPENE	*UG/KG*	-	29 U	15 U
TRICHLOROETHANE	*UG/KG*	680	23 U	12 U
TRICHLOROETHYLENE (TCE)	*UG/KG*	470	55 U	29 U
TRICHLOROFLUOROMETHANE	*UG/KG*	-	28 U	15 U
VINYL CHLORIDE	*UG/KG*	20	28 U	15 U
XYLENE (MIXED ISOMERS)	*UG/KG*	260	87 U	46 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	44 U	17 J	36 J	20 J	73 U
ACENAPHTHENE	UG/KG	20000	39 U	41 J	45 J	10 U	65 U
ACENAPHTHYLENE	UG/KG	100000	31 U	24 J	81 J	29 J	52 U
ANTHRACENE	UG/KG	100000	100 J	95 J	170 J	49 J	81 U
BENZO(A)ANTHRACENE	UG/KG	1000	430 J	370	700	220 J	81 U
BENZO(A)PYRENE	UG/KG	1000	460 J	390	950	260	82 U
BENZO(B)FLUORANTHENE	UG/KG	1000	550 J	660	1,500	450	94 U
BENZO(G,H,I)PERYLENE	UG/KG	100000	270 J	240	800	190 J	150 U
BENZO(K)FLUORANTHENE	UG/KG	800	390 J	250	720	230 J	170 U
CHRYSENE	UG/KG	1000	470 J	440	870	280	84 U
DIBENZ(A,H)ANTHRACENE	UG/KG	330	250 U	68 J	200 J	62 U	410 U
FLUORANTHENE	UG/KG	100000	800 J	680	1,100	330	79 U
FLUORENE	UG/KG	30000	44 U	56 J	62 J	29 J	73 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	280 U	240	620	190 J	460 U
NAPHTHALENE	UG/KG	12000	86 U	24 J	46 U	22 U	140 U
PHENANTHRENE	UG/KG	100000	400 J	300	580	120 J	57 U
PYRENE	UG/KG	100000	800 J	880	1,800	460	150 U
PESTICIDES							
ALDRIN	UG/KG	5	0.68 U	0.72 U	0.92 U	0.86 U	1.1 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	0.59 U	0.63 U	0.8 U	0.75 U	0.98 U
ALPHA ENDOSULFAN	UG/KG	2400	0.75 U	0.8 U	1 U	0.96 U	1.3 U
ALPHA-CHLORDANE	UG/KG	94	0.75 U	0.8 U	1 U	0.95 U	1.2 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	0.72 U	0.77 U	0.97 U	0.91 U	1.2 U
BETA ENDOSULFAN	UG/KG	2400	0.75 U	0.8 U	1 U	0.95 U	1.2 U
BETA-CHLORDANE	UG/KG	-	0.75 U	0.8 U	1 U	0.95 U	1.2 U
CHLORDANE	UG/KG	-	7 U	7.5 U	9.5 U	8.9 U	12 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	1.1 U	1.2 U	1.5 U	1.4 U	1.8 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	1.2 J	0.68 U	1.6 J	0.81 U	1.1 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	0.71 U	0.75 U	0.96 U	0.9 U	1.2 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	0.59 U	0.63 U	0.8 U	0.75 U	0.98 U
DIELDRIN	UG/KG	5	0.96 J	0.77 U	0.98 U	0.92 U	1.2 U
ENDOSULFAN SULFATE	UG/KG	2400	0.75 U	0.8 U	1 U	0.96 U	1.3 U
ENDRIN	UG/KG	14	0.77 U	0.82 U	1 U	0.98 U	1.3 U
ENDRIN ALDEHYDE	UG/KG	-	0.78 U	0.84 U	1.1 U	1 U	1.3 U
ENDRIN KETONE	UG/KG	-	0.73 U	0.78 U	0.99 U	0.93 U	1.2 U
GAMMA BHC (LINDANE)	UG/KG	100	0.61 U	0.65 U	0.83 U	0.78 U	1 U
HEPTACHLOR	UG/KG	42	0.73 U	0.78 U	1 U	0.93 U	1.2 U
HEPTACHLOR EPOXIDE	UG/KG	-	0.8 J	0.79 U	1 U	0.94 U	1.2 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Field Sample Identifier :			SWSD009	SWSD009	SWSD010	SWSD010	SWSD011
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/21/11	10/18/11	04/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	0.77 U	0.82 U	1 U	0.98 U	1.3 U
TOXAPHENE	UG/KG	-	10 U	11 U	14 U	13 U	17 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	66 U	70 U	90 U	84 U	110 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	6 U	6.4 U	8.2 U	7.7 U	10 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	6 U	6.4 U	8.1 U	7.6 U	9.9 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	9 U	9.6 U	12 U	11 U	15 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	7.5 U	7.9 U	10 U	9.5 U	12 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	7.1 U	7.5 U	9.6 U	9 U	12 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	8.5 U	9 U	12 U	11 U	14 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	5.9 U	6.2 U	8 U	7.5 U	9.7 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	8 U	8.5 U	11 U	10 U	13 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	12 U	11 U	7.3 U	20 U	15 U
ACENAPHTHENE	UG/KG	20000	11 U	9.7 U	6.5 U	18 U	14 U
ACENAPHTHYLENE	UG/KG	100000	8.6 U	7.8 U	5.2 U	14 U	11 U
ANTHRACENE	UG/KG	100000	23 J	12 U	8.1 U	22 U	24 J
BENZO(A)ANTHRACENE	UG/KG	1000	120 J	59 J	21 J	130 J	99 J
BENZO(A)PYRENE	UG/KG	1000	130 J	61 J	19 J	180 J	130 J
BENZO(B)FLUORANTHENE	UG/KG	1000	240 J	100 J	30 J	250 J	230 J
BENZO(G,H,I)PERYLENE	UG/KG	100000	74 J	36 J	15 U	110 J	58 J
BENZO(K)FLUORANTHENE	UG/KG	800	99 J	50 J	17 U	120 J	120 J
CHRYSENE	UG/KG	1000	130 J	82 J	26 J	160 J	120 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	67 U	61 U	41 U	110 U	87 U
FLUORANTHENE	UG/KG	100000	170 J	100 J	30 J	200 J	140 J
FLUORENE	UG/KG	30000	12 U	11 U	7.3 U	20 U	16 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	75 U	68 U	46 U	120 U	97 U
NAPHTHALENE	UG/KG	12000	23 U	21 U	14 U	38 U	30 U
PHENANTHRENE	UG/KG	100000	74 J	54 J	18 J	87 J	64 J
PYRENE	UG/KG	100000	190 J	96 J	27 J	280 J	170 J
PESTICIDES							
ALDRIN	UG/KG	5	2.5 U	0.84 U	0.57 U	1.5 U	1.2 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	2.1 U	0.73 U	0.49 U	1.3 U	1 U
ALPHA ENDOSULFAN	UG/KG	2400	2.7 U	0.94 U	0.63 U	1.7 U	1.3 U
ALPHA-CHLORDANE	UG/KG	94	2.7 U	0.93 U	0.63 U	1.7 U	1.3 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	2.6 U	0.89 U	0.6 U	1.6 U	1.3 U
BETA ENDOSULFAN	UG/KG	2400	2.7 U	0.93 U	0.63 U	1.7 U	1.3 U
BETA-CHLORDANE	UG/KG	-	2.7 U	0.93 U	0.63 U	1.7 U	1.3 U
CHLORDANE	UG/KG	-	25 U	8.7 U	5.9 U	16 U	12 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	4.1 U	1.4 U	0.91 U	2.4 U	1.9 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	2.3 U	0.79 U	0.53 U	1.4 U	1.1 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	2.6 U	0.88 U	0.59 U	1.6 U	1.2 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	2.1 U	0.73 U	0.49 U	1.3 U	1 U
DIELDRIN	UG/KG	5	2.7 U	0.9 U	0.61 U	1.6 U	1.3 U
ENDOSULFAN SULFATE	UG/KG	2400	2.7 U	0.94 U	0.63 U	1.7 U	1.3 U
ENDRIN	UG/KG	14	2.7 U	0.96 U	0.65 U	1.7 U	1.4 U
ENDRIN ALDEHYDE	UG/KG	-	3 U	0.98 U	0.66 U	1.7 U	1.4 U
ENDRIN KETONE	UG/KG	-	2.7 U	0.91 U	0.61 U	1.6 U	1.3 U
GAMMA BHC (LINDANE)	UG/KG	100	2.2 U	0.76 U	0.51 U	1.4 U	1.1 U
HEPTACHLOR	UG/KG	42	2.7 U	0.91 U	0.62 U	1.6 U	1.3 U
HEPTACHLOR EPOXIDE	UG/KG	-	2.7 U	0.92 U	0.62 U	1.7 U	1.3 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Field Sample Identifier :			SWSD011	SWSD021	SWSD021	SWSD022	SWSD022
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/17/11	04/21/11	10/19/11	04/21/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	2.7 U	0.96 U	0.64 U	1.7 U	1.4 U
TOXAPHENE	UG/KG	-	38 U	13 U	8.4 U	22 U	18 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	91 U	82 U	55 U	150 U	120 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	8.3 U	7.5 U	5.1 U	13 U	11 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	8.3 U	7.5 U	5 U	13 U	11 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	12 U	11 U	7.5 U	20 U	16 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	10 U	9.3 U	6.3 U	17 U	13 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	9.7 U	8.8 U	5.9 U	16 U	12 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	12 U	11 U	7.1 U	19 U	15 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	8.1 U	7.3 U	4.9 U	13 U	10 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	11 U	9.9 U	6.7 U	18 U	14 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	16 U	210 J	9.2 U	14 U	160 U
ACENAPHTHENE	UG/KG	20000	14 U	410	8.2 U	13 U	140 U
ACENAPHTHYLENE	UG/KG	100000	11 U	240 J	6.6 U	10 U	110 U
ANTHRACENE	UG/KG	100000	45 J	740	10 U	16 U	180 U
BENZO(A)ANTHRACENE	UG/KG	1000	200 J	2,100	36 J	64 J	480 J
BENZO(A)PYRENE	UG/KG	1000	230 J	2,500	37 J	82 J	630 J
BENZO(B)FLUORANTHENE	UG/KG	1000	370	3,200	51 J	100 J	800 J
BENZO(G,H,I)PERYLENE	UG/KG	100000	170 J	1,100	20 J	49 J	440 J
BENZO(K)FLUORANTHENE	UG/KG	800	150 J	1,600	24 J	42 J	510 J
CHRYSENE	UG/KG	1000	240 J	2,000	37 J	81 J	530 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	87 U	250 J	52 U	80 U	890 U
FLUORANTHENE	UG/KG	100000	340 J	3,100	55 J	110 J	640 J
FLUORENE	UG/KG	30000	16 U	560	9.2 U	14 U	160 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	110 J	1,100	58 U	90 U	1,000 U
NAPHTHALENE	UG/KG	12000	30 U	1,600	18 U	28 U	310 U
PHENANTHRENE	UG/KG	100000	170 J	2,800	27 J	56 J	240 J
PYRENE	UG/KG	100000	440	26 U	53 J	94 J	740 J
PESTICIDES							
ALDRIN	UG/KG	5	1.2 U	1 U	0.72 U	1.1 U	1.2 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/KG	20	1 U	0.89 U	0.62 U	0.97 U	1.1 U
ALPHA ENDOSULFAN	UG/KG	2400	1.3 U	1.1 U	0.8 U	1.2 U	1.4 U
ALPHA-CHLORDANE	UG/KG	94	1.3 U	1.1 U	0.79 U	1.2 U	1.4 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/KG	36	1.3 U	1.1 U	0.76 U	1.2 U	1.3 U
BETA ENDOSULFAN	UG/KG	2400	1.3 U	1.1 U	0.79 U	1.2 U	1.4 U
BETA-CHLORDANE	UG/KG	-	1.3 U	3.5	0.8 U	1.2 U	1.4 U
CHLORDANE	UG/KG	-	12 U	11 U	7.4 U	12 U	13 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	UG/KG	3.3	1.9 U	1.6 U	1.2 U	1.8 U	2 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	UG/KG	3.3	1.1 U	4.3	0.67 U	1 U	1.1 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	UG/KG	3.3	1.2 U	1.1 U	0.75 U	1.2 U	1.3 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/KG	40	1 U	0.89 U	0.62 U	0.97 U	1.1 U
DIELDRIN	UG/KG	5	1.3 U	1.1 U	0.77 U	1.2 U	1.3 U
ENDOSULFAN SULFATE	UG/KG	2400	1.3 U	1.3 J	0.8 U	1.2 U	1.4 U
ENDRIN	UG/KG	14	1.4 U	1.2 U	0.82 U	1.3 U	1.4 U
ENDRIN ALDEHYDE	UG/KG	-	1.4 U	3	0.83 U	1.3 U	1.4 U
ENDRIN KETONE	UG/KG	-	1.3 U	1.1 U	0.78 U	1.2 U	1.3 U
GAMMA BHC (LINDANE)	UG/KG	100	1.1 U	0.92 U	0.65 U	1 U	1.1 U
HEPTACHLOR	UG/KG	42	1.3 U	1.1 U	0.78 U	1.2 U	1.3 U
HEPTACHLOR EPOXIDE	UG/KG	-	1.3 U	1.1 U	0.79 U	1.2 U	1.3 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Field Sample Identifier :			SWSD023	SWSD023	SWSD024	SWSD024	SWSD025
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	10/19/11	04/19/11	10/19/11	04/19/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	1.4 U	1.2 U	0.81 U	1.3 U	1.4 U
TOXAPHENE	UG/KG	-	18 U	15 U	11 U	17 U	18 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	120 U	86	70 U	110 U	120 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	11 U	9.1 U	6.4 U	9.9 U	11 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	11 U	9.1 U	6.3 U	9.9 U	11 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	16 U	14 U	9.5 U	15 U	16 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	13 U	11 U	7.9 U	12 U	14 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	12 U	11 U	7.4 U	12 U	13 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	15 U	13 U	8.9 U	14 U	15 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	10 U	86 J	6.2 U	9.7 U	11 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	14 U	12 U	8.4 U	13 U	14 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
POLYCYCLIC AROMATIC HYDROCARBON							
2-METHYLNAPHTHALENE	UG/KG	-	13 U	19 U	18 U	13 U	57 U
ACENAPHTHENE	UG/KG	20000	11 U	17 U	16 U	12 U	51 U
ACENAPHTHYLENE	UG/KG	100000	9 U	14 U	13 U	9.4 U	41 U
ANTHRACENE	UG/KG	100000	27 J	21 U	20 U	15 U	63 U
BENZO(A)ANTHRACENE	UG/KG	1000	120 J	21 U	41 J	46 J	63 U
BENZO(A)PYRENE	UG/KG	1000	150 J	22 U	43 J	41 J	64 U
BENZO(B)FLUORANTHENE	UG/KG	1000	230 J	25 U	85 J	81 J	73 U
BENZO(G,H,I)PERYLENE	UG/KG	100000	95 J	40 U	37 U	28 U	120 U
BENZO(K)FLUORANTHENE	UG/KG	800	120 J	43 U	40 U	30 U	130 U
CHRYSENE	UG/KG	1000	150 J	22 U	54 J	43 J	91 J
DIBENZ(A,H)ANTHRACENE	UG/KG	330	70 U	110 U	99 U	73 U	320 U
FLUORANTHENE	UG/KG	100000	190 J	34 J	66 J	63 J	62 U
FLUORENE	UG/KG	30000	13 U	19 U	18 U	13 U	57 U
INDENO(1,2,3-C,D)PYRENE	UG/KG	500	95 J	120 U	110 U	83 U	360 U
NAPHTHALENE	UG/KG	12000	25 U	37 U	35 U	26 U	110 U
PHENANTHRENE	UG/KG	100000	77 J	15 U	34 J	10 U	45 U
PYRENE	UG/KG	100000	230 J	38 U	77 J	71 J	110 U
PESTICIDES							
ALDRIN	UG/KG	5	0.97 U	1.5 U	1.4 U	1 U	0.87 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	*UG/KG*	20	0.84 U	1.3 U	1.2 U	0.88 U	0.76 U
ALPHA ENDOSULFAN	*UG/KG*	2400	1.1 U	1.7 U	1.5 U	1.1 U	0.97 U
ALPHA-CHLORDANE	*UG/KG*	94	1.1 U	1.7 U	1.5 U	1.1 U	0.97 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	*UG/KG*	36	1 U	1.6 U	1.5 U	1.1 U	0.93 U
BETA ENDOSULFAN	*UG/KG*	2400	1.1 U	1.6 U	1.5 U	1.1 U	0.97 U
BETA-CHLORDANE	*UG/KG*	-	1.1 U	1.7 U	1.5 U	1.1 U	0.97 U
CHLORDANE	*UG/KG*	-	10 U	15 U	14 U	10 U	9 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	*UG/KG*	3.3	1.6 U	2.4 U	2.2 U	1.6 U	1.4 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	*UG/KG*	3.3	0.91 U	1.4 U	1.3 U	0.95 U	0.82 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	*UG/KG*	3.3	1 U	1.6 U	1.4 U	1.1 U	0.91 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	*UG/KG*	40	0.84 U	1.3 U	1.2 U	0.88 U	0.76 U
DIELDRIN	*UG/KG*	5	1 U	1.6 U	1.5 U	1.1 U	0.94 U
ENDOSULFAN SULFATE	*UG/KG*	2400	1.1 U	1.7 U	1.5 U	1.1 U	0.97 U
ENDRIN	*UG/KG*	14	1.1 U	1.7 U	1.6 U	1.2 U	0.99 U
ENDRIN ALDEHYDE	*UG/KG*	-	1.1 U	1.7 U	1.6 U	1.2 U	1 U
ENDRIN KETONE	*UG/KG*	-	1.1 U	1.6 U	1.5 U	1.1 U	0.95 U
GAMMA BHC (LINDANE)	*UG/KG*	100	0.88 U	1.3 U	1.3 U	0.92 U	0.79 U
HEPTACHLOR	*UG/KG*	42	1.1 U	1.6 U	1.5 U	1.1 U	0.95 U
HEPTACHLOR EPOXIDE	*UG/KG*	-	1.1 U	1.6 U	1.5 U	1.1 U	0.96 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Field Sample Identifier :			SWSD025	WDD1	WDD1	WDD2	WDD2
Sample Type :			Sediment	Sediment	Sediment	Sediment	Sediment
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
PESTICIDES							
METHOXYCHLOR	UG/KG	-	1.1 U	1.7 U	1.6 U	1.2 U	0.99 U
TOXAPHENE	UG/KG	-	14 U	22 U	21 U	15 U	13 U
POLYCHLORINATED BIPHENYLS							
PCB, TOTAL	UG/KG	100	95 U	140 U	140 U	99 U	86 U
PCB-1016 (AROCHLOR 1016)	UG/KG	-	8.7 U	13 U	12 U	9.1 U	7.8 U
PCB-1221 (AROCHLOR 1221)	UG/KG	-	8.6 U	13 U	12 U	9 U	7.8 U
PCB-1232 (AROCHLOR 1232)	UG/KG	-	13 U	20 U	18 U	14 U	12 U
PCB-1242 (AROCHLOR 1242)	UG/KG	-	11 U	16 U	15 U	11 U	9.6 U
PCB-1248 (AROCHLOR 1248)	UG/KG	-	10 U	15 U	14 U	11 U	9.1 U
PCB-1254 (AROCHLOR 1254)	UG/KG	-	12 U	18 U	17 U	13 U	11 U
PCB-1260 (AROCHLOR 1260)	UG/KG	-	8.4 U	13 U	12 U	8.8 U	7.6 U
PCB-1262 (AROCHLOR 1262)	UG/KG	-	11 U	17 U	16 U	12 U	10 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
POLYCYCLIC AROMATIC HYDROCARBON				
2-METHYLNAPHTHALENE	*UG/KG*	-	13 U	6.6 U
ACENAPHTHENE	*UG/KG*	20000	11 U	5.9 U
ACENAPHTHYLENE	*UG/KG*	100000	9.1 U	4.7 U
ANTHRACENE	*UG/KG*	100000	14 U	7.3 U
BENZO(A)ANTHRACENE	*UG/KG*	1000	14 U	7.3 U
BENZO(A)PYRENE	*UG/KG*	1000	14 U	7.4 U
BENZO(B)FLUORANTHENE	*UG/KG*	1000	17 U	8.5 U
BENZO(G,H,I)PERYLENE	*UG/KG*	100000	27 U	14 U
BENZO(K)FLUORANTHENE	*UG/KG*	800	29 U	15 U
CHRYSENE	*UG/KG*	1000	15 U	7.6 U
DIBENZ(A,H)ANTHRACENE	*UG/KG*	330	71 U	37 U
FLUORANTHENE	*UG/KG*	100000	14 U	7.2 U
FLUORENE	*UG/KG*	30000	13 U	6.6 U
INDENO(1,2,3-C,D)PYRENE	*UG/KG*	500	80 U	41 U
NAPHTHALENE	*UG/KG*	12000	25 U	13 U
PHENANTHRENE	*UG/KG*	100000	10 U	5.2 U
PYRENE	*UG/KG*	100000	25 U	13 U
PESTICIDES				
ALDRIN	*UG/KG*	5	0.99 U	0.51 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
PESTICIDES				
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	*UG/KG*	20	0.86 U	0.44 U
ALPHA ENDOSULFAN	*UG/KG*	2400	1.1 U	0.57 U
ALPHA-CHLORDANE	*UG/KG*	94	1.1 U	0.56 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	*UG/KG*	36	1 U	0.54 U
BETA ENDOSULFAN	*UG/KG*	2400	1.1 U	0.56 U
BETA-CHLORDANE	*UG/KG*	-	1.1 U	0.56 U
CHLORDANE	*UG/KG*	-	10 U	5.2 U
DDD (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHANE)	*UG/KG*	3.3	1.6 U	0.82 U
DDE (1,1-BIS(CHLOROPHENYL)-2,2-DICHLOROETHENE)	*UG/KG*	3.3	0.93 U	0.48 U
DDT (1,1-BIS(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	*UG/KG*	3.3	1 U	0.53 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	*UG/KG*	40	0.86 U	0.44 U
DIELDRIN	*UG/KG*	5	1.1 U	0.54 U
ENDOSULFAN SULFATE	*UG/KG*	2400	1.1 U	0.56 U
ENDRIN	*UG/KG*	14	1.1 U	0.58 U
ENDRIN ALDEHYDE	*UG/KG*	-	1.1 U	0.59 U
ENDRIN KETONE	*UG/KG*	-	1.1 U	0.55 U
GAMMA BHC (LINDANE)	*UG/KG*	100	0.89 U	0.46 U
HEPTACHLOR	*UG/KG*	42	1.1 U	0.55 U
HEPTACHLOR EPOXIDE	*UG/KG*	-	1.1 U	0.56 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 14
SEDIMENT ANALYTICAL RESULTS - PAHs, PESTICIDES AND PCBs
NIAGARA FALLS STORAGE SITE

Location Identifier :			WDD3	WDD3
Field Sample Identifier :			WDD3	WDD3
Sample Type :			Sediment	Sediment
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/18/11
Parameter	**Units**	**Criteria[1]**		
PESTICIDES				
METHOXYCHLOR	*UG/KG*	-	1.1 U	0.58 U
TOXAPHENE	*UG/KG*	-	15 U	7.5 U
POLYCHLORINATED BIPHENYLS				
PCB, TOTAL	*UG/KG*	100	97 U	50 U
PCB-1016 (AROCHLOR 1016)	*UG/KG*	-	8.8 U	4.5 U
PCB-1221 (AROCHLOR 1221)	*UG/KG*	-	8.8 U	4.5 U
PCB-1232 (AROCHLOR 1232)	*UG/KG*	-	13 U	6.8 U
PCB-1242 (AROCHLOR 1242)	*UG/KG*	-	11 U	5.6 U
PCB-1248 (AROCHLOR 1248)	*UG/KG*	-	10 U	5.3 U
PCB-1254 (AROCHLOR 1254)	*UG/KG*	-	12 U	6.4 U
PCB-1260 (AROCHLOR 1260)	*UG/KG*	-	8.6 U	4.4 U
PCB-1262 (AROCHLOR 1262)	*UG/KG*	-	12 U	6 U

Concentration Exceeds Criteria

(1) - 6 NYCRR Part 375, NYS Unrestricted Use Soil Cleanup Objectives for VOCs, Pesticides, PCBs, PAHs and Metals. USDOE Order 458.1 (June 2011) - Ra-226 and Ra-228 (sum total of 5 pCi/g),Thorium isotopes (sum total of 5 pCi/g) total dose not to exceed 25 mrem/yr for remaining radionuclides (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3, and U).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

Table 15
2011 Water Level Measurements

Summary of Water Level Measurements
First Quarter 2011 (February 14, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	10.24	311.66
A42	319.70	4.70	315.00
A43	320.50	5.57	314.93
A45	321.70	8.14	313.56
A50	321.30	9.10	312.20
A51	321.20	7.05	314.15
A52	321.10	5.41	315.69
A54	320.70	9.66	311.04
A55	320.60	9.15	311.45
A56	322.30	12.21	310.09
A57	321.40	15.15	306.25
BH5	321.32	10.72	310.60
BH12	320.85	7.95	312.90
BH15	320.16	7.09	313.07
BH48	322.04	8.26	313.78
BH49	320.23	10.39	309.84
BH49A	320.65	2.94	317.71
BH50	319.25	10.38	308.87
BH51	321.24	7.04	314.20
BH57	322.84	7.54	315.30
BH59	321.45	8.86	312.59
BH60	322.32	5.10	317.22
BH61	318.50	13.83	304.67
BH62	318.60	11.89	306.71
BH63	323.01	6.96	316.05
BH64	319.32	3.14	316.18
BH70	321.29	9.43	311.86
B02W19D	319.90	4.47	315.43
B02W20D	322.00	5.19	316.81
B02W20S	322.00	2.89	319.11
OW01A	321.95	Decommissioned	
OW01B	321.49	3.28	318.21
OW02A	321.50	11.40	310.10
OW02B	321.55	2.80	318.75
OW03A	321.67	10.62	311.05
OW03B	321.38	4.33	317.05
OW04A	320.52	9.89	310.63
OW04B	320.17	2.94	317.23
OW05A	319.59	8.82	310.77
OW05B	319.68	3.33	316.35
OW06A	322.34	10.02	312.32
OW06B	322.28	4.50	317.78

Summary of Water Level Measurements
Second Quarter 2011 (April, 18 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	9.38	312.52
A42	319.70	5.44	314.26
A43	320.50	5.52	314.98
A45	321.70	8.92	312.78
A50	321.30	9.73	311.57
A51	321.20	6.41	314.79
A52	321.10	6.21	314.89
A54	320.70	9.25	311.45
A55	320.60	9.43	311.17
A56	322.30	11.69	310.61
A57	321.40	11.66	309.74
BH5	321.32	9.62	311.70
BH12	320.85	7.06	313.79
BH15	320.16	5.93	314.23
BH48	322.04	7.12	314.92
BH49	320.23	9.44	310.79
BH49A	320.65	2.35	318.30
BH50	319.25	8.67	310.58
BH51	321.24	6.03	315.21
BH57	322.84	6.74	316.10
BH59	321.45	7.96	313.49
BH60	322.32	4.28	318.04
BH61	318.50	11.78	306.72
BH62	318.60	10.39	308.21
BH63	323.01	6.14	316.87
BH64	319.32	2.93	316.39
BH70	321.29	8.84	312.45
B02W19D	319.90	3.50	316.40
B02W20D	322.00	4.27	317.73
B02W20S	322.00	2.86	319.14
OW01A	321.95	Decommissioned	
OW01B	321.49	3.90	317.59
OW02A	321.50	10.34	311.16
OW02B	321.55	3.30	318.25
OW03A	321.67	9.70	311.97
OW03B	321.38	4.69	316.69
OW04A	320.52	8.99	311.53
OW04B	320.17	3.79	316.38
OW05A	319.59	8.13	311.46
OW05B	319.68	3.60	316.08
OW06A	322.34	8.98	313.36
OW06B	322.28	4.21	318.07

Summary of Water Level Measurements
Third Quarter 2011 (August 16, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A	321.90	9.24	312.66
A42	319.70	9.15	310.55
A43	320.50	7.51	312.99
A45	321.70	12.55	309.15
A50	321.30	13.00	308.30
A51	321.20	12.35	308.85
A52	321.10	9.51	311.59
A54	320.70	9.12	311.58
A55	320.60	8.67	311.93
A56	322.30	11.77	310.53
A57	321.40	11.98	309.42
BH5	321.32	10.71	310.61
BH12	320.85	7.38	313.47
BH15	320.16	6.52	313.64
BH48	322.04	7.78	314.26
BH49	320.23	10.28	309.95
BH49A	320.65	7.91	312.74
BH50	319.25	11.88	307.37
BH51	321.24	6.69	314.55
BH57	322.84	7.13	315.71
BH59	321.45	8.59	312.86
BH60	322.32	4.65	317.67
BH61	318.50	15.01	303.49
BH62	318.60	12.21	306.39
BH63	323.01	6.74	316.27
BH64	319.32	9.09	310.23
BH70	321.29	9.04	312.25
B02W19D	319.90	3.97	315.93
B02W20D	322.00	4.69	317.31
B02W20S	322.00	9.13	312.87
OW01A	321.95	Decommissioned	
OW01B	321.49	7.10	314.39
OW02A	321.50	7.22	314.28
OW02B	321.55	7.03	314.52
OW03A	321.67	10.96	310.71
OW03B	321.38	7.88	313.50
OW04A	320.52	9.83	310.69
OW04B	320.17	7.90	312.27
OW05A	319.59	8.79	310.80
OW05B	319.68	9.21	310.47
OW06A	322.34	7.66	314.68
OW06B	322.28	7.88	314.40

Summary of Water Level Measurements
Fourth Quarter 2011 (October 17, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
A23A*	321.90	11.70	310.20
A42	319.70	5.80	313.90
A43	320.50	7.85	312.65
A45*	321.70	10.20	311.50
A50*	321.30	11.12	310.18
A51*	321.20	8.40	312.80
A52*	321.10	8.16	312.94
A54	320.70	11.03	309.67
A55	320.60	10.52	310.08
A56	322.30	13.72	308.58
A57	321.40	13.95	307.45
BH5	321.32	12.73	308.59
BH12	320.85	9.25	311.60
BH15	320.16	8.51	311.65
BH48	322.04	9.45	312.59
BH49	320.23	12.35	307.88
BH49A	320.65	4.30	316.35
BH50	319.25	14.16	305.09
BH51	321.24	8.98	312.26
BH57	322.84	9.29	313.55
BH59	321.45	10.38	311.07
BH60	322.32	6.88	315.44
BH61	318.50	16.88	301.62
BH62	318.60	14.32	304.28
BH63	323.01	9.02	313.99
BH64	319.32	6.48	312.84
BH70	321.29	10.98	310.31
B02W19D	319.90	5.82	314.08
B02W20D	322.00	6.82	315.18
B02W20S	322.00	5.64	316.36
OW01A	321.95	Decommissioned	
OW01B	321.49	7.15	314.34
OW02A	321.50	13.23	308.27
OW02B	321.55	4.64	316.91
OW03A	321.67	12.44	309.23
OW03B	321.38	5.11	316.27
OW04A	320.52	11.85	308.67
OW04B	320.17	4.00	316.17
OW05A	319.59	10.89	308.70
OW05B	319.68	11.73	307.95
OW06A	322.34	7.67	314.67
OW06B	322.28	5.60	316.68

Summary of Water Level Measurements
First Quarter 2011 (February 14, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	7.37	312.40
OW07B	319.69	4.45	315.24
OW08A	318.91	7.46	311.45
OW08B	318.97	4.82	314.15
OW09A	318.66	6.48	312.18
OW09B	318.82	2.98	315.84
OW10A	320.01	7.53	312.48
OW10B	320.13	3.25	316.88
OW11A	319.05	5.98	313.07
OW11B	319.09	3.37	315.72
OW12A	320.42	7.46	312.96
OW12B	319.09	4.99	314.10
OW13A	321.54	9.42	312.12
OW13B	321.09	3.05	318.04
OW14A	320.52	10.81	309.71
OW14B	320.73	2.52	318.21
OW15A	320.30	11.49	308.81
OW15B	320.12	2.00	318.12
OW16A	320.63	10.82	309.81
OW16B	320.06	2.59	317.47
OW17A	320.31	3.18	317.13
OW17B	320.29	9.69	310.60
OW18A	321.09	9.40	311.69
OW18B	320.76	3.75	317.01

Summary of Water Level Measurements
Second Quarter 2011 (April, 18 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	8.41	311.36
OW07B	319.69	2.46	317.23
OW08A	318.91	6.42	312.49
OW08B	318.97	2.90	316.07
OW09A	318.66	5.53	313.13
OW09B	318.82	2.30	316.52
OW10A	320.01	6.65	313.36
OW10B	320.13	2.26	317.87
OW11A	319.05	5.15	313.90
OW11B	319.09	2.18	316.91
OW12A	320.42	6.58	313.84
OW12B	319.09	3.33	315.76
OW13A	321.54	8.41	313.13
OW13B	321.09	2.46	318.63
OW14A	320.52	10.13	310.39
OW14B	320.73	2.94	317.79
OW15A	320.30	10.36	309.94
OW15B	320.12	2.43	317.69
OW16A	320.63	9.87	310.76
OW16B	320.06	2.61	317.45
OW17A	320.31	8.43	311.88
OW17B	320.29	2.00	318.29
OW18A	321.09	8.81	312.28
OW18B	320.76	3.69	317.07

Summary of Water Level Measurements
Third Quarter 2011 (August 16, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	7.05	312.72
OW07B	319.69	10.12	309.57
OW08A	318.91	7.18	311.73
OW08B	318.97	9.05	309.92
OW09A	318.66	6.10	312.56
OW09B	318.82	9.43	309.39
OW10A	320.01	7.27	312.74
OW10B	320.13	8.25	311.88
OW11A	319.05	5.60	313.45
OW11B	319.09	7.45	311.64
OW12A	320.42	7.02	313.40
OW12B	319.09	11.60	307.49
OW13A	321.54	9.08	312.46
OW13B	321.09	8.50	312.59
OW14A	320.52	10.62	309.90
OW14B	320.73	8.80	311.93
OW15A	320.30	11.30	309.00
OW15B	320.12	8.99	311.13
OW16A	320.63	10.40	310.23
OW16B	320.06	7.21	312.85
OW17A	320.31	9.12	311.19
OW17B	320.29	7.11	313.18
OW18A	321.09	9.49	311.60
OW18B	320.76	8.90	311.86

Summary of Water Level Measurements
Fourth Quarter 2011 (October 17, 2011)

Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
OW07A	319.77	9.00	310.77
OW07B	319.69	11.60	308.09
OW08A	318.91	9.22	309.69
OW08B	318.97	6.30	312.67
OW09A	318.66	8.09	310.57
OW09B	318.82	12.44	306.38
OW10A	320.01	9.31	310.70
OW10B	320.13	6.91	313.22
OW11A	319.05	7.43	311.62
OW11B	319.09	5.29	313.80
OW12A	320.42	8.96	311.46
OW12B	319.09	13.89	305.20
OW13A	321.54	11.10	310.44
OW13B	321.09	8.70	312.39
OW14A	320.52	12.60	307.92
OW14B	320.73	5.85	314.88
OW15A	320.30	13.20	307.10
OW15B	320.12	9.40	310.72
OW16A	320.63	12.20	308.43
OW16B	320.06	6.80	313.26
OW17A	320.31	10.90	309.41
OW17B	320.29	5.30	314.99
OW18A*	321.09	10.75	310.34
OW18B	320.76	5.75	315.01

Table 15
2011 Water Level Measurements

Summary of Water Level Measurements

NEW WELLS - 2000			
Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	4.30	317.17
203A	321.87	3.88	317.99
213A	321.37	6.86	314.51
215A	320.26	6.72	313.54
302A	320.53	4.35	316.18
303A	321.83	3.68	318.15
404A	323.73	6.35	317.38
411A	322.05	4.00	318.05
415A	321.27	5.97	315.30
505	317.80	9.46	308.34
603A*	320.57	2.30	318.27
606A	321.49	2.63	318.86
808A	319.27	3.34	315.93
810A	318.44	3.99	314.45
816A	320.62	1.55	319.07
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	4.58	316.27
MW229	320.61	6.95	313.66
MW313	320.88	4.49	316.39
MW314	318.94	21.92	297.02
MW422*	321.36	22.20	299.16
MW423	322.39	7.83	314.56
MW424	320.93	2.85	318.08
MW860	320.06	5.68	314.38
MW861	319.92	9.49	310.43
MW862	319.62	4.55	315.07
MW863	319.61	7.65	311.96
NEW WELLS - 2009			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	10.15	309.73
MW922	318.56	2.82	315.74
MW923	319.53	15.05	304.48
MW930	323.16	6.78	316.38
MW934	322.20	4.28	317.92
MW935	319.33	4.16	315.17
MW936	320.64	2.60	318.04
MW938	319.54	3.76	315.78
MW941	318.98	3.29	315.69
MW943	321.60	3.33	318.27

*603 - Water in casing frozen.
*MW422 - Dry bottom of well recorded.

Summary of Water Level Measurements

NEW WELLS - 2000			
Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	3.82	317.65
203A	321.87	4.22	317.65
213A	321.37	5.14	316.23
215A	320.26	2.88	317.38
302A	320.53	4.25	316.28
303A	321.83	3.35	318.48
404A	323.73	5.08	318.65
411A	322.05	3.92	318.13
415A	321.27	2.90	318.37
505	317.80	4.09	313.71
603A	320.57	2.21	318.36
606A	321.49	3.22	318.27
808A	319.27	2.17	317.10
810A	318.44	2.52	315.92
816A	320.62	1.86	318.76
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	3.94	316.91
MW229	320.61	6.05	314.56
MW313	320.88	3.64	317.24
MW314	318.94	9.04	309.90
MW422	321.36	20.32	301.04
MW423	322.39	4.33	318.06
MW424	320.93	2.85	318.08
MW860	320.06	5.44	314.62
MW861	319.92	8.32	311.60
MW862	319.62	4.60	315.02
MW863	319.61	6.99	312.62
NEW WELLS - 2009			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	5.14	314.74
MW922	318.56	2.63	315.93
MW923	319.53	4.15	315.38
MW930	323.16	4.24	318.92
MW934	322.20	3.48	318.72
MW935	319.33	3.81	315.52
MW936	320.64	2.95	317.69
MW938	319.54	3.71	315.83
MW941	318.98	2.95	316.03
MW943	321.60	3.65	317.95

*302A - lock missing

Summary of Water Level Measurements

NEW WELLS - 2000			
Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	8.44	313.03
203A	321.87	7.02	314.85
213A	321.37	10.08	311.29
215A	320.26	12.79	307.47
302A	320.53	9.63	310.90
303A	321.83	9.40	312.43
404A	323.73	11.59	312.14
411A	322.05	13.91	308.14
415A	321.27	10.01	311.26
505	317.80	17.88	299.92
603A	320.57	8.75	311.82
606A	321.49	11.48	310.01
808A	319.27	12.15	307.12
810A	318.44	16.33	302.11
816A	320.62	3.82	316.80
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	7.29	313.56
MW229	320.61	6.42	314.19
MW313	320.88	11.21	309.67
MW314	318.94	22.06	296.88
MW422	321.36	22.20	299.16
MW423	322.39	12.50	309.89
MW424	320.93	13.41	307.52
MW860	320.06	10.00	310.06
MW861	319.92	9.20	310.72
MW862	319.62	8.75	310.87
MW863	319.61	7.27	312.34
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	16.35	303.53
MW922	318.56	11.10	307.46
MW923	319.53	17.40	302.13
MW930	323.16	12.49	310.67
MW934	322.20	14.84	307.36
MW935	319.33	8.80	310.53
MW936	320.64	7.09	313.55
MW938	319.54	9.20	310.34
MW941	318.98	7.37	311.61
MW943	321.60	6.89	314.71

*MW 314 - no water
*MW 422 - no water

Summary of Water Level Measurements

NEW WELLS - 2000			
Well No.	Reference Elevation (ft)	Depth to Water (ft)	Groundwater Elevation (ft)
201A	321.47	4.29	317.18
203A	321.87	4.37	317.50
213A	321.37	12.49	308.88
215A	320.26	12.75	307.51
302A	320.53	5.49	315.04
303A	321.83	6.13	315.70
404A	323.73	10.73	313.00
411A	322.05	13.35	308.70
415A	321.27	12.23	309.04
505	317.80	19.87	297.93
603A	320.57	4.53	316.04
606A	321.49	10.40	311.09
808A	319.27	14.35	304.92
810A	318.44	16.28	302.16
816A	320.62	2.23	318.39
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW228	320.85	6.56	314.29
MW229	320.61	8.26	312.35
MW313	320.88	14.03	306.85
MW314*	318.94	22.14	296.80
MW422*	321.36	22.18	299.18
MW423	322.39	14.09	308.30
MW424	320.93	11.54	309.39
MW860	320.06	6.00	314.06
MW861	319.92	11.20	308.72
MW862	319.62	5.01	314.61
MW863	319.61	9.09	310.52
NEW WELLS - 2003			
Well No.	Reference Elevation (ft)		Groundwater Elevation (ft)
MW921	319.88	18.32	301.56
MW922	318.56	11.23	307.33
MW923	319.53	21.29	298.24
MW930	323.16	12.15	311.01
MW934	322.20	17.79	304.41
MW935	319.33	8.90	310.43
MW936	320.64	8.40	312.24
MW938	319.54	8.35	311.19
MW941	318.98	4.50	314.48
MW943	321.60	4.80	316.80

*MW 314 - no water
*MW 422 - no water

Table 16
2011 Field Parameter Summary
Niagara Falls Storage Site

GROUNDWATER

Well ID	Date	Temperature (°F[a])	pH	Spec. Cond.[b] (mS/cm[c])	DO[d] (mg/L[e])	ORP[f] (mV[g])	Turbidity (NTU[h])	Volume Purged (Liters[i])	Discharge milliter PM[j]
OW04A	4/14/11	45.9	7.84	1.34	1.29	163	13.9	10.2	340
OW04B	4/14/11	46.5	7.12	1.83	4.19	234	3.8	5.3	375
313	4/20/11	47.4	6.87	4.72	10.52	246	4.5	4.0	132
505[3]	4/18/11	46.1	6.67	5.06	2.51	158	1.3	1.8	120
201A	4/26/11	56.3	7.14	1.82	0.76	112	8.7	2.8	127
302A	4/20/11	45.9	6.99	8.52	6.97	98	0.0	5.2	114
411A	4/25/11	50.9	7.08	2.73	2.53	-28	0.0	5.0	143
415A	4/21/11	47.2	7.13	2.78	1.85	123	0.3	5.3	175
A42	4/20/11	52.2	7.03	1.37	2.08	215	4.0	12.5	250
A45	4/25/11	54.8	6.89	1.92	0.90	7	0.0	9.0	200
A50	4/25/11	51.2	7.33	1.77	2.09	98	5.2	3.0	100
A55	4/26/11	54.5	12.50	7.20	0.72	-196	10.0	1.6	80
B02W20S	4/19/11	46.5	7.52	1.46	1.20	280	0.0	5.1	114
BH49	4/18/11	47.0	12.03	0.66	4.79	35	10.1	2.4	160
BH49A	4/18/11	47.8	7.64	1.83	2.55	217	0.0	3.4	170
MW862	4/25/11	51.9	7.48	1.90	1.63	125	0.0	2.0	100
MW863	4/25/11	51.7	8.05	2.16	5.79	-152	0.0	1.8	90
MW921	4/20/11	48.7	7.02	5.04	3.70	213	0.0	8.1	162
MW934	4/25/11	50.9	6.99	3.63	1.37	234	7.3	3.1	122
MW935	4/21/11	49.4	7.06	3.41	2.81	78	2.5	2.7	90
OW03A	4/21/11	48.4	7.76	2.14	1.96	-63	9.1	2.0	99
OW03B	4/21/11	47.2	7.52	2.05	1.96	212	1.9	2.6	128
OW04A	4/25/11	52.6	8.72	1.24	2.09	169	3.2	3.9	110
OW04B	4/25/11	48.0	7.29	1.77	1.25	186	2.2	2.6	128
OW05A	4/26/11	52.8	7.87	1.33	3.71	19	7.2	3.0	100
OW05B	4/26/11	51.4	7.30	1.64	1.25	224	0.0	1.7	85
OW06A	4/26/11	51.5	8.40	1.85	6.59	170	0.0	4.7	166
OW06B	4/26/11	49.9	7.80	1.89	0.80	202	0.0	4.6	152
OW07A	4/19/11	45.0	7.6	2.13	1.76	10	3.5	5.0	100
OW07A[6]	5/14/11	53.4	8.0	1.98	4.10	143	0.0	4.4	200
OW07B	4/19/11	47.8	7.41	2.04	3.68	107	3.0	1.0	95
OW11A	4/19/11	45.2	9.08	1.48	3.30	156	0.0	2.9	145
OW11B	4/19/11	45.1	7.63	1.66	2.59	183	3.3	5.0	200
OW12A	4/21/11	50.7	8.04	1.82	1.03	-124	11.0	3.4	136
OW12B	4/19/11	43.8	7.68	0.67	5.53	122	0	3.3	163
OW13A	4/19/11	48.0	7.57	1.87	1.85	1	7.9	3.0	100
OW13B	4/20/11	51.8	7.45	2.81	1.72	230	2.4	1.1	75
OW15A	4/18/11	48.8	7.48	2.31	1.56	-75	3.1	6.0	149
OW15B	4/18/11	43.6	7.83	1.51	2.42	105	2.5	5.1	146
OW17A	4/18/11	45.8	8.48	7.18	4.27	-80	0.1	6.9	230
OW17B	4/18/11	44.8	7.86	1.47	1.29	68	4.4	2.9	193
OW18B	4/19/11	43.1	7.87	2.19	1.55	209	0.0	4.0	132
OW04A	8/16/11	60.9	8.06	1.31	0.20	-60	2.6	6.2	281
OW04B	8/16/11	64.5	7.07	1.70	1.52	106	0.0	10.4	345
313	10/24/11	56.2	6.64	4.50	2.91	59	0.0	5.7	126
505[1]	10/19/11								
201A	10/17/11	62.5	7.18	1.20	2.41	66	11.5	8.3	286
302A	10/24/11	58.9	7.20	8.38	1.71	78	0.0	5.9	255
411A	10/20/11	56.4	7.40	0.68	6.64	7	5.5	3.6	180
415A	10/18/11	55.9	6.81	2.74	0.54	-24	5.6	5.2	178
A42	10/19/11	55.8	6.92	1.38	0.46	68	8.1	6.0	300
A45	10/18/11	64.8	7.30	*	5.03	-190	151*	1.6	107
A50	10/18/11	58.7	7.26	1.79	1.47	-115	0.0	3.8	253
A55	10/19/11	54.0	13.97	6.77	1.34	-294	148*	5.0	172
B02W20S	10/24/11	58.5	7.07	1.47	0.02	-40	11.0	2.7	93
BH49	10/17/11	61.0	7.16	1.79	1.69	-140	0.0	1.6	80
BH49A	10/17/11	56.5	11.20	0.72	1.35	16	0.0	5.5	276
MW862	10/18/11	59.2	7.24	1.97	0.84	-33	0.0	4.0	200
MW863	10/18/11	58.4	7.80	2.01	1.20	-128	24.0	3.0	200

Table 16
2011 Field Parameter Summary
Niagara Falls Storage Site

GROUNDWATER (cont)

Well ID	Date	Temperature (°F[a])	pH	Spec. Cond.[b] (mS/cm[c])	DO[d] (mg/L[e])	ORP[f] (mV[g])	Turbidity (NTU[h])	Volume Purged (Liters[i])	Discharge milliter PM[j]
MW921[1]	10/19/11								
MW922[2]	10/20/11	58.9	7.19	2.39	0.47	-25	5.7	4.7	235
MW934	10/20/11	55.8	7.19	1.92	0.76	11	50.0	3.0	150
MW935	10/24/11	58.0	7.00	3.52	0.59	-39	8.9	6.5	260
OW03A	10/19/11	53.9	7.35	*	1.20	-128	24.0	3.6	180
OW03B	10/19/11	57.3	7.25	2.09	0.45	52	0.0	4.2	210
OW04A	10/17/11	56.5	7.91	1.24	2.97	30	1.0	2.4	80
OW04B	10/17/11	60.2	6.94	1.79	1.81	111	3.0	8.0	533
OW05A	10/18/11	58.6	7.93	*	6.47	-25	178*	1.5	100
OW05B	10/18/11	58.7	7.60	1.60	0.93	-37	6.8	2.0	100
OW06A	10/19/11	55.2	8.09	1.82	0.94	-156	0.5	4.0	200
OW06B	10/19/11	59.6	7.04	1.84	0.77	71	0.0	4.4	293
OW07A	10/20/11	54.4	8.03	2.13	1.44	-165	0.0	6.0	300
OW07B	10/20/11	59.6	7.03	2.04	1.95	90	43.4	2.7	150
OW11A	10/20/11	55.4	7.41	1.75	0.02	-101	9.6	3.8	208
OW11B	10/20/11	59.6	6.98	1.78	0.21	53	9.1	4.4	176
OW12A	10/20/11	56.7	7.25	1.86	0.07	-90	16.4	3.8	188
OW12B[1,3]	10/20/11								
OW13A	10/20/11	55.6	7.29	2.10	1.56	-106	0.0	6.0	300
OW13B	10/20/11	59.7	7.35	2.71	2.39	86	52.5	4.0	200
OW15A	10/20/11	53.3	8.12	2.29	1.04	-132	0.0	7.0	350
OW15B	10/20/11	60.1	7.29	0.66	6.31	76	0.0	6.5	260
OW17A	10/20/11	53.3	8.30	2.32	1.57	-155	0.0	7.0	350
OW17B	10/20/11	59.5	7.24	1.51	1.92	41	0.0	5.0	248
OW18B	10/24/11	57.6	7.18	2.10	0.19	2	3.8	3.2	160

SURFACE WATER

Surace Water	Date	Temperature (°F[a])	pH	Spec. Cond.[b] (mS/cm[c])	DO[d] (mg/L[e])	ORP[f] (mV[g])	Turbidity (NTU[h])
SWSD025	2/14/11	34.4	7.27	1.28	12.36	215	34.5
SWSD009	4/25/11	55.4	7.50	1.90	8.43	177	84.4
SWSD010	4/21/11	45.7	7.81	1.13	8.51	197	39.1
SWSD011	4/18/11	40.5	7.55	0.96	9.44	218	17.6
SWSD021	4/21/11	46.1	8.54	0.87	10.45	158	95.7
SWSD022	4/21/11	40.7	7.66	1.14	8.18	*	48.9
SWSD023	4/25/11	55.4	7.95	1.01	9.35	172	8.1
SWSD024	4/19/11	42.4	6.61	1.18	6.42	210	49.2
SWSD025	4/19/11	40.4	8.12	1.19	11.69	192	21.7
SWSD025-H***	4/20/11	47.0	6.57	0.92	8.70	203	212.0
WDD1	4/25/11	53.9	7.68	0.56	8.65	209	85.3
WDD2	4/25/11	53.0	7.44	0.54	7.03	211	92.8
WDD3	4/19/11	40.3	7.60	0.53	9.57	208	106.0
SWSD025	8/17/11	73.6	7.06	1.96	3.47	120	32.1
SWSD009	10/19/11	59.2	6.95	1.72	7.19	174	101.0
SWSD010	10/18/11	59.2	7.93	1.39	7.20	142	67.7
SWSD011	10/17/11	58.2	7.08	1.33	6.72	178	31.3
SWSD021	10/19/11	59.6	6.74	0.79	6.62	164	47.5
SWSD022	10/18/11	59.4	7.79	1.40	5.33	129	31.4
SWSD023	10/19/11	60.6	6.67	0.82	7.76	237	3.3
SWSD024	10/19/11	58.4	6.19	1.16	8.29	189	4.4
SWSD025	10/18/11	60.3	7.96	1.38	5.40	141	23.7
WDD1	10/18/11	58.0	7.48	1.03	6.77	158	19.9
WDD2	10/18/11	56.2	7.56	1.06	7.31	154	2.1
WDD3	10/18/11	54.6	7.76	1.07	7.24	150	2.2

a. °F - Degrees Fahrenheit.
b. Spec. Cond. - Specific conductance.
c. uS/cm - microSiemens/centimeter.
d. DO - Dissolved oxygen.
e. mg/L - milligrams per liter.
f. ORP - Oxidation-Reduction potential.
g. mV - milliVolts.
h. NTU - Nephelometric turbidity units.
i. 1-Liter = 0.26 gallons
j. Milliter PM = milliter per minute (1000ml = 1.0 liter) -averaged rate

NA - Not Applicable
* - parameters not taken/possible meter malfunction
**-Grab sample due to low recharge and purging dry
*** -High water event.
[1] Well was dry, no sample taken / purged dry -no recovery, no sample taken
[2] MW921 was dry during the Fall 2010 sampling event, well MW922 was sampled as a substitute
[3] Grab Sample Limited Parameters
[4] Water Quality Meter may be malfuctioning due to below freezing tempaures.
[5] NYSDOH requested sampling location.
[6] Anions, ALK, TDS and Metals recollected due to sample container breakage.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/20/11	10/24/11	04/25/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	510	470	560	550	620
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	510	470	560	550	620
BROMIDE	MG/L	2	1.3	0.24 J	13	0.73	0.44
CHLORIDE (AS CL)	MG/L	250	43	6	470	89	39
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,400	1,100	9,100	8,900	2,600
FLUORIDE	MG/L	1.5	0.98	0.4 J	0.41 J	0.22 J	0.61
NITROGEN, NITRATE (AS N)	MG/L	10	0.34	0.33	0.15 J	0.048 U	0.14 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.84 U	0.084 U	0.084 U	0.084 U
SULFATE	MG/L	250	3,400	480	4,700	4,800 J	1,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/21/11	10/18/11	04/18/11	04/20/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	440	610	610	810	450
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	440	610	610	810	450
BROMIDE	MG/L	2	0.35 J	0.14 U	1.2	2.7	0.53
CHLORIDE (AS CL)	MG/L	250	11	100	170 J	94	23
DISSOLVED SOLIDS, TOTAL	MG/L	-	910	2,000	2,800	4,400	920
FLUORIDE	MG/L	1.5	0.49 J	5.4	1.2	0.35 J	0.24 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.37	0.16 J	0.16 J	0.076 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.17 J
ORTHO-PHOSPHATE	MG/L	-	0.84 U	0.084 U	0.84 U	0.084 U	0.084 U
SULFATE	MG/L	250	330	760	1,200 J	1,200	320

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A45	A50
Field Sample Identifier :			A42	A45	A45	A45	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	04/21/11	04/25/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	460	480	470	490	440
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	460	480	470	490	440
BROMIDE	MG/L	2	0.8	0.15 J	0.43	0.31 J	3.1
CHLORIDE (AS CL)	MG/L	250	22	65	66	65	140
DISSOLVED SOLIDS, TOTAL	MG/L	-	940	1,800	1,700	1,700	1,300
FLUORIDE	MG/L	1.5	0.024 U	0.21 J	0.21 J	0.059 J	1.5
NITROGEN, NITRATE (AS N)	MG/L	10	0.26 J	0.1 J	0.048 U	0.21 J	0.89
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.84 U	0.084 U	0.084 U	0.84 U	0.084 U
SULFATE	MG/L	250	310	770	1,100	760	0.1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A50	A55	A55	B02W20S	B02W20S
Field Sample Identifier :			A50	A55	A55	B02W20S	B02W20S
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/26/11	10/19/11	04/19/11	10/24/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	440	20 U	20 U	470	460
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	88	82	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	440	690	540	470	460
BROMIDE	MG/L	2	0.31 J	2.9	0.64	0.22 J	0.27 J
CHLORIDE (AS CL)	MG/L	250	23	360	68	21	29
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,300	2,600	2,500	950	940
FLUORIDE	MG/L	1.5	0.52 J	0.22 J	0.048 J	0.46 J	0.62
NITROGEN, NITRATE (AS N)	MG/L	10	0.44	0.2 J	0.048 U	0.092 J	0.22 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.84 U	0.084 U	0.84 U	0.084 U	0.084 U
SULFATE	MG/L	250	610	7,000	1,200	340	360 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49	BH49A	BH49A	MW313
Field Sample Identifier :			BH49	BH49	BH49A	BH49A	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/17/11	04/18/11	10/17/11	04/20/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	20 U	420	420	20 U	580
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	23	20 U	20 U	27	20 U
ALKALINITY, TOTAL	MG/L	500	36	420	420	31	580
BROMIDE	MG/L	2	0.27 J	0.29 J	0.36 J	0.39 J	0.57
CHLORIDE (AS CL)	MG/L	250	22	51	50	26	41
DISSOLVED SOLIDS, TOTAL	MG/L	-	460	1,300	1,300	520	4,800
FLUORIDE	MG/L	1.5	0.32 J	0.3 J	0.34 J	0.2 J	0.21 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.93 J	0.23 J	0.18 J	0.73	0.19 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.15 J	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.84 U	0.084 U	0.84 U	0.084 U
SULFATE	MG/L	250	240	550	540	290	2,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW313	MW862	MW862	MW863	MW863
Field Sample Identifier :			MW313	MW862	MW862	MW863	MW863
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	530	620	590	200	220
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	530	620	590	200	220
BROMIDE	MG/L	2	0.69	0.71	0.69	0.79	0.53
CHLORIDE (AS CL)	MG/L	250	39	93	86	32	32
DISSOLVED SOLIDS, TOTAL	MG/L	-	4,400	1,400	1,300	1,600	1,600
FLUORIDE	MG/L	1.5	0.085 J	0.35 J	0.27 J	0.3 J	0.2 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.18 J	0.074 J	0.3	0.36	0.51
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.084 U	0.84 U	0.084 U	0.84 U
SULFATE	MG/L	250	2,700 J	440	440	980	920

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/20/11	10/20/11	04/25/11	10/24/11	04/21/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	730	420	700	590	550
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	730	420	700	590	550
BROMIDE	MG/L	2	2.5	0.46	0.72	0.61	0.43
CHLORIDE (AS CL)	MG/L	250	190	39	49	53	41
DISSOLVED SOLIDS, TOTAL	MG/L	-	4,300	4,600	3,200	3,300	2,800
FLUORIDE	MG/L	1.5	0.37 J	0.2 J	0.48 J	0.44 J	0.47 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.32 J	0.31	0.048 U	0.21 J	0.16 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.14 J
ORTHO-PHOSPHATE	MG/L	-	0.084 U	1.7 U	0.084 U	0.084 U	0.084 U
SULFATE	MG/L	250	2,300	2,900	1,700	2,000 J	1,500 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/21/11	10/19/11	04/21/11	10/19/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	610	490	480	510	500
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	610	490	480	510	500
BROMIDE	MG/L	2	2.4	0.82	0.45	0.36 J	0.32 J
CHLORIDE (AS CL)	MG/L	250	75 J	35	31	27	28
DISSOLVED SOLIDS, TOTAL	MG/L	-	4,400	1,600	1,500	1,600	1,400
FLUORIDE	MG/L	1.5	0.25 J	0.49 J	0.12 J	0.61	0.38 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.048 U	0.048 U	0.048 U	0.048 U	0.17 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.23 J	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.41 J	0.84 U	0.084 U	0.84 U
SULFATE	MG/L	250	2,700 J	720	710	740 J	600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			02/14/11	04/25/11	08/16/11	10/17/11	02/14/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	190	140	170	170	340
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	21	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	190	160	170	170	340
BROMIDE	MG/L	2	0.33 J	0.47	0.14 U	0.91	0.14 U
CHLORIDE (AS CL)	MG/L	250	30	31	29	32	95
DISSOLVED SOLIDS, TOTAL	MG/L	-	950	900	950	910	1,300
FLUORIDE	MG/L	1.5	0.7	0.43 J	0.26 J	0.17 J	0.77
NITROGEN, NITRATE (AS N)	MG/L	10	0.048 U	0.048 U	1.2	0.18 J	0.071 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.39	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.084 U	0.084 U	0.84 U	0.084 U
SULFATE	MG/L	250	560	460	420	480	490

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Field Sample Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	08/16/11	10/17/11	04/26/11	10/18/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	340	340	340	280	260
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	340	340	340	280	260
BROMIDE	MG/L	2	0.29 J	0.14 U	0.14 U	3.1	0.77
CHLORIDE (AS CL)	MG/L	250	100	76	100	220	41
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,400	1,300	1,400	960	920
FLUORIDE	MG/L	1.5	0.53 J	0.53 J	0.45 J	1.6	0.24 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.15 J	0.13 J	0.19 J	0.79	0.2 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.18 J
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.084 U	0.84 U	0.084 U	0.84 U
SULFATE	MG/L	250	600	470	550	2,600	440

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Field Sample Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/18/11	04/26/11	10/19/11	04/26/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	400	400	240	270	560
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	400	400	240	270	560
BROMIDE	MG/L	2	1.4	5	3.6	0.64	2.5
CHLORIDE (AS CL)	MG/L	250	110	16	190	31	270
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,200	1,100	1,300	1,400	1,400
FLUORIDE	MG/L	1.5	1.4	1.4	1.1	0.43 J	2.1
NITROGEN, NITRATE (AS N)	MG/L	10	0.58	0.048 U	1.3	0.15 J	0.22 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.13 J	0.18 J	0.14 J	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.84 U	0.084 U	0.84 U	0.084 U
SULFATE	MG/L	250	3,200	510	4,400	760	2,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Field Sample Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	05/04/11	10/20/11	04/19/11	10/20/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	550	170	190	440	430
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	550	170	190	440	430
BROMIDE	MG/L	2	0.56	0.68	1.4 U	0.29 J	0.4 J
CHLORIDE (AS CL)	MG/L	250	48	44	40	19	20
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,300	1,700	1,700	1,600	1,500
FLUORIDE	MG/L	1.5	0.63	0.34 J	0.24 U	0.37 J	0.34 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.18 J	0.46	0.48 U	0.25 J	0.2 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.54 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.84 U	2.8 U	0.84 U	0.084 U	0.84 U
SULFATE	MG/L	250	480	2,000	1,000	770	730

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Field Sample Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	10/20/11	04/19/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	230	220	370	360	220
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	230	220	370	360	220
BROMIDE	MG/L	2	0.47	0.14 U	0.19 J	0.36 J	0.48
CHLORIDE (AS CL)	MG/L	250	27	18	17	24	28
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,200	1,200	1,300	1,200	1,400
FLUORIDE	MG/L	1.5	0.37 J	0.19 J	0.41 J	0.19 J	0.4 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.21 J	0.048 U	0.12 J	0.16 J	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.16 J	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.84 U	0.084 U	1.7 U	0.084 U
SULFATE	MG/L	250	640	650	590	570	750

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Field Sample Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/19/11	04/19/11	10/20/11	04/20/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	210	250	210	200	560
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	210	250	210	200	560
BROMIDE	MG/L	2	0.76	0.14 U	0.6	0.7	0.5
CHLORIDE (AS CL)	MG/L	250	43	3.5	39	39	53
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,400	410	1,600	1,600	2,600
FLUORIDE	MG/L	1.5	0.22 J	0.6	0.42 J	0.25 J	0.37 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.15 J	0.13 J	0.18 J	0.048 U	0.048 U
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.27 J	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.84 U	0.084 U	0.084 U	6.7 J	0.084 U
SULFATE	MG/L	250	750	110	760	940	1,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Field Sample Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/18/11	10/20/11	04/18/11	10/20/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	530	110	94	450	460
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	530	110	94	450	460
BROMIDE	MG/L	2	0.5	0.83	0.22 J	0.14 U	0.18 J
CHLORIDE (AS CL)	MG/L	250	44	65	10	6.9	7.4
DISSOLVED SOLIDS, TOTAL	MG/L	-	2,400	1,800	1,800	1,100	1,300
FLUORIDE	MG/L	1.5	0.38 J	0.41 J	0.43 J	0.62	0.5 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.31	0.08 J	0.17 J	0.13 J	0.14 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	1.7 U	0.084 U	0.84 U	0.084 U	0.84 U
SULFATE	MG/L	250	1,200	1,100	1,100	430	540

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Field Sample Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/20/11	04/18/11	10/20/11	04/19/11
Parameter	Units	Criteria[1]					
MISCELLANEOUS							
ALKALINITY, BICARBONATE (As CaCO3)	MG/L	-	130	130	460	440	540
ALKALINITY, CARBONATE (As CaCO3)	MG/L	-	20 U	20 U	20 U	20 U	20 U
ALKALINITY, TOTAL	MG/L	500	130	130	460	440	540
BROMIDE	MG/L	2	0.47	0.37 J	0.35 J	0.54	0.28 J
CHLORIDE (AS CL)	MG/L	250	34	29	10	34	19
DISSOLVED SOLIDS, TOTAL	MG/L	-	1,900	1,900	1,000	1,000	1,500
FLUORIDE	MG/L	1.5	0.27 J	0.21 J	0.58 J	0.28 J	0.37 J
NITROGEN, NITRATE (AS N)	MG/L	10	0.24 J	0.22 J	0.23 J	0.15 J	0.23 J
NITROGEN, NITRITE (AS N)	MG/L	1	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
ORTHO-PHOSPHATE	MG/L	-	0.084 U	0.84 U	0.084 U	0.84 U	0.084 U
SULFATE	MG/L	250	1,100	1,200	400	430	710

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 17
GROUNDWATER ANALYTICAL RESULTS - WATER QUALITY PARAMETERS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW18B
Field Sample Identifier :			OW18B
Sample Type :			Groundwater
Sample Depth Interval (ft) :			-
Date of Sample :			10/24/11
Parameter	**Units**	**Criteria[1]**	
MISCELLANEOUS			
ALKALINITY, BICARBONATE (As CaCO3)	*MG/L*	-	560
ALKALINITY, CARBONATE (As CaCO3)	*MG/L*	-	20 U
ALKALINITY, TOTAL	*MG/L*	500	560
BROMIDE	*MG/L*	2	0.25 J
CHLORIDE (AS CL)	*MG/L*	250	15
DISSOLVED SOLIDS, TOTAL	*MG/L*	-	1,400
FLUORIDE	*MG/L*	1.5	0.75
NITROGEN, NITRATE (AS N)	*MG/L*	10	0.53
NITROGEN, NITRITE (AS N)	*MG/L*	1	0.054 U
ORTHO-PHOSPHATE	*MG/L*	-	0.084 U
SULFATE	*MG/L*	250	670 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/20/11	10/24/11	04/25/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.569 U	-0.622 U	-0.85 U	-0.974 U	0.454 U
PLUTONIUM-238	PCI/L	15	-0.011 U	-0.011 U	0.044 U	-0.057 U	-0.078 U
PLUTONIUM-239/240	PCI/L	15	0 U	0.009 U	0.021 U	-0.028 U	0.007 U
RADIUM-226	PCI/L	3	0.0656 U	0 U	0 U	0.114 U	0.108 U
RADIUM-228	PCI/L	5	0.936	0.46 U	1.11	0.355 J	0.674 U
TOTAL RADIUM	PCI/L	5	0.936	Not Detected	1.11	0.355	Not Detected
STRONTIUM-90	PCI/L	8	-0.046 U	-0.274 U	0.099 U	0.002 U	-0.107 U
TECHNETIUM-99	PCI/L	900	-1.62 U	-0.638 U	2.13 U	1.21 U	-0.515 U
THORIUM-228	PCI/L	15	0.153 U	0.38 U	0.088 U	0.277	0.149 U
THORIUM-230	PCI/L	15	0.132 U	0.17 U	0.029 U	0.084 U	R
THORIUM-232	PCI/L	15	0.007 U	-0.039 U	0.038 U	0.047 U	0.036 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-88.2 U	-55.2 U	-20.1 U	20.2 U	-37.5 U
URANIUM-234	PCI/L	-	7.24	4.88	52.8	47.7	7.45
URANIUM-235	PCI/L	-	0.265	0.152 U	2.11	1.97	0.285
URANIUM-238	PCI/L	-	5.68	4.33	38.8	35.5	5.59
TOTAL URANIUM	PCI/L	27	13.185	9.21	93.71	85.17	13.325

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/21/11	10/18/11	04/18/11	04/20/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.709 U	-0.217 U	-0.924 U	-0.641 U	0.051 U
PLUTONIUM-238	PCI/L	15	0.019 U	-0.05 U	-0.026 U	-0.023 U	-0.028 U
PLUTONIUM-239/240	PCI/L	15	-0.008 U	0.029 U	0.046 U	0.008 U	-0.031 U
RADIUM-226	PCI/L	3	0.267 U	0.0592 U	-0.18 U	0.0661 U	0.189 U
RADIUM-228	PCI/L	5	0.895 U	0.954	0.259 U	0.608 U	0.942
TOTAL RADIUM	PCI/L	5	Not Detected	0.954	Not Detected	Not Detected	0.942
STRONTIUM-90	PCI/L	8	-0.25 U	0.553 U	-0.219 U	-0.368 U	0.023 U
TECHNETIUM-99	PCI/L	900	-4.27 U	1.4 U	2.97 U	0.422 U	3.21 U
THORIUM-228	PCI/L	15	0.242 U	0.058 U	0.076 U	0.104 U	0.04 U
THORIUM-230	PCI/L	15	0.026 U	0.047 U	0.214	0.059 U	0.156
THORIUM-232	PCI/L	15	0.025 U	0.028 U	0.012 U	0.025 U	0.019 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	26.4 U	123 U	-25 U	-50.2 U	35.1 U
URANIUM-234	PCI/L	-	4.28	8.15	8.51	15.4	25.6
URANIUM-235	PCI/L	-	0.197	0.346	0.291	0.734	1.16
URANIUM-238	PCI/L	-	3.91	6.73	7.07	11.9	22.3
TOTAL URANIUM	PCI/L	27	8.387	15.226	15.871	28.034	49.06

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A45	A50
Field Sample Identifier :			A42	A45	A45	A45	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	04/21/11	04/25/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-1.64 U	0.086 U	-0.116 U	-3.03 U	-1.37 U
PLUTONIUM-238	PCI/L	15	-0.009 U	-0.076 U	0.008 U	R	0.013 U
PLUTONIUM-239/240	PCI/L	15	0.035 U	-0.075 U	0.031 U	-0.065 U	0.02 U
RADIUM-226	PCI/L	3	0.245 U	0.063 U	0.322 U	0.29 U	0.0597 U
RADIUM-228	PCI/L	5	0.257 U	0.87 J	0.124 U	0.879 U	0.637 U
TOTAL RADIUM	PCI/L	5	Not Detected	0.87	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.073 U	-0.012 U	-0.035 U	-0.102 U	0.266 U
TECHNETIUM-99	PCI/L	900	-6.09 U	-0.743 U	R	3.95 U	-2.51 U
THORIUM-228	PCI/L	15	1.11 J	0.042 U	0.166 U	0.141 U	0.091 U
THORIUM-230	PCI/L	15	0.118 U	0.137 J	0.14 J	0.193 U	0.086 U
THORIUM-232	PCI/L	15	0.03 U	0.004 U	-0.018 U	0.045 U	0.052 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-69.4 U	-62.7 U	-42.5 U	-90.3 U	-25.1 U
URANIUM-234	PCI/L	-	31.9	15.3	15.5	9.79	6.86
URANIUM-235	PCI/L	-	1.32	0.544	0.567	0.482	0.331
URANIUM-238	PCI/L	-	28.8	11.5	11.4	7.82	5.41
TOTAL URANIUM	PCI/L	27	62.02	27.344	27.467	18.092	12.601

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			A50	A55	A55	B02W20S	B02W20S
Field Sample Identifier :			A50	A55	A55	B02W20S	B02W20S
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/26/11	10/19/11	04/19/11	10/24/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	1.55 U	-0.349 U	-2.18 U	0.122 U	-0.058 U
PLUTONIUM-238	PCI/L	15	0.037 U	-0.007 U	0 U	-0.015 U	-0.068 U
PLUTONIUM-239/240	PCI/L	15	0.001 U	-0.006 U	-0.019 U	-0.015 U	-0.006 U
RADIUM-226	PCI/L	3	0.909 U	0.407	0.275 U	0 U	0.331 U
RADIUM-228	PCI/L	5	1.03	1.13	0.701 U	0.748 U	R
TOTAL RADIUM	PCI/L	5	1.03	1.537	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.248 U	-0.21 U	0.24 U	0.179 U	-0.241 U
TECHNETIUM-99	PCI/L	900	1.88 U	3.24 U	1.1 U	-0.132 U	-3.06 U
THORIUM-228	PCI/L	15	1.21 J	0.165 U	R	0.067 U	0.094 U
THORIUM-230	PCI/L	15	0.209 J	0.158 U	0.065 U	0.066 U	0.174 J
THORIUM-232	PCI/L	15	0.083 U	0.076 U	-0.014 U	0.028 U	0.018 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	76.7 U	-57.7 U	-106 U	30.1 U	113 U
URANIUM-234	PCI/L	-	6.22	0.016 U	0.009 U	5.07	5.16
URANIUM-235	PCI/L	-	0.342	0.015 U	0 U	0.181	0.364
URANIUM-238	PCI/L	-	5.21	0.001 U	0.075 U	3.7	3.99
TOTAL URANIUM	PCI/L	27	11.772	Not Detected	Not Detected	8.951	9.514

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49	BH49A	BH49A	MW313
Field Sample Identifier :			BH49	BH49	BH49A	BH49A	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/17/11	04/18/11	10/17/11	04/20/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	1.04 U	0.208 U	-0.432 U	-0.444 U	0 U
PLUTONIUM-238	PCI/L	15	R	0.077 U	-0.003 U	0.034 U	-0.016 U
PLUTONIUM-239/240	PCI/L	15	-0.078 U	0.019 U	R	0.008 U	-0.007 U
RADIUM-226	PCI/L	3	0.191 U	0 U	0.289	0.17 U	0.248 U
RADIUM-228	PCI/L	5	0.507 U	0.309 U	0.387 U	0.578 U	0.748
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	0.289	Not Detected	0.748
STRONTIUM-90	PCI/L	8	0.037 U	-0.581 U	1.26 U	-0.024 U	-0.208 U
TECHNETIUM-99	PCI/L	900	2.148 U	-6.21 U	2.164 U	0.271 U	5.18 U
THORIUM-228	PCI/L	15	0.118 U	R	0.267 J	0.082 U	0.15
THORIUM-230	PCI/L	15	0.21 J	0.045 U	0.11 U	R	0.095 U
THORIUM-232	PCI/L	15	0.031 U	0.032 U	0.01 U	0.018 U	0.017 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	100 U	-68.4 U	-5.01 U	20.3 U	100 U
URANIUM-234	PCI/L	-	0.017 U	6.45	5.73	-0.152 U	28.1
URANIUM-235	PCI/L	-	-0.033 U	0.32	0.235	-0.011 U	1.04
URANIUM-238	PCI/L	-	-0.008 U	3.86	4.04	-0.024 U	21.5
TOTAL URANIUM	PCI/L	27	Not Detected	10.63	10.005	Not Detected	50.64

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW313	MW862	MW862	MW863	MW863
Field Sample Identifier :			MW313	MW862	MW862	MW863	MW863
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.207 U	0.415 U	-1.83 U	-0.922 U	0.11 U
PLUTONIUM-238	PCI/L	15	0.032 U	-0.023 U	-0.072 U	0.022 U	0.018 U
PLUTONIUM-239/240	PCI/L	15	-0.11 U	-0.026 U	0.041 U	0.013 U	-0.098 U
RADIUM-226	PCI/L	3	-0.039 U	0.405	0.24 U	0.183 U	1.25
RADIUM-228	PCI/L	5	R	0.504 U	R	1.12	R
TOTAL RADIUM	PCI/L	5	Not Detected	0.405	Not Detected	1.12	1.25
STRONTIUM-90	PCI/L	8	0.074 U	0.115 U	0.527 U	-0.361 U	-0.357 U
TECHNETIUM-99	PCI/L	900	-2.12 U	1.09 U	-4.45 U	3.23 U	-2.54 U
THORIUM-228	PCI/L	15	0.164	0.081 U	0.422	0.147 U	0.253 U
THORIUM-230	PCI/L	15	R	0.059 U	0.214 U	0.056 U	0.166 U
THORIUM-232	PCI/L	15	0.053	-0.005 U	0.094 U	0.006 U	0.039 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	101 U	-47.6 U	-140 U	-163 U	-230 U
URANIUM-234	PCI/L	-	20.2	10.1	9.49	1.59	1.82
URANIUM-235	PCI/L	-	0.626	0.521	0.489	0.082	0.029 U
URANIUM-238	PCI/L	-	15.4	8.57	7.04	1.48	1.23
TOTAL URANIUM	PCI/L	27	36.226	19.191	17.019	3.152	3.05

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/20/11	10/20/11	04/25/11	10/24/11	04/21/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-1.14 U	2.2 U	-0.164 U	0.082 U	0.495 U
PLUTONIUM-238	PCI/L	15	-0.016 U	0.017 U	0.004 U	-0.006 U	0.015 U
PLUTONIUM-239/240	PCI/L	15	-0.099 U	-0.043 U	0.026 U	0.072 U	-0.037 U
RADIUM-226	PCI/L	3	0.192 U	0.365	0.0644 U	0.47 U	0.225 U
RADIUM-228	PCI/L	5	0.333 U	0.321 U	0.945 J	R	1.03
TOTAL RADIUM	PCI/L	5	Not Detected	0.365	0.945	Not Detected	1.03
STRONTIUM-90	PCI/L	8	0.093 U	0.082 U	0.422 U	0.086 U	-0.131 U
TECHNETIUM-99	PCI/L	900	3.28 U	-2.71 U	2.74 U	-1.92 U	3.69 U
THORIUM-228	PCI/L	15	0.049 U	0.232	0.19 U	0.151 U	0.191
THORIUM-230	PCI/L	15	0.039 U	-0.009 U	0.079 U	0.095 U	0.089
THORIUM-232	PCI/L	15	0.01 U	0.026 U	0.051 U	0.042 U	0.02 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-52.8 U	-54.1 U	-100 U	85.9 U	60.2 U
URANIUM-234	PCI/L	-	16.8	13.4	12.7	11.5	14.8
URANIUM-235	PCI/L	-	0.775	0.387	0.534	0.384	0.512
URANIUM-238	PCI/L	-	12.6	10.7	10.6	8.62	9.56
TOTAL URANIUM	PCI/L	27	30.175	24.487	23.834	20.504	24.872

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/21/11	10/19/11	04/21/11	10/19/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.976 U	-1.12 U	-0.155 U	-0.004 U	-1.39 U
PLUTONIUM-238	PCI/L	15	-0.046 U	0.003 U	-0.008	0.008 U	0.026 U
PLUTONIUM-239/240	PCI/L	15	0.064 U	-0.029 U	0.024 U	-0.002 U	0.086 U
RADIUM-226	PCI/L	3	0.123 U	0.151 U	0.255 U	0.0551 U	0.19 U
RADIUM-228	PCI/L	5	R	0.592 U	0.0755 U	0.653 U	R
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.228 U	-0.285 U	0.437 U	0.102 U	0.013 U
TECHNETIUM-99	PCI/L	900	6.77 U	3.21 U	0.016 U	1.41 U	0.156 U
THORIUM-228	PCI/L	15	0.14 U	0.01 U	0.317 U	0.043 U	0.403
THORIUM-230	PCI/L	15	0.064 U	0.094	0.041 U	0.09 U	0.148 U
THORIUM-232	PCI/L	15	0.045 U	0.028 U	0.007 U	0.045 U	0.051 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-65.7 U	-7.53 U	0 U	10 U	-141 U
URANIUM-234	PCI/L	-	18.2	5.21	5.14	7.41	7.58
URANIUM-235	PCI/L	-	0.951	0.225	0.094 U	0.222	0.195
URANIUM-238	PCI/L	-	15	4.27	3.68	5.55	5.71
TOTAL URANIUM	PCI/L	27	34.151	9.705	8.82	13.182	13.485

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			02/14/11	04/25/11	08/16/11	10/17/11	02/14/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.083 U	0.531 U	-0.016 U	-0.775 U	-1.22 U
PLUTONIUM-238	PCI/L	15	0.148 U	-0.02 U	0.026 U	0.044 U	0.219 U
PLUTONIUM-239/240	PCI/L	15	0.019 U	0.013 U	0.048 U	-0.009 U	0.019 U
RADIUM-226	PCI/L	3	0.134 U	0.0545 U	-0.183 U	0.095 U	0.192
RADIUM-228	PCI/L	5	0.257 U	0.489 U	0.262 U	1.03 J	0.03 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	1.03	0.192
STRONTIUM-90	PCI/L	8	0.157 U	0.472 U	-0.496 U	0.334 U	0.208 U
TECHNETIUM-99	PCI/L	900	-0.79 U	-0.303 U	1.54 U	0.904 U	-0.8 U
THORIUM-228	PCI/L	15	-0.017 U	0.064 U	0.386 U	1.02 J	-0.063 U
THORIUM-230	PCI/L	15	0.437	0.15 J	0.089 U	0.076 U	0.09 U
THORIUM-232	PCI/L	15	0.216	-0.016 U	-0.041 U	0.04 U	0.093 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	352 U	-47.4 U	131 U	-179 U	230 U
URANIUM-234	PCI/L	-	2.58	1.03	1.09	1.25	19
URANIUM-235	PCI/L	-	0.662 U	0.046 U	0.12 U	-0.022 U	2.2
URANIUM-238	PCI/L	-	1.64	0.629	0.572 J	0.461	21
TOTAL URANIUM	PCI/L	27	4.22	1.659	1.662	1.711	42.2

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Field Sample Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	08/16/11	10/17/11	04/26/11	10/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.154 U	-0.106 U	-0.327 U	-0.036 U	-2.34 U
PLUTONIUM-238	PCI/L	15	0.003 U	0.059 U	0.009 U	0.02 U	0.027 U
PLUTONIUM-239/240	PCI/L	15	0.022 U	-0.004 U	0.044 U	-0.02 U	-0.033 U
RADIUM-226	PCI/L	3	0.11 U	0.245 U	-0.266 U	0.361	0 U
RADIUM-228	PCI/L	5	0.744 U	0.583 U	0.168 U	0.81 U	0.423 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	0.361	Not Detected
STRONTIUM-90	PCI/L	8	0.186 U	-0.004 U	0.285 U	-0.057 U	-0.271 U
TECHNETIUM-99	PCI/L	900	-0.237 U	3.5 U	-4.72 U	-0.927 U	3.85 U
THORIUM-228	PCI/L	15	0.153 U	0.201 U	R	0.112 U	0.203 U
THORIUM-230	PCI/L	15	0.144 J	0.071 U	0.061 U	0.163 J	0.097 U
THORIUM-232	PCI/L	15	0.007 U	-0.008 U	0.006 U	0.018 U	0.076 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-62.7 U	-121 U	-149 U	-205 U	-182 U
URANIUM-234	PCI/L	-	20.6	14.6	17.1	1.35	1.97
URANIUM-235	PCI/L	-	1.06	1.89	0.955	0.057	0.015 U
URANIUM-238	PCI/L	-	19.5	12.5	16.1	0.816	0.98
TOTAL URANIUM	PCI/L	27	41.16	28.99	34.155	2.223	2.95

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Field Sample Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/18/11	04/26/11	10/19/11	04/26/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.646 U	-1.24 U	-0.34 U	0.063 U	-0.09 U
PLUTONIUM-238	PCI/L	15	0.032 U	0 U	-0.032 U	0.027 U	-0.007 U
PLUTONIUM-239/240	PCI/L	15	-0.034 U	-0.217 U	-0.039 U	-0.015 U	-0.043 U
RADIUM-226	PCI/L	3	0 U	0.175 U	0.0643 U	0.538 U	0.133 U
RADIUM-228	PCI/L	5	0.517 U	0.623 U	0.522 J	0.92 J	0.874
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	0.522	0.92	0.874
STRONTIUM-90	PCI/L	8	-0.009 U	-0.082 U	-0.014 U	-0.053 U	-0.542 U
TECHNETIUM-99	PCI/L	900	-0.128 U	-3.51 U	1.32 U	-5.93 U	-1.46 U
THORIUM-228	PCI/L	15	0.005 U	0.112 U	0.279 U	R	0.192 U
THORIUM-230	PCI/L	15	0.107 U	0.075 U	0.1 U	0.141 U	0.07 U
THORIUM-232	PCI/L	15	0.009 U	0.124	0.019 U	0.02 U	0.007 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-110 U	-123 U	7.53 U	-121 U	-75.3 U
URANIUM-234	PCI/L	-	6.41	5.98	0.77	0.721	8.59
URANIUM-235	PCI/L	-	0.294	0.181	0.021 U	0.019 U	0.403
URANIUM-238	PCI/L	-	4.82	4.41	0.296	0.448	5.98
TOTAL URANIUM	PCI/L	27	11.524	10.571	1.066	1.169	14.973

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Field Sample Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	04/19/11	10/20/11	04/19/11	10/20/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.697 U	-0.261 U	-1.29 U	-0.518 U	-0.075 U
PLUTONIUM-238	PCI/L	15	0.003 U	0 U	0 U	0.044 U	-0.003 U
PLUTONIUM-239/240	PCI/L	15	-0.028 U	0.069 U	0 U	-0.012 U	0.033 U
RADIUM-226	PCI/L	3	-0.148 U	0.12 U	0 U	0.141 U	-0.232 U
RADIUM-228	PCI/L	5	0.161 U	0.517 U	0.633 U	0.867 J	R
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	0.867	Not Detected
STRONTIUM-90	PCI/L	8	-0.052 U	0.31 U	-0.118 U	-0.751 U	-0.022 U
TECHNETIUM-99	PCI/L	900	-4.35 U	0 U	-1.35 U	1.75 U	-3.31 U
THORIUM-228	PCI/L	15	1.18 J	0.093 U	0.244	0.132 U	0.252 U
THORIUM-230	PCI/L	15	0.086 U	0.054 U	0.091 U	0.159 J	0.127 U
THORIUM-232	PCI/L	15	0.023 U	0.009 U	0.037 U	0.04 U	0.042 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-93.7 U	20 U	12.6 U	-42.6 U	-48.9 U
URANIUM-234	PCI/L	-	7.61	0.57	0.738	9.71	8.11
URANIUM-235	PCI/L	-	0.325	0.01 U	-0.015 U	0.311	0.326
URANIUM-238	PCI/L	-	6.5	0.562	0.424	6.9	6.7
TOTAL URANIUM	PCI/L	27	14.435	1.132	1.162	16.921	15.136

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Field Sample Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	10/20/11	04/19/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.419 U	-0.005 U	-1.26 U	-2.26 U	-0.454 U
PLUTONIUM-238	PCI/L	15	0.005 U	0.011 U	-0.024 U	-0.017 U	-0.024 U
PLUTONIUM-239/240	PCI/L	15	0.049 U	-0.115 U	0.006 U	0.028 U	-0.009 U
RADIUM-226	PCI/L	3	0.394	0.244 U	0.0659 U	-0.047 U	0.309 U
RADIUM-228	PCI/L	5	0.387 U	R	0.716 U	R	0.54 U
TOTAL RADIUM	PCI/L	5	0.394	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	0.314 U	0.092 U	0.142 U	-0.135 U	1.03
TECHNETIUM-99	PCI/L	900	0.599 U	0.388 U	2.02 U	-5.34 U	1.97 U
THORIUM-228	PCI/L	15	R	0.211	R	0.184	0.1 U
THORIUM-230	PCI/L	15	R	0.134 U	0.038 U	R	0.128 U
THORIUM-232	PCI/L	15	0.037 U	0.036 U	0 U	0.028 U	0.007 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-17.5 U	40.1 U	87.8 U	-10.3 U	-100 U
URANIUM-234	PCI/L	-	0.578	0.7	186	83	1.55
URANIUM-235	PCI/L	-	0.011 U	0.145 U	9.66	4.86	0.127
URANIUM-238	PCI/L	-	0.396	0.415	182	79.8	1.22
TOTAL URANIUM	PCI/L	27	0.974	1.115	377.66	167.66	2.897

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12A	OW12B	OW12B	OW13A	OW13A
Field Sample Identifier :			OW12A	OW12B	OW12B	OW13A	OW13A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/19/11	10/20/11	04/19/11	10/20/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0.657 U	-0.148 U	Not Anaylzed	-0.157 U	1.76 U
PLUTONIUM-238	PCI/L	15	0.014 U	-0.008 U	-0.158 U	-0.022 U	0.017 U
PLUTONIUM-239/240	PCI/L	15	0.03 U	-0.016 U	R	-0.122 U	0.009 U
RADIUM-226	PCI/L	3	0.4 U	0.0525 U	Not Anaylzed	0.267	0.448 U
RADIUM-228	PCI/L	5	0.762 U	0.324 U	Not Anaylzed	0.471 U	0.519 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Analyzed	0.267	Not Detected
STRONTIUM-90	PCI/L	8	-0.125 U	-0.012 U	Not Anaylzed	0.09 U	-0.174 U
TECHNETIUM-99	PCI/L	900	-4.89 U	2.49 U	Not Anaylzed	0.928 U	2.08 U
THORIUM-228	PCI/L	15	0.121 U	0.079 U	0.257	0.189	0.237 U
THORIUM-230	PCI/L	15	0.082 U	0.154	0.144 U	0.093	0 U
THORIUM-232	PCI/L	15	0.059 U	0.038 U	0.079 U	0.037 U	0.037 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	0 U	-12.5 U	Not Anaylzed	-77.8 U	-81.3 U
URANIUM-234	PCI/L	-	1.4	12.6	9.19	0.963	1.01
URANIUM-235	PCI/L	-	-0.02 U	0.543	0.296	0.079	0.019 U
URANIUM-238	PCI/L	-	1.01	9.24	8.12	1.08	1.11
TOTAL URANIUM	PCI/L	27	2.41	22.383	17.606	2.122	2.12

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW13B	OW15A	OW15A	OW15B
Field Sample Identifier :			OW13B	OW13B	OW15A	OW15A	OW15B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/20/11	10/20/11	04/18/11	10/20/11	04/18/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	0 U	-0.156 U	-0.33 U	0 U	-0.666 U
PLUTONIUM-238	PCI/L	15	0.026 U	0 U	0 U	0.019 U	0.001 U
PLUTONIUM-239/240	PCI/L	15	0.013 U	-0.015 U	0.002 U	0.033 U	-0.003 U
RADIUM-226	PCI/L	3	0.118 U	0.146 U	0.251 U	-0.041 U	0.3
RADIUM-228	PCI/L	5	0.627 U	0.174 U	0.749 U	R	0.586 U
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	0.3
STRONTIUM-90	PCI/L	8	-0.137 U	0.017 U	1.02 U	0.033 U	-0.019 U
TECHNETIUM-99	PCI/L	900	4.73 U	-0.869 U	0.928 U	-0.837 U	1.329 U
THORIUM-228	PCI/L	15	0.142	0.237	0.254 J	0.174 U	0.264 J
THORIUM-230	PCI/L	15	0.078 U	0.09 U	0.077 U	0.119 U	0.019 U
THORIUM-232	PCI/L	15	0.009 U	0.023 U	0.019 U	0.04 U	0.019 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	37.6 U	0 U	-17.6 U	-72.3 U	57.9 U
URANIUM-234	PCI/L	-	9.52	12	0.146 U	0.291 U	6.46
URANIUM-235	PCI/L	-	0.307	0.622	0.011 U	0.02 U	0.171
URANIUM-238	PCI/L	-	7.68	10.2	0.103	0.105 U	4.51
TOTAL URANIUM	PCI/L	27	17.507	22.822	0.103	Not Detected	11.141

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW15B	OW17A	OW17A	OW17B	OW17B
Field Sample Identifier :			OW15B	OW17A	OW17A	OW17B	OW17B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/18/11	10/20/11	04/18/11	10/20/11
Parameter	Units	Criteria[1]					
RADIONUCLIDES							
CESIUM-137	PCI/L	200	-0.58 U	-0.675 U	1.67 U	-0.132 U	-0.245 U
PLUTONIUM-238	PCI/L	15	-0.007 U	-0.007 U	0 U	0.057 U	-0.022 U
PLUTONIUM-239/240	PCI/L	15	-0.105 U	0.015 U	0.016 U	0.039 U	-0.179 U
RADIUM-226	PCI/L	3	0.0423 U	0.416 U	0.139 U	0.109 U	0.0841 U
RADIUM-228	PCI/L	5	R	0.665 U	R	0.799 U	R
TOTAL RADIUM	PCI/L	5	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
STRONTIUM-90	PCI/L	8	-0.192 U	-0.218 U	-0.133 U	-0.051 U	-0.141 U
TECHNETIUM-99	PCI/L	900	2 U	2.046 U	0.48 U	2.181 U	4.27 U
THORIUM-228	PCI/L	15	0.117 U	R	0.059 U	R	0.143 U
THORIUM-230	PCI/L	15	0.047 U	0.071 U	0 U	0.075 U	R
THORIUM-232	PCI/L	15	0.019 U	0.018 U	0.029 U	0.019 U	0.055 U
TRITIUM (HYDROGEN-3)	PCI/L	20000	-97.8 U	100 U	62.2 U	0 U	-12.7 U
URANIUM-234	PCI/L	-	3.22	0.583	0.439	3.24	3.51
URANIUM-235	PCI/L	-	0.109 U	0.091	0 U	0.127	0.024 U
URANIUM-238	PCI/L	-	2.13	0.342	0.452	2.48	2.45
TOTAL URANIUM	PCI/L	27	5.35	1.016	0.891	5.847	5.96

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 18
GROUNDWATER ANALYTICAL RESULTS - RADIONUCLIDES
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW18B	OW18B
Field Sample Identifier :			OW18B	OW18B
Sample Type :			Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-
Date of Sample :			04/19/11	10/24/11
Parameter	**Units**	**Criteria[1]**		
RADIONUCLIDES				
CESIUM-137	*PCI/L*	200	0.022 U	-0.364 U
PLUTONIUM-238	*PCI/L*	15	0.007 U	-0.02 U
PLUTONIUM-239/240	*PCI/L*	15	0.004 U	-0.016 U
RADIUM-226	*PCI/L*	3	0.201 U	0 U
RADIUM-228	*PCI/L*	5	0.565 U	0.165 U
TOTAL RADIUM	*PCI/L*	5	Not Detected	Not Detected
STRONTIUM-90	*PCI/L*	8	-0.148 U	-0.107 U
TECHNETIUM-99	*PCI/L*	900	1.587 U	-2.43 U
THORIUM-228	*PCI/L*	15	0.122 U	0.018 U
THORIUM-230	*PCI/L*	15	R	0.114 U
THORIUM-232	*PCI/L*	15	0 U	0.061 U
TRITIUM (HYDROGEN-3)	*PCI/L*	20000	-80.1 U	-5.11 U
URANIUM-234	*PCI/L*	-	5.27	5.9
URANIUM-235	*PCI/L*	-	0.208	0.254
URANIUM-238	*PCI/L*	-	4.4	4.68
TOTAL URANIUM	*PCI/L*	27	9.878	10.834

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/20/11	10/24/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	120	62	5.7 J	11 J	4.6 J
ANTIMONY	UG/L	3	0.52 U	0.8 J	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	1.2	1.2	2.6	1.6	3.2
BARIUM	UG/L	1000	18	24	8.8 J	9.7 J	14
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	230	290	120 J	150 J	930
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 J	0.18 J	0.11 U
CALCIUM	UG/L	-	160,000	180,000	500,000	440,000	130,000
CHROMIUM, TOTAL	UG/L	50	0.62 J	0.66 J	0.7 J	0.6 J	0.42 J
COBALT	UG/L	-	0.95 J	2.2	1.6 J	2.8	0.31 J
COPPER	UG/L	200	1.3 J	1.2 J	5.6	6.8	1.5 J
IRON	UG/L	300	310	340	140	170	870
LEAD	UG/L	25	0.38 J	0.24 J	0.096 U	0.096 U	0.096 J
LITHIUM	UG/L	-	53	53	310	240	76
MAGNESIUM	UG/L	35000	140,000	160,000	1,100,000	1,400,000	250,000
MANGANESE	UG/L	300	110	280	180	870	24
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.028 J	0.027 U
NICKEL	UG/L	100	5.6	5.4	25	19	5.2
POTASSIUM	UG/L	-	2,200	2,600	6,900	8,000	1,900

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	302A	302A	411A
Field Sample Identifier :			201A	201A	302A	302A	411A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/20/11	10/24/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	0.58 U	0.58 U	7.3	4	1.1 J
SILVER	UG/L	50	0.18 U	0.34 J	0.18 U	0.18 U	0.18 J
SODIUM	UG/L	20000	62,000	69,000	480,000	440,000	100,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.068 J	0.066 U
VANADIUM	UG/L	14	1	0.64 J	0.43 J	0.46 J	0.73 J
ZINC	UG/L	2000	18 J	16 J	27	24	15 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/21/11	10/18/11	04/18/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	110	150	40	5.8 J	3.7 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.68	1.5	3.5	3.4	0.59 J
BARIUM	UG/L	1000	20	16	12	12	33
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	520	6,900	20,000	350	99 J
CADMIUM	UG/L	5	0.11 U	0.49	0.15 J	0.2 J	0.11 U
CALCIUM	UG/L	-	82,000	250,000	310,000	240,000	180,000
CHROMIUM, TOTAL	UG/L	50	3.4 J	1.5 J	1.2 J	0.65 J	0.54 J
COBALT	UG/L	-	0.34 J	3.1	3.2	0.61 J	0.31 J
COPPER	UG/L	200	1.6 J	4.5	3.8	4	1.9 J
IRON	UG/L	300	310	190	200	78	36 J
LEAD	UG/L	25	0.24 J	0.53	0.19 J	0.096 U	0.096 U
LITHIUM	UG/L	-	52	79	62	130	32
MAGNESIUM	UG/L	35000	140,000	150,000	380,000	590,000	67,000
MANGANESE	UG/L	300	15	3,400	830	39	74
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.029 J	0.052 U	0.027 U
NICKEL	UG/L	100	5.3	11	8.6	13	5.3
POTASSIUM	UG/L	-	1,700	5,300	4,300	5,100	3,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			411A	415A	415A	505	A42
Field Sample Identifier :			411A	415A	415A	505	A42
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/21/11	10/18/11	04/18/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	0.68 J	0.58 U	2.5	11	1.2 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 J	0.18 U	0.18 U
SODIUM	UG/L	20000	54,000	89,000	210,000	320,000	36,000
THALLIUM	UG/L	2	0.066 U	0.076 J	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.86	3	3.7	0.67 J	0.2 U
ZINC	UG/L	2000	16 J	32	25	32	7.5 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A45	A50
Field Sample Identifier :			A42	A45	A45	A45	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	04/21/11	04/25/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	9.4 J	2.8 J	4.7 J	11 J	4.3 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.71	1.3	1.3	1	1.3
BARIUM	UG/L	1000	32	9.8 J	9.7 J	9.9 J	13
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	130 J	51 J	43 J	77 J	140 J
CADMIUM	UG/L	5	0.11 U	0.14 J	0.15 J	0.11 U	0.11 U
CALCIUM	UG/L	-	170,000	290,000	270,000	350,000	130,000
CHROMIUM, TOTAL	UG/L	50	0.47 J	0.51 J	0.31 J	0.6 J	0.58 J
COBALT	UG/L	-	0.46 J	0.71 J	0.79 J	0.73 J	0.55 J
COPPER	UG/L	200	2.6	2.9	1.3 J	0.82 J	1.8 J
IRON	UG/L	300	81	800	970	1,000	78
LEAD	UG/L	25	0.096 U	0.66	0.27 J	0.7	0.096 U
LITHIUM	UG/L	-	30	68	67	59	49
MAGNESIUM	UG/L	35000	76,000	130,000	130,000	180,000	140,000
MANGANESE	UG/L	300	250	320	400	550	60
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.031 J	0.027 U
NICKEL	UG/L	100	4.6	14	9.8	10	4.7
POTASSIUM	UG/L	-	3,700	3,400	3,300	4,000	1,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A42	A45	A45	A45	A50
Field Sample Identifier :			A42	A45	A45	A45	A50
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	04/21/11	04/25/11	10/18/11	04/25/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.4 J	1.1 J	1.3 J	1.4 J	1.3 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	44,000	45,000	44,000	64,000	70,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.088 J	0.066 U	0.066 U
VANADIUM	UG/L	14	0.2 U	0.2 U	0.2 U	0.29 J	0.22 J
ZINC	UG/L	2000	12 J	170	62	72	16 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A50	A55	A55	B02W20S	B02W20S
Field Sample Identifier :			A50	A55	A55	B02W20S	B02W20S
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/26/11	10/19/11	04/19/11	10/24/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	4.2 J	19 J	2.9 J	2.7 J	9.6 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	3.9	1.2	0.91	0.49 J	0.53 J
BARIUM	UG/L	1000	15	70	45	19	17
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	190 J	140 J	130 J	200 J	260
CADMIUM	UG/L	5	0.12 J	0.14 J	0.15 J	0.11 U	0.24 J
CALCIUM	UG/L	-	160,000	630,000	500,000	87,000	84,000
CHROMIUM, TOTAL	UG/L	50	0.63 J	0.62 J	1.3 J	1.9 J	1.5 J
COBALT	UG/L	-	2	0.94 J	0.65 J	0.36 J	1.2 J
COPPER	UG/L	200	3.7	2.7	3.1	1.4 J	2.5
IRON	UG/L	300	600	68	34 J	200	320
LEAD	UG/L	25	0.096 U	0.15 J	0.096 U	0.096 U	0.19 J
LITHIUM	UG/L	-	45	170	130	59	57
MAGNESIUM	UG/L	35000	190,000	31,000	41,000	120,000	160,000
MANGANESE	UG/L	300	830	3.4	14	6.9	29
MERCURY	UG/L	0.7	0.027 J	0.027 U	0.027 U	0.027 U	0.035 J
NICKEL	UG/L	100	8.9	20	13	10	46
POTASSIUM	UG/L	-	1,700	13,000	13,000	1,500	2,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			A50	A55	A55	B02W20S	B02W20S
Field Sample Identifier :			A50	A55	A55	B02W20S	B02W20S
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/18/11	04/26/11	10/19/11	04/19/11	10/24/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.4 J	1.4 J	1.8 J	1.1 J	0.86 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.27 J	0.18 U
SODIUM	UG/L	20000	93,000	200,000	220,000	54,000	67,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.44 J	0.29 J	0.2 U	0.53 J	0.29 J
ZINC	UG/L	2000	15 J	16 J	12 J	13 J	17 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49	BH49A	BH49A	MW313
Field Sample Identifier :			BH49	BH49	BH49A	BH49A	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/17/11	04/18/11	10/17/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	14 J	3.6 J	3.6 J	10 J	6.1 J
ANTIMONY	UG/L	3	0.66 J	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.73	2.4	1.5	1.1	1.7
BARIUM	UG/L	1000	55	14	15	44	7.9 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	59 J	220 J	170 J	110 J	200 J
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 U	0.11 U	0.16 J
CALCIUM	UG/L	-	53,000	150,000	120,000	120,000	510,000
CHROMIUM, TOTAL	UG/L	50	0.38 J	0.51 J	0.43 J	0.58 J	0.58 J
COBALT	UG/L	-	0.2 J	1.9 J	0.27 J	0.25 J	1.7 J
COPPER	UG/L	200	1.4 J	2.2	2.4	1.5 J	1 J
IRON	UG/L	300	33 J	710	69	76	330
LEAD	UG/L	25	0.11 J	0.3 J	0.2 J	0.5	0.096 U
LITHIUM	UG/L	-	21	83	87	30	160
MAGNESIUM	UG/L	35000	460 J	180,000	160,000	21,000	520,000
MANGANESE	UG/L	300	1.1 J	340	8.1	12	380
MERCURY	UG/L	0.7	0.052 U	0.027 U	0.052 U	0.027 J	0.029 J
NICKEL	UG/L	100	5.7	4.8	6.3	4.6	27
POTASSIUM	UG/L	-	9,700	3,400	3,200	9,200	5,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			BH49	BH49	BH49A	BH49A	MW313
Field Sample Identifier :			BH49	BH49	BH49A	BH49A	MW313
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/17/11	04/18/11	10/17/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.2 J	1 J	2.2	1.3 J	2.8
SILVER	UG/L	50	0.26 J	0.24 J	0.18 U	0.28 J	0.21 J
SODIUM	UG/L	20000	21,000	73,000	65,000	61,000	96,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	2.1	0.33 J	0.37 J	1.2	0.56 J
ZINC	UG/L	2000	13 J	16 J	19 J	27	22

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW313	MW862	MW862	MW863	MW863
Field Sample Identifier :			MW313	MW862	MW862	MW863	MW863
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	5 J	14 J	4.3 J	3.2 J	3 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.7 J
ARSENIC	UG/L	10	3.7	1.4	1.3	8	6.3
BARIUM	UG/L	1000	9.5 J	19	18	7.5 J	7.9 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	230	95 J	150 J	750	1,200
CADMIUM	UG/L	5	0.19 J	0.14 J	0.12 J	0.11 U	0.11 U
CALCIUM	UG/L	-	450,000	150,000	180,000	100,000	120,000
CHROMIUM, TOTAL	UG/L	50	0.6 J	0.7 J	0.52 J	0.82 J	0.81 J
COBALT	UG/L	-	3.3	0.8 J	1.9 J	0.27 J	0.34 J
COPPER	UG/L	200	1.7 J	1.2 J	0.87 J	1.5 J	1.6 J
IRON	UG/L	300	1,300	310	190	540	480
LEAD	UG/L	25	0.63	0.1 J	0.096 U	0.096 U	0.096 U
LITHIUM	UG/L	-	150	70	74	270	200
MAGNESIUM	UG/L	35000	530,000	170,000	210,000	150,000	180,000
MANGANESE	UG/L	300	1,100	160	370	44	48
MERCURY	UG/L	0.7	0.037 J	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	17	6.5	5.8	3.4 J	3.3 J
POTASSIUM	UG/L	-	5,900	2,100	2,700	49,000	43,000

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW313	MW862	MW862	MW863	MW863
Field Sample Identifier :			MW313	MW862	MW862	MW863	MW863
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/25/11	10/18/11	04/25/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.7 J	1.6 J	2.3	1.3 J	1.9 J
SILVER	UG/L	50	0.18 U	0.2 J	0.18 U	0.2 J	0.23 J
SODIUM	UG/L	20000	120,000	37,000	53,000	120,000	140,000
THALLIUM	UG/L	2	0.066 U	0.088 J	R	0.066 U	0.066 U
VANADIUM	UG/L	14	0.38 J	0.65 J	0.5 J	0.46 J	0.53 J
ZINC	UG/L	2000	19 J	15 J	16 J	12 J	15 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/20/11	10/20/11	04/25/11	10/24/11	04/21/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	13 J	22	14 J	100	20
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	3.9	3.9	1.3	1.2	1.1
BARIUM	UG/L	1000	6.5 J	9.2 J	15	15	8.5 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	190 J	250	230	220	35 J
CADMIUM	UG/L	5	0.22 J	0.16 J	0.13 J	0.13 J	0.17 J
CALCIUM	UG/L	-	230,000	230,000	160,000	160,000	170,000
CHROMIUM, TOTAL	UG/L	50	0.81 J	0.72 J	0.88 J	0.67 J	1.2 J
COBALT	UG/L	-	0.88 J	2.8	0.4 J	1.3 J	0.47 J
COPPER	UG/L	200	3.5	4.4	2.5	4.1	2.6
IRON	UG/L	300	32 J	2,000	56	250	63
LEAD	UG/L	25	0.096 U	0.096 U	0.096 U	0.27 J	0.12 J
LITHIUM	UG/L	-	130	110	92	95	78
MAGNESIUM	UG/L	35000	550,000	530,000	380,000	450,000	290,000
MANGANESE	UG/L	300	44	310	14	58	39
MERCURY	UG/L	0.7	0.027 U	0.029 J	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	12	8.2	6.7	6.3	5.6
POTASSIUM	UG/L	-	4,100	5,300	2,500	4,000	1,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW921	MW922	MW934	MW934	MW935
Field Sample Identifier :			MW921	MW922	MW934	MW934	MW935
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/20/11	10/20/11	04/25/11	10/24/11	04/21/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	12	1.5 J	2.4	2.1	1.7 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	300,000	290,000	180,000	250,000	190,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.17 J
VANADIUM	UG/L	14	1.1	0.51 J	1.2	1.7	1.1
ZINC	UG/L	2000	21	18 J	17 J	16 J	16 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/21/11	10/19/11	04/21/11	10/19/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	18 J	2.6 J	4.1 J	6.1 J	4.3 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	1.5	8	13	0.63	0.63
BARIUM	UG/L	1000	6.7 J	9.8 J	8.4 J	7.9 J	9.5 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	100 J	190 J	220	110 J	110 J
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 U	0.11 J	0.11 U
CALCIUM	UG/L	-	260,000	110,000	120,000	100,000	140,000
CHROMIUM, TOTAL	UG/L	50	0.61 J	1.6 J	0.67 J	5.1	1.3 J
COBALT	UG/L	-	1.8 J	0.79 J	1.1 J	4.5	1.5 J
COPPER	UG/L	200	3.7	1.2 J	2	3.5	3.1
IRON	UG/L	300	260	680	970	32 J	73
LEAD	UG/L	25	0.14 J	0.096 U	0.096 U	0.18 J	0.14 J
LITHIUM	UG/L	-	120	95	87	100	81
MAGNESIUM	UG/L	35000	560,000	180,000	240,000	180,000	220,000
MANGANESE	UG/L	300	200	50	74	1.1 J	15
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.032 J	0.027 U	0.03 J
NICKEL	UG/L	100	9	7.1	9.8	11	6.9
POTASSIUM	UG/L	-	4,200	3,100	3,700	3,000	3,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Field Sample Identifier :			MW935	OW03A	OW03A	OW03B	OW03B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/24/11	04/21/11	10/19/11	04/21/11	10/19/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	2.1	1.1 J	1.6 J	2.1	1.8 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	240,000	89,000	120,000	97,000	130,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	1.3	0.2 U	0.29 J	0.93	0.99
ZINC	UG/L	2000	22	15 J	20	14 J	26

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			02/14/11	04/25/11	08/16/11	10/17/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	6 J	5.7 J	28	8.4 J	7.9 J
ANTIMONY	UG/L	3	0.27 U	0.92 J	0.56 J	0.52 U	0.27 U
ARSENIC	UG/L	10	7.7	9.7	11	8.4	0.87
BARIUM	UG/L	1000	12	7.8 J	8.5 J	10	15
BERYLLIUM	UG/L	3	0.056 U	0.1 U	0.1 U	0.1 U	0.056 U
BORON	UG/L	1000	430	400	400	460	260
CADMIUM	UG/L	5	0.084 U	0.11 U	1.6	0.15 J	0.084 U
CALCIUM	UG/L	-	61,000	43,000	38,000	69,000	170,000
CHROMIUM, TOTAL	UG/L	50	0.61 J	1.2 J	2.1 J	1.2 J	1.6 J
COBALT	UG/L	-	0.39 J	0.11 J	0.38 J	0.3 J	0.28 J
COPPER	UG/L	200	2	2.1	3.8	2.5	2.4
IRON	UG/L	300	790	250	400	280	580
LEAD	UG/L	25	0.33 J	0.23 J	1.1	0.81	0.048 J
LITHIUM	UG/L	-	35	40	34	32	33
MAGNESIUM	UG/L	35000	81,000	91,000	73,000	100,000	110,000
MANGANESE	UG/L	300	55	4.4	34	52	18
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.027 U	0.028 J	0.027 U
NICKEL	UG/L	100	27	6.3	13	8.4	6.8
POTASSIUM	UG/L	-	3,000	3,300	3,100	3,200	2,300

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Field Sample Identifier :			OW04A	OW04A	OW04A	OW04A	OW04B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			02/14/11	04/25/11	08/16/11	10/17/11	02/14/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.6 J	1.4 J	0.58 U	1.3 J	3
SILVER	UG/L	50	0.32 U	0.39 J	0.18 U	0.22 J	0.32 U
SODIUM	UG/L	20000	93,000	100,000	87,000	120,000	49,000
THALLIUM	UG/L	2	0.032 U	0.066 U	0.066 U	R	0.032 U
VANADIUM	UG/L	14	0.16 U	0.37 J	0.31 J	0.24 J	0.16 U
ZINC	UG/L	2000	12 J	15 J	20 J	14 J	13 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Field Sample Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	08/16/11	10/17/11	04/26/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	4.8 J	52	6.5 J	4.9 J	23
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.98	1.3	1.3	15	14
BARIUM	UG/L	1000	16	17	16	11	9.5 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	240	260	340	410	560
CADMIUM	UG/L	5	0.17 J	0.13 J	0.11 U	0.11 U	0.11 U
CALCIUM	UG/L	-	180,000	170,000	210,000	45,000	62,000
CHROMIUM, TOTAL	UG/L	50	0.81 J	0.82 J	0.58 J	0.65 J	1.2 J
COBALT	UG/L	-	0.4 J	0.35 J	0.45 J	0.14 J	0.23 J
COPPER	UG/L	200	2.7	2.5	1.9 J	1.1 J	1.5 J
IRON	UG/L	300	42	210	52	330	280
LEAD	UG/L	25	0.13 J	0.39 J	0.096 U	0.096 U	0.096 U
LITHIUM	UG/L	-	30	41	32	61	56
MAGNESIUM	UG/L	35000	110,000	130,000	130,000	110,000	130,000
MANGANESE	UG/L	300	27	40	29	26	38
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.029 J	0.027 U	0.027 U
NICKEL	UG/L	100	6.3	5.8	5.6	2 J	3.1 J
POTASSIUM	UG/L	-	1,500	2,300	2,200	5,500	5,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Field Sample Identifier :			OW04B	OW04B	OW04B	OW05A	OW05A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/25/11	08/16/11	10/17/11	04/26/11	10/18/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	3.3	0.58 U	3	1.2 J	1.4 J
SILVER	UG/L	50	0.41 J	0.18 U	0.29 J	0.18 U	0.18 U
SODIUM	UG/L	20000	48,000	59,000	60,000	88,000	110,000
THALLIUM	UG/L	2	0.25 J	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.24 J	0.3 J	0.31 J	0.2 U	0.3 J
ZINC	UG/L	2000	19 J	16 J	13 J	12 J	10 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Field Sample Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/18/11	04/26/11	10/19/11	04/26/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	5.4 J	34	4.6 J	5.3 J	3.9 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.4 J	0.82	2.3	3.8	0.56 J
BARIUM	UG/L	1000	11	11	6.1 J	9 J	12
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	110 J	180 J	540	620	52 J
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
CALCIUM	UG/L	-	110,000	130,000	62,000	79,000	130,000
CHROMIUM, TOTAL	UG/L	50	6.7	1.3 J	0.95 J	1.3 J	2.1 J
COBALT	UG/L	-	0.39 J	1.3 J	0.17 J	0.37 J	0.22 J
COPPER	UG/L	200	6.7	2.8	1.6 J	3.7	4.5
IRON	UG/L	300	35 J	220	47	260	44
LEAD	UG/L	25	0.3 J	0.36 J	0.096 U	0.096 U	0.18 J
LITHIUM	UG/L	-	94	82	89	76	88
MAGNESIUM	UG/L	35000	130,000	160,000	150,000	180,000	160,000
MANGANESE	UG/L	300	1.1 J	78	21	180	25
MERCURY	UG/L	0.7	0.027 U	0.03 J	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	28	15	5.7	7.7	12
POTASSIUM	UG/L	-	3,000	3,500	6,900	7,600	2,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Field Sample Identifier :			OW05B	OW05B	OW06A	OW06A	OW06B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/18/11	04/26/11	10/19/11	04/26/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	0.67 J	0.85 J	1.7 J	2 J	0.97 J
SILVER	UG/L	50	0.18 U	0.27 J	0.25 J	0.18 U	0.18 U
SODIUM	UG/L	20000	54,000	67,000	90,000	110,000	59,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.76 J	0.67 J	0.24 J	0.31 J	0.34 J
ZINC	UG/L	2000	19 J	12 J	14 J	13 J	19 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Field Sample Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	05/04/11	10/20/11	04/19/11	10/20/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	5.2 J	4.8 J	14 J	3.6 J	330
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.72	9.3	17	0.62	0.89
BARIUM	UG/L	1000	12	7.8 J	7.4 J	10	11
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	89 J	730	850	140 J	200
CADMIUM	UG/L	5	0.11 U	0.15 J	0.13 J	0.11 U	0.24 J
CALCIUM	UG/L	-	120,000	140,000	120,000	140,000	120,000
CHROMIUM, TOTAL	UG/L	50	0.84 J	0.62 J	0.51 J	8	1.5 J
COBALT	UG/L	-	0.8 J	0.26 J	0.26 J	0.24 J	0.58 J
COPPER	UG/L	200	1.5 J	1.9 J	1.7 J	2.7	4.6
IRON	UG/L	300	99	180	430	32 J	510
LEAD	UG/L	25	0.13 J	0.29 J	0.15 J	0.15 J	0.49
LITHIUM	UG/L	-	87	81	76	84	86
MAGNESIUM	UG/L	35000	180,000	180,000	170,000	190,000	190,000
MANGANESE	UG/L	300	82	50	69	1.8 J	42
MERCURY	UG/L	0.7	0.027 U	0.027 U	0.029 J	0.027 U	0.031 J
NICKEL	UG/L	100	8.2	5.1	4.4	11	6.4
POTASSIUM	UG/L	-	3,500	8,900	7,200	2,700	3,400

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Field Sample Identifier :			OW06B	OW07A	OW07A	OW07B	OW07B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/19/11	05/04/11	10/20/11	04/19/11	10/20/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.2 J	2.9	2.7	1.4 J	1.6 J
SILVER	UG/L	50	0.18 U	0.37 J	0.18 U	0.18 U	0.44 J
SODIUM	UG/L	20000	73,000	160,000	140,000	72,000	76,000
THALLIUM	UG/L	2	0.066 U	0.072 J	0.066 U	0.066 U	0.15 J
VANADIUM	UG/L	14	0.22 J	0.23 J	0.22 J	0.32 J	0.96
ZINC	UG/L	2000	12 J	23	17 J	14 J	8 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Field Sample Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	10/20/11	04/19/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	6.6 J	180	6.7 J	160	7.1 J
ANTIMONY	UG/L	3	0.52 U	0.62 J	0.52 U	0.74 J	0.52 U
ARSENIC	UG/L	10	8	16	0.5 J	0.97	34
BARIUM	UG/L	1000	10	11	9.1 J	12	9.4 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	580	720	36 J	88 J	800
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 U	0.13 J	0.11 U
CALCIUM	UG/L	-	81,000	94,000	130,000	130,000	140,000
CHROMIUM, TOTAL	UG/L	50	1.2 J	0.67 J	1.3 J	0.76 J	0.66 J
COBALT	UG/L	-	0.31 J	0.4 J	0.17 J	0.31 J	0.23 J
COPPER	UG/L	200	7	1.7 J	1.6 J	2.8	1.2 J
IRON	UG/L	300	140	850	87	230	1,400
LEAD	UG/L	25	0.12 J	0.11 J	0.16 J	0.34 J	0.12 J
LITHIUM	UG/L	-	68	65	57	58	84
MAGNESIUM	UG/L	35000	110,000	140,000	140,000	150,000	110,000
MANGANESE	UG/L	300	40	63	1.1 J	44	78
MERCURY	UG/L	0.7	0.027 J	0.027 U	0.027 U	0.027 U	0.027 U
NICKEL	UG/L	100	6.5	4.5	5.3	5.6	5.1
POTASSIUM	UG/L	-	5,700	6,500	1,700	2,600	9,100

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Field Sample Identifier :			OW11A	OW11A	OW11B	OW11B	OW12A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/19/11	10/20/11	04/19/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.3 J	1.5 J	1.6 J	1.1 J	0.89 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	77,000	100,000	34,000	42,000	92,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.38 J	0.53 J	0.37 J	0.72 J	0.2 U
ZINC	UG/L	2000	18 J	28	13 J	27	12 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Field Sample Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/19/11	04/19/11	10/20/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	5.7 J	8.6 J	3.2 J	5 J	9.1 J
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	34	0.63	33	30	0.7
BARIUM	UG/L	1000	8.6 J	22	8.4 J	7.1 J	9.3 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	990	400	830	780	68 J
CADMIUM	UG/L	5	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
CALCIUM	UG/L	-	120,000	71,000	140,000	150,000	230,000
CHROMIUM, TOTAL	UG/L	50	0.48 J	1.6 J	0.34 J	0.7 J	1.1 J
COBALT	UG/L	-	0.21 J	0.21 J	0.27 J	0.3 J	0.6 J
COPPER	UG/L	200	1.4 J	5.1	1.4 J	1.9 J	2.2
IRON	UG/L	300	1,200	32 J	680	750	45
LEAD	UG/L	25	0.096 J	0.13 J	0.3 J	0.096 U	0.12 J
LITHIUM	UG/L	-	74	20	86	84	85
MAGNESIUM	UG/L	35000	110,000	34,000	140,000	180,000	290,000
MANGANESE	UG/L	300	69	0.67 J	57	66	11
MERCURY	UG/L	0.7	0.027 U	0.036 J	0.029 J	0.028 J	0.028 J
NICKEL	UG/L	100	4.1	4.8	6.6	4.1	18
POTASSIUM	UG/L	-	9,500	900	9,500	9,500	1,600

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Field Sample Identifier :			OW12A	OW12B	OW13A	OW13A	OW13B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/19/11	04/19/11	10/20/11	04/20/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.4 J	1.7 J	1.8 J	1.3 J	1.8 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.25 J	0.18 U
SODIUM	UG/L	20000	97,000	24,000	120,000	140,000	78,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.78 J
VANADIUM	UG/L	14	0.2 U	0.78 J	0.2 U	0.2 U	0.4 J
ZINC	UG/L	2000	26	10 J	12 J	14 J	15 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Field Sample Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/18/11	10/20/11	04/18/11	10/20/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	260	12 J	5.7 J	8.6 J	150
ANTIMONY	UG/L	3	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	0.78	16	17	0.51 J	1.3
BARIUM	UG/L	1000	10	7.3 J	6.6 J	26	32
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	94 J	910	1,200	32 J	84 J
CADMIUM	UG/L	5	0.14 J	0.11 U	0.11 U	0.11 U	0.13 J
CALCIUM	UG/L	-	200,000	190,000	190,000	110,000	160,000
CHROMIUM, TOTAL	UG/L	50	2.2 J	0.37 J	0.9 J	3.5 J	4.5
COBALT	UG/L	-	0.91 J	0.35 J	0.27 J	0.22 J	1.4 J
COPPER	UG/L	200	3.8	2.2	2.5	3.4	5.7
IRON	UG/L	300	580	520	490	19 U	1,200
LEAD	UG/L	25	0.44	0.11 J	0.096 U	0.24 J	5.7
LITHIUM	UG/L	-	86	100	99	50	49
MAGNESIUM	UG/L	35000	300,000	72,000	110,000	95,000	140,000
MANGANESE	UG/L	300	54	150	150	2 J	210
MERCURY	UG/L	0.7	0.027 U	0.052 U	0.027 U	0.052 U	0.027 U
NICKEL	UG/L	100	16	8.7	5.1	8.1	67
POTASSIUM	UG/L	-	2,500	9,400	11,000	1,100	1,800

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Field Sample Identifier :			OW13B	OW15A	OW15A	OW15B	OW15B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			10/20/11	04/18/11	10/20/11	04/18/11	10/20/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.1 J	3	2.4	1.6 J	0.78 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	90,000	160,000	210,000	42,000	71,000
THALLIUM	UG/L	2	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.94	0.2 J	0.2 J	0.44 J	0.72 J
ZINC	UG/L	2000	20 J	14 J	14 J	16 J	21

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Field Sample Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/20/11	04/18/11	10/20/11	04/19/11
Parameter	Units	Criteria[1]					
METALS							
ALUMINUM	UG/L	-	8.9 J	2.2 J	4.1 J	8.7 J	5.9 J
ANTIMONY	UG/L	3	0.76 J	0.9 J	0.52 U	0.52 U	0.52 U
ARSENIC	UG/L	10	3.4	4.1	0.42 J	0.64	1.4
BARIUM	UG/L	1000	7.7 J	6.7 J	13	13	8.8 J
BERYLLIUM	UG/L	3	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BORON	UG/L	1000	540	630	75 J	140 J	93 J
CADMIUM	UG/L	5	0.11 U	0.15 J	0.11 U	0.11 U	0.11 U
CALCIUM	UG/L	-	120,000	120,000	77,000	85,000	72,000
CHROMIUM, TOTAL	UG/L	50	0.85 J	0.37 J	1.1 J	0.75 J	28
COBALT	UG/L	-	0.3 J	0.29 J	0.16 J	0.27 J	0.23 J
COPPER	UG/L	200	3.2	2.5	4.2	2 J	3.8
IRON	UG/L	300	440	180	19 U	19 J	31 J
LEAD	UG/L	25	0.13 J	0.096 U	0.096 U	0.096 U	0.2 J
LITHIUM	UG/L	-	53	50	51	57	79
MAGNESIUM	UG/L	35000	140,000	180,000	100,000	150,000	210,000
MANGANESE	UG/L	300	79	83	1.8 J	20	1.5 J
MERCURY	UG/L	0.7	0.052 U	0.027 U	0.052 U	0.027 J	0.027 U
NICKEL	UG/L	100	9	5.1	5.9	4.5	18
POTASSIUM	UG/L	-	7,100	6,500	1,700	2,200	2,500

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Field Sample Identifier :			OW17A	OW17A	OW17B	OW17B	OW18B
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/18/11	10/20/11	04/18/11	10/20/11	04/19/11
Parameter	Units	Criteria[1]					
METALS							
SELENIUM	UG/L	10	1.9 J	1.6 J	2.5	1.3 J	1.4 J
SILVER	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
SODIUM	UG/L	20000	130,000	160,000	46,000	71,000	120,000
THALLIUM	UG/L	2	0.066 U	0.57 J	0.066 U	0.066 U	0.066 U
VANADIUM	UG/L	14	0.39 J	0.29 J	0.4 J	0.26 J	0.43 J
ZINC	UG/L	2000	15 J	12 J	17 J	18 J	14 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW18B
Field Sample Identifier :			OW18B
Sample Type :			Groundwater
Sample Depth Interval (ft) :			-
Date of Sample :			10/24/11
Parameter	**Units**	**Criteria[1]**	
METALS			
ALUMINUM	UG/L	-	40
ANTIMONY	UG/L	3	0.52 U
ARSENIC	UG/L	10	0.67
BARIUM	UG/L	1000	12
BERYLLIUM	UG/L	3	0.1 U
BORON	UG/L	1000	74 J
CADMIUM	UG/L	5	0.13 J
CALCIUM	UG/L	-	110,000
CHROMIUM, TOTAL	UG/L	50	4.8
COBALT	UG/L	-	0.5 J
COPPER	UG/L	200	4.7
IRON	UG/L	300	180
LEAD	UG/L	25	0.42
LITHIUM	UG/L	-	75
MAGNESIUM	UG/L	35000	230,000
MANGANESE	UG/L	300	44
MERCURY	UG/L	0.7	0.027 U
NICKEL	UG/L	100	13
POTASSIUM	UG/L	-	2,200

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 19
GROUNDWATER ANALYTICAL RESULTS - METALS
NIAGARA FALLS STORAGE SITE

Location Identifier :			OW18B
Field Sample Identifier :			OW18B
Sample Type :			Groundwater
Sample Depth Interval (ft) :			-
Date of Sample :			10/24/11
Parameter	**Units**	**Criteria[1]**	
METALS			
SELENIUM	*UG/L*	10	1.2 J
SILVER	*UG/L*	50	0.18 U
SODIUM	*UG/L*	20000	120,000
THALLIUM	*UG/L*	2	0.066 U
VANADIUM	*UG/L*	14	0.54 J
ZINC	*UG/L*	2000	17 J

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/25/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
1,1,2,2-TETRACHLOROETHANE	UG/L	5	0.29 U	0.29 U	0.29 U	0.29 U	1,400 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	1,300 U
1,1,2-TRICHLOROETHANE	UG/L	1	0.27 U	0.27 U	0.27 U	0.27 U	1,300 U
1,1-DICHLOROETHANE	UG/L	5	0.25 U	0.25 U	0.25 U	0.25 U	1,200 U
1,1-DICHLOROETHENE	UG/L	5	0.19 U	0.19 U	0.19 U	2.2	960 U
1,2,3-TRICHLOROBENZENE	UG/L	5	0.38 U	0.38 U	0.38 U	0.38 U	1,900 U
1,2,4-TRICHLOROBENZENE	UG/L	5	0.17 U	0.17 U	0.17 U	0.17 U	840 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	0.25 U	0.25 U	0.25 U	0.25 U	1,200 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	0.006	0.18 U	0.18 U	0.18 U	0.18 U	900 U
1,2-DICHLOROBENZENE	UG/L	3	0.25 U	0.25 U	0.25 U	0.25 U	1,300 U
1,2-DICHLOROETHANE	UG/L	0.6	0.19 U	0.19 U	0.19 U	0.19 U	940 U
1,2-DICHLOROPROPANE	UG/L	1	0.35 U	0.35 U	0.35 U	0.35 U	1,700 U
1,3-DICHLOROBENZENE	UG/L	3	0.21 U	0.21 U	0.21 U	0.21 U	1,100 U
1,4-DICHLOROBENZENE	UG/L	3	0.18 U	0.18 U	0.18 U	0.18 U	920 U
2-HEXANONE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	1,000 U
ACETONE	UG/L	50	0.44 U	0.44 U	0.44 U	0.44 U	2,200 U
BENZENE	UG/L	1	0.2 U	0.2 U	0.2 U	0.2 U	980 U
BROMOCHLOROMETHANE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	980 U
BROMODICHLOROMETHANE	UG/L	50	0.18 U	0.18 U	0.18 U	0.18 U	920 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/25/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
BROMOFORM	UG/L	50	0.33 U	0.33 U	0.33 U	0.33 U	1,700 U
BROMOMETHANE	UG/L	5	1.2 U	1.2 U	1.2 U	1.2 U	5,900 U
CARBON DISULFIDE	UG/L	60	0.15 U	0.15 U	0.15 U	R	760 U
CARBON TETRACHLORIDE	UG/L	5	0.36 U	0.36 U	0.36 U	0.36 U	1,800 U
CHLOROBENZENE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	1,100 U
CHLOROETHANE	UG/L	5	0.42 U	0.42 U	0.42 U	0.42 U	2,100 U
CHLOROFORM	UG/L	7	0.19 U	0.19 U	0.19 U	0.19 U	940 U
CHLOROMETHANE	UG/L	5	0.22 U	0.22 U	0.22 U	0.22 U	1,100 U
CIS-1,2-DICHLOROETHYLENE	UG/L	5	0.17 U	0.17 U	0.17 U	18	6,600
CIS-1,3-DICHLOROPROPENE	UG/L	0.4	0.17 U	0.17 U	0.17 U	0.17 U	840 U
CYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
DIBROMOCHLOROMETHANE	UG/L	50	0.21 U	0.21 U	0.21 U	0.21 U	1,000 U
DICHLORODIFLUOROMETHANE	UG/L	5	0.24 U	0.24 U	0.24 U	0.24 U	1,200 U
ETHYLBENZENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	980 U
ISOPROPYLBENZENE (CUMENE)	UG/L	5	0.21 U	0.21 U	0.21 U	0.21 U	1,000 U
METHYL ACETATE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	50	0.28 U	0.28 U	0.28 U	0.28 U	1,400 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	-	0.4 U	0.4 U	0.4 U	0.4 U	2,000 U
METHYLCYCLOHEXANE	UG/L	-	Not Anaylzed	1 U	Not Anaylzed	1 U	Not Anaylzed

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			201A	201A	411A	411A	415A
Field Sample Identifier :			201A	201A	411A	411A	415A
Sample Type :			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-	-	-
Date of Sample :			04/26/11	10/17/11	04/25/11	10/20/11	04/21/11
Parameter	Units	Criteria[1]					
VOLATILE ORGANIC ANALYSES							
METHYLENE CHLORIDE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	5,200 J
STYRENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	1,000 U
TERT-BUTYL METHYL ETHER	UG/L	10	0.17 U	0.17 U	0.17 U	0.17 U	860 U
TETRACHLOROETHYLENE(PCE)	UG/L	5	0.26 U	0.26 U	0.26 U	950 J	99,000
TOLUENE	UG/L	5	0.2 U	0.2 U	0.2 U	0.2 U	980 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	0.18 U	0.18 U	0.18 U	1.3 J	920 U
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	0.2 U	0.2 U	0.2 U	0.2 U	1,000 U
TRICHLOROETHANE	UG/L	5	0.16 U	0.16 U	0.16 U	0.16 U	800 U
TRICHLOROETHYLENE (TCE)	UG/L	5	0.27 U	0.27 U	0.27 U	69	15,000
TRICHLOROFLUOROMETHANE	UG/L	5	0.26 U	0.26 U	0.26 U	0.26 U	1,300 U
VINYL CHLORIDE	UG/L	2	0.24 U	0.24 U	0.24 U	0.24 U	1,200 U
XYLENE (MIXED ISOMERS)	UG/L	5	0.66 U	0.66 U	0.66 U	0.66 U	3,300 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/18/11	04/25/11	10/24/11
Parameter	Units	Criteria[1]			
VOLATILE ORGANIC ANALYSES					
1,1,2,2-TETRACHLOROETHANE	UG/L	5	1,400 U	0.29 U	0.29 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	5	1,300 U	0.26 U	0.26 U
1,1,2-TRICHLOROETHANE	UG/L	1	1,300 U	0.27 U	0.27 U
1,1-DICHLOROETHANE	UG/L	5	1,200 U	0.25 U	0.25 U
1,1-DICHLOROETHENE	UG/L	5	960 U	0.19 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	5	1,900 U	0.38 U	0.38 U
1,2,4-TRICHLOROBENZENE	UG/L	5	840 U	0.17 U	0.17 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	0.04	1,200 U	0.25 U	0.25 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	0.006	900 U	0.18 U	0.18 U
1,2-DICHLOROBENZENE	UG/L	3	1,300 U	0.25 U	0.25 U
1,2-DICHLOROETHANE	UG/L	0.6	940 U	0.19 U	0.19 U
1,2-DICHLOROPROPANE	UG/L	1	1,700 U	0.35 U	0.35 U
1,3-DICHLOROBENZENE	UG/L	3	1,100 U	0.21 U	0.21 U
1,4-DICHLOROBENZENE	UG/L	3	920 U	0.18 U	0.18 U
2-HEXANONE	UG/L	50	1,000 U	0.21 U	0.21 U
ACETONE	UG/L	50	2,200 U	0.44 U	R
BENZENE	UG/L	1	980 U	0.2 U	0.2 U
BROMOCHLOROMETHANE	UG/L	5	980 U	0.2 U	0.2 U
BROMODICHLOROMETHANE	UG/L	50	920 U	0.18 U	0.18 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/18/11	04/25/11	10/24/11
Parameter	**Units**	**Criteria[1]**			
VOLATILE ORGANIC ANALYSES					
BROMOFORM	*UG/L*	50	1,700 U	0.33 U	0.33 U
BROMOMETHANE	*UG/L*	5	5,900 U	1.2 U	1.2 U
CARBON DISULFIDE	*UG/L*	60	760 U	0.15 U	R
CARBON TETRACHLORIDE	*UG/L*	5	1,800 U	0.36 U	0.36 U
CHLOROBENZENE	*UG/L*	5	1,100 U	0.22 U	0.22 U
CHLOROETHANE	*UG/L*	5	2,100 U	0.42 U	0.42 U
CHLOROFORM	*UG/L*	7	940 U	64	680 J
CHLOROMETHANE	*UG/L*	5	1,100 U	0.22 U	0.92 J
CIS-1,2-DICHLOROETHYLENE	*UG/L*	5	10,000	0.17 U	R
CIS-1,3-DICHLOROPROPENE	*UG/L*	0.4	840 U	0.17 U	0.17 U
CYCLOHEXANE	*UG/L*	-	5,000 U	Not Anaylzed	1 U
DIBROMOCHLOROMETHANE	*UG/L*	50	1,000 U	0.21 U	0.21 U
DICHLORODIFLUOROMETHANE	*UG/L*	5	1,200 U	0.24 U	0.24 U
ETHYLBENZENE	*UG/L*	5	980 U	0.2 U	0.2 U
ISOPROPYLBENZENE (CUMENE)	*UG/L*	5	1,000 U	0.21 U	0.21 U
METHYL ACETATE	*UG/L*	-	5,000 U	Not Anaylzed	1 U
METHYL ETHYL KETONE (2-BUTANONE)	*UG/L*	50	1,400 U	0.28 U	0.28 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	*UG/L*	-	2,000 U	0.4 U	0.4 U
METHYLCYCLOHEXANE	*UG/L*	-	5,000 U	Not Anaylzed	1 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

TABLE 20
GROUNDWATER ANALYTICAL RESULTS - VOLATILES
NIAGARA FALLS STORAGE SITE

Location Identifier :			415A	MW934	MW934
Field Sample Identifier :			415A	MW934	MW934
Sample Type :			Groundwater	Groundwater	Groundwater
Sample Depth Interval (ft) :			-	-	-
Date of Sample :			10/18/11	04/25/11	10/24/11
Parameter	Units	Criteria[1]			
VOLATILE ORGANIC ANALYSES					
METHYLENE CHLORIDE	UG/L	5	1,000 U	0.2 U	8.1 J
STYRENE	UG/L	5	1,000 U	0.2 U	0.2 U
TERT-BUTYL METHYL ETHER	UG/L	10	860 U	0.17 U	0.17 U
TETRACHLOROETHYLENE(PCE)	UG/L	5	100,000	0.26 U	0.82 J
TOLUENE	UG/L	5	980 U	0.2 U	0.2 U
TRANS-1,2-DICHLOROETHENE	UG/L	5	920 U	0.18 U	R
TRANS-1,3-DICHLOROPROPENE	UG/L	0.4	1,000 U	0.2 U	0.2 U
TRICHLOROETHANE	UG/L	5	800 U	0.16 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	5	24,000	0.27 U	0.27 U
TRICHLOROFLUOROMETHANE	UG/L	5	1,300 U	0.26 U	0.26 U
VINYL CHLORIDE	UG/L	2	1,200 U	0.24 U	0.24 U
XYLENE (MIXED ISOMERS)	UG/L	5	3,300 U	0.66 U	0.66 U

Concentration Exceeds Criteria

(1) - TOGS 1.1.1 (June 1998) for chemicals (VOCs, metals), Ra-226 and Ra-228 (5 pCi/l), Thorium (sum total of 15 pCi/l). 10 NYCRR Part 5, Subpart 5-1 (NYSDOH) for Arsenic, Total Uranium (30 ug/L or 27 pCi/L) beta emitters total dose not to exceed 4 mrem/yr (Sr-90, Tc-99, Cs-137, Pu-238, Pu-239/240, H-3).

U - Not detected above the reported quantitation limit.; R - The data is rejected.; J - The reported concentration is an estimated value.

NOTE: The detection limits shown are MDL.

APPENDIX A

2011 Calculation of External Gamma Radiation Dose Rates for Niagara Falls Storage Site

APPENDIX A: NFSS CY2011 ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

CY2011 CALCULATION OF EXTERNAL GAMMA RADIATION DOSE RATES FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

November 2012

US Army Corps of Engineers®
Buffalo District

BUILDING STRONG®

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1.0 PURPOSE

This calculation estimates the external gamma radiation dose from the Niagara Falls Storage Site (NFSS), Lewiston, New York (see Figure 1, Appendix B), during calendar year 2011 (CY2011). Hypothetical doses from external gamma radiation to members of the public are calculated from dose measurements using Landauer "Luxel" Optically Stimulated Luminescence dosimeters (OSLs) located at the perimeters of the NFSS and the Interim Waste Containment Structure (IWCS) (see Figure 2, Appendix B). OSLs replaced thermoluminescent dosimeters (TLDs) in the environmental program beginning in 2008.

2.0 ASSUMPTIONS

Doses were calculated for off-site receptors based on these locations for off-site receptors based on the canvas of receptors in CY2006. The hypothetical doses for the nearest resident and off-site worker are reported. The modeling approach described below is considered to be protective of human health (conservative) in calculating hypothetical dose to receptors. The shielding effect of the air has not been included in the calculations. Calculations for the hypothetical annual external gamma radiation doses to the nearest resident and nearest off-site worker used the following assumptions:

Distance from each OSL above the source (the ground) is 3 feet (ft),
Distance from the OSLs to the nearest resident is 500 ft (perpendicular to the western OSL line),
Distance from the OSLs to the nearest off-site worker is 1,020 ft (perpendicular to the eastern OSL line),
Length of the western OSL monitoring line (western perimeter fence) is 2,766 ft,
Length of the eastern OSL monitoring line (east of Campbell Street) is 2,700 ft.

3.0 OSL DATA

At NFSS, OSLs are used to measure gamma radiation from the site and from sources of background radiation. Natural sources of background radiation include cosmic radiation and terrestrial radiation sources. In the United States, the annual average (per capita) cosmic and terrestrial radiation doses are 34 millirem per year (mrem/yr) and 22 mrem/yr, respectively (NCRP Report 160). Annual doses due to background at NFSS are measured at background locations using OSLs. Background dose for the same period of exposure is subtracted from site dose values to estimate the net dose from NFSS. OSLs are located at the facility perimeter and at the perimeter of the IWCS. The OSLs are placed at approximately 3 ft [1.6 meters (m)] above the ground surface. The OSLs measure approximately six-month intervals and are analyzed at an off-site vendor.

Seventeen locations around the perimeter of the site and seven locations around the IWCS were monitored in CY2011 (see Figure 2, Appendix B). In addition to these locations, there were three background locations (Figure 1, Appendix B). Two environmental OSLs were placed at each monitoring location. The environmental program utilizes two OSLs at each monitoring location for each monitoring period as a quality control check. In addition, if a measurement result is rejected or a OSL is lost, the duplicate reading is assumed for that monitoring period. For CY2011 two OSL co-located badge results were used for each location.

OSL monitoring data for CY2011 are presented in Table 2 in the Tables section. A time-weighted or normalized annual dose is calculated that accounts for exposure periods having different integration times (a different number of measurement days). Negative net values, when they occur, are retained for calculational purposes.

4.0 ASSESSMENT METHODOLOGY AND RESULTS

Gamma radiation measured at the perimeter fence line represents the dose for full-time occupancy i.e. 24 hours/day and 365 days/year (366 days for a leap year). Dose to an off-site receptor is significantly affected by proximity to the source and the amount of time spent at the receptor location. The estimate of dose to an off-site worker therefore uses a correction factor for occupancy assuming 2000 hours worked per year. The estimate of dose to an off-site resident assumes a full-time occupancy at home. The average net dose rate for CY 2010 at the site perimeter by direction is calculated to be:

Direction	OSL Locations	Calculated Average Net Dose Rate (mrem/year)
North Perimeter	1, 11, 12, 60, 65, 122	6.42
East Perimeter	1,28,123	7.67
South Perimeter	7, 28, 29, 45	9.63
West Perimeter	8, 10, 11,13,15,29,36	7.43

4.1 NEAREST RESIDENT

The dose calculation for the nearest resident uses the line of OSLs along the western perimeter fence. The OSLs along this side of the facility include NFSS perimeter fence monitoring locations 11, 13, 15, 29, and 36, and WCS perimeter fence monitoring locations 8 and 10. The two WCS locations are located close to the western NFSS perimeter fence. These OSL locations are shown in Appendix B, Figure 2. Net dose rates (corrected for background) for these OSLs are summed and divided by the total number of observations (14 for CY2011). This average value represents the annual dose at the site perimeter (D1 = 7.43 mrem for CY2011). The dose contribution to this resident from the southern exposure is insignificant compared to the exposure from the western line source. The western site perimeter dose is then used in the following equation for a line source:

$$D_2 = D_1 * h_1/h_2 * (\text{Arc Tan } (L/h_2) / \text{Arc Tan } (L/h_1))$$

Where:
- D_2 = dose calculated at the receptor location from the line source
- D_1 = dose at the site perimeter as described above
- h_1 = the distance of the OSLs from the source (3 ft)
- h_2 = the distance of the resident from the fence line (500 ft)
- L = half the length of line of OSLs measuring the line source (1,383 ft)

Nearest Resident Dose Calculation (Resident southwest of NFSS)

NFSS Perimeter Monitoring Locations 11, 13, 15, 29, and 36 and IWCS Perimeter Monitoring Locations 8 and 10

Where:
- h_1 = 3 feet distance of OSL from the source
- h_2 = 500 feet distance of resident from the eastern fence line.
- L = 1,383 feet half the length of the western line source
- D_1 = 7.43 mrem average annual dose at the OSL monitoring locations

D_2 = 0.035 mrem resident annual dose at 500 feet from the eastern fence-line.

The hypothetical dose to the nearest resident is 3.5 E-02 (or 0.035) mrem for calendar year 2011.4.2

4.2 NEAREST OFF-SITE WORKER

The dose to the nearest off-site worker uses, the line of OSLs, closest to the eastern perimeter fence (Castle Garden Road). The OSLs used include monitoring locations 1, 28, and 123. These OSLs are located along an interior fence east of Campbell Street. Their locations are shown in Figure 2, Appendix B. There are no WCS perimeter fence monitoring locations close to those along the line east of Campbell Street; therefore, none are included in the dose calculations. Net dose rates (corrected for background) for OSL monitoring locations 1, 28, and 123 are summed and divided by the total number observations (6 for CY2011). This average represents the annual dose at the site perimeter (D1 = 7.67 mrem for CY2010).

Nearest Off-Site Worker Dose Calculations (Worker east of NFSS)

NFSS Perimeter Monitoring Locations 1, 28, 123

h_1 = 3 feet distance of OSL from the source

h_2 = 1,020 feet distance of off-site worker from the OSLs

L = 1,350 feet half the length of the eastern line source

D_1 = 7.67 mrem average annual dose at the OSL monitoring locations

D_2 = 0.003 mrem off-site worker annual dose at 1,020 feet from the western fence line.

The hypothetical dose to the nearest off-site worker is 3.03 E-03 (or 0.00303) mrem for calendar year 2011. This was calculated using the equation above and a correction factor for off-site worker occupancy of 2000/8760 hours.

5.0 REFERENCES

Bechtel National, Inc. (BNI), 1997. "1996 Public External Gamma Dose," 14501-158-CV-031, Rev. 0, Oak Ridge, TN.

National Council on Radiation Protection and Measurements (NCRP), 2009. “NCRP Report No. 160, Ionizing Radiation Exposure of the Population of the United States,” ISBN-13: 978-0-929600-98-7, Bethesda, MD.

APPENDIX B

FUSRAP 2011 NESHAP Annual Report for NFSS

FUSRAP CY2011 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

JUNE 2012

U.S. Army Corps of Engineers
Buffalo District Office
Formerly Utilized Sites Remedial Action Program

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ACRONYMS AND ABBREVIATIONS

BNI	Bechtel National, Inc.
CAP88-PC Ver 3	Clean Air Act Assessment Package-1988, Version 3.0
CFR	Code of Federal Regulations
E_w	annual wind erosion emission
FUSRAP	Formerly Utilized Sites Remedial Action Program
ICRP	International Commission on Radiological Protection
IWCS	Interim Waste Containment Structure
m^2	square meter(s)
MEI	maximally exposed individual
ML	Modern Landfill
mph	miles per hour
NOAA	National Oceanic and Atmospheric Administration
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIA	Niagara Falls International Airport
NFSS	Niagara Falls Storage Site
USAEC	United States Atomic Energy Commission
USACE	United States Army Corps of Engineers
UCL	upper confidence limit
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In 1974, the United States Atomic Energy Commission (USAEC), a predecessor to the United States Department of Energy (USDOE), instituted the Formerly Utilized Sites Remedial Action Program (FUSRAP). This program is now managed by United States Army Corps of Engineers (USACE) to identify and clean up, or otherwise control sites where residual radioactivity remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized USACE to remedy under FUSRAP. The Niagara Falls Storage Site (NFSS) is a federally-owned storage site managed under FUSRAP. In October 1997, Congress transferred the responsibility for FUSRAP to USACE.

1.1 SITE DESCRIPTION

The Niagara Falls Storage Site (NFSS) is located in the Town of Lewiston in northwestern New York State, northeast of Niagara Falls and south of Lake Ontario (page F-1, Attachment F). NFSS is approximately 77 hectare (~191 acre) site which includes: one former process building (Building 401), one office building (Building 429), an equipment shed, and a 4 hectare (9.9 acre) interim waste containment structure (IWCS). The property is fenced, and public access is restricted.

Land use in the region is primarily rural; however, the site is bordered by a chemical waste disposal facility on the north, a solid waste disposal facility on the east and south, and a Niagara Mohawk Power Corporation right-of-way on the west. The nearest residential areas are approximately 1.1-km southwest of the site; the residences are primarily single-family dwellings.

1.2 SOURCE DESCRIPTION

Beginning in 1944, NFSS was used as a storage facility for radioactive residues and wastes. The residues and wastes are the process by-products of uranium extraction from pitchblende (uranium ore). Waste was also generated from remediation of buildings and process equipment used in the uranium extraction process. The residues originated at other sites and were transferred to NFSS for storage in buildings, on-site pits, and surface piles. Table 1 includes a brief history and description of the major radioactive residues and wastes transferred to NFSS. From 1953 to 1959 and 1965 to 1971, the former Building 401 was used as a boron-10 isotope separation plant.

Table 1. History and Description of Wastes Transferred to NFSS

Material	Description	Transferred to NFSS
L-50	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
R-10	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
F-32	Low-activity radioactive residues from the processing of high-grade uranium ores at Middlesex, New Jersey.	1944 to early 1950
L-30	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1945
K-65	High-activity radioactive residues from the processing of high-grade uranium ores at Mallinckrodt Chemical Works, St. Louis, Missouri.	1949
Middlesex Sands	Sand and abraded material from the sandblasting of buildings and process equipment where the F-32 residue was generated at Middlesex Metal Refinement Plant, Middlesex, New Jersey.	1950

Since 1971, activities at NFSS have been confined to residue and waste storage and remediation. On-site and off-site areas with residual radioactivity exceeding USDOE guidelines were remediated between 1981 and 1992. The materials generated during remedial actions (approximately 195,000 m^3) are encapsulated in the IWCS (See Appendix A, Figure 2), which is specifically designed to provide interim storage of the materials. Remedial investigation began at the end of 1999 to determine if any areas of the site contained radioactive or chemical contaminants at levels that could pose an unacceptable risk to human health and the environment. Initial results show that isolated areas of elevated activity do exist.

2.0 REGULATORY STANDARDS

The United States Environmental Protection Agency's (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) are compliance standards that require annual reporting of emissions of radionuclides and radon gas from operations at nuclear facilities.

2.1 40 CFR 61, SUBPART H

40 CFR 61, Subpart H provides standards for reporting emissions of radionuclides (excluding radon-222 and radon-220) into the air from USDOE facilities. Although control and maintenance of the site currently rests with USACE, responsibility for NFSS will return to USDOE following completion of remedial actions. This regulation therefore provides an appropriate standard for NFSS. Compliance with Subpart H is verified by applying the USEPA approved code, CAP88-PC. CAP88-PC Version 3.0 (USEPA 2006)] was used for this year's calculation. The applicable regulation, 40 CFR 61.92 limits exposure of the public to an annual effective dose equivalent of 10 mrem from radioactive emissions.

2.2 40 CFR 61, SUBPART Q

40 CFR 61, Subpart Q applies to storage and disposal facilities for radium-containing material that emits radon-222 into air. NFSS is specifically identified as one such facility in this subpart (in 40 CFR 61.190). Compliance with Subpart Q is verified by annual monitoring of the IWCS for radon-222 flux. The Subpart Q radon-222 emission limit is 20 $pCi/m^2/s$.

3.0 AIR EMISSION DATA

Table 2 summarizes the sources of air emissions. Attachment A contains the annual wind erosion emission (E_w) calculation. Attachment B contains the radioactive source term calculations and annual air releases.

These calculations use the USEPA air pollution emission factor methodology (AP-42) to estimate the radioactive release from wind erosion, which is then used as the source term in the Clean Air Act Assessment Package (CAP88-PC) model to estimate airborne doses to hypothetically exposed individuals. The annual wind erosion emission estimate uses the most current soil data from the NFSS RI sampling Phases I, II, and III. A 95% upper confidence limit (UCL) without the subtraction of background radioactivity was calculated for each soil nuclide of concern and used for the source term estimate. The area of the entire NFSS was assumed to be uniformly contaminated and to contribute to the source term.

Table 2. Air Emission Data - NFSS

Point Sources	Type Control	Efficiency	Distance to Hypothetical Exposed Individual
none	not applicable	not applicable	not applicable
Non-Point Sources	**Type Control**	**Efficiency**	**Distance and Direction from Center of Site to Hypothetical Exposed Individual**
in situ soil –area source	vegetative cover	90 percent[a]	533 m SE Modern Scale-house Worker 783 m S Greenhouse Worker 914 m SSW Resident 1105 m S Resident (farm) 1250 m WSW Resident 1486 m ESE Resident 2499 m W School 2629 m WNW School
Group Sources	**Type Control**	**Efficiency**	**Distance to Hypothetical Exposed Individual**
none	not applicable	not applicable	not applicable

[a] This is the fraction of vegetative cover used to correct emissions (Attachments A,B).

4.0 DOSE ASSESSMENTS

4.1 MODEL SOURCE DESCRIPTION

To determine the dose from airborne particulates potentially released from NFSS during CY2011, the annual wind erosion emission, E_w (Attachment A) is calculated using local climatological data (Attachment F) from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center for the Niagara Falls International Airport (NFIA) in Niagara Falls, NY. E_w is calculated using the USEPA AP-42 methodology for "fugitive emissions" from an "area source" that uses the "fastest mile" wind speed data from local climatological data reports. E_w, in grams emitted, is then applied to the soil nuclide concentration to estimate the source term or annual emissions for each radionuclide. The soil concentration was developed from sample data compiled during Phases I, II, and III of the Remedial Investigation for soil contamination (Attachment B). Contributions from radon gas, in accordance with regulatory guidance, are not considered in this calculation. Annual estimated emissions for each radionuclide were input into the USEPA's CAP88-PC, Version 3.0 code to calculate hypothetical receptor doses. The model estimates resultant doses from airborne particulates to hypothetical individuals at the distances to the nearest residence, commercial/industrial facility, school, and farm as measured from a central location on-site. Hypothetical doses are then corrected for occupancy. Commercial/industrial facility and school occupancy is assumed to be 40 hr/week for 50 weeks/yr). Residential and farm occupancy is assumed to be full-time for 24 hr/day for 365 days/yr. The hypothetical individual receiving the higher of these calculated doses is then identified as the maximally exposed individual (MEI) for airborne particulate dose.

4.2 DESCRIPTION OF DOSE MODEL

4.2.1 CAP88-PC Computer Program

The CAP88-PC model is a set of computer programs, databases, and associated utility programs that estimate the dose and risk from airborne radioactivity emissions. The USEPA NESHAP compliance procedures for airborne radioactivity emissions at USDOE facilities (40 CFR 61.93(a)) require the use of the CAP88-PC model, or other approved procedures to calculate effective dose equivalents to members of the public.

CAP88-PC uses a modified Gaussian plume equation to estimate the average dispersion of radionuclides released from a site. Assessments are performed for a circular grid of distances and directions for a radius of 80 km (50 miles) around the facility. Agricultural arrays of milk cattle, beef cattle and agricultural crop area are generated automatically, requiring the user to supply only the State name or agricultural productivity values. Dose and risk factors for CAP88-PC, Version 3.0 are from Federal Guidance Report 13 and are based on the methods detailed in International Commission on Radiological Protection (ICRP) 72 (ICRP72). The dose calculations presented in this document used the default values for nuclide lung clearance type. These defaults correspond to the recommended values from FGR 13. Deposition velocity and scavenging coefficient are calculated by the code in accordance with USEPA policy. In the CAP88 model nuclides are depleted from the plume by precipitation scavenging, dry deposition and radioactive decay. The default scavenging coefficient is calculated as a function of annual precipitation. The program calculates the effective dose equivalents received by receptors by combining the inhalation and ingestion intake rates and the air and ground surface concentrations using the appropriate dose conversion factors.

4.2.2 CAP88-PC Input

Input parameters for CAP88 include:

Radionuclide emissions (Attachment B),
Weather data (average annual temperature, total annual precipitation) (Attachment E),
Emission source height and area (Section 4.3), and
Distance to nearest resident, off-site worker, school, and farm (Section 4.3).

4.2.3 CAP88-PC Output

The "Dose and Risk Equivalent Summaries" from CAP88-PC contains the resulting effective dose equivalents for each modeled scenario. The effective dose equivalent summary contains results for 16 compass directions around the facility for the nearest resident, off-site worker, school, and farm. CAP88-PC individual receptor and population output summaries are located in Attachment C and D, respectively.

4.3 COMPLIANCE ASSESSMENT

The released activity data from Attachment B is entered into the CAP88-PC modeling program to derive the hypothetical dose to the defined receptors. To derive the dose to the MEI, the CAP88-PC model must have weather data for the appropriate year, information on the emission source, and the distances and directions to the nearest residence, off-site worker, school, and farm. The following CY2011 meteorological data were entered into CAP88-PC (see Attachment E):

Average temperature	9.46 °C (49.02 °F) NFIA
Precipitation,	102.3 cm (40.26 inches) ML
Mixing height	1,000 m

The following emission source and nearest receptor distances and direction information were also entered into the program:

Source height	0 m
Source area	780,000 m^2
Resident	914 m SSW
Resident (farm)	1105 m S
Resident	1250 m WSW
Resident	1486 m ESE
Off-site worker	533 m SE
Off-site worker	783 m S
School (building)	2499 m W
School (building)	2629 m WNW

The CAP88-PC annual hypothetical dose to the nearest resident, off-site worker, school, and farm at the corresponding directions and distances taken from page five of the "Dose and Risk Equivalent Summaries" document for individual modeling (Attachment C) are:

Resident	3.8 E-03 mrem, SSW @ 914 m
Off-site worker	1.7 E-02 mrem, SE @ 533 m
School	1.4 E-03 mrem, W @ 2499 m
Farm	2.9 E-03 mrem, S @ 1105 m

The hypothetical doses to the nearest off-site worker and school corrected for an assumed 2,000 hr of exposure per year are:

Off-site worker	3.9 E-03 mrem
School	3.2 E-04 mrem

5.0 SUPPLEMENTAL INFORMATION

5.1 POPULATION DOSE

The CAP88-PC model was also used to estimate the hypothetical airborne particulate dose to the population within 80 km of the site. Population data taken from year 2000 census data for New York State and 2001 census data for Ontario, Canada was used to create a population file for CAP88-PC. The effective dose equivalent for the collective population in person-rem/yr is from the CAP88-PC "Dose and Risk Equivalent Summaries" report.

The CAP88-PC annual effective dose for the population within 80 km of the facility (Attachment D) is:

Population:	1.1 E-01 person-rem

5.2 RADON-222 FLUX

Measurement of radon-222 flux provides an indication of the rate of radon-222 emission from a surface. Radon-222 flux is measured with activated charcoal canisters placed at 15-m intervals across the surface of the IWCS for a 24-hr exposure period. Measurements for

CY2011 are presented in the radon flux results with measurement locations (site map) in Attachment F.

Measured results for 2011 ranged from non-detect to 0.2793 pCi/m^2/s, with an average result including detects and non-detects of 0.02948 pCi/m^2/s. As in previous years, these results are well below the 20 pCi/m^2/s standard specified in 40 CFR Part 61, Subpart Q, and demonstrate the effectiveness of the containment cell design and construction in mitigating radon-222 migration.

5.3 NON-APPLICABILITY

Requirements from section 61.93(b) of 40 CFR for continuous monitoring from point sources (stacks or vents) are not applicable to NFSS.

6.0 REFERENCES

ANL 2003. CAP88-PC Population Files for NFSS, Argonne National Laboratory, Chicago, Illinois.

Bechtel National, Inc. (BNI), 1997. "1996 Public Inhalation Dose" 14501-158-CV-030, Rev. 0, Oak Ridge, TN.

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International Commission on Radiological Protection (ICRP72), 1996. *Age Dependent Doses to Members of the Public from Intake of Radionuclides, Part 5, Compilation of Ingestion and Inhalation Dose Coefficients*," ICRP 72, Pergamon Press, Oxford.

40 CFR 61, Subpart H. *National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities.*

40 CFR 61, Subpart Q. *National Emission Standards for Radon Emissions from Department of Energy Facilities.*

ATTACHMENT A

ANNUAL WIND EROSION EMISSION CALCULATION

A.1 ANNUAL WIND EROSION

In 2011, the potential source of airborne emissions from NFSS is assumed to be from wind erosion of in-situ soil from the entire NFSS. The AP-42 model for industrial wind erosion for limited flat sources is used. In this model the potential airborne emissions are a function of the number of disturbances of contaminated soil. The following assumptions and calculations are made:

The air release source is wind erosion of in-situ soil from an area (A) of 780,000 m^2 of vegetation covered soil.

$A = 780{,}000\ m^2$

The calculation assumes that 90% of this area is covered by grass or vegetation (V).

$V = 0.90$

Weekly grass cutting is assumed for half the year, occurring May through October and in an April spring thaw. The number of estimated disturbances (N) is therefore:

$N = 27$

The threshold velocity (U_t) for overburden (USEPA 1995 Table 13.2.5-2) is:

$U_t = 1.02$ m/s

Anemometer height adjustment is not necessary.

Z_r = reference anemometer height = 10 m

Z_a = actual anemometer height = 10 m

The roughness height for overburden is 0.3 cm (USEPA 1995 Table 13.2.5-2).

$Z_o = 0.3$ cm

The corrected wind speed (U_{rN}) for each period (N) between disturbances (USEPA 1995 Equation 5) is:

$U_{rN} = U_{aN}\ [\ln(Z_{r/}\ Z_o) / \ln(Z_{a/}\ Z_o)]$, therefore $U_{rN} = U_{aN}$

The equivalent friction velocity (U_N) for each period between disturbances (USEPA 1995 Equation 4) is:

$U_N = 0.053\ U_{rN}$

The fastest mile speeds (maximum 2-minute wind speeds[a]) from Local Climatological Data reports from NOAA for Niagara Falls International Airport (NFIA) in mph for the period between each disturbance are:

$U_{a1} = 61$	$U_{a2} = 26$	$U_{a3} = 22$	$U_{a4} = 25$	$U_{a5} = 46$	$U_{a6} = 30$
$U_{a7} = 33$	$U_{a8} = 22$	$U_{a9} = 26$	$U_{a10} = 28$	$U_{a11} = 21$	$U_{a12} = 28$
$U_{a13} = 25$	$U_{a14} = 23$	$U_{a15} = 21$	$U_{a16} = 25$	$U_{a17} = 22$	$U_{a18} = 36$
$U_{a19} = 25$	$U_{a20} = 44$	$U_{a21} = 32$	$U_{a22} = 22$	$U_{a23} = 25$	$U_{a24} = 17$
$U_{a25} = 36$	$U_{a26} = 37$	$U_{a27} = 20$			

[a]Maximum 2-minute wind speeds can be used to approximate fastest mile wind speeds (USEPA 2004 Table 7-4), however, this calculation applies an uncertainty correction factor, protective of human health, of 1.3 in order to approximate the fastest mile wind speeds.

The equivalent friction velocity in m/s for each period is:

U_1 = 1.88 E+00	U_2 = 8.01 E-01	U_3 = 6.78 E-01	U_4 = 7.70 E-01	U_5 = 1.42 E+00	U_6 = 9.24 E-01
U_7 = 1.02 E+00	U_8 = 6.78 E-01	U_9 = 8.01 E-01	U_{10} = 8.62 E-01	U_{11} = 6.47 E-01	U_{12} = 8.62 E-01
U_{13} = 7.70 E-01	U_{14} = 7.08 E-01	U_{15} = 6.47 E-01	U_{16} = 7.70 E-01	U_{17} = 6.78 E-01	U_{18} = 1.11 E+00
U_{19} = 7.70 E-01	U_{20} = 1.36 E+00	U_{21} = 9.86 E-01	U_{22} = 6.78 E-01	U_{23} = 7.70 E-01	U_{24} = 5.24 E-01
U_{25} = 1.11 E+00	U_{26} = 1.14 E+00	U_{27} = 6.16 E-01			

The erosion potential (P_N) for a dry exposed surface (USEPA 1985 Figure 4-2) is:

$$P_N = 58\ (U^*-U_t)^2 + 25(U^*-U_t) = 107.39\ g/m^2$$

The erosion potentials (P_N) for each period between disturbances are all less than or equal to the threshold friction velocity except for U_1, U_3, U_6, , and U_{23}.

The particle size multiplier (k) for 10 μ particles (USEPA 1995 Equation 2) is:

$$k = 0.5$$

The emission factor (P) for dry bare soil for 10 μ particles (USEPA 1995 Equation 2) is:

$$P = k \sum P_N = 53.69\ g/m^2$$

Thornthwaite's Precipitation Evaporation Index (PE), used as a measure of average soil moisture, is:

$$PE = 110$$

The corrected emission factor (PM_{10}) for 10 μ particles (USEPA 1985 Equation 4-1) is:

$$PM_{10} = P(1-V) / (PE/50)^2 = 1.11\ g/m^2/yr$$

The annual wind erosion emission (E) is calculated to be:

$$E = A\ (PM_{10}) = 865{,}325\ g\ soil$$

A.2 REFERENCES

EPA 2004. *Methods for Estimating Fugitive Air Emissions of Radionuclides from Diffuse Sources at USDOE Facilities*, Final Report, September 3, 2004.

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ATTACHMENT B

SOURCE TERM DEVELOPMENTAND ANNUAL AIR EMISSIONS

B.1 SOURCE TERM DEVELOPMENT

The source term for NFSS NESHAPS calculations was developed considering the radionuclides in the uranium, thorium, and actinium decay series as shown in Table B-1. Concentration data for these radioisotopes were taken from Phases I, II, and III of the Remedial Investigation and are listed in Table B-2. The Phase I sampling was performed from November 1999 through January 2000. The Phase II was performed from August 2000 through October 2000. The Phase III sampling was performed from May 2001 through October 2003. The dataset has been verified to ensure data quality and includes the analysis of soils from biased high locations (i.e., locations that had elevated gamma survey readings). The dataset used for CY 2009 uses higher soil concentrations than in years before CY2004 and more conservatively estimates (biased high) the site concentration values.

The IWCS, completed in 1986 and added to in 1991, is surrounded by sufficient topsoil and compacted clay to consider radionuclide emissions negligible. In 1986, the entire IWCS was covered with 0.9 meters (3 feet) of low-permeability, compacted clay, a 0.3 meter (12 inch)-thick layer of loosely compacted soil, 0.15 meter (6 inches) of topsoil and covered with shallow-rooted grass. A clay cutoff wall and dike measuring 3.35 to 8.84 meters (11 to 29 feet) in thickness formed the perimeter. In 1991 additional soil with residual radioactivity from a vicinity property, along with 60 drums containing radioactive material, were placed over the existing IWCS. Six inches of clay was placed over the waste material and two feet of compacted clay was added on top along with 0.46 meter (1.5 feet) of topsoil material. However, the area of the cap was included in the site area estimate.

Radium-226 was detected at an elevated concentration of 1,140 pCi/g in one area during the Phase I remedial investigation. This was analyzed and determined to come from a stone in the sample. Although release rates are based on dust erosion and not buried stones, this detection was used in the source term calculation.

Soil concentration data, listed in Table B-3, are not available for all the radionuclides in Table B-1. If explicit results for a radionuclide were not available, it was assumed that the radionuclide was present in equilibrium with (i.e., at the same concentration as) the nearest long-lived parent. Branching ratios were used to estimate source term concentrations. Table B-3 lists the source term values used in the CAP-88 modeled scenarios.

Table B-1. Radionuclides Considered in NESHAPS Evaluation

Uranium Series	Thorium Series	Actinium Series
U-238	Th-232	U-235
Th-234	Ra-228	Th-231
Pa-234m	Ac-228	Pa-231
Pa-234 (0.13%)	Th-228	Ac-227
U-234	Ra-224	Th-227 (98.62%)
Th-230	*Rn-220 (thoron)	Fr-223 (1.38%)
Ra-226	Po-216	Ra-223
*Rn-222 (radon)	Pb-212	*Rn-219 (actinon)
Po-218	Bi-212	Po-215
Pb-214 (99.98%)	Po-212 (64.07%)	Pb-211 (≈ 100%)
At-218 (0.02%)	Tl-208 (35.93%)	*At-215 (0.00023%)
Bi-214	*Pb-208 (stable)	Bi-211
Po-214 (99.979%)		Po-211 (0.273%)
Tl-210 (0.021%)		Tl-207 (99.73%)
Pb-210		*Pb-207 (stable)
Bi-210		
Po-210 (≈ 100%)		
Tl-206 (0.00013%)		
*Pb-206 (stable)		

Nuclides with asterisks (*) were excluded from dose calculations for the following reasons: 1) Radon isotopes including thoron and actinon are specifically excluded per the regulation or 2) nuclides of low abundance and stable nuclides do not contribute significantly to radiological dose.

Nuclides are presented from top to bottom in order of decay starting from the parent radionuclides. Branching fractions are shown, as appropriate, for consideration in source term development. Fractions taken from Shleien, 1992.

Table B-2. Summary of Phases I, II, and III Characterization Data Used in NESHAP Dose Calculations

Analyte	Units	Results	Minimum Detect	Maximum Detect	Average Result	95% UCL of the Mean	Input Exposure Concentration
Radium-226 [a]	(pCi/g)	552	0.0607	1140	10.23	26.09	26.09
Thorium-228	(pCi/g)	552	0.0481	2.38	1.06	1.08	1.08
Thorium-230	(pCi/g)	552	0.0906	978	8.68	22.74	22.74
Thorium-232	(pCi/g)	551	0.0149	2.07	0.88	0.89	0.89
Uranium-234	(pCi/g)	552	0.0416	8340	20.57	87.4	87.4
Uranium-235	(pCi/g)	553	-0.16	886	1.94	8.97	8.97
Uranium-238	(pCi/g)	551	0.049	8830	21.59	92.38	92.38

[a] Includes previous outlier 1,140 pCi/g (NiagAir1 on 25JUL00 at 15:36 using dataset allradnq)

Table B-3. Soil Concentration and Estimated Emission of Radionuclides from NFSS for CY 2009

Soil Concentration and CAPP88 Input Source Term								
Uranium Series			**Thorium Series**			**Actinium Series**		
Nuclide	**pCi/g**	**Ci/y**	**Nuclide**	**pCi/g**	**Ci/y**	**Nuclide**	**pCi/g**	**Ci/y**
U-238	92.38	3.02E-05	Th-232	0.89	2.91E-07	U-235	8.97	2.93E-06
Th-234	92.38	3.02E-05	Ra-228	0.89	2.91E-07	Th-231	8.97	2.93E-06
Pa-234m	92.38	3.02E-05	Ac-228	0.89	2.91E-07	Pa-231	8.97	2.93E-06
Pa-234	92.38	3.92E-08	Th-228	1.08	3.53E-07	Ac-227	8.97	2.93E-06
U-234	87.4	2.86E-05	Ra-224	1.08	3.53E-07	Th-227	8.97	2.89E-06
Th-230	22.74	7.43E-06	Rn-220	1.08	0.00E-00	Fr-223	8.97	4.05E-08
Ra-226	26.09	8.53E-06	Po-216	1.08	3.53E-07	Ra-223	8.97	2.93E-06
Rn-222	26.09	0.00E-00	Pb-212	1.08	3.53E-07	Rn-219	8.97	0.00E-00
Po-218	26.09	8.53E-06	Bi-212	1.08	3.53E-07	Po-215	8.97	2.93E-06
Pb-214	26.09	8.52E-06	Po-212	1.08	2.26E-07	Pb-211	8.97	2.93E-06
At-218	26.09	1.71E-09	Tl-208	1.08	1.27E-07	At-215	8.97	6.74E-12
Bi-214	26.09	8.53E-06	Pb-208 (stable)	1.08	0.00E-00	Bi-211	8.97	2.93E-06
Po-214	26.09	8.52E-06				Po-211	8.97	8.00E-09
Tl-210	26.09	1.79E-09				Tl-207	8.97	2.92E-06
Pb-210	26.09	8.53E-06				Pb-207 (stable)	8.97	0.00E-00
Bi-210	26.09	8.53E-06						
Po-210	26.09	8.53E-06						
Tl-206	26.09	1.11E-11						
Pb-206 (stable)	26.09	0.00E-00						

B.2 REFERENCES

Shleien, 1992. *The Health Physics and Radiological Health Handbook*, Scinta, Inc., Silver Spring, MD.

ATTACHMENT C

CAPP88-PC REPORTS – INDIVIDUAL

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Individual Assessment
Jun 27, 2012 10:07 am

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area Source
Source Type: Area
Emission Year: 2011

Comments: NFSS Tech Memo 2011
Individual Dose

Dataset Name: NFSS2011 Indiv
Dataset Date: 6/26/2012 4:04:00 PM
Wind File: . C:\Program Files\CAP88-PC30\WindLib\IAG0905.WND

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)
Adrenals	1.06E-04
B Surfac	2.60E-02
Breasts	1.10E-04
St Wall	1.08E-04
ULI Wall	1.24E-04
Kidneys	7.22E-04
Lungs	3.95E-03
Ovaries	3.07E-04
R Marrow	1.22E-03
Spleen	3.07E-04
Thymus	1.08E-04
Uterus	1.07E-04
Bld Wall	1.09E-04
Brain	1.08E-04
Esophagu	1.07E-03
SI Wall	1.09E-04
LLI Wall	1.57E-04
Liver	1.87E-03
Muscle	1.10E-04
Pancreas	1.07E-04
Skin	6.12E-04
Testes	3.12E-04
Thyroid	1.09E-04
EFFEC	2.16E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)
INGESTION	1.63E-03
INHALATION	2.00E-02
AIR IMMERSION	7.30E-08
GROUND SURFACE	2.45E-05
INTERNAL	2.16E-02
EXTERNAL	2.46E-05
TOTAL	2.16E-02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem/y)
U-238	1.95E-03
Th-234	8.57E-06
Pa-234m	4.00E-06
Pa-234	6.19E-10
U-234	2.24E-03
Th-230	2.34E-03
Ra-226	1.06E-03
Rn-222	1.43E-14
Po-218	8.80E-11
Pb-214	4.66E-06
Bi-214	1.73E-05
Po-214	8.07E-10
Pb-210	6.73E-04
Bi-210	1.79E-05
Po-210	7.59E-04
At-218	0.00E+00
Th-232	1.59E-04
Ra-228	5.25E-05
Ac-228	4.11E-07
Th-228	3.03E-04
Ra-224	2.28E-05
Rn-220	5.46E-13
Po-216	6.90E-12
Pb-212	1.36E-06
Bi-212	3.30E-07
Po-212	0.00E+00
Tl-208	1.81E-09
U-235	2.05E-04
Th-231	7.74E-08
Pa-231	6.01E-03
Ac-227	4.65E-03
Th-227	6.46E-04
Ra-223	4.86E-04
Rn-219	6.49E-10
Po-215	5.98E-10
Pb-211	1.03E-06
Bi-211	1.57E-07
Tl-207	1.97E-07
Po-211	2.46E-13
Fr-223	9.05E-09
TOTAL	2.16E-02

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagu	1.41E-11
Stomach	3.80E-11
Colon	1.62E-10
Liver	4.61E-10
LUNG	8.00E-09
Bone	3.26E-10
Skin	1.53E-12
Breast	2.20E-11
Ovary	5.27E-11
Bladder	3.30E-11
Kidneys	7.85E-11
Thyroid	3.03E-12
Leukemia	6.74E-11
Residual	1.72E-10
Total	9.43E-09
TOTAL	1.89E-08

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	5.00E-10
INHALATION	8.92E-09
AIR IMMERSION	3.90E-14
GROUND SURFACE	1.12E-11
INTERNAL	9.42E-09
EXTERNAL	1.13E-11
TOTAL	9.43E-09

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	1.58E-09
Th-234	9.67E-12
Pa-234m	6.41E-13
Pa-234	3.94E-16
U-234	1.82E-09
Th-230	1.17E-09
Ra-226	6.84E-10
Rn-222	7.79E-21
Po-218	4.83E-17
Pb-214	2.83E-12
Bi-214	9.16E-12
Po-214	4.43E-16
Pb-210	2.82E-10
Bi-210	1.55E-11
Po-210	5.67E-10
At-218	0.00E+00
Th-232	6.92E-11
Ra-228	2.21E-11
Ac-228	2.26E-13
Th-228	2.59E-10
Ra-224	1.95E-11
Rn-220	2.98E-19
Po-216	3.78E-18
Pb-212	1.15E-12
Bi-212	1.94E-13
Po-212	0.00E+00
Tl-208	9.97E-16
U-235	1.66E-10
Th-231	4.58E-14
Pa-231	5.67E-10
Ac-227	1.22E-09
Th-227	5.60E-10
Ra-223	4.14E-10
Rn-219	3.51E-16
Po-215	3.28E-16
Pb-211	7.10E-13
Bi-211	8.58E-14
Tl-207	2.52E-14
Po-211	1.35E-19
Fr-223	7.66E-15
TOTAL	9.43E-09

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	533	783	914	1105	1250	1486	2499
N	1.5E-02	6.2E-03	4.7E-03	3.5E-03	2.9E-03	2.3E-03	1.1E-03
NNW	1.2E-02	4.8E-03	3.4E-03	2.3E-03	1.8E-03	1.3E-03	4.6E-04
NW	1.2E-02	4.2E-03	3.1E-03	2.3E-03	1.9E-03	1.4E-03	7.0E-04
WNW	1.3E-02	6.5E-03	4.8E-03	3.3E-03	2.7E-03	2.0E-03	8.5E-04
W	1.4E-02	7.0E-03	5.4E-03	4.0E-03	3.4E-03	2.7E-03	1.4E-03
WSW	1.4E-02	7.0E-03	5.1E-03	3.6E-03	2.9E-03	2.1E-03	8.7E-04
SW	1.3E-02	5.1E-03	3.8E-03	2.8E-03	2.3E-03	1.8E-03	8.7E-04
SSW	1.2E-02	5.2E-03	3.8E-03	2.6E-03	2.1E-03	1.5E-03	6.3E-04
S	1.3E-02	5.2E-03	3.9E-03	2.9E-03	2.4E-03	1.9E-03	9.3E-04
SSE	1.4E-02	6.7E-03	4.9E-03	3.4E-03	2.7E-03	2.0E-03	8.4E-04
SE	1.7E-02	7.3E-03	5.5E-03	4.0E-03	3.3E-03	2.6E-03	1.2E-03
ESE	1.8E-02	8.5E-03	6.3E-03	4.4E-03	3.6E-03	2.7E-03	1.1E-03
E	2.1E-02	8.6E-03	6.4E-03	4.6E-03	3.8E-03	2.9E-03	1.3E-03
ENE	2.2E-02	1.0E-02	7.5E-03	5.2E-03	4.2E-03	3.1E-03	1.3E-03
NE	2.1E-02	1.0E-02	7.6E-03	5.6E-03	4.7E-03	3.7E-03	1.8E-03
NNE	1.9E-02	9.6E-03	7.1E-03	4.9E-03	4.0E-03	2.9E-03	1.2E-03

	Distance (m)
Direction	2629
N	1.0E-03
NNW	4.4E-04
NW	6.6E-04
WNW	7.9E-04
W	1.3E-03
WSW	8.1E-04
SW	8.2E-04
SSW	5.9E-04
S	8.6E-04
SSE	7.8E-04
SE	1.1E-03
ESE	1.1E-03
E	1.2E-03
ENE	1.2E-03
NE	1.7E-03
NNE	1.1E-03

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	533	783	914	1105	1250	1486	2499
N	6.7E-09	2.7E-09	2.0E-09	1.5E-09	1.2E-09	9.7E-10	4.7E-10
NNW	5.3E-09	2.1E-09	1.5E-09	9.9E-10	7.6E-10	5.3E-10	1.8E-10
NW	5.3E-09	1.8E-09	1.3E-09	9.6E-10	7.9E-10	6.0E-10	2.8E-10
WNW	5.7E-09	2.8E-09	2.1E-09	1.4E-09	1.2E-09	8.5E-10	3.5E-10
W	6.3E-09	3.1E-09	2.3E-09	1.7E-09	1.5E-09	1.2E-09	5.8E-10
WSW	6.2E-09	3.0E-09	2.2E-09	1.5E-09	1.2E-09	8.9E-10	3.6E-10
SW	5.7E-09	2.2E-09	1.7E-09	1.2E-09	9.9E-10	7.6E-10	3.6E-10
SSW	5.2E-09	2.2E-09	1.6E-09	1.1E-09	8.9E-10	6.4E-10	2.5E-10
S	5.6E-09	2.2E-09	1.7E-09	1.2E-09	1.0E-09	7.9E-10	3.8E-10
SSE	6.3E-09	2.9E-09	2.1E-09	1.5E-09	1.2E-09	8.5E-10	3.4E-10
SE	7.2E-09	3.2E-09	2.4E-09	1.7E-09	1.4E-09	1.1E-09	5.2E-10
ESE	7.9E-09	3.7E-09	2.7E-09	1.9E-09	1.5E-09	1.1E-09	4.7E-10
E	9.0E-09	3.7E-09	2.8E-09	2.0E-09	1.6E-09	1.2E-09	5.6E-10
ENE	9.4E-09	4.5E-09	3.3E-09	2.3E-09	1.8E-09	1.3E-09	5.3E-10
NE	9.3E-09	4.4E-09	3.3E-09	2.4E-09	2.0E-09	1.6E-09	7.6E-10
NNE	8.3E-09	4.2E-09	3.1E-09	2.1E-09	1.7E-09	1.3E-09	5.1E-10

	Distance (m)
Direction	2629
N	4.4E-10
NNW	1.7E-10
NW	2.6E-10
WNW	3.2E-10
W	5.3E-10
WSW	3.3E-10
SW	3.3E-10
SSW	2.4E-10
S	3.5E-10
SSE	3.2E-10
SE	4.8E-10
ESE	4.4E-10
E	5.2E-10
ENE	4.9E-10
NE	7.0E-10
NNE	4.8E-10

ATTACHMENT D

CAPP88-PC REPORTS – POPULATION

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Population Assessment
Jun 27, 2012 10:03 am

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area Source
Source Type: Area
Emission Year: 2011

Comments: NFSS Technical Memo 2011
Population Dose

Dataset Name: NFSS 2011 Pop
Dataset Date: 6/27/2012 9:15:00 AM
Wind File: . C:\Program Files\CAP88-PC30\WindLib\IAG0905.WND
Population File: C:\Users\h5eh9hls\Documents\Spector\Nfss\Technical Environmental Memos\

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)	Collective Population (person-rem/y)
Adrenals	3.66E-04	5.86E-04
B Surfac	9.43E-02	1.30E-01
Breasts	3.79E-04	6.17E-04
St Wall	3.71E-04	6.00E-04
ULI Wall	4.09E-04	6.61E-04
Kidneys	1.89E-03	3.03E-03
Lungs	1.57E-02	2.10E-02
Ovaries	1.14E-03	1.63E-03
R Marrow	4.09E-03	5.87E-03
Spleen	6.04E-04	1.15E-03
Thymus	3.71E-04	5.97E-04
Uterus	3.69E-04	5.93E-04
Bld Wall	3.74E-04	6.04E-04
Brain	3.70E-04	5.96E-04
Esophagu	4.19E-03	5.67E-03
SI Wall	3.71E-04	5.98E-04
LLI Wall	4.83E-04	7.88E-04
Liver	6.84E-03	9.44E-03
Muscle	3.81E-04	6.22E-04
Pancreas	3.67E-04	5.87E-04
Skin	2.26E-03	5.31E-03
Testes	1.16E-03	1.67E-03
Thyroid	3.74E-04	6.06E-04
EFFEC	8.06E-02	1.10E-01

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)	Collective Population (person-rem/y)
INGESTION	9.06E-04	3.73E-03
INHALATION	7.96E-02	1.06E-01
AIR IMMERSION	2.91E-07	3.89E-07
GROUND SURFACE	9.19E-05	2.29E-04
INTERNAL	8.05E-02	1.09E-01
EXTERNAL	9.21E-05	2.30E-04
TOTAL	8.06E-02	1.10E-01

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem/y)	Collective Population (person-rem/y)
U-238	7.45E-03	1.01E-02
Th-234	2.27E-05	3.58E-05
Pa-234m	1.50E-05	3.74E-05
Pa-234	2.47E-09	3.28E-09
U-234	8.57E-03	1.16E-02
Th-230	8.97E-03	1.21E-02
Ra-226	2.78E-03	4.43E-03
Rn-222	5.62E-14	1.23E-13
Po-218	3.30E-10	8.22E-10
Pb-214	1.80E-05	3.46E-05
Bi-214	6.56E-05	1.51E-04
Po-214	3.02E-09	7.53E-09
Pb-210	1.07E-03	2.14E-03
Bi-210	6.97E-05	9.49E-05
Po-210	2.47E-03	3.50E-03
At-218	0.00E+00	0.00E+00
Th-232	6.20E-04	8.30E-04
Ra-228	8.65E-05	1.77E-04
Ac-228	1.56E-06	3.53E-06
Th-228	1.20E-03	1.60E-03
Ra-224	9.01E-05	1.20E-04
Rn-220	2.14E-12	4.69E-12
Po-216	2.58E-11	6.43E-11
Pb-212	5.40E-06	7.43E-06
Bi-212	1.29E-06	2.14E-06
Po-212	0.00E+00	0.00E+00
Tl-208	7.20E-09	9.57E-09
U-235	7.83E-04	1.06E-03
Th-231	2.95E-07	6.37E-07
Pa-231	2.35E-02	3.14E-02
Ac-227	1.83E-02	2.44E-02
Th-227	2.57E-03	3.42E-03
Ra-223	1.88E-03	2.52E-03
Rn-219	2.55E-09	5.57E-09
Po-215	2.24E-09	5.58E-09
Pb-211	4.04E-06	6.84E-06
Bi-211	5.87E-07	1.46E-06
Tl-207	7.38E-07	1.84E-06
Po-211	9.79E-13	1.30E-12
Fr-223	3.61E-08	4.79E-08
TOTAL	8.06E-02	1.10E-01

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
Esophagu	4.21E-11	8.19E-10
Stomach	9.76E-11	2.04E-09
Colon	2.85E-10	7.16E-09
Liver	1.57E-09	2.85E-08
LUNG	3.18E-08	5.48E-07
Bone	1.05E-09	1.96E-08
Skin	4.69E-12	1.18E-10
Breast	5.71E-11	1.22E-09
Ovary	1.89E-10	3.40E-09
Bladder	1.00E-10	1.93E-09
Kidneys	1.60E-10	3.63E-09
Thyroid	7.90E-12	1.64E-10
Leukemia	1.92E-10	3.83E-09
Residual	3.65E-10	8.42E-09
Total	3.59E-08	6.28E-07

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
INGESTION	2.78E-10	1.50E-08
INHALATION	3.55E-08	6.12E-07
AIR IMMERSION	1.56E-13	2.69E-12
GROUND SURFACE	4.21E-11	1.36E-09
INTERNAL	3.58E-08	6.27E-07
EXTERNAL	4.22E-11	1.36E-09
TOTAL	3.59E-08	6.28E-07

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
U-238	6.17E-09	1.07E-07
Th-234	2.16E-11	4.64E-10
Pa-234m	2.40E-12	7.76E-11
Pa-234	1.57E-15	2.71E-14
U-234	7.11E-09	1.23E-07
Th-230	4.61E-09	7.96E-08
Ra-226	2.23E-09	4.16E-08
Rn-222	3.06E-20	8.66E-19
Po-218	1.81E-16	5.84E-15
Pb-214	1.10E-11	2.62E-10
Bi-214	3.46E-11	1.04E-09
Po-214	1.66E-15	5.35E-14
Pb-210	5.87E-10	1.32E-08
Bi-210	5.98E-11	1.04E-09
Po-210	2.05E-09	3.64E-08
At-218	0.00E+00	0.00E+00
Th-232	2.74E-10	4.73E-09
Ra-228	3.96E-11	9.96E-10
Ac-228	8.60E-13	2.49E-11
Th-228	1.03E-09	1.77E-08
Ra-224	7.75E-11	1.34E-09
Rn-220	1.17E-18	3.32E-17
Po-216	1.42E-17	4.57E-16
Pb-212	4.59E-12	8.08E-11
Bi-212	7.64E-13	1.56E-11
Po-212	0.00E+00	0.00E+00
Tl-208	3.98E-15	6.84E-14
U-235	6.48E-10	1.13E-08
Th-231	1.76E-13	4.47E-12
Pa-231	2.22E-09	3.85E-08
Ac-227	4.83E-09	8.33E-08
Th-227	2.23E-09	3.84E-08
Ra-223	1.62E-09	2.80E-08
Rn-219	1.38E-15	3.90E-14
Po-215	1.23E-15	3.96E-14
Pb-211	2.80E-12	5.46E-11
Bi-211	3.22E-13	1.04E-11
Tl-207	9.43E-14	3.04E-12
Po-211	5.37E-19	9.24E-18
Fr-223	3.05E-14	5.25E-13
TOTAL	3.59E-08	6.28E-07

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	8.0E-02	6.2E-03	1.9E-03	8.9E-04	5.1E-04	3.5E-04	1.6E-04
NNW	8.0E-02	4.8E-03	1.0E-03	2.7E-04	1.6E-04	1.1E-04	4.8E-05
NW	8.0E-02	4.1E-03	1.2E-03	4.9E-04	2.8E-04	1.9E-04	8.5E-05
WNW	8.0E-02	6.6E-03	1.7E-03	6.3E-04	3.6E-04	2.5E-04	1.1E-04
W	8.0E-02	7.0E-03	2.3E-03	1.1E-03	6.4E-04	4.4E-04	2.0E-04
WSW	8.0E-02	7.1E-03	1.8E-03	6.5E-04	3.8E-04	2.6E-04	1.2E-04
SW	8.0E-02	5.0E-03	1.5E-03	6.6E-04	3.8E-04	2.6E-04	1.2E-04
SSW	8.0E-02	5.2E-03	1.2E-03	4.3E-04	2.5E-04	1.7E-04	7.5E-05
S	8.0E-02	5.1E-03	1.6E-03	7.0E-04	4.0E-04	2.7E-04	1.2E-04
SSE	8.1E-02	6.7E-03	1.7E-03	6.2E-04	3.6E-04	2.4E-04	1.1E-04
SE	8.0E-02	7.3E-03	2.2E-03	9.9E-04	5.7E-04	3.9E-04	1.7E-04
ESE	8.0E-02	8.6E-03	2.3E-03	9.0E-04	5.2E-04	3.5E-04	1.6E-04
E	8.0E-02	8.6E-03	2.5E-03	1.1E-03	6.3E-04	4.3E-04	1.9E-04
ENE	8.0E-02	1.0E-02	2.7E-03	1.0E-03	5.9E-04	4.0E-04	1.8E-04
NE	8.0E-02	1.0E-02	3.2E-03	1.5E-03	8.7E-04	6.0E-04	2.7E-04
NNE	8.0E-02	9.7E-03	2.5E-03	9.9E-04	5.7E-04	3.9E-04	1.8E-04

	Distance (m)						
Direction	15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-06	3.7E-06
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-06	1.5E-06	1.2E-06
NW	3.0E-05	0.0E+00	0.0E+00	0.0E+00	3.5E-06	2.4E-06	1.8E-06
WNW	3.9E-05	0.0E+00	0.0E+00	0.0E+00	4.3E-06	2.8E-06	2.1E-06
W	7.0E-05	3.1E-05	1.9E-05	1.2E-05	8.1E-06	5.3E-06	4.0E-06
WSW	4.2E-05	1.9E-05	1.1E-05	7.5E-06	5.1E-06	3.4E-06	2.6E-06
SW	4.1E-05	1.8E-05	1.1E-05	7.4E-06	5.0E-06	3.4E-06	0.0E+00
SSW	2.7E-05	1.2E-05	7.2E-06	4.8E-06	0.0E+00	2.3E-06	1.8E-06
S	4.4E-05	2.0E-05	1.2E-05	7.8E-06	5.3E-06	3.6E-06	2.8E-06
SSE	3.9E-05	1.7E-05	1.1E-05	7.1E-06	4.9E-06	3.4E-06	2.6E-06
SE	6.2E-05	2.8E-05	1.7E-05	1.1E-05	7.7E-06	5.3E-06	4.1E-06
ESE	5.7E-05	2.6E-05	1.6E-05	1.0E-05	7.2E-06	5.0E-06	3.9E-06
E	7.0E-05	3.1E-05	1.9E-05	1.3E-05	8.8E-06	6.1E-06	4.7E-06
ENE	6.6E-05	3.0E-05	1.8E-05	1.2E-05	8.7E-06	6.1E-06	4.8E-06
NE	9.8E-05	4.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	6.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.5E-06

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

	Distance (m)						
Direction	250	750	1500	2500	3500	4500	7500
N	7.2E-04	1.7E-04	1.8E-04	1.2E-04	9.7E-05	8.2E-05	2.1E-04
NNW	7.2E-04	1.3E-04	1.0E-04	3.7E-05	3.0E-05	2.4E-05	7.4E-05
NW	7.2E-04	1.1E-04	1.3E-04	7.4E-05	5.3E-05	4.9E-05	7.0E-04
WNW	7.2E-04	1.8E-04	1.9E-04	1.2E-04	8.8E-05	1.4E-04	4.1E-04
W	7.2E-04	2.0E-04	2.6E-04	2.1E-04	1.0E-03	1.5E-04	2.2E-04
WSW	7.2E-04	2.0E-04	2.0E-04	1.2E-04	5.8E-04	5.0E-04	7.6E-04
SW	7.2E-04	1.4E-04	1.7E-04	1.2E-04	1.2E-04	5.4E-04	1.4E-03
SSW	7.2E-04	1.5E-04	1.4E-04	7.9E-05	7.1E-05	2.6E-04	8.3E-04
S	7.2E-04	1.4E-04	1.7E-04	1.3E-04	9.0E-05	8.0E-05	1.3E-03
SSE	7.3E-04	1.9E-04	1.9E-04	1.1E-04	8.0E-05	6.9E-05	5.0E-04
SE	7.2E-04	2.0E-04	2.5E-04	1.8E-04	1.4E-04	1.1E-04	5.4E-04
ESE	7.2E-04	2.4E-04	2.5E-04	1.7E-04	1.3E-04	1.2E-04	4.0E-04
E	7.2E-04	2.4E-04	2.8E-04	2.0E-04	1.6E-04	1.4E-04	4.6E-04
ENE	7.2E-04	2.9E-04	3.0E-04	1.8E-04	1.2E-04	8.4E-05	5.8E-04
NE	7.2E-04	2.8E-04	3.5E-04	1.9E-04	1.0E-04	8.6E-05	7.3E-04
NNE	7.2E-04	2.7E-04	2.5E-04	1.3E-04	1.0E-04	8.0E-05	2.6E-04

	Distance (m)						
Direction	15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.7E-04	1.1E-03
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-04	1.6E-03	8.5E-04
NW	3.1E-05	0.0E+00	0.0E+00	0.0E+00	1.7E-05	1.9E-03	9.7E-04
WNW	1.4E-04	0.0E+00	0.0E+00	0.0E+00	4.3E-09	7.1E-04	1.9E-04
W	1.9E-03	2.0E-03	1.8E-04	3.4E-04	1.7E-04	8.8E-04	1.0E-03
WSW	6.1E-04	8.7E-04	8.9E-05	5.0E-05	2.8E-05	3.3E-05	1.5E-05
SW	2.9E-03	1.0E-04	6.4E-04	1.0E-04	9.6E-06	2.4E-06	0.0E+00
SSW	3.1E-03	2.7E-05	5.5E-05	2.1E-05	0.0E+00	3.3E-07	2.7E-05
S	4.0E-03	1.0E-03	1.1E-03	4.5E-05	5.6E-04	2.2E-04	1.0E-04
SSE	3.0E-03	8.2E-03	9.4E-03	3.3E-03	7.8E-04	1.5E-04	6.4E-05
SE	1.1E-03	3.3E-03	3.1E-03	1.2E-03	3.6E-04	1.3E-04	9.0E-05
ESE	6.4E-04	2.1E-03	2.4E-04	2.5E-04	1.6E-04	3.4E-04	1.3E-04
E	6.7E-04	1.7E-03	3.0E-04	4.8E-04	1.3E-04	2.3E-04	1.8E-04
ENE	3.8E-04	6.5E-04	1.8E-04	8.3E-05	5.0E-05	2.0E-05	9.2E-06
NE	8.2E-04	5.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	3.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.5E-05

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

Direction	Distance (m) 250	750	1500	2500	3500	4500	7500
N	3.6E-08	2.8E-09	8.6E-10	4.0E-10	2.3E-10	1.6E-10	7.0E-11
NNW	3.6E-08	2.1E-09	4.4E-10	1.2E-10	7.0E-11	4.7E-11	2.1E-11
NW	3.6E-08	1.8E-09	5.2E-10	2.2E-10	1.3E-10	8.5E-11	3.8E-11
WNW	3.6E-08	2.9E-09	7.5E-10	2.8E-10	1.6E-10	1.1E-10	4.9E-11
W	3.6E-08	3.1E-09	1.0E-09	5.0E-10	2.9E-10	1.9E-10	8.7E-11
WSW	3.6E-08	3.1E-09	7.9E-10	2.9E-10	1.7E-10	1.1E-10	5.1E-11
SW	3.5E-08	2.2E-09	6.6E-10	2.9E-10	1.7E-10	1.1E-10	5.1E-11
SSW	3.6E-08	2.3E-09	5.5E-10	1.9E-10	1.1E-10	7.4E-11	3.3E-11
S	3.6E-08	2.3E-09	6.9E-10	3.1E-10	1.8E-10	1.2E-10	5.4E-11
SSE	3.6E-08	3.0E-09	7.5E-10	2.8E-10	1.6E-10	1.1E-10	4.8E-11
SE	3.6E-08	3.2E-09	9.8E-10	4.4E-10	2.5E-10	1.7E-10	7.7E-11
ESE	3.6E-08	3.8E-09	1.0E-09	4.0E-10	2.3E-10	1.6E-10	7.1E-11
E	3.6E-08	3.8E-09	1.1E-09	4.8E-10	2.8E-10	1.9E-10	8.6E-11
ENE	3.6E-08	4.6E-09	1.2E-09	4.5E-10	2.6E-10	1.8E-10	8.1E-11
NE	3.6E-08	4.5E-09	1.4E-09	6.7E-10	3.9E-10	2.6E-10	1.2E-10
NNE	3.6E-08	4.3E-09	1.1E-09	4.4E-10	2.5E-10	1.7E-10	7.8E-11

Direction	Distance (m) 15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-12	1.6E-12
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-13	6.5E-13	5.1E-13
NW	1.3E-11	0.0E+00	0.0E+00	0.0E+00	1.5E-12	1.0E-12	7.8E-13
WNW	1.7E-11	0.0E+00	0.0E+00	0.0E+00	1.9E-12	1.2E-12	9.3E-13
W	3.1E-11	1.4E-11	8.2E-12	5.4E-12	3.6E-12	2.3E-12	1.8E-12
WSW	1.8E-11	8.2E-12	5.0E-12	3.3E-12	2.2E-12	1.5E-12	1.2E-12
SW	1.8E-11	8.2E-12	4.9E-12	3.3E-12	2.2E-12	1.5E-12	0.0E+00
SSW	1.2E-11	5.3E-12	3.2E-12	2.1E-12	0.0E+00	1.0E-12	7.8E-13
S	1.9E-11	8.6E-12	5.2E-12	3.4E-12	2.3E-12	1.6E-12	1.2E-12
SSE	1.7E-11	7.7E-12	4.7E-12	3.1E-12	2.1E-12	1.5E-12	1.1E-12
SE	2.8E-11	1.2E-11	7.4E-12	4.9E-12	3.4E-12	2.3E-12	1.8E-12
ESE	2.5E-11	1.1E-11	6.9E-12	4.6E-12	3.2E-12	2.2E-12	1.7E-12
E	3.1E-11	1.4E-11	8.4E-12	5.6E-12	3.9E-12	2.7E-12	2.1E-12
ENE	2.9E-11	1.3E-11	8.2E-12	5.5E-12	3.8E-12	2.7E-12	2.1E-12
NE	4.4E-11	2.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	2.8E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-12

COLLECTIVE FATAL CANCER RATE (deaths/y)
(All Radionuclides and Pathways)

Direction	Distance (m) 250	750	1500	2500	3500	4500	7500
N	4.2E-09	1.0E-09	1.1E-09	6.9E-10	5.6E-10	4.7E-10	1.2E-09
NNW	4.2E-09	7.8E-10	5.8E-10	2.1E-10	1.7E-10	1.4E-10	4.3E-10
NW	4.2E-09	6.6E-10	7.4E-10	4.3E-10	3.1E-10	2.8E-10	4.0E-09
WNW	4.2E-09	1.1E-09	1.1E-09	6.7E-10	5.1E-10	8.2E-10	2.4E-09
W	4.2E-09	1.1E-09	1.5E-09	1.2E-09	6.0E-09	8.4E-10	1.3E-09
WSW	4.2E-09	1.1E-09	1.1E-09	7.0E-10	3.3E-09	2.9E-09	4.4E-09
SW	4.1E-09	8.1E-10	9.5E-10	7.0E-10	7.0E-10	3.1E-09	8.0E-09
SSW	4.2E-09	8.4E-10	7.9E-10	4.5E-10	4.1E-10	1.5E-09	4.7E-09
S	4.2E-09	8.2E-10	1.0E-09	7.5E-10	5.2E-10	4.6E-10	7.3E-09
SSE	4.2E-09	1.1E-09	1.1E-09	6.6E-10	4.6E-10	3.9E-10	2.9E-09
SE	4.2E-09	1.2E-09	1.4E-09	1.1E-09	7.9E-10	6.3E-10	3.1E-09
ESE	4.2E-09	1.4E-09	1.5E-09	9.6E-10	7.7E-10	6.7E-10	2.3E-09
E	4.1E-09	1.4E-09	1.6E-09	1.2E-09	9.3E-10	8.2E-10	2.7E-09
ENE	4.2E-09	1.7E-09	1.7E-09	1.1E-09	6.7E-10	4.8E-10	3.4E-09
NE	4.2E-09	1.6E-09	2.0E-09	1.1E-09	5.8E-10	4.9E-10	4.2E-09
NNE	4.2E-09	1.6E-09	1.4E-09	7.6E-10	6.0E-10	4.6E-10	1.5E-09

Direction	Distance (m) 15000	25000	35000	45000	55000	65000	75000
N	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-09	6.0E-09
NNW	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-09	9.1E-09	4.6E-09
NW	1.8E-10	0.0E+00	0.0E+00	0.0E+00	9.8E-11	1.1E-08	5.4E-09
WNW	7.9E-10	0.0E+00	0.0E+00	0.0E+00	2.5E-14	4.0E-09	1.1E-09
W	1.1E-08	1.1E-08	1.0E-09	1.9E-09	9.6E-10	5.0E-09	5.7E-09
WSW	3.5E-09	5.0E-09	5.1E-10	2.9E-10	1.6E-10	1.9E-10	8.5E-11
SW	1.7E-08	5.9E-10	3.6E-09	5.8E-10	5.4E-11	1.3E-11	0.0E+00
SSW	1.8E-08	1.6E-10	3.1E-10	1.2E-10	0.0E+00	1.8E-12	1.5E-10
S	2.3E-08	6.0E-09	6.4E-09	2.6E-10	3.2E-09	1.3E-09	5.8E-10
SSE	1.7E-08	4.7E-08	5.4E-08	1.9E-08	4.4E-09	8.3E-10	3.6E-10
SE	6.4E-09	1.9E-08	1.8E-08	6.9E-09	2.0E-09	7.1E-10	5.1E-10
ESE	3.7E-09	1.2E-08	1.4E-09	1.5E-09	9.2E-10	1.9E-09	7.1E-10
E	3.8E-09	9.5E-09	1.7E-09	2.7E-09	7.7E-10	1.3E-09	1.0E-09
ENE	2.2E-09	3.8E-09	1.0E-09	4.8E-10	2.9E-10	1.2E-10	5.2E-11
NE	4.7E-09	3.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NNE	1.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.4E-10

ATTACHMENT E

NATIONAL CLIMATIC DATA CENTER, NIAGARA FALLS, NEW YORK

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)
NOAA, National Climatic Data Center

Month: 01/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	55*	37	46*	M	43	46	19	0	-	-	RA BR	T	M	0.0	0.42	29.21	29.86	11.0	21	11.8	38	220	30	230	01
02	37	22	30	M	17	24	35	0	-	-	SN	M	M	M	T	29.39	30.09	15.9	25	16.3	334s	250	26	240	02
03	32	22	27	M	17	25	38	0	-	-	SN	0	M	T	T	29.47	30.14	12.2	24	12.5	28	230	22	240	03
04	33	30	32	M	28	30	33	0	-	-	SN BR	1	M	1.7	0.10	29.21	29.87	10.2	24	11.0	21	280	17	250	04
05	31	17	24	M	17	22	41	0	-	-	SN	1	M	T	T	29.23	29.92	M	M	10.5	21s	290	17	270	05
06	28	15	22	M	18	21	43	0	-	-	SN BR	1	M	1.1	0.04	28.97	29.61	5.5	18	6.5	16	180	12	190	06
07	26	14	20	M	11	18	45	0	-	-	SN BR UP	3	M	1.8	0.09	28.74	29.42	5.2	24	8.1	22	290	17	280	07
08	27	13	20	M	14	19	45	0	-	-	SN FZFG BR	2	M	0.6	0.02	28.85	29.57	2.5	35	5.3	15	360	13	010	08
09	24	11	18	M	14	19	47	0	-	-	SN BR	3	M	2.2	0.07	29.38	30.13	10.7	29	11.1	23	330	18	330	09
10	25	7	16	M	13	17	49	0	-	-		3	M	0.0	0.00	29.69	30.39	6.3	28	7.1	20	320	16	320	10
11	27	22	25	M	19	22	40	0	-	-	SN BR	2	M	1.9	0.08	29.51	30.15	10.3	08	10.4	25	080	21	070	11
12	22	16	19	M	15	19	46	0	-	-	SN FZFG BR UP	5	M	6.6	0.29	29.27	30.00	11.0	35	12.2	23	030	18	340	12
13	22	14	18	M	11	16	47	0	-	-	SN BR UP	10	M	1.9	0.04	29.65	30.37	7.1	30	8.5	22	330	18	340	13
14	25	12	19	M	14	18	46	0	-	-	SN BR	8	M	0.5	0.01	29.65	30.35	3.3	24	4.0	12	260	9	230	14
15	30	20	25	M	20	23	40	0	-	-	SN BR HZ BLSN	8	M	3.0	0.22	29.28	29.94	12.4	23	15.0	38	250	31	250	15
16	23	2	13	M	7	13	52	0	-	-	SN	9	M	0.1s	T	29.47	30.22	11.7	28	12.2	30	300	24	300	16
17	27	-6	11	M	1	7	54	0	-	-	BR HZ	7	M	0.0	0.00	29.54	30.23	5.2	10	5.7	14	100	12	080	17
18	40	27	34	M	30	33	31	0	-	-	RA DZ FZRA SN BR UP	6	M	0.2	0.09	29.15	29.80	5.6	21	8.8	25	180	21	190	18
19	34	15	25	M	22	24	40	0	-	-	FZRA SN BR UP	3	M	1.0	0.03	29.20	29.91	6.1	34	9.1	22	260	18	260	19
20	21	9	15	M	12	16	50	0	-	-	SN BR	4	M	0.6	0.04	29.36	30.02	6.8	25	7.2	23	270	17	260	20
21	20	8	14	M	10	14	51	0	-	-	SN BR BLSN	5	M	1.0	0.05	29.10	29.82	15.3	26	15.9	38	280	31	270	21
22	17	4	11	M	6	11	54	0	-	-	SN BR	3	M	2.0	0.04	29.26	29.95	8.8	25	10.2	23	270	18	280	22
23	15	-12*	2*	M	0	4	63	0	-	-	SN BR BLSN	8	M	4.8	0.11	29.46	30.24	6.2	32	7.6	23	350	20	270	23
24	21	-10	6	M	0	5	59	0	-	-	SN BR	8	M	0.6	0.06	29.64	30.33	3.7	11	4.4	12	100	10	080	24
25	32	21	27	M	26	29	38	0	-	-	SN PL BR	6	M	0.1	0.01	29.40	30.09	8.5	25	8.9	21	250	18	260	25
26	31	27	29	M	24	27	36	0	-	-	SN PL BR	4	M	T	T	29.30	29.95	3.1	34	5.0	13	310	12	310	26
27	30	23	27	M	22	25	38	0	-	-	SN BR HZ	4	M	T	T	29.19	29.86	8.5	25	9.3	17	240	14	220	27
28	28	24	26	M	23	25	39	0	-	-	SN BR	4	M	0.5	0.02	29.13	29.81	6.8	23	7.4	17	250	15	250	28
29	26	18	22	M	19	22	43	0	-	-	SN BR	4	M	0.6s	T	29.24	29.95	1.2	36	4.7	15	260	12	270	29
30	25	15	20	M	14	19	45	0	-	-	SN BR	4	M	T	T	29.49	30.23	M	M	10.4	21	330	16	330	30
31	16	0	8	M	3	10	57	0	-	-		4	M	T	Ts	29.82	30.52	7.7	06	8.5	21	070	17	070	31
	27.4	14.1	20.8		15.8	20.1	44.0	0.0	<-----Monthly Averages | Totals----->				M	33.3	1.85s	29.33	30.02	4.5	26	9.2	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	1364	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.47s Date: 01
Greatest 24-hr Snowfall: 0.7 Date: 12
Greatest Snow Depth: 10s Date: 13

	Sea Level Pressure	Date	Time (LST)
Maximum	30.61	31	1104
Minimum	29.35	07	0134

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 26
Thunderstorms : 0
Min Temp <=32: 30
Min Temp <=0 : 4
Heavy Fog : 0
Precipitation >=.01 inch: 21s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 02/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	20	13	17	M	13	17	48	0	-	-	SN BR	4	M	1.3	0.05	29.62	30.29	16.2	07	16.3	33	080	26	070	01
02	25	17	21	M	18	21	44	0	-	-	FZRA SN BR UP BLSN	M	M	M	0.34	29.18	29.87	8.2	05	13.1	36	080	30	070	02
03	24	1*	13	M	10	15	52	0	-	-		11	M	T	Ts	29.65	30.36	14.6	24	14.9	35	240	28	230	03
04	27	20	24	M	13	20	41	0	-	-	HZ BLSN	8	M	0.0	0.00	29.46	30.12	20.7	23	21.0	40	250	32	230	04
05	33	18	26	M	20	25	39	0	-	-	SN FG+ FZFG BR UP	8	M	3.2	0.27	29.06	29.71	2.9	26	9.8	29	210	22	210	05
06	30	26	28	M	24	27	37	0	-	-	SN BR	M	M	M	T	29.23	29.94	13.1	23	13.5	30	230	23	230	06
07	34	21	28	M	28	30	37	0	-	-	SN BR	11	M	0.5	0.07	29.22	29.88	4.2	28	8.3	22	350	18	340	07
08	21	9	15	M	6	12	50	0	-	-	SN BLSN	10	M	1.5	0.04	29.32	30.05	13.0	29	15.7	29	260	24	280	08
09	20	11	16	M	10	14	49	0	-	-	SN BR UP BLSN	9	M	T	T	29.40	30.09	21.0	24	21.6	43	240	33	240	09
10	16	3	10*	M	2	9	55	0	-	-	SN BR	9	M	0.3s	T	29.39	30.10	14.8	24	15.1	32	230	28	240	10
11	26	9	18	M	8	15	47	0	-	-	SN UP	9	M	T	T	29.36	30.04	13.4	23	13.7	28	210	22	220	11
12	30	17	24	M	17	23	41	0	-	-	SN FZFG BR BLSN	9	M	0.8	0.05	29.22	29.92	17.6	26	18.9	40	230	32	230	12
13	45	18	32	M	27	32	33	0	-	-	SN BR	9	M	0.2	0.01	29.13	29.75	19.3	22	19.6	44	230	35	230	13
14	47	20	34	M	25	31	31	0	-	-		5	M	0.0	T	28.92	29.67	16.7	27	22.9	53	240	40	240	14
15	27	8	18	M	7	16	47	0	-	-		3	M	0.0	0.00	29.74	30.44	1.0	36	3.0	16	350	14	340	15
16	42	24	33	M	22	30	32	0	-	-	SN	M	M	M	T	29.45	30.11	8.7	22	9.2	31	230	23	230	16
17	53*	31	42	M	36	41	23	0	-	-	RA	3	M	0.0	0.02	29.31	29.94	6.5	20	6.9	22	220	18	220	17
18	52	36	44*	M	34	41	21	0	-	-	BR	1	M	0.0	T	29.07	29.72	M	M	22.3	56	270	44	280	18
19	36	20	28	M	18	24	37	0	-	-	SN FZFG BR BLSN	T	M	1.0	0.60	29.37	30.10	19.7	30	20.7	45	310	36	270	19
20	30	10	20	M	15	20	45	0	-	-	SN BR UP	1	M	1.0	0.05	29.59	30.25	3.4	04	5.2	15	080	14	070	20
21	24	14	19	M	11	16	46	0	-	-	SN BR UP BLSN	2	M	2.0	0.05	29.34	30.04	14.6	06	14.8	31	050	24	050	21
22	23	10	17	M	8	14	48	0	-	-	SN	2	M	T	T	29.57	30.30	7.4	07	7.7	18	070	14	030	22
23	37	6	22	M	11	19	43	0	-	-		1	M	0.0	0.00	29.67	30.35	1.8	07	2.8	10	010	8	010	23
24	37	19	28	M	27	29	37	0	-	-	DZ SN BR	T	M	0.1	0.01	29.40	30.06	M	M	3.5	15	020	12	240	24
25	33	19	26	M	23	27	39	0	-	-	SN FZFG BLSN	T	M	5.6	0.50	29.20	29.89	9.0	36	14.6	32	030	28	040	25
26	29	16	23	M	20	23	42	0	-	-	SN BR	5	M	2.0	0.12	29.43	30.09	4.0	23	4.7	14	210	12	220	26
27	38	22	30	M	28	31	35	0	-	-	SN BR HZ	7	M	1.4	0.05	29.25	29.92	3.7	20	5.9	15	200	12	210	27
28	38	25	32	M	28	32	33	0	-	-	RA SN BR	3	M	0.1	0.72	29.05	29.77	9.6	32	12.3	30	330	24	310	28
	32.0	16.5	24.3		18.2	23.4	40.4	0.0	<-----Monthly Averages | Totals----->				M	27.8s	2.49s	29.34	30.02	M	M	12.8	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	1132	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.72 Date: 28
Greatest 24-hr Snowfall: 0.6 Date: 02
Greatest Snow Depth: 11s Date: 07+

Sea Level	Pressure	Date	Time (LST)
Maximum	30.54	15	1006
Minimum	29.31	14	0453

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 15
Thunderstorms : 0
Min Temp <=32: 27
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 18s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 03/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	35	19	27	M	19	25	38	0	-	-		1	M	0.0	0.00	29.57	30.24	9.5	22	10.1	30	220	20	220	01
02	37	17	27	M	14	23	38	0	-	-	SN	T	M	T	T	29.54	30.28	14.1	29	16.8	26s	300	23s	320	02
03	28	12	20	M	9	18	45	0	-	-		T	M	0.0	0.00	29.93	30.64	3.5	10	4.8	17	100	14	100	03
04	45	23	34	M	23	31	31	0	-	-	RA	T	M	0.0	0.01	29.65	30.30	7.0	17	8.2	23	190	17	190	04
05	48	35	42	M	39	42	23	0	-	-	RA BR	T	M	0.0	1.40	29.34	29.96	11.6	20	14.3	37	200	25	190	05
06	35	24	30	M	23	26	35	0	-	-	RA SN BR	2	M	2.0	0.27	29.43	30.14	14.2	01	14.4	26	350	M	M	06
07	28	13	21	M	13	20	44	0	-	-		2	M	0.0	0.00	29.58	30.30	4.4	31	6.0	20	040	16	030	07
08	40	17	29	M	19	26	36	0	-	-	BR	1	M	0.0	0.00	29.79	30.49	7.4	08	7.5	21	080	16	080	08
09	42	30	36	M	29	34	29	0	-	-	RA SN PL BR	T	M	0.0s	0.53	29.56	30.19	9.5	14	11.5	32	160	25	160	09
10	52	41	47	M	42	44	18	0	-	-	RA BR	0	M	0.0	0.74	29.19	29.80	3.0	15	7.2	26	160	18	180	10
11	41	32	37	M	31	32	28	0	-	-	RA SN BR	T	M	0.2	0.04	28.95	29.63	20.3	22	21.8	44	210	33	210	11
12	43	32	38	M	31	34	27	0	-	-	RA SN BR	T	M	0.2	M	29.10	29.78	12.0	24	12.7	26	260	22	250	12
13	37	29	33	M	29	32	32	0	-	-	SN	0	M	T	T	29.42	30.14	9.3	29	11.0	25	250	21	250	13
14	35	26	31	M	24	28	34	0	-	-	SN	T	M	T	T	29.72	30.42	3.4	30	5.5	14	210	12	200	14
15	51	23	37	M	29	34	28	0	-	-	RA BR	0	M	0.0	0.04	29.64	30.28	2.6	09	4.8	16	040	14	040	15
16	41	34	38	M	36	37	27	0	-	-	RA DZ FG BR	0	M	0.0	0.10	29.39	30.06	10.7	21	11.1	23	220	18	230	16
17	59	34	47	M	37	43	18	0	-	-	BR	0	M	0.0	0.00	29.39	30.01	14.9	21	15.1	37	220	29s	M	17
18	61*	38	50*	M	39	44	15	0	-	-		0	M	0.0	T	29.28	29.96	12.5	28	15.1	40	230	32	240	18
19	39	28	34	M	24	31	31	0	-	-		0	M	0.0	0.00	29.72	30.44	8.5	33	9.0	22	310	17	330	19
20	46	21	34	M	25	31	31	0	-	-	RA	M	M	0.0	T	29.85	30.49	5.5	08	7.4	21s	060	17	060	20
21	51	38	45	M	40	42	20	0	-	-	RA BR	0	M	0.0	0.39	29.31	29.95	7.0	26	12.4	28	280	23	270	21
22	42	35	39	M	29	35	26	0	-	-	RA	M	M	M	T	29.42	30.08	6.6	01	7.9	18	340	16	350	22
23	36	25	31	M	23	26	34	0	-	-	SN FZFG BR	1	M	4.8	0.33	29.16	29.81	18.3	07	18.5	35	060	29	070	23
24	29	19	24	M	16	23	41	0	-	-		3	M	T	T	29.24	29.95	7.9	35	10.0	26	050	20	050	24
25	28	12	20	M	13	19	45	0	-	-	SN	2	M	T	T	29.39	30.10	M	M	7.9	20	330	16	340	25
26	27	8*	18*	M	9	18	47	0	-	-	SN	2	M	T	T	29.48	30.18	6.2	31	6.7	18	310	15	310	26
27	29	13	21	M	9	19	44	0	-	-		2	M	0.0	0.00	29.47	30.17	7.4	31	7.8	23	310	18	300	27
28	34	12	23	M	12	21	42	0	-	-		0	M	0.0	0.00	29.49	30.18	10.1	29	10.6	24	290	20	310	28
29	41	18	30	M	21	27	35	0	-	-		T	M	0.0	0.00	29.56	30.25	7.7	26	9.2	23	230	18	230	29
30	47	21	34	M	27	32	31	0	-	-	RA BR	T	M	0.0	0.02	29.45	30.09	3.5	06	4.8	18	020	15	030	30
31	38	33	36	M	34	35	29	0	-	-	RA SN BR	T	M	0.3	0.08	29.15	29.80	3.8	03	5.4	12	010	9	310	31
	40.2	24.6	32.4		24.8	30.1	32.3	0.0	<-----Monthly Averages | Totals----->				M	7.8	3.97s	29.46	30.13	2.5	27	10.2	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	1002	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 1.56s Date: 05-06
Greatest 24-hr Snowfall: 0.3 Date: 24
Greatest Snow Depth: 3s Date: 24

Sea Level	Pressure	Date	Time (LST)
Maximum	30.73	03	1039
Minimum	29.41	11	0120

Number of Days with -------->

Max Temp >=90: 0	Min Temp <=32: 23	Precipitation >=.01 inch: 14s
Max Temp <=32: 6	Min Temp <=0 : 0	Precipitation >=.10 inch:
Thunderstorms : 0	Heavy Fog : 0	Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 04/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	49	31	40	M	29	35	25	0	-	-	RA SN BR	0	M	T	T	28.94	29.59	8.6	30	8.8	29	290	23	290	01
02	52	28*	40	M	25	34	25	0	-	-		0	M	0.0	0.00	28.97	29.65	M	M	10.6	29	290	24	290	02
03	48	31	40	M	31	36	25	0	-	-	RA SN FG BR	M	M	M	0.16	29.28	29.94	5.4	22	9.4	22	120	17	220	03
04	64	38	51	M	47	49	14	0	-	-	TSRA RA DZ BR VCTS	0	M	0.0	0.54	28.74	29.36	9.9	22	15.8	38	220	29	220	04
05	42	32	37	M	29	34	28	0	-	-	RA SN	0	M	T	0.01	28.89	29.59	15.3	28	16.1	37	280	31	270	05
06	38	31	35	M	32	34	30	0	-	-	RA DZ PL FG+ FZFG BR	0	M	0.0	0.06	29.24	29.93	8.4	22	8.7	28	230	22	230	06
07	52	32	42	M	34	38	23	0	-	-	FG+ BR	0	M	0.0	0.00	29.45	30.14	2.8	05	3.8	13	010	12	350	07
08	53	34	44	M	33	39	21	0	-	-		0	M	0.0	0.00	29.47	30.13	5.2	09	5.9	20	100	15	110	08
09	62	31	47	M	38	42	18	0	-	-	BR	0	M	0.0	0.00	29.42	30.08	0.9	02	3.7	7s	210	6s	210	09
10	76	39	58	M	48	52	7	0	-	-	BR HZ	0	M	0.0	0.01	29.23	29.83	7.1	19	8.4	24s	230	18s	230	10
11	72	45	59	M	51	56	6	0	-	-	RA	0	M	0.0	T	28.90	29.54	18.5	25	21.1	56	240	41	240	11
12	55	40	48	M	30	40	17	0	-	-		0	M	0.0	0.00	29.31	29.98	12.6	04	13.5	30	060	24	060	12
13	45	39	42	M	40	42	23	0	-	-	RA FG BR	0	M	0.0	0.48	29.33	29.99	3.9	03	7.0	16	030	13	260	13
14	55	34	45	M	34	40	20	0	-	-	FG+ BR	0	M	0.0	0.00	29.49	30.18	5.6	02	8.5	23	060	20	060	14
15	46	31	39	M	24	33	26	0	-	-		0	M	0.0	0.00	29.70	30.34	18.5	08	18.6	36	080	26	080	15
16	56	37	47	M	42	44	18	0	-	-	RA BR	0	M	0.0	1.02	29.10	29.68	8.8	15	13.1	31	230	24	230	16
17	47	33	40	M	31	35	25	0	-	-	RA SN GS FG+ BR	0	M	0.1	0.09	28.92	29.62	20.3	25	21.3	51	250	39	240	17
18	35	30	33*	M	28	31	32	0	-	-	SN BR	0	M	0.8	0.08	29.31	30.00	4.8	26	5.1	21	260	17	260	18
19	41	30	36	M	32	34	29	0	-	-	RA BR VCTS	0	M	0.0	0.13	29.42	30.06	11.6	08	12.0	31	100	24	100	19
20	53	38	46	M	39	41	19	0	-	-	RA BR VCTS	M	M	M	0.62	29.10	29.77	10.2	24	15.1	40	270	33	260	20
21	45	32	39	M	29	35	26	0	-	-		0	M	0.0	0.00s	29.59	30.30	11.7	29	12.6	31	290	25	280	21
22	51	31	41	M	33	38	24	0	-	-	RA SN BR	0	M	0.0s	0.11	29.64	30.27	7.9	12	8.7	25	150	20	150	22
23	70	42	56	M	46	50	9	0	-	-	RA BR	0	M	0.0	0.51	29.15	29.78	11.1	22	14.7	37	230	28	230	23
24	55	43	49	M	40	44	16	0	-	-	RA	0	M	0.0	T	29.37	30.05	1.0	06	2.7	15	020	12	020	24
25	56	44	50	M	46	47	15	0	-	-	RA BR HZ	0	M	0.0	0.94	29.39	30.01	5.0	06	5.7	23	080	18	080	25
26	72	44	58	M	52	54	7	0	-	-	RA FG BR	0	M	0.0	0.11	29.15	29.78	6.2	08	9.7	23	100	18	100	26
27	82*	56	69*	M	57	61	0	4	-	-	TSRA RA	0	M	0.0	0.16	29.03	29.64	7.8	18	10.3	40	220	30	230	27
28	68	45	57	M	45	50	8	0	-	-	RA	0	M	0.0	0.05	28.88	29.52	22.3	23	24.5	83	230	61	220	28
29	48	41	45	M	37	41	20	0	-	-	RA	0	M	0.0	T	29.15	29.84	9.3	26	11.0	24	260	18	260	29
30	63	35	49	M	38	44	16	0	-	-		0	M	0.0	0.00	29.51	30.18	4.0	07	6.0	20	110	15	110	30
	55.0	36.6	45.8		37.3	41.8	19.1	0.1	<-----Monthly Averages | Totals----->				M	M	5.11s	29.23	29.88	2.5	23	11.1	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	572	M	M	M
Cooling:	4	M	M	M

Greatest 24-hr Precipitation: 1.04s Date: 16-17
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum	30.49	15	0843	
Minimum	29.21	04	1922	

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 2
Min Temp <=32: 12
Min Temp <=0 : 0
Heavy Fog : 4
Precipitation >=.01 inch: 19s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 05/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	63	50	57	M	44	51	8	0	-	-	RA	0	M	0.0	0.08	29.45	30.08	9.5	17	10.3	28	190	22	180	01
02	58	44	51	M	47	49	14	0	-	-	RA BR	0	M	0.0	0.22	29.42	30.09	3.1	22	8.1	25	300	21	300	02
03	46	41	44*	M	40	42	21	0	-	-	RA DZ BR	0	M	0.0	0.82	29.44	30.11	8.4	04	9.9	22	050	18	050	03
04	53	40	47	M	35	41	18	0	-	-		0	M	0.0	0.00	29.50	30.17	9.1	31	9.5	24	310	18	330	04
05	61	40	51	M	31	42	14	0	-	-		0	M	0.0	0.00	29.46	30.09	7.8	31	9.2	28	310	23	340	05
06	65	42	54	M	39	46	11	0	-	-	RA	0	M	0.0	0.01	29.23	29.86	11.5	22	12.2	32	220	26	230	06
07	61	45	53	M	43	48	12	0	-	-	RA BR	M	M	M	0.07	29.23	29.88	5.1	25	6.4	20	320	14	220	07
08	62	38*	50	M	39	46	15	0	-	-	BR	0	M	0.0	0.00	29.36	30.03	4.8	03	5.6	22	030	16	040	08
09	66	40	53	M	38	47	12	0	-	-		0	M	0.0	0.00	29.47	30.12	6.1	04	6.4	24	070	16	060	09
10	68	43	56	M	37	47	9	0	-	-		0	M	0.0	0.00	29.42	30.06	8.9	08	9.4	26	080	21	070	10
11	76	44	60	M	45	52	5	0	-	-		0	M	0.0	0.00	29.40	30.04	8.6	08	8.9	23	080	18	070	11
12	73	51	62	M	50	55	3	0	-	-	RA	0	M	0.0	T	29.31	29.93	2.0	03	3.9	15	330	14	320	12
13	81	48	65	M	56	59	0	0	-	-	RA HZ	0	M	0.0	0.10	29.11	29.73	0.6	09	4.4	17	190	13	320	13
14	66	53	60	M	60	61	5	0	-	-	RA DZ FG BR	0	M	0.0	0.39	29.02	29.64	3.7	07	6.2	25	060	22	060	14
15	53	44	49	M	46	47	16	0	-	-	RA DZ BR	0	M	0.0	0.97	29.05	29.71	17.1	04	17.3	35	050	25	040	15
16	47	43	45	M	43	44	20	0	-	-	RA DZ BR	0	M	0.0	0.12	29.18	29.87	13.0	05	13.1	28	040	21	050	16
17	51	43	47	M	46	47	18	0	-	-	RA DZ BR	0	M	0.0	0.24	29.30	29.95	14.5	07	14.5	30	080	25	080	17
18	73	50	62	M	56	57	3	0	-	-	TSRA RA BR	0	M	0.0	1.46	29.26	29.90	10.1	07	10.7	24	060	20	060	18
19	66	52	59	M	54	56	6	0	-	-	FG+ BR	0	M	0.0	T	29.31	29.97	3.6	24	4.5	17	240	14	260	19
20	68	49	59	M	55	55	6	0	-	-	RA BR	0	M	0.0	0.21	29.37	30.02	3.8	22	4.8	13	210	10	210	20
21	76	48	62	M	56	58	3	0	-	-	BR	0	M	0.0	0.00	29.38	30.01	3.9	20	4.4	15	220	14	230	21
22	76	58	67	M	60	62	0	2	-	-	RA BR	0	M	0.0	0.02	29.30	29.91	4.0	18	4.8	20	180	16	180	22
23	74	61	68	M	61	64	0	3	-	-	RA	0	M	0.0	0.09	29.07	29.68	16.3	20	16.7	43	210	31	220	23
24	69	51	60	M	55	58	5	0	-	-	BR	0	M	0.0	0.00	29.12	29.78	7.1	28	11.8	29	240	22	240	24
25	73	50	62	M	51	55	3	0	-	-	TSRA RA BR	0	M	0.0	0.48	29.26	29.89	5.0	05	6.8	43	260	32	270	25
26	74	52	63	M	60	61	2	0	-	-	RA FG+ BR SQ	0	M	0.0	0.44	29.11	29.74	5.4	23	9.2	55	300	46	290	26
27	63	52	58	M	54	54	7	0	-	-	RA DZ FG+ BR	0	M	0.0	0.15	29.26	29.93	6.8	05	8.3	20	080	15	080	27
28	72	52	62	M	57	58	3	0	-	-	FG BR	0	M	0.0	0.03	29.28	29.91	3.8	21	6.7	26	230	21	230	28
29	80	60	70	M	62	65	0	5	-	-	TSRA RA BR	0	M	0.0	0.62	29.31	29.95	4.7	23	7.3	31	250	24	260	29
30	83	62	73	M	66	68	0	8	-	-	FG+ BR HZ	0	M	0.0	T	29.47	30.11	0.8	23	2.6	23	300	18	320	30
31	86*	63	75*	M	67	70	0	10	-	-	BR	0	M	0.0	0.00	29.49	30.10	6.7	21	6.9	25	220	20	220	31
	67.2	48.7	58.0		50.1	53.7	7.7	0.9	<-----Monthly Averages | Totals----->				M	0.0	6.52s	29.30	29.94	0.9	08	8.4	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	239	M	M	M
Cooling:	28	M	M	M

Greatest 24-hr Precipitation: 1.46 Date: 18
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level Pressure	Date	Time (LST)
Maximum	30.23	02	2239
Minimum	29.57	23	1953

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 3
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 4
Precipitation >=.01 inch: 19
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 06/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	77	63	70	M	56	63	0	5	-	-	HZ	0	M	0.0	0.00	29.34	29.94	14.7	24	15.7	39	230	30	240	01
02	67	51	59	M	42	49	6	0	-	-		0	M	0.0	0.00	29.46	30.11	11.5	29	12.8	35	280	25	310	02
03	73	46*	60	M	41	50	5	0	-	-		M	M	M	0.00	29.55	30.20	3.8	28	5.4	17	300	13	220	03
04	66	52	59	M	53	56	6	0	-	-	TSRA RA BR	0	M	0.0	0.38	29.42	30.04	1.5	15	5.4	37	330	30	330	04
05	79	50	65	M	56	60	0	0	-	-	BR	0	M	0.0	0.00	29.39	30.03	4.0	32	5.2	16	340	13	320	05
06	80	53	67	M	54	60	0	2	-	-	BR	0	M	0.0	0.02s	29.39	30.01	2.9	21	3.3	20	190	13	240	06
07	81	58	70	M	62	65	0	5	-	-	TSRA RA BR VCTS	0	M	0.0	0.22	29.22	29.87	6.7	23	7.6	41	180	33	180	07
08	87*	64	76*	M	67	70	0	11	-	-	BR HZ VCTS	0	M	0.0	0.00s	29.24	29.84	11.1	22	11.5	29	220	22	240	08
09	81	58	70	M	62	66	0	5	-	-	HZ	0	M	0.0	0.00	29.23	29.87	6.7	27	11.0	30	310	22	300	09
10	71	57	64	M	52	57	1	0	-	-		0	M	0.0	T	29.41	30.03	6.2	05	7.3	22	030	18	040	10
11	77	57	67	M	60	62	0	2	-	-	BR	0	M	0.0	T	29.25	29.87	2.0	19	7.2	23	230	20	220	11
12	65	55	60	M	53	57	5	0	-	-	RA BR	0	M	0.0	0.08	29.26	29.90	9.0	30	9.5	25	290	21	300	12
13	69	51	60	M	52	55	5	0	-	-	RA BR	0	M	0.0	0.07	29.31	29.95	8.0	31	9.6	22	330	17	330	13
14	68	50	59*	M	51	55	6	0	-	-	RA BR	0	M	0.0	0.01	29.39	30.04	7.9	04	8.4	21	040	17	070	14
15	80	48	64	M	53	58	1	0	-	-		0	M	0.0	0.00	29.33	29.95	1.2	25	2.8	15	220	12	240	15
16	79	57	68	M	57	61	0	3	-	-	RA	0	M	0.0	T	29.18	29.80	6.3	17	7.4	26	140	22	150	16
17	74	59	67	M	60	62	0	2	-	-	BR	0	M	0.0	T	29.21	29.84	6.6	22	7.3	18	240	14	240	17
18	83	60	72	M	58	63	0	7	-	-	FG+ BR	0	M	0.0	0.00	29.24	29.88	2.5	29	4.7	15	330	12	320	18
19	77	56	67	M	47	56	0	2	-	-		0	M	0.0	0.00	29.27	29.90	8.2	06	8.5	22	070	18	070	19
20	81	53	67	M	53	60	0	2	-	-		0	M	0.0	0.00	29.23	29.86	5.0	07	6.1	17	010	13	040	20
21	84	62	73	M	58	63	0	8	-	-	TSRA BR	0	M	0.0	0.38	29.24	29.87	4.6	09	6.8	23	060	18	110	21
22	80	62	71	M	67	69	0	6	-	-	TSRA RA BR VCTS	0	M	0.0	0.67	29.15	29.76	4.2	18	6.5	22	110	18	110	22
23	81	65	73	M	64	66	0	8	-	-	RA	0	M	0.0	0.38	29.03	29.63	9.2	21	10.4	33	240	26	240	23
24	73	64	69	M	63	65	0	4	-	-	RA BR	0	M	0.0	0.30	28.97	29.61	10.3	22	10.7	29	220	23	220	24
25	69	62	66	M	59	61	0	1	-	-		0	M	0.0	0.00	29.15	29.80	9.8	24	10.1	25	240	21	250	25
26	73	59	66	M	58	61	0	1	-	-		0	M	0.0	0.00	29.32	29.97	5.0	32	5.7	17	310	12	340	26
27	80	55	68	M	60	64	0	3	-	-	BR	0	M	0.0	0.00	29.35	29.96	1.9	13	4.1	17	210	12	220	27
28	81	64	73	M	62	66	0	8	-	-	HZ	0	M	0.0	0.00	29.16	29.79	11.9	23	14.1	36	260	28	240	28
29	71	56	64	M	55	58	1	0	-	-		0	M	0.0	0.00	29.31	29.96	10.2	27	11.1	23	270	18	270	29
30	78	52	65	M	51	57	0	0	-	-		0	M	0.0	0.00	29.39	30.03	5.4	27	7.1	18	320	15	320	30
	76.2	56.6	66.4		56.2	60.5	1.2	2.8	<-----Monthly Averages | Totals----->				M	M	2.51s	29.28	29.91	3.2	25	8.1	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	36	M	M	M
Cooling:	85	M	M	M

Greatest 24-hr Precipitation: 1.05s Date: 21-22
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level	Pressure	Date	Time (LST)
Maximum		30.26	03	1103
Minimum		29.56	24	0331

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 4
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 10
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 07/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	80	50*	65*	M	50	57	0	0	-	-		0	M	0.0	0.00	29.42	30.06	1.3	36	2.3	16	290	13	300	01
02	83	56	70	M	62	66	0	5	-	-	BR VCTS	0	M	0.0	0.00	29.34	29.95	7.6	22	8.1	25	230	20	220	02
03	85	64	75	M	60	66	0	10	-	-		0	M	0.0	0.00	29.26	29.87	7.0	29	8.1	23	300	18	330	03
04	83	59	71	M	51	60	0	6	-	-		0	M	0.0	0.00	29.27	29.89	7.8	30	8.4	24	310	21	310	04
05	81	57	69	M	55	62	0	4	-	-		0	M	0.0	0.00	29.31	29.94	7.9	22	8.0	24	220	20	220	05
06	84	67	76	M	64	68	0	11	-	-	TS	0	M	0.0	0.00s	29.26	29.88	4.6	23	7.7	20	200	16	200	06
07	79	61	70	M	60	64	0	5	-	-	BR	0	M	0.0	0.00	29.33	29.95	2.9	03	4.4	16	360	12	010	07
08	82	59	71	M	59	64	0	6	-	-		0	M	0.0	0.00	29.22	29.83	1.7	36	2.9	16	360	12	030	08
09	82	64	73	M	57	64	0	8	-	-		0	M	0.0	0.00	29.31	29.95	2.7	03	4.8	18	340	13	010	09
10	87	65	76	M	62	67	0	11	-	-		0	M	0.0	0.00	29.36	29.97	7.6	21	7.8	23	220	18	220	10
11	89	67	78	M	65	70	0	13	-	-		M	M	M	0.00	29.20	29.79	10.3	23	10.7	32	220	28	230	11
12	89	71	80	M	61	68	0	15	-	-		0	M	0.0	0.00	29.15	29.77	11.4	29	12.4	30	290	23	320	12
13	80	61	71	M	56	62	0	6	-	-		0	M	0.0	0.00	29.27	29.91	8.2	34	9.3	28	300	20	350	13
14	82	56	69	M	52	60	0	4	-	-		0	M	0.0	0.00	29.44	30.07	4.3	03	4.7	22	010	16	010	14
15	87	52	70	M	50	59	0	5	-	-		0	M	0.0	0.00	29.42	30.05	5.3	07	5.9	21	060	17	060	15
16	89	60	75	M	55	63	0	10	-	-		0	M	0.0	0.00	29.44	30.07	3.8	22	4.8	17	210	13	270	16
17	90	65	78	M	64	69	0	13	-	-		0	M	0.0	0.00	29.45	30.06	9.5	23	9.8	28	230	21	230	17
18	92	74	83	M	70	73	0	18	-	-	BR	0	M	0.0	T	29.30	29.89	6.6	24	8.2	23	290	18	300	18
19	88	71	80	M	69	72	0	15	-	-	BR	0	M	0.0	0.00	29.23	29.84	3.3	04	4.4	18	010	14	360	19
20	92	73	83	M	67	72	0	18	-	-	BR HZ	0	M	0.0	0.00	29.20	29.79	8.8	22	9.0	25	200	20	210	20
21	95*	75	85*	M	74	78	0	20	-	-		0	M	0.0	0.03	29.08	29.68	14.2	23	14.8	32	230	25	240	21
22	93	70	82	M	67	72	0	17	-	-		0	M	0.0	0.00	29.24	29.86	2.9	24	5.0	24	280	16	260	22
23	91	75	83	M	70	74	0	18	-	-		0	M	0.0	T	29.28	29.91	9.3	24	9.7	23	220	20	210	23
24	85	71	78	M	68	71	0	13	-	-	RA BR	0	M	0.0	0.87	29.34	29.95	4.1	07	6.3	18	070	16	250	24
25	84	65	75	M	64	68	0	10	-	-		0	M	0.0	0.18	29.18	29.79	5.7	29	7.9	23	310	18	300	25
26	81	63	72	M	57	63	0	7	-	-		0	M	0.0	0.00	29.11	29.74	10.4	31	11.6	30	320	23	320	26
27	83	59	71	M	57	63	0	6	-	-		0	M	0.0	0.00	29.31	29.95	3.7	30	5.3	16	360	13	340	27
28	81	69	75	M	67	70	0	10	-	-	RA BR	0	M	0.0	0.06	29.32	29.93	5.4	19	6.5	20	210	16	210	28
29	84	70	77	M	69	72	0	12	-	-	TSRA RA BR	0	M	0.0	0.99	29.24	29.86	6.9	27	9.2	26	270	21	270	29
30	86	64	75	M	61	66	0	10	-	-		0	M	0.0	0.00	29.39	30.01	3.8	28	6.0	16	230	14	230	30
31	87	66	77	M	67	70	0	12	-	-	RA VCTS	0	M	0.0	0.12	29.39	29.99	7.0	24	8.3	23	280	17	280	31
	85.6	64.5	75.1		61.6	66.9	0.0	10.3	<-----Monthly Averages | Totals----->				M	0.0	2.25s	29.29	29.91	3.7	26	7.5	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	0	M	M	M
Cooling:	318	M	M	M

Greatest 24-hr Precipitation: 1.05s Date: 28-29
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level Pressure	Date	Time (LST)
Maximum	30.12	17	0756
Minimum	29.64	11	1808

Number of Days with -------->
Max Temp >=90: 6
Max Temp <=32: 0
Thunderstorm :2
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 6
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 08/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	88*	65	77	M	66	70	0	12	-	-	BR VCTS	M	M	M	T	29.28	29.88	3.3	28	6.3	28	260	21	240	01
02	86	60	73	M	59	65	0	8	-	-	RA DZ BR	0	M	0.0	0.00	29.19	29.79	6.1	26	6.9	21	240	17	220	02
03	78	67	73	M	67	68	0	8	-	-		0	M	0.0	0.21	29.06	29.68	2.1	07	5.5	20	050	16	060	03
04	81	63	72	M	64	67	0	7	-	-		0	M	0.0	0.00	29.29	29.93	6.3	04	6.9	17	030	14	030	04
05	87	61	74	M	65	68	0	9	-	-	BR	0	M	0.0	0.00	29.38	29.99	4.6	07	5.3	18	030	15	050	05
06	83	71	77	M	69	72	0	12	-	-	RA BR HZ	0	M	0.0	T	29.24	29.84	3.1	18	3.6	16	190	13	190	06
07	83	71	77*	M	70	72	0	12	-	-	BR	0	M	0.0	0.03	29.05	29.64	2.1	24	3.0	15	190	14	190	07
08	82	67	75	M	65	68	0	10	-	-	TS RA BR	0	M	0.0	0.00	29.05	29.66	5.1	01	6.6	22	360	15	360	08
09	74	64	69	M	65	66	0	4	-	-		0	M	0.0	0.36	28.94	29.54	0.5	23	5.4	20	330	15	330	09
10	79	59	69	M	57	62	0	4	-	-		0	M	0.0	0.03	28.98	29.62	12.4	28	13.2	33	290	25	300	10
11	77	55	66	M	50	57	0	1	-	-		0	M	0.0	0.00	29.22	29.87	9.4	28	9.7	28	270	23	270	11
12	80	54	67	M	58	62	0	2	-	-	RA	0	M	0.0	0.15	29.36	30.00	3.0	21	4.1	28	350	23	350	12
13	83	60	72	M	59	64	0	7	-	-	BR	0	M	0.0	0.01s	29.31	29.92	3.8	20	4.6	22	230	17	240	13
14	75	60	68	M	62	64	0	3	-	-	RA BR	0	M	0.0	0.01	29.19	29.81	2.2	10	4.5	15	220	12	180	14
15	78	64	71	M	63	66	0	6	-	-	BR	0	M	0.0	0.01	29.18	29.81	6.2	01	6.7	20	020	14	350	15
16	84	62	73	M	57	64	0	8	-	-		0	M	0.0	0.00	29.31	29.96	4.1	32	5.9	16	340	13	350	16
17	83	61	72	M	59	65	0	7	-	-		M	M	M	0.00	29.44	30.06	7.0	22	7.4	22	210	17	240	17
18	85	66	76	M	63	67	0	11	-	-	BR	0	M	0.0	0.00	29.31	29.92	9.0	22	9.4	29	210	22	220	18
19	86	62	74	M	58	64	0	9	-	-	BR HZ VCTS	0	M	0.0	0.00	29.26	29.88	1.0	27	2.3	17	320	14	320	19
20	86	66	76	M	64	68	0	11	-	-	RA BR	0	M	0.0	T	29.31	29.92	8.0	22	9.1	22	290	17	290	20
21	78	56	67	M	62	64	0	2	-	-	TSRA RA BR	0	M	0.0	0.54	29.21	29.83	5.4	25	7.7	32	320	25	330	21
22	73	55	64	M	51	57	1	0	-	-		0	M	0.0	0.01s	29.29	29.94	9.0	30	10.0	23	320	18	310	22
23	79	56	68	M	53	60	0	3	-	-		0	M	0.0	0.00	29.35	29.98	6.2	23	7.9	25	220	21	230	23
24	82	66	74	M	60	65	0	9	-	-	TSRA RA BR VCTS	0	M	0.0	0.55	29.13	29.73	15.7	20	16.4	47	300	36	300	24
25	79	66	73	M	64	67	0	8	-	-	RA BR	0	M	0.0	0.36	29.14	29.79	7.7	26	10.7	31	170	25	140	25
26	76	62	69	M	62	64	0	4	-	-		0	M	0.0	0.00	29.37	30.00	0.3	36	2.6	14	010	9	180	26
27	80	57	69	M	61	64	0	4	-	-	BR	0	M	0.0	0.00	29.25	29.85	2.8	02	3.6	14	010	10	010	27
28	71	57	64	M	55	60	1	0	-	-		0	M	0.0	0.00	29.08	29.71	11.4	36	12.2	33	360	25	350	28
29	76	50*	63*	M	54	58	2	0	-	-	VCTS	0	M	0.0	0.00	29.31	29.97	4.3	23	5.5	21	220	17	250	29
30	80	55	68	M	55	61	0	3	-	-		0	M	0.0	0.00	29.46	30.10	7.8	22	8.0	26	230	21	210	30
31	84	58	71	M	57	63	0	6	-	-		0	M	0.0	0.00	29.49	30.12	4.0	11	4.3	20	120	15	120	31
	80.5	61.2	70.9		60.5	64.6	0.1	6.1	<-----Monthly Averages | Totals----->				M	0.0	2.27s	29.24	29.86	2.5	26	6.9	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	4	M	M	M
Cooling:	190	M	M	M

Greatest 24-hr Precipitation: 0.91s Date: 24-25
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.19	31	0739
Minimum	29.50	09	1621

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 3
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 12
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

CLIMATOLOGICAL DATA
(final)
NOAA, National Climatic Data Center

Month: 09/2011

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	81	67	74	M	66	68	0	9	-	-	RA BR	0	M	0.0	0.20	29.39	30.01	4.0	19	4.8	15s	220	10s	250	01
02	88	62	75	M	67	70	0	10	-	-	FG+ BR HZ	0	M	0.0	0.00	29.31	29.92	5.1	21	5.7	20	200	15	220	02
03	90*	72	81*	M	70	73	0	16	-	-	FG BR HZ	0	M	0.0	0.00	29.24	29.85	5.6	22	6.1	16	190	13	190	03
04	80	64	72	M	68	69	0	7	-	-	TSRA RA BR	0	M	0.0	0.64	29.15	29.77	9.6	23	10.9	58	250	44	250	04
05	64	57	61	M	56	58	4	0	-	-	DZ	0	M	0.0	T	29.24	29.89	7.4	34	8.3	21	350	16	340	05
06	63	55	59	M	53	56	6	0	-	-	DZ BR	0	M	0.0	0.02	29.47	30.12	8.1	04	8.3	18	040	16	030	06
07	65	59	62	M	59	60	3	0	-	-	RA DZ BR	0	M	0.0	0.03	29.44	30.06	12.3	06	12.4	28	050	24	060	07
08	69	61	65	M	61	62	0	0	-	-	RA DZ BR	0	M	0.0	0.01	29.39	30.02	10.3	06	10.5	23	060	17	080	08
09	78	58	68	M	60	63	0	3	-	-	BR	M	M	M	0.00	29.31	29.93	4.8	04	5.0	17	050	14	060	09
10	79	55	67	M	56	60	0	2	-	-		0	M	0.0	0.00	29.35	29.99	3.7	06	4.8	18	030	15	070	10
11	76	52	64	M	59	61	1	0	-	-	BR	0	M	0.0	0.08	29.37	30.00	3.1	20	3.9	15	200	12	200	11
12	78	61	70	M	63	65	0	5	-	-	BR HZ	0	M	0.0	0.00	29.31	29.93	10.0	21	10.3	25	230	21	230	12
13	81	59	70	M	59	64	0	5	-	-		0	M	0.0	T	29.17	29.79	12.0	24	15.5	44	240	32	240	13
14	70	49	60	M	49	54	5	0	-	-	RA	0	M	0.0	0.02	29.31	29.96	4.5	28	6.6	24	010	18	360	14
15	61	43	52	M	41	47	13	0	-	-	RA	0	M	0.0	0.21	29.47	30.13	8.9	32	9.6	32	300	24	300	15
16	60	40*	50*	M	39	45	15	0	-	-		0	M	0.0	0.00	29.68	30.35	3.8	31	6.2	18	340	14	350	16
17	65	45	55	M	42	48	10	0	-	-		0	M	0.0	0.00	29.74	30.40	4.8	07	5.2	17	050	14	050	17
18	71	43	57	M	44	50	8	0	-	-		0	M	0.0	0.00	29.72	30.36	4.6	11	5.1	18	110	13	110	18
19	69	47	58	M	51	55	7	0	-	-	RA BR	0	M	0.0	0.35	29.45	30.06	10.0	18	10.7	26	190	22	190	19
20	71	53	62	M	55	58	3	0	-	-	RA BR	0	M	0.0	0.10	29.39	30.06	2.9	29	5.1	17	270	15	260	20
21	79	52	66	M	60	62	0	1	-	-	RA VCTS	0	M	0.0	0.25	29.42	30.03	6.8	18	8.2	24	230	18	230	21
22	75	59	67	M	56	61	0	2	-	-	RA BR	0	M	0.0	T	29.41	30.05	4.1	24	5.0	20	220	15	230	22
23	70	58	64	M	60	62	1	0	-	-	RA BR VCTS	0	M	0.0	1.00	29.35	29.96	3.9	12	7.3	23	280	15	240	23
24	72	53	63	M	55	58	2	0	-	-		0	M	0.0	0.00	29.42	30.07	0.9	28	4.0	13	240	9	020	24
25	81	57	69	M	60	63	0	4	-	-		0	M	0.0	0.00	29.43	30.05	5.9	08	6.4	16	070	14	060	25
26	85	61	73	M	63	66	0	8	-	-	BR	0	M	0.0	0.00	29.29	29.89	6.1	11	6.7	16	130	13	180	26
27	73	63	68	M	62	65	0	3	-	-	RA	0	M	0.0	T	29.23	29.85	3.1	19	5.7	18	230	15	230	27
28	73	55	64	M	58	60	1	0	-	-	RA FG+ BR	0	M	0.0	0.42	29.21	29.83	2.0	15	3.2	13	140	9	180	28
29	66	54	60	M	55	57	5	0	-	-	RA FG+ BR VCTS	0	M	0.0	0.06	29.05	29.65	5.0	24	5.9	25	240	22	230	29
30	60	53	57	M	53	54	8	0	-	-	RA BR	0	M	0.0	1.07	28.92	29.58	7.9	21	10.2	30	220	25	220	30
	73.1	55.6	64.4		56.7	59.8	3.1	2.5	<-----Monthly Averages | Totals----->				M	0.0	4.46s	29.36	29.99	1.1	19	7.3	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	92	M	M	M
Cooling:	75	M	M	M

Greatest 24-hr Precipitation: 1.12s Date: 29-30

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.44	18	0907
Minimum	29.48	30	0137

Number of Days with -------->

Max Temp >=90: 1
Max Temp <=32: 0
Thunderstorms : 1

Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 3

Precipitation >=.01 inch: 15
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version:

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 10/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC Depth	1800 UTC Water Equiv	2400 LST Snow Fall	2400 LST Water Equiv	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	53	43	48	M	40	44	17	0	-	-	RA DZ BR	0	M	0.0	0.13	29.28	29.97	14.3	02	14.5	26	040	21	050	01
02	50	42	46	M	44	45	19	0	-	-	RA DZ BR	0	M	0.0	0.35	29.33	29.97	10.0	01	10.1	23	360	17	020	02
03	61	49	55	M	52	53	10	0	-	-	RA DZ BR	0	M	0.0	0.36	29.38	30.04	4.7	01	5.3	17	030	14	010	03
04	65	47	56	M	52	54	9	0	-	-	RA FG BR	0	M	0.0	0.14	29.51	30.16	3.8	32	4.4	18	310	15	300	04
05	66	40	53	M	44	48	12	0	-	-		0	M	0.0	0.00	29.60	30.27	2.5	01	4.4	16	020	13	060	05
06	67	36	52	M	38	45	13	0	-	-		0	M	0.0	0.00	29.72	30.38	0.4	08	1.9	10	350	8	030	06
07	73	42	58	M	46	51	7	0	-	-	BR	0	M	0.0	0.00	29.75	30.41	1.1	20	1.5	10	220	9	200	07
08	75	48	62	M	52	56	3	0	-	-	BR	0	M	0.0	0.00	29.77	30.41	4.9	21	5.0	17	230	14	210	08
09	78	52	65*	M	54	58	0	0	-	-	BR	0	M	0.0	0.00	29.74	30.38	3.4	20	3.7	14	220	10	220	09
10	80*	47	64	M	54	57	1	0	-	-	MIFG BR	0	M	0.0	0.00	29.64	30.27	0.3	22	0.8	8	020	7	020	10
11	77	49	63	M	55	58	2	0	-	-	MIFG BR	0	M	0.0	0.00	29.51	30.13	3.8	08	4.0	13	080	10	090	11
12	67	54	61	M	56	57	4	0	-	-	RA BR HZ	0	M	0.0	0.68	29.36	29.96	4.8	10	5.5	22	100	16	100	12
13	73	55	64	M	57	60	1	0	-	-	RA	0	M	0.0	0.00	29.05	29.64	5.0	13	6.5	17	120	13	110	13
14	65	50	58	M	53	56	7	0	-	-	RA BR	0	M	0.0	0.21	28.72	29.35	11.6	23	13.9	31	270	25	260	14
15	52	48	50	M	39	45	15	0	-	-	RA	0	M	0.0	0.03	28.83	29.50	20.4	25	20.6	47	250	36	260	15
16	55	49	52	M	43	47	13	0	-	-	RA BR	0	M	0.0	0.03	29.05	29.69	14.7	24	15.0	39	250	31	240	16
17	57	44	51	M	37	45	14	0	-	-		0	M	0.0	0.00	29.01	29.66	19.1	25	19.5	47	260	37	240	17
18	60	43	52	M	41	46	13	0	-	-	RA	0	M	0.0	0.01	29.14	29.81	6.7	23	8.2	23	250	18	240	18
19	57	48	53	M	49	50	12	0	-	-	RA BR	0	M	0.0	0.37	29.01	29.60	17.5	07	17.8	41	060	32	070	19
20	54	45	50	M	46	48	15	0	-	-	RA DZ BR VCTS	0	M	0.0	0.63	28.66	29.31	10.6	20	14.0	35	220	26	210	20
21	51	45	48	M	42	45	17	0	-	-	RA BR	0	M	0.0	0.15	29.14	29.85	14.4	26	14.8	29	250	22	270	21
22	50	39	45	M	38	42	20	0	-	-		0	M	0.0	0.00	29.42	30.09	4.9	27	5.6	20	270	17	290	22
23	59	36	48	M	40	44	17	0	-	-	BR	0	M	0.0	0.00	29.41	30.06	5.2	19	5.8	18	220	16	230	23
24	58	43	51	M	42	47	14	0	-	-	RA	0	M	0.0	0.05	29.26	29.93	9.5	23	11.5	25	280	20	290	24
25	57	37	47	M	41	44	18	0	-	-	RA BR	0	M	0.0	0.23	29.44	30.09	3.9	26	7.3	21	250	17	280	25
26	49	40	45	M	45	45	20	0	-	-	RA DZ BR	0	M	0.0	0.44	29.18	29.83	8.4	06	9.2	22	050	17	040	26
27	40	30	35*	M	32	35	30	0	-	-	RA BR	0	M	0.0	0.02	29.25	29.95	5.8	03	6.1	20	020	16	050	27
28	49	26	38	M	32	35	27	0	-	-		M	M	M	0.00	29.54	30.21	1.5	18	2.7	15	240	12	230	28
29	42	29	36	M	32	34	29	0	-	-	RA MIFG BR	0	M	0.0	0.01	29.49	30.15	2.3	14	2.8	13	190	10	170	29
30	50	26*	38	M	32	35	27	0	-	-	FG+ FZFG BR	M	M	M	0.00	29.56	30.25	4.5	21	4.6	22	240	16	220	30
31	53	31	42	M	34	39	23	0	-	-	RA	0	M	0.0	0.01	29.55	30.22	4.7	17	5.6	18	190	15	190	31
	59.5	42.4	51.0		43.9	47.4	13.8	0.0	<-----Monthly Averages | Totals----->				M	0.0	3.85s	29.33	29.98	2.1	24	8.1	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	429	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 1.05s Date: 01
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.47	08	0909
Minimum	29.18	20	0302

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 5
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 18
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 11/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	53	40	47	M	40	43	18	0	-	-		0	M	0.0	0.00	29.61	30.28	6.2	19	6.8	16	220	14	220	01
02	63	39	51	M	38	46	14	0	-	-		0	M	0.0	0.00	29.55	30.19	9.6	20	10.0	26	200	22	210	02
03	57	41	49	M	41	45	16	0	-	-		0	M	0.0	0.00	29.38	30.04	3.6	33	9.3	23	020	17	020	03
04	49	31	40	M	30	36	25	0	-	-		0	M	0.0	0.00	29.58	30.28	6.2	03	6.7	21	030	15	020	04
05	53	25*	39	M	24	33	26	0	-	-		0	M	0.0	0.00	29.74	30.41	3.0	12	3.7	14	140	12	110	05
06	60	37	49	M	27	39	16	0	-	-		0	M	0.0	0.00	29.63	30.28	9.8	20	10.2	24	210	20	210	06
07	62	45	54	M	44	49	11	0	-	-		0	M	0.0	0.00	29.57	30.23	11.5	23	11.8	25	230	21	240	07
08	68*	44	56	M	50	52	9	0	-	-	RA FG+ BR	0	M	0.0	0.01	29.54	30.17	1.7	18	4.1	17	240	12	240	08
09	67	40	54	M	42	48	11	0	-	-	RA BR	0	M	0.0	0.12	29.28	29.89	7.9	18	9.2	44	240	36	250	09
10	50	32	41	M	33	38	24	0	-	-	RA	0	M	0.0	T	29.21	29.86	12.6	25	13.2	44	250	32	240	10
11	44	31	38	M	29	33	27	0	-	-	RA	0	M	T	T	29.16	29.84	11.9	27	12.4	36	300	28	300	11
12	53	35	44	M	36	41	21	0	-	-		0	M	0.0	0.00	29.23	29.89	13.4	22	13.8	38	220	29	230	12
13	63	51	57*	M	39	48	8	0	-	-		0	M	0.0	T	29.13	29.75	15.9	21	16.0	37	210	29	200	13
14	63	47	55	M	50	53	10	0	-	-	TSRA RA BR	0	M	0.0	0.40	28.99	29.62	12.5	22	13.9	44	230	31	230	14
15	54	43	49	M	46	47	16	0	-	-	BR	0	M	0.0	0.00	29.14	29.82	7.0	22	7.5	23	170	15	220	15
16	55	33	44	M	40	44	21	0	-	-		0	M	0.0	0.00	29.18	29.85	8.2	25	9.9	24	280	20	280	16
17	42	29	36	M	22	30	29	0	-	-		0	M	T	T	29.31	30.01	13.1	27	13.4	33	280	26	300	17
18	45	28	37	M	21	31	28	0	-	-		0	M	0.0	0.00	29.56	30.24	15.4	23	17.3	37	190	28	190	18
19	55	41	48	M	30	41	17	0	-	-	RA	0	M	0.0	T	29.42	30.06	17.0	21	17.2	37	200	29	200	19
20	61	36	49	M	40	45	16	0	-	-		0	M	0.0	0.01	29.38	30.06	10.4	27	16.3	48	230	31	230	20
21	43	28	36	M	27	32	29	0	-	-		0	M	0.0	0.00	29.69	30.37	5.0	05	5.6	17	070	13	040	21
22	40	26	33*	M	29	32	32	0	-	-	RA BR	0	M	0.0	0.45	29.59	30.21	14.0	08	14.1	32	080	24	080	22
23	43	30	37	M	34	36	28	0	-	-	RA BR	0	M	0.0	0.70	29.25	29.96	8.1	02	9.4	32	040	25	040	23
24	48	29	39	M	37	40	26	0	-	-	BR HZ	0	M	0.0	0.00	29.49	30.16	M	M	14.7	36	220	28	240	24
25	57	45	51	M	38	45	14	0	-	-		0	M	0.0	0.00	29.39	30.05	19.0	23	19.1	43	230	33	230	25
26	56	49	53	M	38	46	12	0	-	-		0	M	0.0	0.00	29.42	30.07	10.2	21	10.6	24	220	18	220	26
27	59	46	53	M	47	51	12	0	-	-	RA BR	0	M	0.0	0.32	29.24	29.88	12.1	20	13.6	28	210	22	210	27
28	46	40	43	M	38	40	22	0	-	-	RA BR	0	M	0.0	0.14	29.41	30.06	4.7	01	7.3	18	300	14	030	28
29	46	41	44	M	43	44	21	0	-	-	RA FG+ FG BR	0	M	0.0	0.70	29.11	29.73	7.5	04	9.0	28	040	23	040	29
30	42	29	36	M	M	M	29	0	-	-	RA SN BR	M	M	M	0.10	29.03	M	M	M	13.9	36	220	29	230	30
	M	M	M		36.3	41.7	19.6	0.0	<-----Monthly Averages | Totals----->				M	M	2.95	M	M	5.8	23	11.3	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	588	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: M Date: M
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

	Sea Level Pressure	Date	Time (LST)
Maximum	M	M	M
Minimum	M	M	M

Number of Days with -------->
Max Temp >=90: M
Max Temp <=32: M
Thunderstorms : 1
Min Temp <=32: M
Min Temp <=0 : M
Heavy Fog : 2
Precipitation >=.01 inch: M
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 12/2011

Station Location: NIAGARA FALLS INTL AIRPORT (04724)
NIAGARA FALLS, NY
Lat. 43.108 Lon. -78.938
Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	45	35s	M	M	M	M	M	M	-	-		0	M	0.0	0.00	M	M	M	M	M	25	240	21	240	01
02	39	27	33	M	31	33	32	0	-	-	RA SN BR	0	M	0.4	0.08	29.67	30.38	3.5	27	5.8	18	330	14	330	02
03	43	25	34	M	28	33	31	0	-	-	BR	0	M	0.0	0.00	29.83	30.50	5.9	17	6.2	17	170	14	180	03
04	58*	41	50*	M	37	44	15	0	-	-	RA	0	M	0.0	0.02	29.54	30.19	14.3	21	15.0	33	200	24	210	04
05	51	37	44	M	43	44	21	0	-	-	RA BR	0	M	0.0	0.73	29.53	30.19	2.7	32	8.2	18s	360	16	360	05
06	39	36	38	M	36	37	27	0	-	-	RA DZ BR	0	M	0.0	0.24	29.46	30.11	6.8	02	7.0	22	360	16	010	06
07	36	26	31	M	28	31	34	0	-	-	RA BR UP	0	M	0.0s	0.01	29.29	29.94	5.6	31	6.9	22	290	17	290	07
08	39	29	34	M	25	31	31	0	-	-		0	M	0.0	0.00	29.38	30.09	15.7	25	15.9	38	240	30	250	08
09	36	28	32	M	29	31	33	0	-	-	SN FG BR	1	M	3.5	0.35	29.51	30.20	6.4	26	7.3	23	300	20	300	09
10	28	16	22*	M	13	20	43	0	-	-		1	M	0.0	0.00	29.72	30.43	10.3	26	10.6	24	260	20	270	10
11	35	13*	24	M	18	25	41	0	-	-		T	M	0.0	0.00	29.83	30.53	10.2	22	10.3	35	220	25	230	11
12	39	19	29	M	25	29	36	0	-	-		T	M	0.0	0.00	29.79	30.47	6.4	22	6.8	18	240	15	230	12
13	44	27	36	M	30	34	29	0	-	-	BR	T	M	0.0	0.00	29.76	30.44	5.9	23	6.1	15	220	14	230	13
14	49	35	42	M	36	39	23	0	-	-	RA DZ BR HZ	0	M	0.0	0.12	29.59	30.22	6.1	18	6.6	30	200	23	200	14
15	56	40	48	M	48	49	17	0	-	-	RA DZ BR	0	M	0.0	0.45	29.07	29.70	19.3	22	20.7	43	280	36	270	15
16	40	33	37	M	28	32	28	0	-	-	SN	0	M	0.0s	0.01	29.43	30.14	15.9	26	16.3	45	290	37	270	16
17	33	18	26	M	16	22	39	0	-	-	SN BR	T	M	T	0.01	29.57	30.27	5.7	34	8.5	23	340	18	330	17
18	36	17	27	M	21	25	38	0	-	-		0	M	0.0	0.00	29.53	30.20	6.1	19	7.5	33	200	23	210	18
19	45	35	40	M	33	38	25	0	-	-	RA DZ	0	M	0.0	T	29.26	29.94	16.3	24	19.0	45	230	35	230	19
20	37	26	32	M	24	30	33	0	-	-		0	M	0.0	0.00	29.49	30.14	2.0	03	4.9	24	350	18	340	20
21	54	36	45	M	42	43	20	0	-	-	RA DZ BR	0	M	0.0	0.22	29.08	29.74	5.9	23	9.5	32	240	24	290	21
22	43	36	40	M	37	39	25	0	-	-	RA BR	0	M	0.0	0.09	29.34	30.03	5.3	26	5.8	23	250	17	260	22
23	36	22	29	M	22	27	36	0	-	-	RA SN BR	0	M	0.1	0.02	29.50	30.22	9.6	33	10.2	26	320	22	330	23
24	35	18	27	M	17	23	38	0	-	-	SN	0	M	T	T	29.72	30.41	3.4	13	4.3	17	220	15	210	24
25	44	35	40	M	30	35	25	0	-	-	RA BR	0	M	0.0	0.02	29.36	30.00	17.0	24	18.4	39	230	31	240	25
26	39	33	36	M	29	33	29	0	-	-		0	M	0.0	0.00	29.49	30.18	10.6	24	12.3	30	230	23	220	26
27	38	33	36	M	30	33	29	0	-	-	RA SN BR UP	0	M	0.3	0.24	29.02	29.62	3.4	19	6.6	20	260	15	260	27
28	35	16	26	M	17	21	39	0	-	-	SN BR UP	0	M	T	0.01	29.07	29.82	17.5	29	17.8	41	290	31	290	28
29	31	14	23	M	19	23	42	0	-	-	SN BR	0	M	0.2	0.01	29.26	29.93	4.2	12	6.0	15	100	13	270	29
30	46	31	39	M	36	38	26	0	-	-	RA DZ BR	0	M	0.0	0.14	29.14	29.80	M	M	5.8	17	210	14	210	30
31	43	36	40	M	38	39	25	0	-	-	RA DZ BR	0	M	0.0	0.05	29.18	29.88	5.5	24	7.3	20	220	15	240	31
	41.0	28.2	34.6		28.9	32.7	30.3	0.0	<-----Monthly Averages | Totals----->				M	4.4	2.86s	29.44	30.12	6.0	24	9.8	<Monthly Average				
	M	M	M	<----------Departure From Normal---------->									M												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	910	M	M	M
Cooling:	0	M	M	M

Greatest 24-hr Precipitation: 0.92s Date: 05-06
Greatest 24-hr Snowfall: 0.3 Date: 10
Greatest Snow Depth: 2s Date: 10

Sea Level	Pressure	Date	Time (LST)
Maximum	30.60	03	0607
Minimum	29.34	27	2055

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 2
Thunderstorms : 0
Min Temp <=32: 17
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 16s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

ANNUAL CLIMATOLOGICAL SUMMARY
(2011)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Station: **305840/99999, NIAGARA FALLS INTL AP, New York** Elev. 519 ft. above sea level Lat. 43°06'N, Lon. 78°57'W

Date	Temperature (° F)														Precipitation (inches)									
Elem->	MMXT	MMNT	MNTM	DPNT	HTDD	CLDD	EMXT		EMNP		DT90	DX32	DT32	DT00	TPCP	DPNP	EMXP		TSNW	MXSD		DP01	DP05	DP10
											Number of Days						Greatest Observed		Snow, Sleet			Number of Days		
2011 Month	Mean Max.	Mean Min.	Mean	Depart. from Normal	Heating Degree Days	Cooling Degree Days	Highest	High Date	Lowest	Low Date	Max >=90°	Max <=32°	Min <=32°	Min <=0°	Total	Depart. from Normal	Day	Date	Total Fall	Max Depth	Max Date	>=.10	>=.50	>=1.0
1	29.1	14.3	21.7	-2.5	1334	0	550	2	-12	24	0	0	0	0	1.97	-0.57	0.42	2	34.8	10X	13	7	0	0
2	31.6	15.3	23.5	-1.8	1155	0	530	18	1	3	0	0	0	0	2.67	0.35	0.63	28	30.6	11	25	8	2	0
3	39.7	22.6	31.2	-2.6	1040	0	610	18	8	26	0	0	0	0	4.12	1.49	1.40	6	9.9	3	31	9	3	1
4	54.2	36.2	45.2	0.1	590	5	820	28	28	2	0	0	0	0	5.21	2.75	0.99	26	1.5	0		11	4	0
5	66.3	48.5	57.4	0.3	252	22	830	31	38	8	0	0	0	0	5.00	M	1.12	19	0.0	0		9	5	1
6	76.4	57.7	67.1	1.3	39	108	870	9	46	3	0	0	0	0	2.49	-0.77	0.75	22	0.0	0		6	1	0
7	85.3	64.2	74.8	3.4	1	310	950	22	50	1	6	6	6	6	2.22	-0.47	0.87	24	0.0	0		4	2	0
8	80.6	62.3	71.5	1.9	5	212	880	2	50	29	0	0	0	0	2.29	-0.73	0.91	25	0.0	0		7	1	0
9	73.9	55.5	64.7	3.0	81	80	900	4	40	16	1	1	1	1	3.94	0.42	1.00	24	0.0	0		10	1	1
10	59.7	42.2	51.0	0.9	428	1	800	11	26	30	0	0	0	0	4.59	1.92	0.83	1	0.0	0		10	3	0
11	53.9	37.0	45.5	5.6	579	0	680	9	25	5	0	0	0	0	2.90	-0.08	1.13	23	0.0T	0		6	2	1
12	M	M	M	M	M	M	M		M		M	M	M	M	M	M	M		M	M		M	M	M
Annual	M	M	M	M	M	M	M	Jul	M	Jan	M	M	M	M	M	M	M	Mar	M	M	Feb	M	M	M

Notes

(blank) Not reported.

\+ Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence. Used through December 1983 only.

A Accumulated amount. This value is a total that may include data from a previous month or months or year (for annual value).

B Adjusted Total. Monthly value totals based on proportional available data across the entire month.

E An estimated monthly or annual total.

X Monthly means or totals based on incomplete time series. 1 to 9 days are missing. Annual means or totals include one or more months which had 1 to 9 days that were missing.

M Used to indicate data element missing.

T Trace of precipitation, snowfall, or snowdepth. The precipitation data value will = zero.

Elem-> Element Types are included to provide cross-reference for users of the NCDC CDO System.

Station Station is identified by: CoopID/WBAN, Station Name, State.

S Precipitation amount is continuing to be accumulated. Total will be included in a subsequent monthly or yearly value. Example: Days 1-20 had 1.35 inches of precipitation, then a period of accumulation began. The element TPCP would then be 00135S and the total accumulated amount value appears in a subsequent monthly value. If TPCP = "M" there was no precipitation measured during the month. Flag is set to "S" and the total accumulated amount appears in a subsequent monthly value.

Dynamically generated Wed Jun 27 10:45:29 EDT 2012 via http://hurricane/ancsum/ACS
Data provided from the NCDC CDO System
Additional documentation can be found at http://cdo.ncdc.noaa.gov/cdo/3220doc.txt

Attachment F

2011 NIAGARA FALLS STORAGE SITE

- **Radon Flux Results**
- **Site Map**

2011 Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA	NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA
1	U	0.03338	±	0.02026	0.05663	51	U	-0.003384	±	0.02589	0.05347
2	U	0.01177	±	0.02321	0.05652	52	U	0.03454	±	0.02183	0.06049
3	U	0.03286	±	0.03255	0.07182	53	U	0.04138	±	0.02213	0.06108
4	U	0.01417	±	0.02602	0.08493	54	U	0.003307	±	0.03384	0.08574
5	U	0.01581	±	0.02354	0.05741	55	U	0.06529	±	0.035	0.08773
6	U	0.03781	±	0.02976	0.06641	56	U	0.01508	±	0.01814	0.05207
7	U	0.04114	±	0.0322	0.08008	57	U	0.01293	±	0.02204	0.06003
8	U	0.01416	±	0.02601	0.08489	58	U	0.01179	±	0.04891	0.1136
9	U	0.0607	±	0.03346	0.08174	59	U	0.02034	±	0.01902	0.05403
10	U	0.03787	±	0.0236	0.06441	60	U	-0.01302	±	0.01984	0.03944
10-DUP[b]	U	0.03253	±	0.02253	0.06192	60-DUP[b]	U	0.004779	±	0.02152	0.0517
11	U	0.03986	±	0.02502	0.06405	61	U	0.024	±	0.03274	0.1013
12	U	0.02964	±	0.05378	0.1287	62	U	0.04415	±	0.03116	0.07408
13	U	0.03546	±	0.02253	0.06187	63	U	0.04355	±	0.03658	0.09112
14	U	0.04394	±	0.03649	0.08283	64	U	0.1324	±	0.07049	0.1827
15	U	0.002246	±	0.04355	0.09836	65	U	0.07566	±	0.03759	0.09396
16	U	0.01934	±	0.02456	0.06011	66	U	0.03616	±	0.02645	0.07135
17	U	0.01414	±	0.02189	0.05559	67	U	0.04424	±	0.02741	0.07405
18	U	0.01099	±	0.03245	0.07346	68	U	0.05014	±	0.05432	0.1411
19	U	0.0008845	±	0.05293	0.1123	69	U	0.0121	±	0.01838	0.04949
20	U	0.03795	±	0.02656	0.06602	70	U	0.02602	±	0.02282	0.06064
20-DUP[b]	U	0.0404	±	0.02757	0.0686	70-DUP[b]	U	-0.003219	±	0.02114	0.04736
21	U	0.0486	±	0.03135	0.07774	71	U	0.01565	±	0.02	0.05873
22	U	-0.01027	±	0.05701	0.1119	72	U	-0.01525	±	0.02207	0.02571
23	U	0.04107	±	0.02521	0.06791	73	U	0.04558	±	0.03186	0.07533
24	U	0.01275	±	0.02173	0.05919	74	U	0.03366	±	0.02896	0.06068
25	U	0.02192	±	0.04302	0.1116	75	U	0.01437	±	0.02224	0.05649
26	U	0.02337	±	0.02004	0.05629	76	U	0.01866	±	0.02105	0.06094
27	U	0.02795	±	0.02977	0.06258	77	U	0.0502	±	0.05375	0.1396
28	U	0.001923	±	0.02015	0.0512	78	U	0.003769	±	0.0174	0.04357
29	U	0.002297	±	0.04454	0.1006	79	U	0.03945	±	0.02513	0.06816
30	U	0.002503	±	0.01695	0.04227	80	U	0.03826	±	0.02562	0.07166
30-DUP[b]	U	0.008005	±	0.02361	0.0548	80-DUP[b]	U	0.06395	±	0.0374	0.08782
31	U	-0.01351	±	0.01387	0.02686	81	U	0.02229	±	0.02418	0.06447
32	U	0.03081	±	0.02917	0.07211	82	U	0.03911	±	0.02963	0.07375
33	U	-0.06003	±	0.05655	0.06942	83	U	0.07655	±	0.04984	0.121
34	U	0.03789	±	0.02681	0.06669	84	U	0.01198	±	0.06567	0.1434
35	U	-0.005431	±	0.02052	0.04758	85	U	0.04148	±	0.03213	0.07995
36	U	0.0925	±	0.0539	0.1509	86	U	0.01007	±	0.02868	0.06716
37	U	0.01468	±	0.0215	0.05455	87	U	0.04776	±	0.0349	0.08828
38	U	0.0005655	±	0.01434	0.03912	88	U	-0.02233	±	0.06263	0.1168
39	U	0.03819	±	0.02568	0.07184	89	U	0.006907	±	0.0141	0.04391
40	U	0.04225	±	0.0419	0.1226	90		0.04971	±	0.03387	0.08337
40-DUP[b]	U	-0.02875	±	0.0509	0.08727	90-DUP[b]		0.03342	±	0.03202	0.07312
41	U	0.000403	±	0.01994	0.04725	91	U	0.04155	±	0.02826	0.07995
42	U	0.005588	±	0.02743	0.06433	92	U	0.01159	±	0.06589	0.1437
43	U	0.04564	±	0.03172	0.07478	93	U	0.06981	±	0.03315	0.08852
44	U	0.01414	±	0.02251	0.05716	94	U	0.06069	±	0.03517	0.09597
45	U	0.03997	±	0.0275	0.07618	95	U	0.01323	±	0.05657	0.1313
46	U	0.02263	±	0.04367	0.1133	96	U	0.007246	±	0.02922	0.06558
47	U	0.05206	±	0.0275	0.07376	97	U	-0.002654	±	0.02475	0.05573
48	U	0.01482	±	0.02464	0.06018	98	U	0.05109	±	0.02988	0.08239
49	U	-0.01712	±	0.01821	0.03334	99	U	0.1847	±	0.0925	0.2253
50	U	0.04042	±	0.05051	0.1313	100	U	-0.002366	±	0.02052	0.04714
50-DUP[b]	U	0.02957	±	0.05494	0.1313	100-DUP[b]	U	0.06427	±	0.0338	0.08989

2011Radon Flux Monitoring Results[a]
Niagara Falls Storage Site

NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA
101	U	0.02001	±	0.02727	0.0738
102	U	-0.03154	±	0.04853	0.07982
103	U	0.00488	±	0.01867	0.0507
104	U	0.04309	±	0.03197	0.07746
105	U	0.07118	±	0.05761	0.1631
106	U	0.07414	±	0.03591	0.09483
107	U	-0.002328	±	0.02718	0.05962
108	U	0.05619	±	0.03332	0.09155
109	U	0.02475	±	0.06104	0.1444
110	U	0.04913	±	0.02711	0.06932
110-DUP[b]	U	0.05003	±	0.02971	0.08053
111	U	0.04041	±	0.02782	0.07105
112	U	0.02161	±	0.03389	0.08378
113	U	0.0262	±	0.05054	0.1312
114	U	0.04102	±	0.02408	0.06738
115	U	-0.001614	±	0.02896	0.06628
116	U	0.01365	±	0.05662	0.1316
117	U	0.01561	±	0.02721	0.06609
118	U	0.001277	±	0.02328	0.0553
119	U	0.05422	±	0.03632	0.09751
120	U	-0.01144	±	0.06611	0.13
120-DUP[b]	U	0.05791	±	0.06241	0.1621
121	U	0.03336	±	0.03693	0.08269
122	U	0.03687	±	0.02396	0.06535
123	U	0.009316	±	0.01534	0.04531
124	U	0.03233	±	0.02202	0.06317
125	U	-0.007389	±	0.03996	0.08552
126	U	0.005483	±	0.02262	0.05208
127	U	0.04172	±	0.02489	0.0675
128	U	0.01583	±	0.02276	0.0617
129	U	0.04165	±	0.04124	0.1207
130	U	0.01331	±	0.02667	0.0611
130-DUP[b]	U	0.05748	±	0.02794	0.0746
131	U	0.02672	±	0.02092	0.05356
132	U	0.05686	±	0.02941	0.07439
133	U	-0.01015	±	0.05575	0.1093
134	U	0.04914	±	0.02853	0.0759
135	U	0.03771	±	0.02506	0.06814
136	U	0.03044	±	0.04566	0.1187
137	U	0.03105	±	0.02011	0.05623
138	U	-0.01585	±	0.02025	0.03809
139	U	0.03356	±	0.02495	0.06979
140	U	0.06801	±	0.05133	0.1438
140-DUP[b]	U	0.02185	±	0.04216	0.1094
141	U	0.04763	±	0.02884	0.07333
142	U	0.0408	±	0.03085	0.07662
143	U	0.01432	±	0.02098	0.05321
144	U	0.02811	±	0.02006	0.05557
145	U	0.004304	±	0.02117	0.05403
146	U	-0.005624	±	0.02856	0.06855
147	U	0.01411	±	0.01632	0.0476
148	U	0.0006663	±	0.0221	0.05048
149	U	0.004344	±	0.02137	0.05453
150	U	0.04023	±	0.05035	0.1309
150-DUP[b]	U	0.02242	±	0.04326	0.1123

NFSS Sample ID	Qualifier	Radon-222 Flux (pCi/m²/s)			MDA
151	U	0.01705	±	0.02231	0.05664
152	U	0.01141	±	0.0289	0.06491
153	U	0.01668	±	0.0203	0.05927
154	U	0.04915	±	0.03349	0.07678
155	U	0.01039	±	0.02314	0.05622
156	U	0.04996	±	0.03735	0.07926
157	U	0.01257	±	0.03874	0.0999
158	U	0.0399	±	0.02847	0.07088
159	U	0.05856	±	0.03501	0.08523
160	U	-0.0001977	±	0.01918	0.04845
160-DUP[b]	U	0.03835	±	0.02748	0.06767
161	**U**	-0.003065	±	0.01233	0.03367
162	**U**	0.09474	±	0.04945	0.14
163		0.2793	±	0.04722	0.06128
164	**U**	0.06296	±	0.06078	0.1513
165	**U**	0.04809	±	0.0292	0.08024
166	**U**	0.01334	±	0.03981	0.1027
167	**U**	0.01826	±	0.02696	0.06926
168	**U**	0.002348	±	0.04553	0.1028
169	**U**	0.06558	±	0.03336	0.08997
170	**U**	0.03394	±	0.03836	0.1148
170-DUP[b]	**U**	-0.001831	±	0.0611	0.1241
171	**U**	-0.000203	±	0.01969	0.04974
172	**U**	0.009667	±	0.02662	0.06518
173	**U**	0.07041	±	0.06146	0.1591
174	**U**	0.05492	±	0.0346	0.09129
175	**U**	0.03207	±	0.048	0.1248
176		0.07684	±	0.02255	0.0325
177	**U**	0.08421	±	0.05072	0.1436
178	**U**	0.03884	±	0.02626	0.07347
179	**U**	0.08559	±	0.06651	0.1439
180		0.04584	±	0.01976	0.0409
180-DUP[b]	**U**	0.03522	±	0.02631	0.07253
181[c]	**U**	0.01288	±	0.03844	0.09917
182[c]	**U**	0.02071	±	0.05109	0.1208
183[c]	**U**	0.0101	±	0.05536	0.1209
Average background	U	0.01456	(pCi/m²/s)		

IWCS	Value	Units
Average[e]	0.02946	(pCi/m²/s)
High[f]	0.27930	(pCi/m²/s)
Low	-0.06003	(pCi/m²/s)

NOTE: The EPA Standard for Radon-222 Flux is 20 pCi/m²/sec

a. Radon-222 flux was performed on August 23-24, 2011

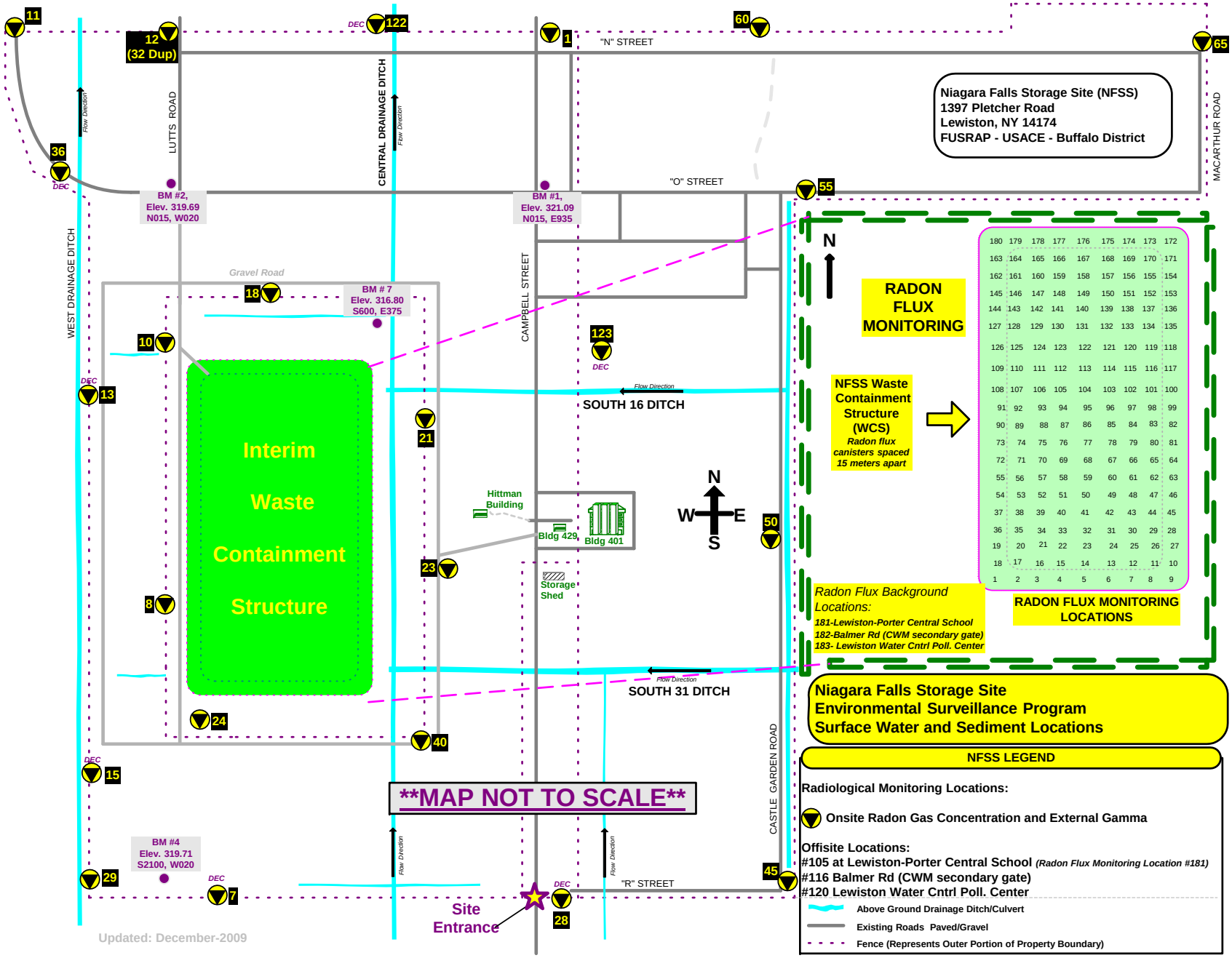
b. Every 10th canister is counted twice as a quality control (QC) duplicate to evaluate analytical precision.

c. Background:
181-Lewiston-Porter Central School
182-Lewiston Water Pollution Control Center
183-Balmer Rd. (CWM Secondary Gate)

d. Validated Qualifier: **U** - indicates that no analyte was detected (Non-Detect).

e. Average of all values (detects and non-detects)

f. Highest detectable finding.


Niagara Falls Storage Site (NFSS)
1397 Pletcher Road
Lewiston, NY 14174
FUSRAP - USACE - Buffalo District
"N" STREET
"O" STREET
"R" STREET
LUTTS ROAD
CENTRAL DRAINAGE DITCH
CAMPBELL STREET
MACARTHUR ROAD
CASTLE GARDEN ROAD
WEST DRAINAGE DITCH
Gravel Road
BM #2, Elev. 319.69 N015, W020
BM #1, Elev. 321.09 N015, E935
BM # 7 Elev. 316.80 S600, E375
BM #4 Elev. 319.71 S2100, W020
Interim Waste Containment Structure
Hittman Building
Bldg 429
Bldg 401
Storage Shed
SOUTH 16 DITCH
SOUTH 31 DITCH
Flow Direction
DEC
Site Entrance
MAP NOT TO SCALE
Updated: December-2009
RADON FLUX MONITORING
NFSS Waste Containment Structure (WCS)
Radon flux canisters spaced 15 meters apart
RADON FLUX MONITORING LOCATIONS
Radon Flux Background Locations:
181-Lewiston-Porter Central School
182-Balmer Rd (CWM secondary gate)
183- Lewiston Water Cntrl Poll. Center
Niagara Falls Storage Site
Environmental Surveillance Program
Surface Water and Sediment Locations
NFSS LEGEND
Radiological Monitoring Locations:
Onsite Radon Gas Concentration and External Gamma
Offsite Locations:
#105 at Lewiston-Porter Central School (Radon Flux Monitoring Location #181)
#116 Balmer Rd (CWM secondary gate)
#120 Lewiston Water Cntrl Poll. Center
Above Ground Drainage Ditch/Culvert
Existing Roads Paved/Gravel
Fence (Represents Outer Portion of Property Boundary)

APPENDIX C

RESULTS OF NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION THERMOLUMINESCENT DOSIMETER PROGRAM

Description of the
New York State Department of Environmental Conservation (DEC)
Thermoluminescent Dosimeter (TLD) Program

Program:

DEC operated a TLD system from 1998, at which time DEC took possession of a Harshaw Model 6600 TLD card reader and 6610 Irradiator, until December 2011. Immediately in receipt of our reader and irradiator, in May of 1998 DEC deployed TLD's at Niagara Falls Storage Site. DEC continued deploying TLD's at NFSS until December 2011. In 2000/2001 DEC participated in the United States Department of Energy (DOE) Environmental Measurement Laboratory's (EML) 12th International Intercomparison of Environmental Dosimeters. Unfortunately EML never did finalize their findings because of 9/11. EML was transferred in 2003 from DOE into the newly created U.S. Department of Homeland Security's Science and Technology Directorate. In 2009, the Lab's name was changed to the National Urban Security Technology Laboratory to reflect its mission of the prevention and deterrence of terrorist attacks and protection against and response to threats and hazards to the Nation. However based on the initial performance test summary's DEC feels it performed acceptably.

Dosimeter Types*:

DEC used Bicron NE's standard type 8807 Environmental Dosimeter which is composed of two CaF_2:Dy elements and two LiF:Mg,Ti elements. The elements are shielded by 80 mg/cm^2 ABS plastic, 0.010 inches of tantalum and 0.002 inches of lead. The LiF:Mg,Ti are shielded by only 80 mg/cm^2 ABS.

The CaF_2 material has higher sensitivity than the LiF elements (by a factor of 30) but also exhibits a higher fading rate. This extremely high sensitivity makes it a superior TL material for short term (no more than one month) environmental monitoring; however, the higher fading rate does limit its usefulness for long duration environmental measurements. The CaF_2 is shielded on both sides by energy compensation filters composed of lead and tantalum as described above. This filter will flatten the energy response and enable the dosimeter to meet the requirements of ANSI N549-1975.

For periods in excess of one month, the LiF is recommended. The maximum over response of LiF is approximately 40%; therefore, it does not need a flattening filter to meet the ANSI Standard.

Algorithm Use:

The algorithm, used by the DEC, was left with all the original defaults. No account is taken for fading for the LiF elements but is factored into the CaF_2 elements. Background was not subtracted for either element type.

Background Radiation:

To arrive at the background dose from various sources of natural background radiation we used Table 9.7 in NCRP Report No. 94 Exposure of the Population in the United States and Canada from Natural Background Radiation. The total effective dose equivalent rate (mrem/y) from Cosmic, Cosmogenic and Terrestrial radiation is 27, 1 and 28 respectively making the total 56 mrem/yr. (Half a year = 28 mrem)

Placement locations:

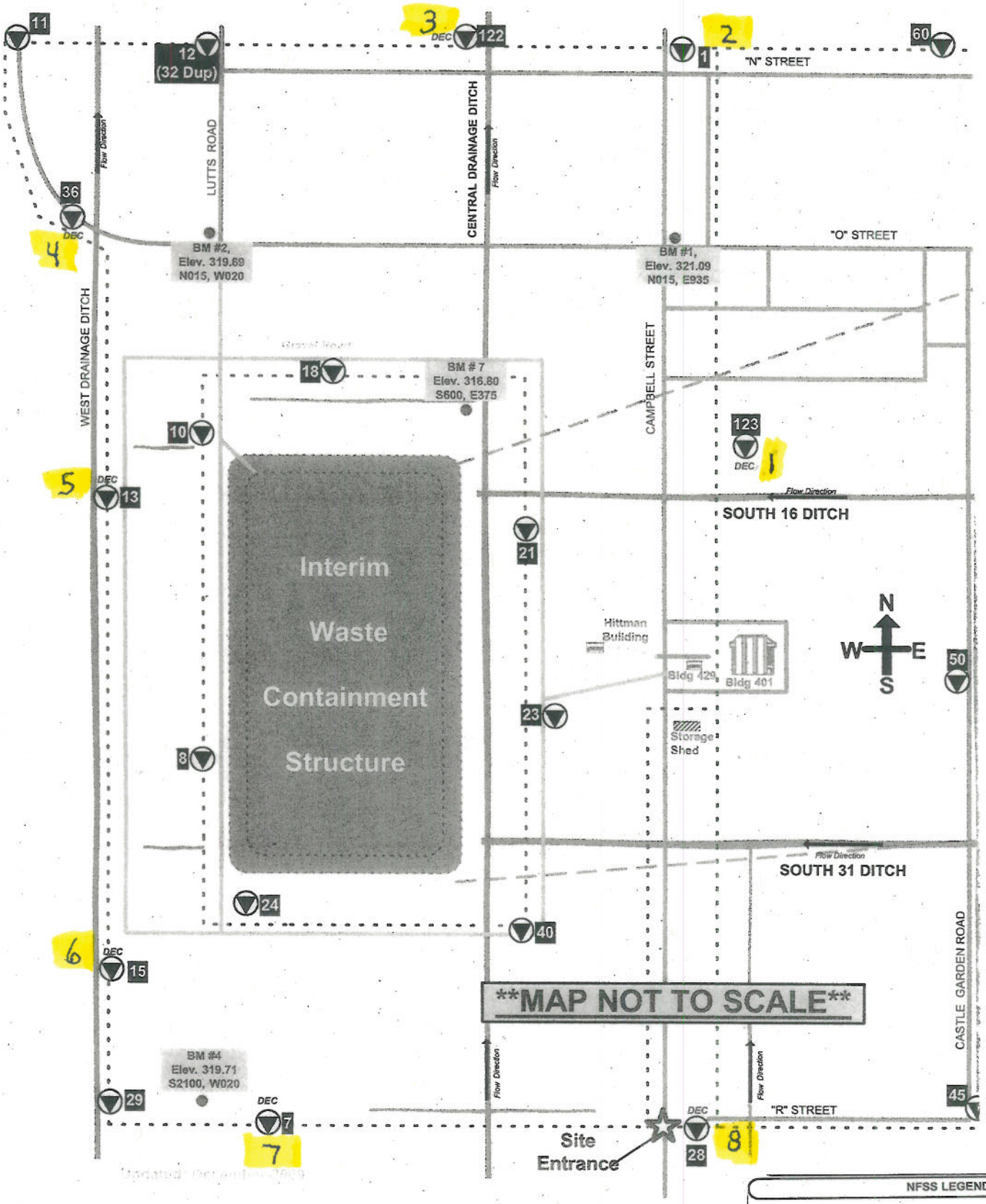
Eight on-site locations were used pairing our dosimeters adjacent to the United States Army Corp of Engineers (Corp). For the off site locations DEC had two locations; one the same as the Corp (Balmer Road) and the other at a different location. With regard to the different offsite background location, this TLD was located at the Town of Lewiston Town Hall which was originally a location of the DOE's TLD program. Their TLD and ours were initially placed on a metal fence post. When DOE transferred the FUSRAP program and the related environmental monitoring to the Corp, the Corp did not use this location anymore. The post eventually became no longer usable so DEC's TLD holder was attached to the gas meter which was directly against the building. Because of the natural radiation emitted from bricks this background location was always higher than would a detector mounted further away from the building. In 2009 the town discovered our TLD holder on the gas main and did not recall its purpose, so they removed it. With the assistance of the Town, in July 2010, a more suitable location further away from the building was used; hence lower results were seen from that time forward. For purposes of the conclusion, the TLD at Town of Lewiston Town Hall was ignored. This TLD location, however, does exemplify the doses we receive from natural materials.

Conclusions:

If one looks at DEC's spreadsheet presenting the 1998 to the December 2011 data you can see that the Algorithm Normalized Data for each TLD location (exposure equivalent to half a year) are mostly within two sigma deviation or less when compared to the NCRP Report No. 94 background (**28 mrem**). In addition, you can see that the normalized averaged data for each TLD location (exposure equivalent to half a year) is within three sigma deviations when compared to the off-site background TLD (location 9). Based upon this data, while these numbers are well within the range of the reported background there is a minute difference between the onsite TLD's and our off-site background. This could be an artifact of the fact that we only had one useable background location (i.e., our background data pool was not big enough).

*Description taken out of the Bicron NE's Dose Calculation Algorithm for the Type 8807 Environmental Dosimeter (October 24, 1997)

ON-SITE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION TLD LOCATIONS UTILIZING THE USACE NIAGARA FALLS STORAGE SITE ENVIRONMENTAL SURVEILLANCE LOCATIONS FIGURE



NFSS LEGEND

Radiological Monitoring Locations:

Corp

Onsite Radon Gas Concentration and External Gamma

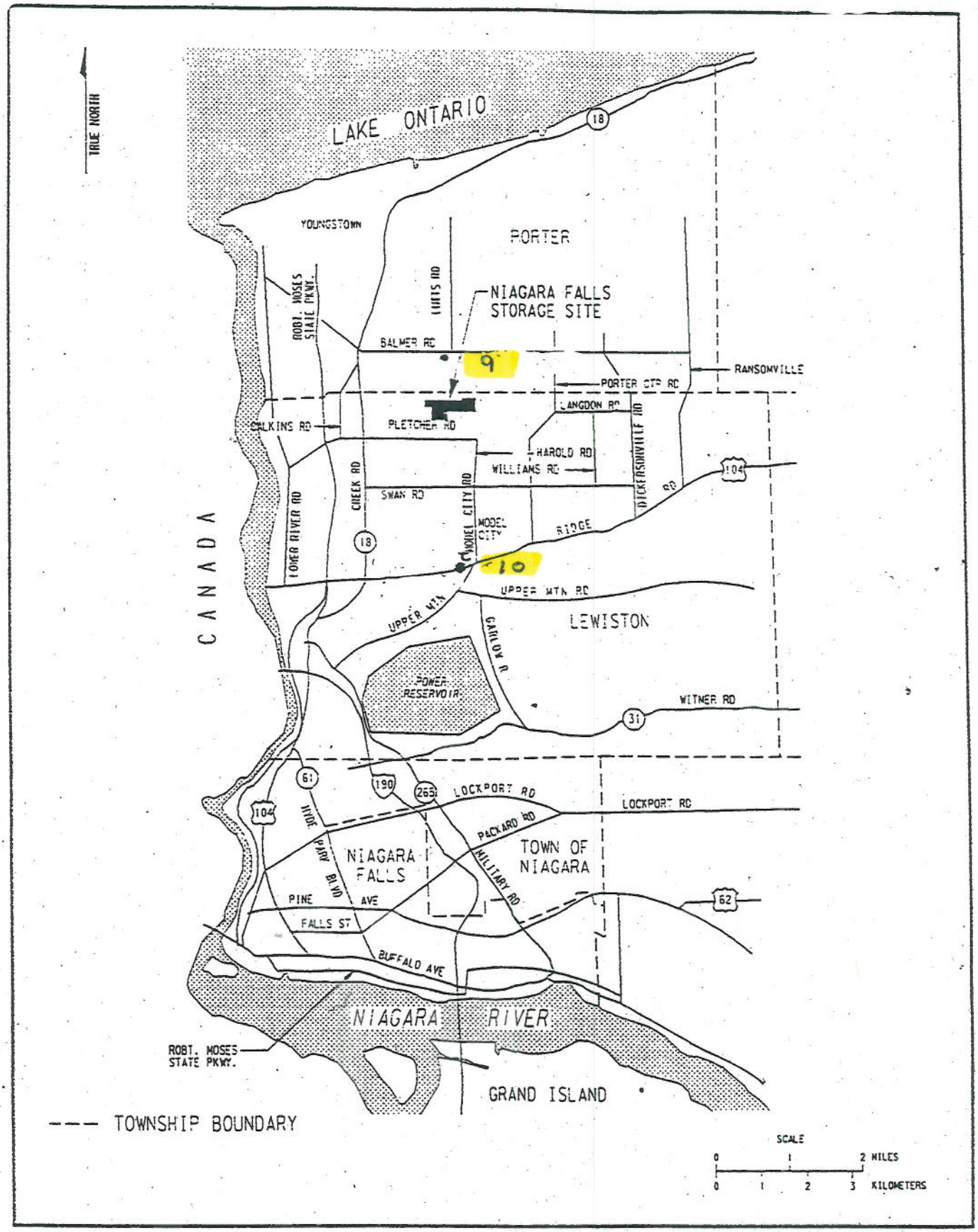
Offisite Locations:

#105 at Lewiston-Porter Central School

#116 Balmer Rd (CWM secondary gate)

#120 Lewiston Water Cntrl Poll. Center

OFF-SITE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TLD LOCATIONS



Location 9 is on the fence along side Balmer Road

Location 10 is at the Town of Lewiston Town Hall

TLD deployment at Niagara Falls Storage Site

Date Deployed	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4
1998'																			
5/11/1998	7/14/1998	7/16/1998	64	1	3131	2211	11.47	11.32	10.61	10.11	10.88	31.02			3219	114.7	113.7	107.1	107.2
5/11/1998	7/14/1998	7/16/1998	64	2	3136	2211	12.12	12.43	10.76	11.15	11.62	33.12			3220	114.0	111.9	107.9	104.6
5/11/1998	7/14/1998	7/16/1998	64	3	3128	2211	12.15	12.33	10.90	10.85	11.56	32.96			3221	113.4	114.1	106.4	102.4
5/11/1998	7/14/1998	7/16/1998	64	4	3132	2211	12.34	12.40	11.34	10.92	11.75	33.51			3222	113.8	112.9	105.1	103.4
5/11/1998	7/14/1998	7/16/1998	64	5	3139	2211	11.90	11.78	10.62	10.80	11.28	32.15			3223	115.0	113.5	105.1	103.1
5/11/1998	7/14/1998	7/16/1998	64	6	3133	2211	12.73	12.58	11.43	11.16	11.98	34.15			3224	114.4	114.5	106.5	104.6
5/11/1998	7/14/1998	7/16/1998	64	7	3135	2211	12.79	12.33	10.97	10.89	11.75	33.49			3225	115.2	114.2	105.2	103.3
5/11/1998	7/14/1998	7/16/1998	64	8	3131	2211	11.47	11.32	10.61	10.11	10.88	31.02			3226	117.8	116.3	107.2	105.7
5/11/1998	7/14/1998	7/16/1998	64	9	3130	2211	11.42	11.08	10.12	10.43	10.76	30.69			3227	118.5	117.4	106.1	104.7
5/11/1998	7/14/1998	7/16/1998	64	10	3137	2211	14.90	14.95	14.39	14.03	14.57	41.54			3228	115.8	115.0	106.3	103.7
															Trip Cards				
															3204	0.52	0.46	0.98	1.11
															3206	0.52	0.45	0.88	0.86
7/14/1998	1/20/1999	1/22/1999	190	1	3210	2211	37.76	38.06	28.68	27.30	32.95	31.65			3220	114.0	112.2	107.1	104.8
7/14/1998	1/20/1999	1/22/1999	190	2	3205	2211	39.84	39.30	29.47	28.92	34.38	33.03			3221	113.2	112.2	106.6	103.1
7/14/1998	1/20/1999	1/22/1999	190	3	3207	2211	39.18	39.07	30.12	28.23	34.15	32.80			3222	114.7	112.9	105.6	102.7
7/14/1998	1/20/1999	1/22/1999	190	4	3208	2211	41.15	41.04	30.56	29.62	35.59	34.19			3223	114.4	113.6	104.6	103.0
7/14/1998	1/20/1999	1/22/1999	190	5	3211	2211	38.73	38.16	29.15	28.33	33.59	32.27			3224	115.1	114.0	106.0	105.1
7/14/1998	1/20/1999	1/22/1999	190	6	3209	2211	40.30	40.73	31.57	29.46	35.52	34.11			3225	115.7	114.3	105.7	103.4
7/14/1998	1/20/1999	1/22/1999	190	7	3140	2211	39.92	40.28	30.36	29.27	34.96	33.58							
7/14/1998	1/20/1999	1/22/1999	190	8	3129	2211	42.66	41.93	32.86	31.88	37.33	35.86			Trip Cards				
7/14/1998	1/20/1999	1/22/1999	190	9	3202	2211	36.48	36.05	27.33	26.41	31.57	30.32			3130	0.75	0.73	1.02	1.10
7/14/1998	1/20/1999	1/22/1999	190	10	3203	2211	49.63	49.47	37.66	36.67	43.36	41.65			3204	0.78	0.71	1.24	1.40
1999'																			
1/20/1999	7/27/1999	7/29/1999	188	1	3132	2211	31.44	31.64	32.43	31.13	31.66	30.73			3219	121.5	120.9	127.3	124.8
1/20/1999	7/27/1999	7/29/1999	188	2	3135	2211	33.49	33.52	33.75	34.16	33.73	32.74			3220	125.6	122.6	129.0	125.1
1/20/1999	7/27/1999	7/29/1999	188	3	3136	2211	33.67	33.86	34.73	34.10	34.09	33.09			3221	124.7	124.0	127.8	125.7
1/20/1999	7/27/1999	7/29/1999	188	4	3131	2211	33.89	33.41	34.97	34.14	34.10	33.10			3224	122.7	121.5	126.0	124.4
1/20/1999	7/27/1999	7/29/1999	188	5	3139	2211	33.13	32.47	33.13	33.29	33.01	32.04			3225	123.1	121.1	124.9	122.5
1/20/1999	7/27/1999	7/29/1999	188	6	3133	2211	34.49	34.22	35.66	34.79	34.79	33.77			3226	124.8	122.0	127.5	125.0
1/20/1999	7/27/1999	7/29/1999	188	7	3128	2211	33.01	33.49	33.64	33.51	33.41	32.44			3227	125.1	122.8	127.0	125.0
1/20/1999	7/27/1999	7/29/1999	188	8	3134	2211	36.39	36.31	37.49	36.51	36.68	35.60			3228	123.8	122.0	126.3	125.2
1/20/1999	7/27/1999	7/29/1999	188	9	3206	2211	31.44	30.36	31.41	30.76	30.99	30.09			Trip Cards				
1/20/1999	7/27/1999	7/29/1999	188	10	3137	2211	42.54	42.10	44.89	44.06	43.40	42.13			3119	0.95	0.89	1.39	1.61
															3123	0.83	0.8	1.37	1.29

Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	# - sigma

Date Deployed 1999'	Date Collected continued	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4	Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
7/27/1999	1/25/2000	1/28/2000	182	1	3121	2211	33.85	33.66	28.12	27.89	30.88	30.96			3219	106.5	107.6	107.0	107.0			
7/27/1999	1/25/2000	1/28/2000	182	2	3116	2211	35.27	35.49	28.11	28.55	31.86	31.94			3220	108.8	108.1	108.4	107.6			
7/27/1999	1/25/2000	1/28/2000	182	3	3117	2211	35.77	35.87	28.68	28.05	32.09	32.18			3221	108.8	108.5	107.3	107.0			
7/27/1999	1/25/2000	1/28/2000	182	4	3124	2211	37.15	36.34	29.07	29.82	33.10	33.19			3222	111.0	108.9	105.5	106.5			
7/27/1999	1/25/2000	1/28/2000	182	5	3115	2211	33.81	34.02	28.05	27.79	30.92	31.00			3223	109.4	109.6	104.6	105.5			
7/27/1999	1/25/2000	1/28/2000	182	6	3118	2211	36.42	36.60	30.05	30.69	33.44	33.53			3224	109.0	108.9	105.3	105.6			
7/27/1999	1/25/2000	1/28/2000	182	7	3122	2211	34.70	34.41	29.26	28.78	31.79	31.87			3225	110.6	110.6	103.9	105.7			
7/27/1999	1/25/2000	1/28/2000	182	8	3114	2211	37.64	38.21	31.48	31.12	34.61	34.71			3226	111.6	109.8	106.8	106.4			
7/27/1999	1/25/2000	1/28/2000	182	9	3120	2211	32.14	32.76	26.87	26.92	29.67	29.75			3227	110.7	110.1	106.3	107.2			
7/27/1999	1/25/2000	1/28/2000	182	10	3125	2211	44.90	44.05	37.01	37.92	40.97	41.08			3228	109.8	108.9	106.4	108.2			
															Trip Cards							
															3154	0.91	0.95	3.03	2.60			
															3157	0.96	0.91	1.59	1.70			
2000'																						
1/25/2000	7/25/2000		182	1	3161	2211	Data	Lost														
1/25/2000	7/25/2000		182	2	3150	2211																
1/25/2000	7/25/2000		182	3	3160	2211																
1/25/2000	7/25/2000		182	4	3151	2211																
1/25/2000	7/25/2000		182	5	3153	2211																
1/25/2000	7/25/2000		182	6	3155	2211																
1/25/2000	7/25/2000		182	7	3152	2211																
1/25/2000	7/25/2000		182	8	3162	2211																
1/25/2000	7/25/2000		182	9	3203	2211																
1/25/2000	7/25/2000		182	10	3148	2211																
7/25/2000	1/11/2001	1/16/2001	170	1	3199	2211	31.18	31.29	25.38	25.85	28.43	30.52	27.60	29.63	3219	107.3	108.2	106.6	106.6			
7/25/2000	1/11/2001	1/16/2001	170	2	3186	2211	31.70	31.98	26.39	26.23	29.08	31.21	28.20	30.27	3220	109.6	108.1	107.7	106.4			
7/25/2000	1/11/2001	1/16/2001	170	3	3192	2211	31.98	32.84	26.85	25.93	29.40	31.56	28.50	30.60	3221	107.9	109.8	107	105.5			
7/25/2000	1/11/2001	1/16/2001	170	4	3193	2211	33.66	33.43	27.33	27.73	30.54	32.78	29.60	31.78	3222	110.6	108.6	105.1	105.4			
7/25/2000	1/11/2001	1/16/2001	170	5	3214	2211	31.94	32.18	25.74	25.87	28.93	31.06	28.00	30.06	3223	109.3	110.1	106	108.8			
7/25/2000	1/11/2001	1/16/2001	170	6	3209	2211	33.35	34.11	27.70	27.40	30.64	32.89	29.70	31.88	3224	110.8	110.9	106.5	106.8			
7/25/2000	1/11/2001	1/16/2001	170	7	3168	2211	32.10	32.29	26.03	26.54	29.24	31.39	28.40	30.49	3225	111.2	110.2	104.8	107			
7/25/2000	1/11/2001	1/16/2001	170	8	3191	2211	34.02	34.52	28.56	28.64	31.44	33.75	30.50	32.74	3226	112.6	112.7	107.7	106			
7/25/2000	1/11/2001	1/16/2001	170	9	3207	2211	29.75	30.02	25.74	24.59	27.53	29.55	26.70	28.66	3227	112.7	110.7	107.5	107.5			
7/25/2000	1/11/2001	1/16/2001	170	10	3178	2211	41.37	41.54	36.37	35.14	38.61	41.44	37.60	40.36	3228	110.5	110	106.8	107.3			
															Trip Cards					3 sigma	30.93 +/- 3.23	**27.70**
															3118	1.71	1.65	1.82	2.2	2 sigma	2.15	28.78
															3120	1.57	1.63	2.54	2.28	1 sigma	1.08	29.86

underline - compared to NCRP bkg (28)
bold is compared to site background

Date Deployed 2001'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYear	Algorithm Results	Algorithm Normalized Data mR/HalfYear	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/11/2001	7/10/2001	7/12/2001	180	1	3117	2211	28.92	29.58	27.60	26.71	28.20	28.59	27.60	27.98	3219	111.0	110.4	108.2	110.2				
1/11/2001	7/10/2001	7/12/2001	180	2	3122	2211	30.54	29.66	28.07	28.44	29.18	29.58	28.50	28.90	3220	114.2	111.5	109.6	108.2				
1/11/2001	7/10/2001	7/12/2001	180	3	3124	2211	30.19	30.52	28.70	29.00	29.60	30.01	29.00	29.40	3221	111.1	113.0	107.6	106.8				
1/11/2001	7/10/2001	7/12/2001	180	4	3125	2211	31.65	31.27	28.62	29.23	30.19	30.61	29.50	29.91	3222	112.7	110.6	104.7	107.3				
1/11/2001	7/10/2001	7/12/2001	180	5	3115	2211	29.01	28.82	26.80	27.44	28.02	28.41	27.40	27.78	3223	110.0	111.2	106.2	108.1				
1/11/2001	7/10/2001	7/12/2001	180	6	3157	2211	31.96	31.76	30.43	29.94	31.02	31.45	30.40	30.82	3224	113.6	112.4	109.0	108.5				
1/11/2001	7/10/2001	7/12/2001	180	7	3116	2211	28.77	28.97	27.56	27.57	28.22	28.61	27.60	27.98	3225	113.3	111.5	107.1	108.7				
1/11/2001	7/10/2001	7/12/2001	180	8	3114	2211	31.89	32.09	30.81	30.84	31.41	31.84	30.80	31.23	3226	114.1	114.3	108.8	108.1				
1/11/2001	7/10/2001	7/12/2001	180	9	3154	2211	28.60	27.06	26.18	26.55	27.10	27.47	26.50	26.87	3227	113.1	110.9	108.5	108.1				
1/11/2001	7/10/2001	7/12/2001	180	10	3121	2211	39.01	38.47	37.61	37.15	38.06	38.59	37.30	37.82	3228	111.5	111.3	107.4	108.8				
															Trip Cards	2 of 4				3 sigma	29.25	+/- 3.98	25.27
															3168	0.69	0.65	0.95	0.97	2 sigma		2.65	**26.60**
															3187	0.71	0.72	1.09	2.13	1 sigma		1.33	27.92
7/10/2001	1/3/2002	1/10/2002	177	1	3120	2211	33.65	33.83	26.84	27.46	30.45	31.39	29.50	30.42	3219	108.9	109.0	108.9	110.8				
7/10/2001	1/3/2002	1/10/2002	177	2	3207	2211	35.12	35.65	28.76	27.59	31.78	32.77	30.80	31.76	3220	112.4	109.2	108.5	109.5				
7/10/2001	1/3/2002	1/10/2002	177	3	3193	2211	35.22	35.66	28.30	28.12	31.83	32.81	30.80	31.76	3221	110.8	112.4	106.8	106.1				
7/10/2001	1/3/2002	1/10/2002	177	4	3191	2211	36.79	36.71	30.02	29.70	33.31	34.34	32.30	33.30	3222	113.2	110.8	106.4	107.2				
7/10/2001	1/3/2002	1/10/2002	177	5	3188	2211	34.32	34.57	27.57	28.02	31.12	32.09	30.20	31.14	3223	110.8	111.7	106.7	108.8				
7/10/2001	1/3/2002	1/10/2002	177	6	3186	2211	36.12	36.42	29.67	28.89	32.78	33.79	31.80	32.79	3224	113.0	111.7	108.5	108.9				
7/10/2001	1/3/2002	1/10/2002	177	7	3118	2211	37.52	37.45	30.26	30.50	33.93	34.99	32.90	33.92	3225	113.0	111.6	107.5	108.4				
7/10/2001	1/3/2002	1/10/2002	177	8	3214	2211	35.04	35.66	27.74	27.59	31.51	32.49	30.50	31.45	3226	113.0	113.2	107.5	107.2				
7/10/2001	1/3/2002	1/10/2002	177	9	3199	2211	32.97	33.03	25.72	26.36	29.52	30.44	28.60	29.49	3227	114.0	111.3	108.0	110.0				
7/10/2001	1/3/2002	1/10/2002	177	10	3178	2211	43.99	44.24	36.92	36.02	40.29	41.54	39.10	40.31	3228	111.4	110.9	108.6	110.4				
															Trip Cards					3 sigma	32.07	+/- 3.52	28.54
															3114	1.39	1.42	1.86	2.00	2 sigma		2.35	29.72
															3121	1.53	1.43	2.05	2.08	1 sigma		1.17	30.89

Date Deployed 2002'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/3/2002	7/9/2002	7/12/2002	187	1	3154	2211	30.43	29.05	28.89	29.49	29.47	28.76	28.90	28.20	3219	105.8	106.2	105.4	105.8				
1/3/2002	7/9/2002	7/12/2002	187	2	3192	2211	29.73	30.15	29.07	28.52	29.37	28.66	28.80	28.11	3220	108.7	106.1	105.4	105.9				
1/3/2002	7/9/2002	7/12/2002	187	3	3168	2211	29.96	30.14	29.77	30.81	30.17	29.44	29.70	28.99	3221	107.9	110.1	104.5	104.0				
1/3/2002	7/9/2002	7/12/2002	187	4	3187	2211	31.13	31.24	29.95	29.76	30.52	29.79	29.90	29.18	3222	109.3	107.4	103.1	103.4				
1/3/2002	7/9/2002	7/12/2002	187	5	3115	2211	28.36	28.17	27.50	27.98	28.00	27.33	27.50	26.84	3223	108.6	110.0	103.7	105.4				
1/3/2002	7/9/2002	7/12/2002	187	6	3209	2211	31.23	31.87	30.80	30.50	31.10	30.35	30.50	29.77	3224	109.5	109.2	105.7	105.7				
1/3/2002	7/9/2002	7/12/2002	187	7	3124	2211	28.30	28.67	27.51	27.97	28.11	27.44	27.60	26.94	3225	109.4	107.9	104.5	105.0				
1/3/2002	7/9/2002	7/12/2002	187	8	3122	2211	32.21	31.85	31.45	31.48	31.75	30.98	31.20	30.45	3226	111.4	112.2	106	105.9				
1/3/2002	7/9/2002	7/12/2002	187	9	3157	2211	28.05	27.63	26.57	26.95	27.30	26.64	26.80	26.16	3227	111.8	109.7	106.7	106.5				
1/3/2002	7/9/2002	7/12/2002	187	10	3117	2211	38.37	38.32	38.67	37.08	38.11	37.19	37.40	36.50	3228	109.5	109.1	104.5	106.3				
															Trip Card	2 of 4				3 sigma	28.56	+/- 3.85	24.71
															3118	0.95	0.84	2.41	3.11	2 sigma		2.57	**25.99**
															3120	0.78	0.78	1.84	22.3	1 sigma		1.28	27.28
7/9/2002	1/7/2003	1/9/2004	182	1	3121	2211	34.01	33.96	27.23	27.06	30.57	30.65	29.60	29.68	3219	106.5	106.8	108.3	109.3				
7/9/2002	1/7/2003	1/9/2004	182	2	3125	2211	35.18	35.08	27.05	27.66	31.24	31.33	30.20	30.28	3220	109.6	107	109.1	109.9				
7/9/2002	1/7/2003	1/9/2004	182	3	3116	2211	35.15	35.26	27.73	27.96	31.53	31.61	30.50	30.58	3221	108.9	110.5	104.8	104.8				
7/9/2002	1/7/2003	1/9/2004	182	4	3207	2211	36.13	36.76	30.06	28.54	32.87	32.96	31.80	31.89	3222	111.4	108.7	104.2	105.3				
7/9/2002	1/7/2003	1/9/2004	182	5	3214	2211	33.82	34.53	26.59	25.95	30.22	30.31	29.20	29.28	3223	109.6	111	105.1	107.5				
7/9/2002	1/7/2003	1/9/2004	182	6	3186*	2211	43.40	43.48	35.26	34.64	39.20	39.30	38.00	38.10	3224	109.5	109.2	106.5	106.7				
7/9/2002	1/7/2003	1/9/2004	182	7	3191	2211	35.20	34.85	28.06	28.17	31.57	31.66	30.60	30.68	3225	110.3	109.1	105.6	105.8				
7/9/2002	1/7/2003	1/9/2004	182	8	3114	2211	36.47	36.81	29.57	29.15	33.00	33.09	32.00	32.09	3226	112.7	113.1	107.6	107				
7/9/2002	1/7/2003	1/9/2004	182	9	3178	2211	32.35	32.60	26.13	25.44	29.13	29.21	28.20	28.28	3227	112.7	110.1	108.1	109.4				
7/9/2002	1/7/2003	1/9/2004	182	10	3186	2211	43.40	43.48	35.26	34.64	39.20	39.30	38.00	38.10	3228	109.5	109.6	105.5	106.9				
				*in notes	3193										Trip Card	2 of 4				3 sigma	31.57	+/- 8.43	23.14
															3110	0.77	0.9	2	2.22	2 sigma		5.62	**25.95**
															3218	0.96	0.92	2.22	2.16	1 sigma		2.81	28.76

Date Deployed 2003	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/7/2003	8/12/2003	8/18/2005	217	1	3165	2211	33.26	33.47	32.56	32.60	32.97	27.73	Can't		3219	108.1	107.6	107.1	109.5				
1/7/2003	8/12/2003	8/18/2005	217	2	3078	2211	33.90	33.14	31.75	33.21	33.00	27.75	get		3220	112.1	109.7	107.1	109.5				
1/7/2003	8/12/2003	8/18/2005	217	3	3166	2211	33.92	33.75	33.43	33.95	33.76	28.39	Algorithm		3221	108.1	110	105.1	105.3				
1/7/2003	8/12/2003	8/18/2005	217	4	3141	2211	34.77	34.55	34.92	35.12	34.84	29.30	Data		3222	109	107.2	104.7	105.4				
1/7/2003	8/12/2003	8/18/2005	217	5	3164	2211	33.09	32.52	31.81	31.70	32.28	27.15			3223	108.6	109.7	105.2	106.7				
1/7/2003	8/12/2003	8/18/2005	217	6	3130	2211	34.41	34.56	33.09	33.50	33.89	28.50			3224	110.6	110.6	107.6	107.1				
1/7/2003	8/12/2003	8/18/2005	217	7	3080	2211	32.62	31.92	31.01	31.53	31.77	26.72			3225	109.5	108.2	105.5	106.1				
1/7/2003	8/12/2003	8/18/2005	217	8	3083	2211	35.48	35.45	34.75	33.98	34.92	29.36			3226	112.2	112.7	106.5	105.9				
1/7/2003	8/12/2003	8/18/2005	217	9	3113	2211	29.22	30.31	29.56	29.06	29.54	24.84			3227	112	109	107.7	106.2				
1/7/2003	8/12/2003	8/18/2005	217	10	3163	2211	44.85	44.34	43.69	44.71	44.40	37.34			3228	108.6	108.3	104.5	106.8				
															Trip Card	2 of 4							
															3090	1.37	1.29	1.74	1.79				
															3112	1.26	1.2	1.98	2.02				
8/12/2003	1/6/2004	1/9/2004	147	1	3108	2211	27.33	27.67	24.31	23.57	25.72	31.93	25.00	31.04	3219	106.7	106.5	106	108.5				
8/12/2003	1/6/2004	1/9/2004	147	2	3091	2211	26.79	26.95	22.95	23.42	25.03	31.07	24.40	30.29	3220	108.6	106.7	105	104.9				
8/12/2003	1/6/2004	1/9/2004	147	3	3104	2211	26.66	27.10	22.80	23.23	24.95	30.97	24.30	30.17	3221	109.3	111.1	107.4	105.4				
8/12/2003	1/6/2004	1/9/2004	147	4	3105	2211	28.38	29.00	24.21	24.33	26.48	32.87	25.70	31.91	3222	*							
8/12/2003	1/6/2004	1/9/2004	147	5	3109	2211	25.86	26.15	22.53	22.64	24.30	30.16	23.70	29.42	3223	*							
8/12/2003	1/6/2004	1/9/2004	147	6	3106	2211	29.05	28.70	24.08	24.55	26.60	33.02	25.80	32.03	3224	109.7	110.3	105	105.9				
8/12/2003	1/6/2004	1/9/2004	147	7	3103	2211	26.44	27.10	22.80	23.23	24.89	30.90	23.80	29.55	3225	113.8	112.3	112.7	115.1				
8/12/2003	1/6/2004	1/9/2004	147	8	3101	2211	29.34	29.24	24.98	26.08	27.41	34.03	26.70	33.15	3226	113.5	111.5	105	105.8				
8/12/2003	1/6/2004	1/9/2004	147	9	3100	2211	24.63	25.49	22.24	22.08	23.61	29.31	23.00	28.55	3227	*							
8/12/2003	1/6/2004	1/9/2004	147	10	3127	2211	35.64	35.19	31.15	31.34	33.33	41.38	32.50	40.35	3228	111.4	109.2	110.6	114.9				
															Trip Card	2 of 4				3 sigma	30.94	+/- 3.97	**26.97**
															3120	0.78	0.78	1.31	1.19	2 sigma		2.65	28.30
															3168	0.71	0.78	1.67	1.56	1 sigma		1.32	29.62

*there were some problems w/irradiator irradiating certain QC cards

Date Deployed 2004'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2 mRem	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/6/2004	7/1/2004	7/2/2004	177	1	3157	2211	27.14	27.53	27.06	26.38	27.03	27.87	24.7	25.47	3219	104.2	104.1	104.77	105.2				
1/6/2004	7/1/2004	7/2/2004	177	2	3187	2211	27.93	27.99	26.29	25.97	27.05	27.89	24.7	25.47	3220	109.2	107.8	105.11	106.2				
1/6/2004	7/1/2004	7/2/2004	177	3	3188	2211	27.38	28.10	27.19	27.02	27.42	28.27	25.1	25.88	3221	105.9	109	105.01	103.6				
1/6/2004	7/1/2004	7/2/2004	177	4	3115	2211	27.47	27.92	26.53	27.37	27.32	28.17	25	25.78	3222	108.1	106.8	103.33	104.7				
1/6/2004	7/1/2004	7/2/2004	177	5	3117	2211	26.53	26.87	26.26	25.48	26.29	27.10	24	24.75	3223	105.6	106.4	104.88	103.7				
1/6/2004	7/1/2004	7/2/2004	177	6	3122	2211	28.87	27.74	27.55	27.04	27.80	28.66	25.4	26.19	3224	109.1	110.6	106.43	105.6				
1/6/2004	7/1/2004	7/2/2004	177	7	3118	2211	26.08	25.69	25.15	26.10	25.76	26.56	23.5	24.23	3225	109.7	108.2	104.95	106.2				
1/6/2004	7/1/2004	7/2/2004	177	8	3199	2211	30.80	30.71	29.39	30.28	30.30	31.24	27.7	28.56	3226	110.8	110.7	105.47	105.2				
1/6/2004	7/1/2004	7/2/2004	177	9	3192	2211	24.74	24.79	24.10	23.91	24.39	25.14	22.3	22.99	3227	107.6	104.9	107.55	106.3				
1/6/2004	7/1/2004	7/2/2004	177	10	3154	2211	37.69	35.18	37.41	37.97	37.06	38.21	33.9	34.95	3228	*							
														*never used	Trip Card	2 of 4				3 sigma	25.79	+/- 3.86	**21.93**
															3184	0.67	0.5	1.12	1.16	2 sigma		2.57	23.22
															3146	0.58	0.64	0.96	0.93	1 sigma		1.29	24.50
7/1/2004	1/4/2005	1/6/2005	187	1	3195	2211	34.48	34.26	27.97	28.40	31.28	30.52	28.6	27.91	3219	108.8	109.5	106.67	109.3				
7/1/2004	1/4/2005	1/6/2005	187	2	3104	2211	34.36	35.43	28.56	28.63	31.75	30.98	29	28.30	3220	109.9	107.6	105.73	106.8				
7/1/2004	1/4/2005	1/6/2005	187	3	3196	2211	35.64	35.85	29.12	28.67	32.32	31.54	28.6	27.91	3221	108.8	109	105.72	104.5				
7/1/2004	1/4/2005	1/6/2005	187	4	3194	2211	35.45	36.25	29.32	28.53	32.39	31.61	29.6	28.89	3222	111.2	107.2	105.84	108.7				
7/1/2004	1/4/2005	1/6/2005	187	5	3208	2211	33.84	34.01	28.45	28.07	31.09	30.34	28.4	27.72	3223	109.2	110.3	104.95	105				
7/1/2004	1/4/2005	1/6/2005	187	6	3205	2211	37.07	36.87	29.89	30.07	33.48	32.67	30.6	29.86	3224	111.2	110.2	105.84	106.9				
7/1/2004	1/4/2005	1/6/2005	187	7	3204	2211	35.23	33.26	27.63	28.83	31.24	30.49	28.5	27.81	3225	110.7	109.7	104.92	105.9				
7/1/2004	1/4/2005	1/6/2005	187	8	3171	2211	35.71	37.36	31.09	31.45	33.90	33.09	31	30.25	3226	113.9	111.6	106.33	106.2				
7/1/2004	1/4/2005	1/6/2005	187	9	3169	2211	31.85	32.09	25.67	26.43	29.01	28.31	26.5	25.86	3227	111.7	109.3	106.91	106.7				
7/1/2004	1/4/2005	1/6/2005	187	10	3180	2211	45.47	45.67	37.88	37.22	41.56	40.56	38	37.09	3228	110.5	109.1	105.9	109.2				
															Trip Card	2 of 4				3 sigma	28.58	+/- 2.97	**25.62**
															3133	0.95	0.75	2.05	1.86	2 sigma		1.98	26.60
															3119	0.85	0.81	1.56	1.66	1 sigma		0.99	27.59

Date Deployed 2005'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/4/2005	6/28/2005	9/7/2005	175	1	3105	2211	29.58	29.90	29.00	28.72	29.30	30.56	26.8	27.95	3219	108.9	109.4	104.14	106.6				
1/4/2005	6/28/2005	9/7/2005	175	2	3193	2211	30.57	30.65	30.30	30.16	30.42	31.72	27.8	28.99	3220	113.8	110.5	105.39	107.2				
1/4/2005	6/28/2005	9/7/2005	175	3	3139	2211	28.38	30.75	30.27	60.71*	29.80	31.08	32.2	33.58	3221	110.5	111.5	104.21	103				
1/4/2005	6/28/2005	9/7/2005	175	4	3134	2211	29.98	30.26	29.59	29.83	29.92	31.20	27.3	28.47	3222	113.4	109.9	103.51	104.8				
1/4/2005	6/28/2005	9/7/2005	175	5	3135	2211	29.47	30.21	30.89	30.22	30.20	31.49	27.6	28.78	3223	111.5	112.3	105.72	106.9				
1/4/2005	6/28/2005	9/7/2005	175	6	3168	2211	31.08	31.28	30.75	30.58	30.92	32.25	28.3	29.51	3224	112.3	111.1	105.99	105.8				
1/4/2005	6/28/2005	9/7/2005	175	7	3137	2211	28.78	29.11	28.59	29.19	28.92	30.16	26.4	27.53	3225	113.9	111.5	104.54	106.6				
1/4/2005	6/28/2005	9/7/2005	175	8	3206	2211	32.80	32.50	32.48	32.87	32.66	34.06	29.9	31.18	3226	113.5	112.6	105.12	103.7				
1/4/2005	6/28/2005	9/7/2005	175	9	3123	2211	27.11	28.00	26.57	27.27	27.24	28.40	24.9	25.97	3227	112.1	109.2	106.48	106				
1/4/2005	6/28/2005	9/7/2005	175	10	3156	2211	38.55	38.99	38.08	38.79	38.60	40.26	35.3	36.81	3228	111.4	111.1	105.24	107.4				
															Trip Card	2 of 4				3 sigma	29.50	+/- 5.96	23.54
															3207	4.86	5.02	5.66	5.22	2 sigma		3.97	**25.53**
															3082	5.3	5.5	6.34	6.17	1 sigma		1.99	27.51
6/28/2005	1/5/2006	1/9/2006	191	1	3116	2211	35.32	35.56	29.55	29.87	32.58	31.13	29.80	28.47	3219	105.5	106.8	107.36	108.6				
6/28/2005	1/5/2006	1/9/2006	191	2	3114	2211	34.84	35.12	29.51	28.84	32.08	30.65	29.30	28.00	3220	112.5	109.4	109.03	110.2				
6/28/2005	1/5/2006	1/9/2006	191	3	3191	2211	34.75	35.19	29.56	29.29	32.20	30.76	29.40	28.09	3221	*							
6/28/2005	1/5/2006	1/9/2006	191	4	3178	2211	37.08	37.04	32.28	30.20	34.15	32.63	31.20	29.81	3222	112.6	110	106.62	108				
6/28/2005	1/5/2006	1/9/2006	191	5	3125	2211	32.25	31.35	29.00	32.80	31.35	29.95	28.60	27.33	3223	107	108,1	108.6	109.8				
6/28/2005	1/5/2006	1/9/2006	191	6	3118	2211	36.57	36.69	29.61	29.60	33.12	31.64	30.30	28.95	3224	110.1	108.5	106.92	106.5				
6/28/2005	1/5/2006	1/9/2006	191	7	3140	2211	34.30	35.01	28.76	29.81	31.97	30.55	29.20	27.90	3225	111.4	110.3	108.78	109.6				
6/28/2005	1/5/2006	1/9/2006	191	8	3081	2211	36.34	37.18	32.02	31.62	34.29	32.76	31.30	29.91	3226	111.1	109.3	106.35	105.3				
6/28/2005	1/5/2006	1/9/2006	191	9	3110	2211	31.51	32.39	26.57	26.11	29.15	27.85	26.60	25.42	3227	110	107.2	108.08	108.5				
6/28/2005	1/5/2006	1/9/2006	191	10	3121	2211	44.64	43.22	37.98	37.08	40.73	38.92	37.20	35.54	3228	107.6	106.9	107.83	109.8				
															Trip Card	2 of 4				3 sigma	28.56	+/- 2.79	25.77
													*never used		3132	1.02	1.1	1.78	1.68	2 sigma		1.86	**26.70**
															3144	1.19	1.28	2.31	2.33	1 sigma		0.93	27.63

Date Deployed 2006'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Average	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/5/2006	6/27/2006	6/29/2006	173	1	3162	2211	29.12	29.49	28.58	29.47	29.17	30.77	26.70	28.17	3219	108.2	109	107.82	109.4				
1/5/2006	6/27/2006	6/29/2006	173	2	3151	2211	30.35	29.51	30.52	30.47	30.21	31.87	27.60	29.12	3220	111.2	108.5	109.29	110				
1/5/2006	6/27/2006	6/29/2006	173	3	3203	2211	30.18	30.20	29.31	29.53	29.81	31.44	27.20	28.69	3221	110.1	110.2	108.89	108.4				
1/5/2006	6/27/2006	6/29/2006	173	4	3155	2211	31.21	30.66	30.79	31.49	31.04	32.74	28.40	29.96	3222	112	108.9	108.73	109.5				
1/5/2006	6/27/2006	6/29/2006	173	5	3131	2211	28.97	29.11	29.63	28.71	29.11	30.70	26.60	28.06	3223	110	111	109.66	108.8				
1/5/2006	6/27/2006	6/29/2006	173	6	3153	2211	30.80	30.29	29.76	30.90	30.44	32.11	27.80	29.33	3224	109.4	109.7	111.03	111.7				
1/5/2006	6/27/2006	6/29/2006	173	7	3149	2211	29.12	29.08	28.47	28.98	28.91	30.50	26.40	27.85	3225	111	109.7	108,05	109.4				
1/5/2006	6/27/2006	6/29/2006	173	8	3120	2211	31.97	32.74	31.71	32.80	32.31	34.08	29.50	31.12	3226	113.9	111.9	108.91	108.5				
1/5/2006	6/27/2006	6/29/2006	173	9	3150	2211	26.51	27.10	26.31	27.14	26.77	28.23	24.50	25.85	3227	112.6	109.6	111.01	110.2				
1/5/2006	6/27/2006	6/29/2006	173	10	3148	2211	39.05	38.76	38.64	39.13	38.90	41.03	35.50	37.45	3228	110.6	109.8	108.84	111.5				
															Trip Card	2 of 4				3 sigma	29.04	+/- 3.31	**25.73**
															3114	0.57	0.59	0.98	0.93	2 sigma		2.21	26.83
															3168	0.68	0.63	1.18	1.15	1 sigma		1.10	27.93
6/27/2006	1/9/2007	1/11/2007	196	1	3121	2211	36.39	35.98	30.53	30.85	33.44	31.13	30.50	28.40	3219	106.8	107.7	108.97	111.2				
6/27/2006	1/9/2007	1/11/2007	196	2	3132	2211	36.90	37.70	30.68	30.44	33.93	31.59	31.00	28.86	3220	112.2	109	108.89	109.7				
6/27/2006	1/9/2007	1/11/2007	196	3	3193	2211	36.73	36.91	30.55	30.72	33.73	31.40	30.80	28.68	3221	110.4	110.4	108.43	108.1				
6/27/2006	1/9/2007	1/11/2007	196	4	3081	2211	37.59	37.66	31.17	31.28	34.43	32.05	31.40	29.24	3222	110.6	107.2	107.9	108				
6/27/2006	1/9/2007	1/11/2007	196	5	3134	2211	36.64	36.72	30.16	30.50	33.51	31.20	30.60	28.49	3223	110.1	111	108.47	108.5				
6/27/2006	1/9/2007	1/11/2007	196	6	3082	2211	38.57	37.72	33.73	32.15	35.54	33.09	32.50	30.26	3224	111.7	109.9	109.28	109.1				
6/27/2006	1/9/2007	1/11/2007	196	7	3110	2211	35.12	35.62	30.17	29.76	32.67	30.42	29.80	27.75	3225	110.2	109.5	107.51	108.3				
6/27/2006	1/9/2007	1/11/2007	196	8	3135	2211	40.07	41.17	34.12	34.67	37.51	34.92	34.30	31.94	3226	112.99	111.1	108,57	107.9				
6/27/2006	1/9/2007	1/11/2007	196	9	3178	2211	33.13	33.44	31.51	28.74	31.71	29.52	29.00	27.00	3227	111.3	108.2	109.44	108.8				
6/27/2006	1/9/2007	1/11/2007	196	10	3144	2211	46.40	45.63	39.30	39.60	42.73	39.79	39.00	36.31	3228	108.4	106.1	107.53	110.3				
															Trip Card	2 of 4				3 sigma	29.20	+/- 3.97	25.23
															3218	1.01	0.98	1.99	1.97	2 sigma		2.65	**26.56**
															3186	0.81	0.78	2.03	1.71	1 sigma		1.32	27.88

Date Deployed 2007'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
1/9/2007	7/9/2007	7/13/2007	181	1	3208	2211	29.08	29.56	28.57	28.47	28.92	29.16	26.40	26.62	3219	109.2	109.2	107.47	110.1				
1/9/2007	7/9/2007	7/13/2007	181	2	3154	2211	30.15	28.65	29.63	29.99	29.61	29.85	27.10	27.32	3220	113.7	109.7	109.22	110				
1/9/2007	7/9/2007	7/13/2007	181	3	3198	2211	28.95	29.97	28.97	29.28	29.29	29.54	26.60	26.82	3221	112.5	111.8	108.95	107.9				
1/9/2007	7/9/2007	7/13/2007	181	4	3116	2211	29.83	30.16	29.54	29.67	29.80	30.05	27.20	27.43	3222	115.4	110.6	108.97	108.9				
1/9/2007	7/9/2007	7/13/2007	181	5	3196	2211	28.43	28.27	28.44	28.24	28.35	28.58	25.90	26.11	3223	111.2	112	109.23	108.6				
1/9/2007	7/9/2007	7/13/2007	181	6	3214	2211	29.54	30.70	30.01	29.36	29.90	30.15	27.30	27.53	3224	113.7	112	109.78	110				
1/9/2007	7/9/2007	7/13/2007	181	7	3123	2211	26.65	27.25	26.80	27.39	27.02	27.25	24.70	24.90	3225	114.4	112.7	109.37	109.8				
1/9/2007	7/9/2007	7/13/2007	181	8	3114	2211	29.93	30.78	31.30	30.73	30.69	30.94	28.00	28.23	3226	*							
1/9/2007	7/9/2007	7/13/2007	181	9	3207	2211	25.44	25.77	26.89	25.87	25.99	26.21	23.80	24.00	3227	113.7	110.8	109.97	109.5				
1/9/2007	7/9/2007	7/13/2007	181	10	3137	2211	37.80	37.67	37.97	38.03	37.87	38.18	35.60	35.90	3228	111.2	110.2	107.92	110.9				
															Trip Card	2 of 4				3 sigma	26.87	+/- 3.06	**23.81**
													*never used		3132	1.39	1.41	2.67	2.02	2 sigma		2.04	24.83
															3110	1.29	1.51	1.72	1.63	1 sigma		1.02	25.85
7/9/2007	12/18/2007	12/20/2007	162	1	3195	2211	29.82	31.03	29.10	28.61	29.64	33.39	27.10	30.53	3219	103.4	105.4	111.94	113.1				
7/9/2007	12/18/2007	12/20/2007	162	2	3121	2211	30.96	31.22	28.30	27.89	29.59	33.34	27.00	30.42	3220	113.6	110.4	113.93	115.2				
7/9/2007	12/18/2007	12/20/2007	162	3	3156	2211	28.52	29.46	26.05	26.55	27.65	31.14	25.30	28.50	3221	107.2	107.7	110.47	108.6				
7/9/2007	12/18/2007	12/20/2007	162	4	3144	2211	32.80	34.30	29.70	29.46	31.57	35.56	28.80	32.44	3222	111.6	107.9	108.93	109.7				
7/9/2007	12/18/2007	12/20/2007	162	5	3105	2211	30.75	30.98	27.81	27.42	29.24	32.94	26.70	30.08	3223	110.7	112.4	114.28	113.2				
7/9/2007	12/18/2007	12/20/2007	162	6	3134	2211	33.10	33.32	29.41	29.27	31.28	35.23	28.60	32.22	3224	113.1	112.5	114.9	114				
7/9/2007	12/18/2007	12/20/2007	162	7	3105	2211	33.07	32.54	28.46	28.59	30.67	34.55	26.70	30.08	3225	108.1	107.8	112.1	112.7				
7/9/2007	12/18/2007	12/20/2007	162	8	3218	2211	32.70	33.45	29.88	29.99	31.51	35.49	28.80	32.44	3226	110.7	110.2	113.5	112.3				
7/9/2007	12/18/2007	12/20/2007	162	9	3186	2211	31.50	32.40	28.76	27.62	30.07	33.88	27.50	30.98	3227	113.2	111.6	116.45	115.3				
7/9/2007	12/18/2007	12/20/2007	162	10	3178	2211	36.04	36.09	36.48	34.85	35.87	40.40	32.80	36.95	3228	*							
													*never used		Trip Card	2 of 4				3 sigma	30.84	+/- 4.24	26.60
															3207	0.74	0.76	1.62	1.74	2 sigma		2.82	28.02
															3132	0.77	0.75	2.78	2.12	1 sigma		1.41	**29.43**

Date Deployed 2008'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
12/18/2007	7/1/2008	7/7/2008	196	1	3116	2211	32.40	33.28	33.01	33.00	32.92	30.65	30.10	28.03	3219	110.2	111.5	113.71	114.7				
12/18/2007	7/1/2008	7/7/2008	196	2	3081	2211	31.88	32.52	33.18	33.47	32.76	30.51	29.90	27.84	3220	117.4	114.3	114.94	116.6				
12/18/2007	7/1/2008	7/7/2008	196	3	3208	2211	33.33	33.65	33.64	34.06	33.67	31.35	30.80	28.68	3221	113.4	114.3	113.25	112				
12/18/2007	7/1/2008	7/7/2008	196	4	3169	2211	33.77	34.49	33.52	34.87	34.16	31.81	31.20	29.05	3222	115.6	112.8	113.13	113.2				
12/18/2007	7/1/2008	7/7/2008	196	5	3135	2211	32.03	33.51	33.21	33.81	33.14	30.86	30.30	28.21	3223	115.1	116.9	115.01	113.4				
12/18/2007	7/1/2008	7/7/2008	196	6	3214	2211	33.55	35.00	34.41	33.66	34.16	31.80	31.20	29.05	3224	115.2	115	115.81	116				
12/18/2007	7/1/2008	7/7/2008	196	7	3114	2211	29.69	30.68	31.43	30.78	30.65	28.53	28.00	26.07	3225	115.2	115	113.21	114				
12/18/2007	7/1/2008	7/7/2008	196	8	3110	2211	34.04	35.62	36.48	35.45	35.40	32.96	32.40	30.17	3226	118.2	117.1	114.72	112.4				
12/18/2007	7/1/2008	7/7/2008	196	9	3198	2211	29.52	30.19	30.37	29.89	29.99	27.93	27.40	25.51	3227	117.2	115.5	116.8	115.1				
12/18/2007	7/1/2008	7/7/2008	196	10	3137	2211	43.65	43.58	43.94	45.37	44.14	41.10	40.30	37.52	3228	*							
															Trip Card	2 of 4				3 sigma	28.39	+/- 3.58	**24.81**
													*never used		3082	1.48	1.67	2.42	2.54	2 sigma		2.39	26.00
															3132					1 sigma		1.19	27.19
7/1/2008	12/17/2008	12/30/2008	169	1	3203	2211	32.61	33.37	31.09	30.02	31.77	34.31	29.00	31.32	3219	111.9	113.7	119.17	118.8				
7/1/2008	12/17/2008	12/30/2008	169	2	3148	2211	33.83	33.75	31.41	31.77	32.69	35.30	29.90	32.29	3220	111.5	109	117.99	117.9				
7/1/2008	12/17/2008	12/30/2008	169	3	3191	2211	32.86	32.75	31.34	31.37	32.08	34.64	29.30	31.64	3221	112.5	112.6	117.11	116.5				
7/1/2008	12/17/2008	12/30/2008	169	4	3155	2211	33.34	33.47	36.87	31.93	33.90	36.61	31.00	33.48	3222	115.3	111.8	117.17	117.3				
7/1/2008	12/17/2008	12/30/2008	169	5	3140	2211	31.35	33.27	30.49	30.37	31.37	33.88	28.70	30.99	3223	108.5	109.5	118.65	116.1				
7/1/2008	12/17/2008	12/30/2008	169	6	3149	2211	33.85	33.96	32.83	32.64	33.32	35.98	30.40	32.83	3224	115.4	114.7	120.01	118,16				
7/1/2008	12/17/2008	12/30/2008	169	7	3082	2211	**								3225	112.9	112.9	118.57	118.2				
7/1/2008	12/17/2008	12/30/2008	169	8	3162	2211	34.21	34.79	32.79	34.41	34.05	36.77	31.10	33.58	3226	115.7	114.6	118.6	115				
7/1/2008	12/17/2008	12/30/2008	169	9	3120	2211	30.23	31.22	28.16	28.73	29.59	31.95	27.00	29.16	3227	112.3	110.2	120.17	119.1				
7/1/2008	12/17/2008	12/30/2008	169	10	3168	2211	40.91	41.03	40.36	39.30	40.40	43.63	36.90	39.85	3228	*							
	**when opened case for counting missing from case so must have never packed												*never used		Trip Card	2 of 4				3 sigma	32.30	+/- 3.10	**29.20**
															3150	3.3	3.43	4.55	4.35	2 sigma		2.07	30.23
															3119	3.25	3.27	4.84	4.84	1 sigma		1.03	31.27

Date Deployed 2009'	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
12/17/2008	7/1/2009	7/7/2009	196	1	3109	2211	32.81	33.15	32.30	31.93	32.55	30.31	29.70	27.65	3219	108.7	111.1	106.17	107				
12/17/2008	7/1/2009	7/7/2009	196	2	3196	2211	33.94	34.54	32.92	32.46	33.47	31.16	30.60	28.49	3220	113.5	111.5	106.45	106.4				
12/17/2008	7/1/2009	7/7/2009	196	3	3131	2211	33.55	34.32	32.94	32.23	33.26	30.97	30.40	28.31	3221	111.8	112.7	104.58	103.5				
12/17/2008	7/1/2009	7/7/2009	196	4	3123	2211	33.77	35.44	32.15	32.54	33.48	31.17	30.60	28.49	3222	113.9	111.6	104.89	104.2				
12/17/2008	7/1/2009	7/7/2009	196	5	3104	2211	31.47	33.16	31.95	32.11	32.17	29.96	29.40	27.38	3223	110.6	111.8	106.1	103.9				
12/17/2008	7/1/2009	7/7/2009	196	6	3180	2211	34.76	35.96	33.98	33.15	34.46	32.09	31.50	29.33	3224	114.2	113.3	107.62	106.6				
12/17/2008	7/1/2009	7/7/2009	196	7	3194	2211	32.09	33.44	32.80	31.95	32.57	30.33	29.80	27.75	3225	113.2	113.9	105.73	105.5				
12/17/2008	7/1/2009	7/7/2009	196	8	3177	2211	35.37	36.95	34.96	35.16	35.61	33.16	32.50	30.26	3226	116	115.4	106.29	104.3				
12/17/2008	7/1/2009	7/7/2009	196	9	3204	2211	31.55	30.36	29.40	30.29	30.40	28.31	27.80	25.89	3227	115.1	113.6	117.07	116.1				
12/17/2008	7/1/2009	7/7/2009	196	10	3161	2211	43.41	43.49	43.24	44.05	43.55	40.55	39.80	37.06	3228	*							
													*never used		Trip Card	2 of 4				3 sigma	28.46	+/- 2.86	**25.60**
															3214	1.82	1.75	1.87	2.02	2 sigma		1.91	26.55
															3121	1.72	1.55	2.01	2.3	1 sigma		0.95	27.50
7/1/2009	12/17/2009	12/22/2009	169	1	3218	2211	33.20	33.77	27.31	26.49	30.19	32.60	27.60	29.80	3219	112	114.9	104.38	104.3				
7/1/2009	12/17/2009	12/22/2009	169	2	3144	2211	33.52	34.32	27.38	27.18	30.60	33.04	27.90	30.13	3220	117.5	115.1	107.13	100				
7/1/2009	12/17/2009	12/22/2009	169	3	3207	2211	32.87	33.64	27.66	26.32	30.12	32.53	27.50	29.70	3221	114.4	115.4	103.25	102.4				
7/1/2009	12/17/2009	12/22/2009	169	4	3156	2211	33.60	34.70	26.89	27.72	30.73	33.18	28.10	30.34	3222	118.3	114.8	105.89	105.6				
7/1/2009	12/17/2009	12/22/2009	169	5	3193	2211	33.03	33.70	27.35	27.05	30.28	32.70	27.70	29.91	3223	114.2	115.6	105.01	103.3				
7/1/2009	12/17/2009	12/22/2009	169	6	3154	2211	36.04	34.97	28.48	29.53	32.26	34.83	29.50	31.86	3224	117.2	116.4	104.85	103.7				
7/1/2009	12/17/2009	12/22/2009	169	7	3195	2211	32.98	33.22	26.68	25.82	29.68	32.05	27.10	29.26	3225	117.5	117.4	106.82	106.7				
7/1/2009	12/17/2009	12/22/2009	169	8	3132	2211	35.02	36.54	29.12	28.26	32.24	34.81	29.40	31.75	3226	120.7	119.1	107.11	104.9				
7/1/2009	12/17/2009	12/22/2009	169	9	3205	2211	30.95	30.71	24.24	24.35	27.56	29.76	25.20	27.21	3227	118.9	116.7	109.32	108.9				
7/1/2009	12/17/2009	12/22/2009	169	10	**	2211									3228	118.6	119.1	110.51	112.2				
					** Holder and TLD was missing from gas main										Trip Card	2 of 4				3 sigma	30.34	+/- 2.86	**27.48**
															3186	1.85	1.79	2.61	2.44	2 sigma		1.91	28.44
															3177	1.83	2.05	3.05	3	1 sigma		0.95	29.39

Date Deployed 2010	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100	Chip 2	Chip3 mRem	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
12/17/2009	6/22/2010	6/25/2010	187	1	3214	2211	30.99	32.44	29.95	29.08	30.62	29.88	28.00	27.33	3219	109	109.2	106.49	107.2				
12/17/2009	6/22/2010	6/25/2010	187	2	3131	2211	30.47	31.01	30.14	29.27	30.22	29.50	27.60	26.94	3220	115.4	110.9	107.9	108.7				
12/17/2009	6/22/2010	6/25/2010	187	3	3196	2211	31.51	31.15	30.65	29.86	30.79	30.05	28.10	27.42	3221	111.2	110	106.27	104.9				
12/17/2009	6/22/2010	6/25/2010	187	4	3191	2211	30.62	30.27	31.69	31.07	30.91	30.17	28.30	27.62	3222	113.5	109	106.09	105.5				
12/17/2009	6/22/2010	6/25/2010	187	5	3109	2211	28.37	28.30	27.82	28.06	28.14	27.46	25.70	25.08	3223	111.6	111.9	108.46	105.6				
12/17/2009	6/22/2010	6/25/2010	187	6	3121	2211	31.42	31.07	30.74	30.17	30.85	30.11	28.20	27.52	3224								
12/17/2009	6/22/2010	6/25/2010	187	7	3194	2211	28.61	29.56	28.96	28.47	28.90	28.20	26.40	25.76	3225	110.9	109.7	105.32	106.7				
12/17/2009	6/22/2010	6/25/2010	187	8	3168	2211	32.91	32.80	32.34	31.98	32.51	31.73	29.70	28.99	3226	113.9	111.7	107.7	104.8				
12/17/2009	6/22/2010	6/25/2010	187	9	3134	2211	26.86	27.58	26.11	25.67	26.56	25.92	24.30	23.72	3227	112.7	109.1	108.23	107.4				
12/17/2009	6/22/2010	6/25/2010	187	10	**	2211									3228	113.8	111.7	109.83	111.1				
															Trip Cards					3 sigma	27.08	+/- 3.59	**23.49**
															3120	1.47	1.38	1.85	1.83	2 sigma		2.40	24.69
															3123	1.47	1.48	2	1.83	1 sigma		1.20	25.88
6/22/2010	12/21/2010	12/29/2010	182	1	3161	2211	33.36	33.69	26.14	28.10	30.32	30.41	27.70	27.78	3219	106.9	108.3	104.56	106.4				
6/22/2010	12/21/2010	12/29/2010	182	2	3150	2211	32.81	33.29	29.13	29.85	31.27	31.36	28.60	28.68	3220	107.7	104.4	104.43	103.5				
6/22/2010	12/21/2010	12/29/2010	182	3	3178	2211	34.51	34.70	30.32	29.10	32.16	32.25	29.40	29.48	3221	108.8	107.3	88.08	87.81				
6/22/2010	12/21/2010	12/29/2010	182	4	3198	2211	34.27	34.80	29.73	28.61	31.85	31.94	29.10	29.18	3222	111.3	106.5	99.08	93.75				
6/22/2010	12/21/2010	12/29/2010	182	5	3081	2211	31.84	31.95	26.97	27.29	29.51	29.59	27.00	27.07	3223	106.4	106.5	104.63	101.9				
6/22/2010	12/21/2010	12/29/2010	182	6	3148	2211	33.16	34.15	30.58	30.29	32.05	32.13	29.30	29.38	3224	113.2	111.1	108.55	107.7				
6/22/2010	12/21/2010	12/29/2010	182	7	3135	2211	32.98	34.16	28.23	28.18	30.89	30.97	28.20	28.28	3225	111.8	110.8	106.66	106.4				
6/22/2010	12/21/2010	12/29/2010	182	8	3203	2211	37.10	37.99	26.60	25.55	31.81	31.90	29.30	29.38	3226	114.3	112.2	107.65	103.8				
6/22/2010	12/21/2010	12/29/2010	182	9	3169	2211	31.63	32.18	30.89	22.00	29.18	29.26	26.70	26.77	3227	113.1	110	109.2	108.2				
6/22/2010	12/21/2010	12/29/2010	182	10	3140	2211	37.57	39.77	32.15	32.14	35.41	35.50	32.30	32.39	3228	112.2	110.8	110.96	110.9				
															Trip Cards					3 sigma	28.65	+/- 2.64	**26.01**
															3134	2.52	2.77	3.49	3.55	2 sigma		1.76	26.89
																				1 sigma		0.88	27.77

** Holder and TLD was missing from gas main

Date Deployed	Date Collected	Date Counted	Elapsed Days	Loc.	Card #	Type	Chip 1	Chip2	Chip 3	Chip 4	Avg	Normalized Data mR/HalfYr	Algorithm Results	Algorithm Normalized Data mR/HalfYr	Q C Cards	Chip 1 Irradiated to 100 mRem	Chip 2	Chip3	Chip4		Algorithm Nor.Data Average mR/HalfYr	+/- sigma Deviation	
2011																							
12/21/2010	6/21/2011	6/27/2011	182	1	3191	2211	30.90	30.54	30.38	29.82	30.41	30.49	27.80	27.88	3219	107.1	108.1	104.93	105.5				
12/21/2010	6/21/2011	6/27/2011	182	2	3196	2211	29.87	30.25	29.59	29.23	29.74	29.82	27.20	27.27	3220								
12/21/2010	6/21/2011	6/27/2011	182	3	3154	2211	30.23	29.63	30.67	30.21	30.19	30.27	27.60	27.68	3221	109.7	109.5	108.52	103.9				
12/21/2010	6/21/2011	6/27/2011	182	4	3121	2211	30.36	29.37	29.59	29.63	29.74	29.82	27.20	27.27	3222	112.2	108.4	105.57	104.1				
12/21/2010	6/21/2011	6/27/2011	182	5	3214	2211	27.12	28.12	28.50	27.34	27.77	27.85	25.40	25.47	3223	110.1	109	107.08	104.7				
12/21/2010	6/21/2011	6/27/2011	182	6	3207	2211	*								3224	103.5	104.6	107.05	106.1				
12/21/2010	6/21/2011	6/27/2011	182	7	3131	2211	26.36	26.13	28.14	27.62	27.06	27.14	24.70	24.77	3225	101.6	99.37	105.9	104.7				
12/21/2010	6/21/2011	6/27/2011	182	8	3168	2211	31.50	32.25	32.33	31.60	31.92	32.01	29.20	29.28	3226	106.8	103	106.38	103.5				
12/21/2010	6/21/2011	6/27/2011	182	9	3109	2211	25.42	25.47	26.74	32.91	27.64	27.71	25.30	25.37	3227	110.6	107.9	107.72	105.2				
12/21/2010	6/21/2011	6/27/2011	182	10	3123	2211	32.62	33.06	33.41	32.92	33.00	33.09	30.20	30.28	3228	111.8	110.8	108.25	108.8				
					*was not changed out										Trip Cards					3 sigma	27.09	+/- 4.56	22.53
															3195	1.56	1.49	2.54	2.09	2 sigma		3.04	**24.05**
															3169	1.48	1.5	2.23	2.48	1 sigma		1.52	25.57
6/21/2011	12/21/2011	1/3/2012	183	1	3150	2211	33.10	33.21	25.99	29.59	30.47	30.39	27.80	27.72	3219	93.44	93.55	99.6	99.9				
6/21/2011	12/21/2011	1/3/2012	183	2	3134	2211	33.36	33.97	29.57	28.85	31.44	31.35	28.70	28.62	3220	95.59	92.26	97.68	96.98				
6/21/2011	12/21/2011	1/3/2012	183	3	3161	2211	32.90	33.40	29.31	32.54	32.04	31.95	29.30	29.22	3221	94.64	92.25	96.64	95.72				
6/21/2011	12/21/2011	1/3/2012	183	4	3148	2211	34.89	35.03	29.52	30.25	32.42	32.33	29.60	29.52	3222	87.97	86.77	96.15	96.16				
6/21/2011	12/21/2011	1/3/2012	183	5	3180	2211	34.13	34.60	29.83	29.09	31.91	31.83	29.20	29.12	3223	92.31	92.8	87.03	86.55				
12/21/2010	12/21/2011	1/3/2012	365	6	3207	2211	59.17	59.54	57.69	59.27	58.92	29.46	53.80	26.90	3224	92.09	89.31	94.61	94.23				
6/21/2011	12/21/2011	1/3/2012	183	7	3178	2211	34.63	34.72	31.01	30.35	32.68	32.59	29.90	29.82	3225	87.12	86.99	91.24	91.21				
6/21/2011	12/21/2011	1/3/2012	183	8	3203	2211	36.96	36.59	30.37	30.26	33.55	33.45	30.60	30.52	3226	96.92	95	98.37	96.13				
6/21/2011	12/21/2011	1/3/2012	183	9	3140	2211	29.66	30.85	26.23	26.36	28.28	28.20	25.80	25.73	3227	94.02	90.42	95.26	95.06				
6/21/2011	12/21/2011	1/4/2012	183	10	3198	2211	36.68	36.84	33.50	32.84	34.97	34.87	31.90	31.81	3228	95.91	93.92	99.29	100.9				
																				3 sigma	28.93	+/- 3.48	**25.45**
																				2 sigma		2.32	26.61
																				1 sigma		1.16	27.77

Average of all location 9 backgrounds		26.61	1.96
Average of all locations	4855.55	29.25	2.13

	location 1.00	location 2.00	location 3	location 4.00	location 5.00	location 6.00	location 7.00	ocation 8.00	location 9.00	location 10.00	Avg
1	29.63	30.27	30.60	31.78	30.06	31.88	30.49	32.74	28.66	40.36	30.93
2	27.98	28.90	29.40	29.91	27.78	30.82	27.98	31.23	26.87	37.82	29.25
3	30.42	31.76	31.76	33.30	31.14	32.79	33.92	31.45	29.49	40.31	32.07
4	28.20	28.11	28.99	29.18	26.84	29.77	26.94	30.45	26.16	36.50	28.56
5	29.68	30.28	30.58	31.89	29.28	38.10	30.68	32.09	28.28	38.10	31.57
6	31.04	30.29	30.17	31.91	29.42	32.03	29.55	33.15	28.55	40.35	30.95
7	25.47	25.47	25.88	25.78	24.75	26.19	24.23	28.56	22.99	34.95	25.79
8	27.91	28.30	27.91	28.89	27.72	29.86	27.81	30.25	25.86	37.09	28.58
9	27.95	28.99	33.58	28.47	28.78	29.51	27.53	31.18	25.97	36.81	29.50
10	28.47	28.00	28.09	29.81	27.33	28.95	27.90	29.91	25.42	35.54	28.56
11	28.17	29.12	28.69	29.96	28.06	29.33	27.85	31.12	25.85	37.45	29.04
12	28.40	28.86	28.68	29.24	28.49	30.26	27.75	31.94	27.00	36.31	29.20
13	26.62	27.32	26.82	27.43	26.11	27.53	24.90	28.23	24.00	35.90	26.87
14	30.53	30.42	28.50	32.44	30.08	32.22	30.08	32.44	30.98	36.95	30.84
15	28.03	27.84	28.68	29.05	28.21	29.05	26.07	30.17	25.51	37.52	28.39
16	31.32	32.29	31.64	33.48	30.99	32.83		33.58	29.16	39.85	32.30
17	27.65	28.49	28.31	28.49	27.38	29.33	27.75	30.26	25.89	37.06	28.46
18	29.80	30.13	29.70	30.34	29.91	31.86	29.26	31.75	27.21		30.34
19	27.33	26.94	27.42	27.62	25.08	27.52	25.76	28.99	23.72		27.08
20	27.78	28.68	29.48	29.18	27.07	29.38	28.28	29.38	26.77	32.39	28.65
21	27.88	27.27	27.68	27.27	25.47		24.77	29.28	25.37	30.28	27.09
22	27.72	28.62	29.22	29.52	29.12	26.90	29.82	30.52	25.73	31.81	28.93
SUM	627.98	636.35	641.78	654.94	619.07	636.11	589.32	678.67	585.44	733.35	
AVG	28.54	28.93	29.17	29.77	28.14	30.29	28.06	30.85	26.61	36.67	
STDEV	1.45	1.59	1.75	2.01	1.81	2.61	2.29	1.47	1.96	2.75	