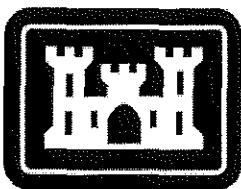


**FUSRAP
NIAGARA FALLS STORAGE SITE**

2008

(December 18, 2007 to December 17, 2008)

**ENVIRONMENTAL SURVEILLANCE
TECHNICAL MEMORANDUM**



**US Army Corps
of Engineers ®**
Buffalo District

November 2009

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ACRONYMS

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
CAP88-PC	Clean Air Act Assessment Package – 1988 (USEPA)
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CY	Calendar Year
DCG	derived concentration guide
DOH	Department of Health
EML	Environmental Measurements Laboratory
ESP	environmental surveillance plan
FFA	federal facility agreement
ft	feet
FS	feasibility study
FSRD	Former Sites Restoration Division
FUSRAP	Formerly Utilized Sites Remedial Action Program
IG	instruction guide
IWCS	interim waste containment structure
km	kilometers
LWBZ	Lower Water Bearing Zone
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
NEPA	National Environmental Policy Act
NESHAPs	National Emission Standards for Hazardous Air Pollutants (USEPA)
NFSS	Niagara Falls Storage Site
NIST	National Institute for Standards and Technology
NPDES	National Pollutant Discharge Elimination System
NYSDEC	New York State Department of Environmental Conservation
OSL	optically stimulated luminescence
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
RI	remedial investigation

ACRONYMS (continued)

ROD	Record of Decision
RPD	relative percent difference
SDWA	Safe Drinking Water Act
SMCLS	secondary maximum contaminant levels
TDS	total dissolved solids
TETLD	tissue-equivalent thermo luminescent dosimeter
TLD	thermo luminescent dosimeter
USACE	United States Army Corps of Engineers
USAEC	United States Atomic Energy Commission
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
USNRC	United States Nuclear Regulatory Commission
UWBZ	Upper Water Bearing Zone
VOC	Volatile Organic Compound
yd ³	cubic yard

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 to protect human health and the environment at the NFSS. This Technical Memorandum is published annually by the Buffalo District.

Key Findings: This Technical Memorandum documents the evaluation of environmental data collected at the NFSS throughout the calendar year 2008. The Corps evaluation of this data indicates that measured parameters were within U.S. Department of Energy (USDOE) guidelines and calculated exposure rates to the general public were well within regulatory limits. The 2008 data confirm that site controls are continuing to perform as designed and are fully protective of human health and the environment.

Site Description: The NFSS is located at 1397 Pletcher Road in the Town of Lewiston, NY, approximately 19 miles 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) 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.

Background: In 1974, the AEC, a predecessor to the USDOE, instituted the Formerly Utilized Sites Remedial Action Program (FUSRAP). This program is now managed by the USACE to identify, investigate, and clean up or control sites throughout the United States that were part of the Nation's early atomic weapons and energy programs or from commercial nuclear operations that Congress has authorized to be remediated under FUSRAP. In October 1997, Congress transferred the responsibility for FUSRAP from the USDOE to the USACE. 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.

The ESP at the NFSS was initiated by the USDOE in 1981 to monitor radioactive waste and residues stored on site in the IWCS. The program included the sampling of air, water, and sediments for radiological and chemical parameters with the purpose of ensuring that the NFSS did not pose a threat to human health and the environment. The USACE has continued to follow the USDOE program with some revisions over the years. Modification of the program in 2008 reflects the findings of the recently completed Remedial Investigation (RI) Report (December 2007).

Prior to transfer of the FUSRAP to the USACE in 1997, the USDOE prepared reports based on USDOE Orders and guidance. USDOE Orders are not applicable to the activities of the USACE as the USACE is not under the authority or direction of the USDOE. However, the surveillance data continues to follow a format similar to that of the previous USDOE reports to provide the reader with consistent presentation of data and to facilitate

historical comparison between reports.

In December 2007, the USACE Buffalo District completed a RI Report that defined the nature and extent of contaminants on the NFSS and assessed their potential long-term risks. Based upon findings from this investigation and public input, the USACE further enhanced the ESP to ensure the protection of human health and the environment (Section 1.2 ESP Enhancements for 2008).

Additional information about the site and the ESP is available on the USACE Buffalo District website: <http://www.lrb.usacc.army.mil/fusrap/nfss/index.htm>

Scope: The 2008 Environmental Surveillance Technical Memorandum presents the results of data obtained from samples collected during the 2008 monitoring program. To assess the data, the report compares the surveillance data with local background conditions and regulatory criteria. The structure of the report follows the format of previous USDOE reports to provide the reader with a consistent presentation of the data and to facilitate the interpretation of historical trends.

The Technical Memorandum provides a comparative analysis of local background conditions and regulatory criteria to results reported for external gamma radiation and for samples from the media investigated (including airborne radon gas, airborne particulates, surface waters, sediments, and groundwater). Data tables and figures referenced in the text are included at the end of the Technical Memorandum.

Evaluation of Data: The USDOE and U.S. Environmental Protection Agency (USEPA) guidelines are cited throughout this report to aid in the evaluation of environmental data. This memorandum compares data with USDOE guidelines because the USDOE has "property accountability" for the site. The guideline values do not represent cleanup criteria of a long-term remedy for the contaminants at the NFSS.

Results of the 2008 surveillance program at NFSS continue to show that measured parameters of the surveillance program did not exceed USDOE guidelines and, dose rates of potential off-site radiation exposure to the public did not exceed USDOE or USEPA limits.

Radiological parameters including uranium, thorium, and radon isotopes in air, surface water, and sediments were all within USDOE limits, and radon flux measurements from the IWCS were within USEPA standards. Groundwater concentrations of radiological parameters were also well below USDOE guidelines.

As in the past, findings for total uranium levels in groundwater continue to exceed the USEPA safe drinking water concentration limits per their Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) at seven groundwater monitoring well locations. These wells consist of two monitoring wells from the original surveillance program and five wells added to the program in 2008 based on elevated findings from the Remedial Investigation (NFSS Remedial Investigation Report, December 2007). Since the NFSS is not a source of drinking water, MCLs are presented for comparative purposes only. Analytical results for sodium and sulfates, as observed in previous reports, were found to be consistently above New York State Department of Environmental Conservation (NYSDEC) groundwater standards in on-site wells and background samples.

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). A summary of this process and the anticipated schedule for completion at the NFSS is provided below (*Note: The anticipated long-term schedule is subject to change depending on many factors including annual funding, public input, and execution of work.*)

The nature and extent of contamination and an assessment of associated risks are documented in the RI Report which was published in December 2007. The results of this investigation are being used to enhance the ESP to ensure the site is continually and fully protective of human health and the environment surrounding the NFSS.

- Addition of groundwater wells, surface water and sediment locations have been added for the 2008 ESP based on findings from the RI to further evaluate areas affected by past storage and handling of materials at NFSS.
- An Addendum to the RI Report is being prepared in response to comments received on the report.
- A Feasibility Study is being performed for the IWCS to identify, define the scope, and evaluate a wide range of long-term remedies to address the FUSRAP-related material in the structure.
- 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 site soils and infrastructure, and groundwater will follow.
- After public comment on the Proposed Plans, the USACE will select a long-term remedy for the IWCS, site soils and infrastructure, and groundwater and document this decision in their respective Record of Decisions (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 located in the Town of Lewiston in northwestern New York State, northeast of Niagara Falls and south of Lake Ontario (Figure 1, Appendix A). NFSS is approximately 191 acres (77 hectares) in size which includes: one former process building (Building 401), one office building (Building 429), an equipment shed (Hitman Building), a new storage shed for maintenance equipment, and a 9.9 acre (4 hectares) interim waste containment structure (IWCS). The property is fenced, and public access is restricted.

Land use in the region is primarily rural residential; however, the site is bordered by a state and Federally regulated chemical waste disposal facility to the north, a solid waste disposal facility to the east and south, and a National Grid Power Corporation right-of-way to the west. A commercial greenhouse is operated just south of the site and a recreational campground is located southwest of the site. The nearest residential areas are approximately 3,281 feet (ft) (1-km) west, southwest of the site; the residences are primarily single-family dwellings.

Beginning in 1944, the 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). The residues originated at other sites and were transferred to the NFSS for storage in buildings, on-site pits, and surface piles.

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 U.S. Department of Energy (USDOE) guidelines, were remediated by the USDOE between 1955 and 1992; materials generated during remedial actions (approximately 255,050 yd³ or 195,000 m³) are encapsulated in the IWCS, which is specifically designed to provide interim storage of the material.

1.1 Measured Parameters

The key elements of the 2008 environmental surveillance program (ESP) at NFSS were:

- measurement of external gamma radiation;
- measurement of radon gas concentrations in air (combined contributions from radon-220 and radon-222);
- monitoring of radon-222 flux (rate of radon-222 emission from the IWCS);
- calculation of external gamma dose to off-site receptors from radiation originating at the site (Appendix B);
- analysis of airborne emissions from site soils and resultant doses to off-site receptors (Appendix C);
- sampling and analysis of surface water for isotopic uranium (U-234, U-235, U-238) and total uranium (sum of these three isotopes), isotopic thorium (Th-228, Th-230, Th-232) and total thorium (sum of these three isotopes) and isotopic radium (Ra-226, Ra-228) (referred to collectively as radioactive constituents);
- sampling and analysis of streambed sediments for radioactive constituents; and
- sampling and analysis of groundwater for radioactive constituents, metals, and water quality parameters.

1.2 ESP Enhancements for 2008

The bullets below summarize the recent enhancements to the ESP based on Remedial Investigation (RI) findings that will be reported and evaluated in the 2008 Technical Memorandum.

- the addition of ten groundwater-monitoring well locations for radiological, chemical, and water quality parameters (Appendix A: Table 1b, pg T-8 and Figure 2, pg. F-2);
- the addition of five streambed surface water and sediment locations (three of which are located in the West Drainage Ditch) for radiological, metal and chemical parameters (Appendix A: Table 1c , pg. T-9 and Figure 2, pg. F-2); and
- the addition of a fall round of groundwater, and streambed surface water and sediment sampling.

1.3 Unit Conversions

The tables in Appendix A (Table A.1 and A.2, Page T-1) list the units of measurement and appropriate abbreviations used in this document. Conventional units for radioactivity are used because the regulatory guidelines are generally provided in these terms.

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 were used to evaluate the results of the 2008 ESP at NFSS are summarized below, categorized by media and parameters. In several cases USDOE guidelines continue to be identified in the technical memorandum for comparison purposes of historical data collected by USDOE or their contractors. The U.S. Army Corps of Engineers (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 values are for comparison only.

2.1 External Gamma Radiation and Air (Radon Gas and Airborne Particulate)

The regulatory guideline criteria used in evaluation of the calculated maximum doses from external gamma radiation and inhalation of radioactive particulate and the measured concentrations of radon gas include USDOE guidelines, United States Environmental Protection Agency (USEPA) standards, and USEPA guidance.

2.1.1 USDOE Order 5400.5 (January 1993)

Dose limits for members of the public from USDOE operations at USDOE-owned and USDOE-operated facilities are presented in this USDOE Order. The primary dose limit is expressed as an effective dose equivalent. The limit of 100-mrem total effective dose equivalent above background in a year from all sources (excluding radon) is specified in this Order; external gamma radiation dose and the calculated doses from airborne particulate releases are included in the calculation of the effective dose equivalent total. Also, this calculation includes contributions from other pathways, such as ingestion.

USDOE limits for radon concentrations in air from USDOE operations at USDOE-owned and USDOE-operated facilities are also presented in Order 5400.5. 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 limits for radon-222 concentrations in the atmosphere above facility surfaces or openings in addition to background levels are: 100 pCi/L at any given point; an annual average concentration of 30 pCi/L over the facility site; and an annual average concentration of 3.0 pCi/L at or above any location outside the facility site. 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 USEPA Standards and USEPA Guidance

Radon

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 these limits are specific to indoor

air, they provide a conservative basis for comparison to the outdoor air results obtained during environmental surveillance activities, for details see Appendix C. 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 (USEPA 1993).

Clean Air Act

Section 112 of the Clean Air Act authorized the USEPA to promulgate the National Emission Standards for Hazardous Air Pollutants (NESHAPs) which are given in 40 CFR 61. Compliance with Subpart H (for non-radon, radioactive constituents) is verified by applying the USEPA-approved CAP88-PC model. Compliance with Subpart Q is verified by annual monitoring of the IWCS for radon-222 flux (Appendix A, Table B, Page T-1).

2.2 Sediment, Surface Water, and Groundwater - Radioactive and Chemical Constituents

Federal regulatory criteria (Appendix A, Table C and D, Page T-2 -6) for evaluating the measured concentrations of radionuclides and chemicals in sediment, surface water, and groundwater at NFSS are as follows.

2.2.1 USDOE Order 5400.5 (January 1993)

This Order provides guideline limits for radioactive contaminants in water and soil at USDOE-owned and USDOE-operated facilities. These limits are known as the USDOE derived concentration guide (DCG). The USDOE DCG for drinking water is used to compare against those radiological findings for surface water and groundwater. USDOE historically applied the residual soil cleanup guideline criteria specified in USDOE Order 5400.5 to sediments. However, those values are provided for comparative purposes only. Applicable or relevant and appropriate requirement ARARs and media-specific cleanup goals will be evaluated independently and presented in future CERCLA decision documents that will be available for public comment.

Section 5.5 presents the data for this 2008 Technical Memorandum and describes the basis for comparisons with USDOE Order 5400.5 limits in detail.

2.2.2 Safe Drinking Water Act (SDWA)

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 of organic, inorganic, radionuclides (including uranium and combined radium) and microbial contaminants in drinking water by specifying the maximum contaminant level (MCL) for each. In some cases, secondary maximum contaminant levels (SMCLs), which are not federally enforceable (40 CFR 143.1), are provided as guidelines for the states. SMCLs are provided for a conservative comparison of analytical results and to provide consistency with previous reports and facilitate trend analysis.

The established (promulgated) MCL for combined concentrations of radium-226 and radium-228 is 5 pCi/L. The USEPA National Primary Drinking Water Regulation for Radionuclides (Final Rule – effective 2003) states a MCL of 30 µg/L for total uranium. Thorium 228, 230 and 232 utilize an adjusted gross alpha MCL of 15 pCi/L excluding radon and uranium (National Primary Drinking Water Regulations; Radionuclide; Final Rule (Federal Register December 7, 2000)). The appropriate standard for thorium isotopes is the gross alpha MCL of 15 pCi/L; this MCL includes the concentration of radium-226 but excludes radon and uranium isotopes. The adjusted gross alpha MCL for thorium is used for comparison as it is more conservative than the individual USDOE DCG of thorium-228 (400 pCi/L), thorium-230 (50 pCi/L) and thorium-232 (300 pCi/L).

Although groundwater at NFSS is not used as a public drinking water supply due to its poor water quality and the availability of public water, MCLs for drinking water are used as a conservative basis for evaluation of analytical results, maintaining consistency with previous reports and facilitating trend analysis (Table C and D in Appendix A, TABLES section, pages T-2 - 6).

2.2.3 Groundwater – Water Quality

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 groundwater quality is poor near the site because of high mineralization (see Section 5.6.2.2 Water Quality Parameters). Additionally, local studies (Wehran, 1977 and Acres American, 1981) indicate that the permeabilities of the shallow groundwater systems are sufficiently low that it is not practicable to obtain groundwater from these systems for water supply. On-site permeability testing at NFSS confirms the low permeabilities.

The USDOE conducted a well survey in 1988 and inventoried eight wells within 4.8 km of the site, none of which were reported as being used for drinking water but mainly for irrigation (USDOE 1994b). In 2007, the Niagara County Department of Health (DOH) updated its well inventory to include 9 potable wells (two 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 recent Niagara County DOH, groundwater is not the main source of drinking water; however the NYSDEC Class GA groundwater standards were conservatively used to compare analytical results. Groundwater at NFSS consistently exceeds sodium and sulfate Class GA standards. Both the shallow and deep groundwater units at the NFSS exhibit over 1000 mg/L Total Dissolved Solids (TDS) and the deep groundwater commonly over 100 mg/L Chloride, which indicates that the site groundwater can be classified as saline or Class GSA (NYCRR 701.16).

Although groundwater at NFSS is not a public drinking water supply, State and Federal standards (Appendix A, Table D, pg. T-3) are used as a basis for evaluation of chemical analytical results.

2.2.4 New York State Department of Environmental Conservation (NYSDEC) Water Quality Criteria for Groundwater

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. To apply established standards, the State of New York categorizes groundwater resources by groundwater quality and use.

The Division of Water Technical and Operational Guidance Series (TOGS) specifically address source drinking water standards (NYSDEC –6 NYCRR Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations (August 1999)). These standards have been used to establish additional Class GA (related, conservative case) state water quality standards for comparison of analytical results.

2.2.5 New York State Department of Environmental Conservation (NYSDEC) Sediment Chemical Criteria

New York State regulatory criteria for evaluating sediment (Appendix A, Table D, Page T-3) concentrations of chemical constituents at NFSS is title 6 of the Office Compilation of New York Codes, Rules and Regulations Part 375 (6 NYCRR 375) unrestricted and restricted use (industrial) soil clean up objectives. This soil clean up objective criteria is utilized for comparison purposes as there are no concentration guidelines for sediment. Unrestricted use values from 6 NYCRR 375 for certain metal and polycyclic aromatic hydrocarbons constituents are based on a survey of soil background concentrations. It should be noted that sediment background concentrations would differ from soil background in many instances.

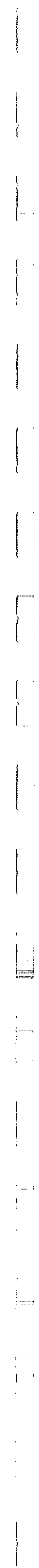
3.0 SAMPLING LOCATIONS AND RATIONALE

Radioactive materials that exceed USDOE cleanup guidelines at NFSS are stored in the IWCS. Exposure of members of the public to this radioactively contaminated material at NFSS is unlikely because of site access restrictions (e.g., fences) and engineering controls (e.g., pile covers). However, potential pathways to residual radioactivity that may exist outside the IWCS include direct exposure to external gamma radiation and inhalation of air containing radon or radioactively contaminated particulates from site soils; and contact with, or ingestion of, contaminated surface water, streambed sediments, or groundwater. The ESP at NFSS has been developed to provide surveillance of these exposure routes through periodic sampling and analysis for radioactive and chemical constituents. Figure 2 (Appendix A, pg. F-2) presents sampling locations and media associated with the ESP at NFSS. Figure 1 (Appendix A, pg. F-1) shows those background locations for external gamma, radon gas and radon flux (radon-222) monitoring. A summary of the ESP at NFSS for external gamma radiation, radon gas, radon flux, surface water, sediment, and groundwater can be found in Appendix A, Tables 1a-c, pages T-7 thru T-9.

External gamma radiation monitoring and radon gas measurements occur at fence line locations surrounding the NFSS as well as interior portions of the site, including the perimeter of the IWCS, to assess potential exposures to the public and site workers. Measurement of radon-222 flux is conducted annually at discrete grid intersections on the IWCS. See Appendix A, Figure 2, pg. F-2 for radiological monitoring (gamma and radon) locations at the site and radon-222 sample locations on the IWCS.

Groundwater monitoring wells have been selected to assess groundwater quality in areas representing background, potential source-areas (e.g., near the IWCS and past radiologic material storage areas), and down gradient (on-site) areas in the upper water-bearing zone (Appendix A, Figure 2, page F-2). Groundwater monitoring includes analysis for radioactive constituents, water quality parameters, and metals. Monitoring wells screened in the upper water-bearing zone (Appendix A, Figure 7, page F-7) would provide the earliest indication in the unlikely event of a breach of the IWCS. The glacio-lacustrine clay aquitard that hydraulically separates the upper and lower water-bearing zones will mitigate potential contaminant transport into the lower zone. The lower groundwater system was not monitored because past analytical results and recent RI results indicate there are no groundwater contaminant plumes, or constituents in excess of MCLs, in the lower water-bearing zone. However, to ensure that RI findings represent baseline conditions in the lower water-bearing zone, well OW04A has been included in the environmental surveillance program, starting in 2008, as a down-gradient monitoring point for the IWCS.

Surface water and streambed sediment sampling of radioactive constituents is conducted along the drainage ditch system in upstream, on site, and downstream locations (Appendix A, Figure 2, page F-2) to assess the migration of constituents in these media should any occur.



4.0 SURVEILLANCE METHODOLOGY

Under the NFSS ESP, 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-approved methods and to procedures developed by the Environmental Measurements Laboratory (EML) and ASTM. A detailed listing of the specific procedures and the data quality objectives for the surveillance program is provided in the *Environmental Surveillance Plan* (USACE, June 2008).

All 2008 environmental surveillance activities at NFSS were conducted in accordance with the *Environmental Surveillance Plan* (USACE 2008) and surveillance methodology listed in Appendix A (Table E, page T-6).

5.0 ANALYTICAL DATA AND INTERPRETATION OF RESULTS

This section presents the data and interpretation of results for the ESP at NFSS. The data for the 2008 ESP are presented in Tables 2 through 11 (Appendix A). Trend graphs, summarizing analytical results for air, streambed sediment (spring collection data), surface water (spring collection data) and groundwater (spring collection data) for 2008 and the preceding ten years, are presented in Figures 9 through 26 (Appendix A).

In data tables containing analyses for radioactive constituents, some results may be expressed as negative numbers. Negative numbers can occur in the results when the average background activity of the laboratory counting instrument exceeds the measured sample activity. A negative result is generated when the instrument background activity is subtracted from the sample activity. For the purposes of interpretation, all values below the minimum detectable activity (MDA) are interpreted as having an unknown value between zero and the MDA. Therefore, a result below the MDA is referred to as a non-detected result in the text discussion.

Gross data results for surface water, sediment, and groundwater are compared to the USDOE soil guideline limits (for sediment) and DCGs (for surface water and groundwater), and are used in the assessment of potential impact. The analytical results including site background results are provided in the data tables. However, for simplicity of presentation, only the gross analytical results (without the background subtracted) are discussed in the text of this document.

Historical ranges in background concentrations for each radioactive analyte are determined from background sampling results from 1992 to 2008, unless otherwise noted. For gamma dose rates subtracting the calculated background from the sampling results for 2008 then gives an estimate of the above-background dose rate at each location; see Table 2 External Gamma Radiation Dose Rates (Appendix A, page T-7). When background is subtracted from the sampling result, it is possible that a negative number will be obtained much the same as a negative value may be obtained when the laboratory subtracts instrument background from a sample measurement.

Well B02W20S was selected to represent on-site background because it is distant from and not down-gradient of the IWCS. Additional background groundwater was sampled in 2003 from wells hydraulically up-gradient from operations at the adjacent property of Modern Landfill. Since these data, compiled for the RI, were comparable to historic groundwater concentrations from B02W20, this well was verified to be representative of on-site background conditions.

Some of the historical data from NFSS used a method for analysis of total uranium, which yields results in micrograms per liter ($\mu\text{g/L}$), or parts per billion and micrograms per gram $\mu\text{g/g}$ or parts per billion for water and sediment samples, respectively. To allow direct comparison of results to the DCGs and soil guidelines, the data was converted to pCi/L and pCi/g, as appropriate. The specific activity for total uranium in drinking water sources has been estimated to be about 0.9 pCi/ μg (USEPA 2000), which is the factor used to convert groundwater data from $\mu\text{g/L}$ to pCi/L in this report. The specific activity for total uranium in soil sources is estimated to be 0.67 pCi/ μg (USEPA 2000).

5.1 External Gamma Radiation

External gamma radiation dose rates are measured using optically stimulated luminescence (OSL) dosimeters continuously for the year. OSL dosimeters replaced thermo luminescent dosimeters (TLDs) for 2008. OSL results for the 2008 external gamma radiation dose (both raw and corrected data) are presented in Table 2 (Appendix A, Tables, External Gamma Radiation at NFSS).

The data are used to calculate the external gamma radiation dose rate at both the nearest residence and the nearest commercial/industrial facility to determine the hypothetical maximally exposed off-site individual (MEI). The dose rate is a function of the site fence line dose, the distance of the individual from the fence line, and the amount of time the individual spends at that location. Results of this calculation are expressed as a dose to the individual in mrem for the year.

Distances to off-site receptors are based on the findings of a year 2005 canvas of areas near the site. Based on external gamma radiation results, the hypothetical MEI is a resident located 500 ft (152.4 meters) from the western perimeter fence, southwest of the site that received a dose of 0.005 mrem for calendar 2008. The hypothetical dose to the nearest off-site worker located 1,020 ft (310.9 meters) east of the site is 0.003 mrem for calendar year 2008. Appendix B, Calendar Year (CY) 2008 Calculation of External Gamma Radiation Dose Rates for Niagara Falls Storage Site, Section 4.1 contains all pertinent calculations. External gamma dose rates from the NFSS and IWCS perimeters from 1998 thru 2008 are presented in Figures 9 and 10 of Appendix A. Both doses are well below the USDOE guideline of 100 mrem/year for all pathways, excluding radon.

5.2 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 semiannual monitoring for 2008 are presented in Appendix A, Table 3, pg. T-11. The corresponding surveillance locations are shown in Appendix A, Figure 2, pg. F-2.

Consistent with results from previous years, all site radon-222 results from the 2008 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). Site average of 0.21 pCi/L (non-detects included in average) is comparable to that of the background average of less than 0.2 pCi/L and to that of the average outdoor value of 0.4 pCi/L (USEPA

1993). Radon concentrations at the NFSS perimeter for the 1st and 2nd half of the year are presented in Figures 11 and 12 respectively. Radon concentrations at the IWCS perimeter for the 1st and 2nd half of the year are presented by Figures 13 and 14 respectively.

5.3 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 at 49.2 ft (15-meters) grid across the surface of the IWCS for a 24-hour exposure period. Measurements for 2008 are presented in Table 4; measurement locations are shown in Figure 2, Appendix A.

Measured results for 2008 ranged from non-detect to 0.23490 pCi/m²/s, with an average (of detects and non-detects) result of 0.05368 pCi/m²/s (Appendix A, Table 4). Background measured results indicated one finding of 0.05763 pCi/m²/s and two non-detect findings at 0.01054 and 0.02055 pCi/m²/s. As in previous years, these results are well below the 20.0 pCi/m²/s standard specified in 40 CFR Part 61, Subpart Q, as well as comparable to background and demonstrate the effectiveness of the containment cell design and construction in mitigating radon-222 migration.

5.4 Airborne Particulate Dose

To determine the dose from airborne particulates potentially released from NFSS during 2008, airborne particulate release rates were calculated using RI soil data (collected between 1999 and 2004), and weather data for the year 2008 from the National Weather Service (Niagara Falls International Airport). 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:

1. The first calculation estimates resultant doses from airborne particulates to hypothetical individuals at the distances to the nearest residences and to the nearest commercial/industrial facilities as measured from a central location on site. Hypothetical 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 hypothetical individual receiving the higher of these calculated doses is then identified as the hypothetical MEI for airborne particulate dose.
2. The second calculation estimates the hypothetical 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 80 km from the center of site.

The first calculation (Appendix C) indicates that the 2008 airborne particulate dose to the hypothetical MEI, a home resident, 2,999 ft (914 meters) south-southwest of the site, was 0.0016 mrem. These values are well below the 10 mrem per year standard, individual dose, specified in 40 CFR, Part 61, Subpart H, and the USDOE Order 5400.5. The second calculation indicates that the hypothetical airborne particulate collective

dose to the population within 50 miles (80 km) of the site was 0.047 person-rem. This compares to a yearly background dose to the same population of 5,425,000 person-rem, (see Figure 8, Appendix A, and note that the US per capita dose from background radiation has been increased to 620 mrem/person mainly due to increased use of nuclear medical imaging). Details of the calculations, including methodology are presented in Appendix C (FUSRAP CY 2008 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE).

5.5 Surface Water and Sediment

In 2008, as mentioned in section: 1.2 ESP Enhancements for 2008, the fall sampling event was added in 2008 making sampling biannual (spring and fall) for surface water and sediment. In addition to the biannual sampling five new locations were added to the surface water and sediment locations, bringing the number of sampling points to ten. Samples were collected at: SWSD009, SWSD021, SWSD023 (added in 2008) and SWSD024 (added in 2008) at the upstream fence line; SWSD010 and SWSD022 on site along the central drainage ditch; SWSD011, downstream along the central drainage ditch; and WDD1, WDD2 and WDD3 along the west drainage ditch (all three added in 2008) outside of the site perimeter fence. Surface water and sediment sampling location SWSD009 was selected as a background location because it is at the upstream boundary of the South 31 drainage ditch, which eventually joins the central drainage ditch. Surface water and sediment sampling location SWSD021 was selected as a background location because it is located upstream, along the NFSS fence line, where the central drainage ditch first enters the property. Sampling locations are presented in Figure 2, Appendix A.

Surface water and sediment samples were analyzed for radiological analytes (radium-226, radium-228, thorium-228 (added in 2008) 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. Metals and the organics (VOCs, PAHs and PCBs) are new to the ESP program for 2008. The 2008 spring and fall environmental surveillance analytical results for surface water and sediment samples are presented in Appendix A, Tables 6 thru 9, respectively. Analytical results for surface water in 2008 are compared with the USDOE DCGs, National Primary Drinking Water Regulations and New York State (NYS) Water Quality Criteria.

Because there are no radiological established limits for sediments, USDOE historically used the surface soil criterion of 5 pCi/g as a basis of comparison of radium-226, radium-228, thorium-230 and thorium-232 analytical results, and the derived site-specific criterion of 90 pCi/g for total uranium in surface soil. For comparison of organic (VOCs, PAHs and Pesticides) and inorganic (Metals) constituent findings in sediment New York State soil cleanup objectives (6 NYCRR PART 375- Tables 375-6.8 a and b) for unrestricted use and restricted use (industrial) are utilized.

Radiological background concentrations were determined by comparing 2008 analytical results for the appropriate constituents at surface water/sediment sampling locations SWSD009 and SWSD021, which are viewed as background since they are collected at the site boundary where surface water flows on to NFSS from offsite.

5.5.1 Surface Water

5.5.1.1 Surface Water Radiological Findings

In 2008 both the spring and fall (added in 2008) surface water radiological analytical results were consistently less than the USDOE DCGs, and generally indistinguishable from historical spring sampling background (upstream) concentrations. In 2008, surface water analytical results were less than the SDWA MCLs. The 2008 radiological results for the surface water were generally slightly lower or comparable to past results (spring sampling findings) with the exception of 2004 results for sampling location SWSD010 which were elevated due to the turbidity of the sample. Figure 2 (Appendix A, pg. F-2) shows those locations sampled for surface water. Measured results (on-site background locations SWSD021 and SWSD009 are not subtracted) are provided (Appendix A, Tables 6 and 7) and discussed below:

- The 2008 analytical results for radium-226 concentrations in surface water are consistent with historical spring sampling results and are indistinguishable from on-site background. Radium-226 results from upstream (on-site background) locations were:

Ra-226 Background Findings (pCi/L) in 2008

Location	Spring	Fall
SWSD009	Non-Detect	0.281
SWSD021	Non-Detect	Non-Detect

The findings compare favorably with the historical spring sampling (1997 to present) background. The 2008 spring and fall results of analysis for radium-226 in samples collected at locations WDD1, 2, and 3, and SWSD010, 11, 22, 23 and 24 were:

2008 Spring Ranges: non-detect to 0.564 pCi/L

2008 Fall Ranges: non-detect to 0.884 pCi/L

The radium-226 USDOE DCG is 100 pCi/L.

Total radium (Ra-226 and Ra-228) concentrations in surface water are below the SDWA limit (5 pCi/L) and the USDOE DCG (100 pCi/L), as shown in Figure 15 from 1997 to 2008 (spring collection data trended).

- The 2008 on-site analytical results for radium-228 concentrations in surface water are consistent with historical spring sampling results and are indistinguishable from on-site background. Radium-228 results from on-site background locations SWSD009 and SWSD021 were:

Ra-228 Background Findings (pCi/L) in 2008

Location	Spring	Fall
SWSD009	Non-Detect	0.203
SWSD021	Non-Detect	0.693

The findings compare favorably with historical spring sampling (1997 to present) findings for on-site background that range of non-detect to 1.02 pCi/L. The 2008 results for radium-228 in samples collected at locations WDD1, 2 and 3, and SWSD010, 11, 22, 23 and 24 were:

2008 Spring Ranges: non-detect to 1.030 pCi/L

2008 Fall Ranges: non-detect to 1.760 pCi/L

The radium-228 USDOE DCG is 100 pCi/L. Total radium (Ra-226 and Ra-228) concentrations in surface water are below the SDWA limit (5 pCi/L) and the USDOE DCG (100 pCi/L), as shown in Figure 15 from 1997 to 2008 (spring collection data trended).

- Thorium-228 (added in 2008) results from on-site background locations SWSD009 and SWSD021 for spring and fall sampling events were both non-detect, as were samples collected at locations WDD1, 2 and 3, and SWSD010, 11, 22, 23 and 24. Thorium-228 concentrations in surface water are below the adjusted gross alpha MCL SDWA limit of 15 pCi/L. The thorium-228 USDOE DCG is 400 pCi/L.
- Thorium-230 results from on-site background locations SWSD009 and SWSD021 were non-detect, for spring and fall sampling events, and compared favorably with historical spring sampling (1997 to present) findings for on-site background that range from non-detect to 1.20 pCi/L from both background locations. Spring historical values for surface water SWSD009 are non-detect to 0.60 pCi/L which is considered to be more representative of on-site background. The 2008 results for thorium-230 in on-site samples collected at locations WDD1, 2, and 3, and SWSD010, 11, 22, 23, and 24 were:

2008 Spring Ranges: non-detect to 1.430 pCi/L

2008 Fall Ranges: non-detect to 0.274 pCi/L

The thorium-230 USDOE DCG is 300 pCi/L. Thorium-230 concentrations in surface water are below the adjusted gross alpha MCL SDWA limit of 15 pCi/L and the USDOE DCG of 300 pCi/L, as shown in Figure 16 from 1997 to 2008 (spring collection data trended).

- Thorium-232 results from on-site background locations SWSD009 and SWSD021 were non-detect for spring and fall sampling events comparing favorably with the historical spring sampling (1997 to present) findings for on-site background that range from non-detect to 0.613 pCi/L. The 2008 results for thorium-232 on-site samples collected at locations WDD1, 2 and 3, and SWSD010, 11, 22, 23 and 24 were all non-detect for spring and fall sampling events. The USDOE DCG for thorium-232 is 50 pCi/L.

Thorium-232 concentrations in surface water are below the adjusted gross alpha MCL SDWA limit (15 pCi/L) and the USDOE DCG (50 pCi/L), as shown in Figure 17 from 1997 to 2008 (spring collection data trended).

- Total uranium on-site analytical results for 2008 in surface water are consistent with the historical spring sampling results and are indistinguishable from on-site background. Total uranium from on-site background locations SWSD009 and SWSD021 were:

Total Uranium Background Findings (pCi/L) in 2008

Location	Spring	Fall
SWSD009	3.223	8.677
SWSD021	9.815	4.420

The 2008 on-site analytical results for total uranium in surface water, ranged from:

2008 Spring Ranges: 0.791 to 10.280 pCi/L

2008 Fall Ranges: 0.964 to 6.090 pCi/L

Findings compare favorably against the on-site background. The historical spring sampling (1997 to present) findings for on-site background concentration for total uranium range from 1.8 to 25.56 pCi/L from both background locations or 1.8 to 8.67 pCi/L from surface water location SWSD009, which is considered to be more representative of background. As shown in Figure 18, concentrations of total uranium (spring sampling findings) in surface water demonstrate a trend that is below the SDWA limit of 30 µg/L (27pCi/L), with the exception of SWSD010 in April 2004. That single anomaly was attributed to greater turbidity.

5.5.1.2 Surface Water Chemical Findings

Surface water samples collected for organic and inorganic analysis, these analytical parameters were added in 2008 to the ESP, are compared against Federal SDWA MCLs and those of New York State water quality standards for comparative purposes as the surface water is not a drinking source.

- Background samples (SWSD009 and SWSD021) for metal findings were in exceedance of one or both of the following: the SDWA and/or the State water quality criteria for aluminum, antimony, chromium, iron, manganese, sodium and vanadium. Samples collected at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were in exceedance of aluminum, antimony, iron, manganese and sodium for both spring and fall sampling.
- Background samples (SWSD009 and SWSD021) for volatile organic compound findings and samples collected at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were within SDWA and State MCLs with the following exception: SWSD010 (fall) finding (7.91 µg/L) for tetrachloroethylene exceeded both the SDWA and State MCL (5 µg/L).
- Polycyclic aromatic hydrocarbons have only one established MCL, therefore values will be evaluated by utilizing individual values and as a total value. Spring and fall background sample (SWSD009 and SWSD021) polycyclic aromatic hydrocarbon (PAH) compound findings were either non-detect or below 0.5 µg/L individually or below 0.7 µg/L total PAHs. Samples collected (spring and fall) at locations WDD 1, 2 and 3, and SWSD 010, 011, 022, 023 and 024 were all non-detect with the following exception: SWS010 had a finding for pyrene at 0.0288 µg/L. Pyrene has no established MCL for the SDWA or State water quality criteria.

- Background samples (SWSD009 and SWSD021) for polychlorinated biphenyls (PCBs) were all non-detect for the spring and fall. Samples collected at locations WDD 1, 2 and 3, and SWSD 010, 011, 022, 023 and 024 were non-detect for the spring and fall.
- Background samples (SWSD009 and SWSD021) for pesticides were all non-detect for spring and fall. Samples collected at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were non-detect for the spring and fall. SWSD023 (spring) and SWSD010 (fall) had findings for Endosulfan-I at 0.0949 and 0.0771 µg/L. There is no established Endosulfan-I MCL for the SDWA or State water quality criteria.

5.5.2 Sediment

5.5.2.1 Sediment Radiological Findings

Concentrations of radium-226, radium-228, thorium-228 (added in 2008), thorium-230, thorium-232, and total uranium in shallow sediment were less than the USDOE surface soil guidelines and were generally indistinguishable from on-site background conditions. At all on-site sampled locations, results were less than the USDOE guideline for mixtures of radionuclides (using the sum-of-the-ratios method). Figure 2 (Appendix A, pg. F-2) shows those locations sampled for sediment. Measured results are presented (Appendix A, Tables 8 and 9), and discussed below:

- The 2008 analytical results for radium-226 in sediment are consistent with historical spring sampling analytical results. Radium-226 results from on-site background locations were:

Ra-226 Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	1.000	1.180
SWSD021	1.120	1.000

Findings compare favorably with the historical spring sampling (from 1997 to present) for on-site background that range from non-detect to 2.0 pCi/g. The 2008 results of analysis for radium-226 in samples collected at locations WDD 1, 2 and 3, and SWSD010, 11, 22, 23 and 24 were:

2008 Spring Ranges: 0.679 to 1.182 pCi/g

2008 Fall Ranges: 0.659 to 1.680 pCi/g

Combined radium-226 and -228 USDOE DCG is 5 pCi/g above background for surface soil. Historically for spring, the concentration of radium-226 has ranged from non-detect to 3.40 pCi/g. The combined Ra-226 and Ra-228 background in surface soil from the NFSS RI Report (December, 2007) is 2.18 pCi/g. Therefore, the USDOE limit for residual radioactivity in surface soil is interpreted as 7.18 pCi/g. In addition, the historical spring sampling concentrations of total radium (radium-226 and radium-228) in sediment from 1997 to 2008 were below this criterion as shown in Figure 19.

- The 2008 analytical results for radium-228 in sediment are consistent with historical spring sampling analytical results. Radium-228 results from on-site background locations were:

Ra-228 Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	1.230	1.870
SWSD021	1.450	0.030

Historical spring sampling (from 1997 to present) findings for the on-site background concentration of radium-228 has ranged from non-detect to 2.5 pCi/g from both on-site background locations. The 2008 results for radium-228 in samples collected at locations WDD 1, 2 and 3, and SWSD010, 11, 22, 23 and 24 were:

2008 Spring Ranges: 0.236 to 1.640 pCi/g

2008 Fall Ranges: 0.834 to 2.400 pCi/g

Combined radium-226 and radium-228 concentrations in sediment were less than the USDOE guideline limit for residual radioactivity in surface soil criterion of 5 pCi/g above background (or 7.18 pCi/g as discussed above). In addition, the historical spring sampling concentrations of total radium (radium-226 and radium-228) in sediment from 1997 to 2008 were below this criterion as shown in Figure 19.

- The 2008 thorium-228 (added in 2008 to the ESP) results from on-site background locations were:

Th-228 Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	1.600	0.633
SWSD021	1.380	1.690

The 2008 results for thorium-228 in samples collected at on-site locations WDD1, 2 and 3, and SWSD010, 11, 22, 23 and 24:

2008 Spring Ranges: 1.100 to 1.800 pCi/g

2008 Fall Ranges: 0.754 to 1.520 pCi/g

All thorium-228 concentrations in sediment were less than the USDOE surface soil criterion of 5 pCi/g above on-site background.

- The 2008 analytical results for thorium-230 in sediment are consistent with historical spring sampling analytical results. Thorium-230 results from on-site background locations were:

Th-230 Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	1.140	0.982
SWSD021	0.963	1.160

The 2008 results for thorium-230 in samples collected at on-site locations (WDD1, 2 and 3, SWSD010, 11, 22, 23 and 24):

2008 Spring Ranges: 0.809 to 1.780 pCi/g

2008 Fall Ranges: 0.519 to 1.570 pCi/g

Historical spring sampling (from 1997 to present) findings for the on-site background concentration of thorium-230 has ranged from 0.10 to 3.34 pCi/g. All thorium-230 concentrations in sediment were less than the USDOE surface soil criterion of 5 pCi/g above on-site background. The historic concentrations of thorium-230 in sediment from 1997 to 2008 were below this criterion as shown in Figure 20.

- The 2008 analytical results for thorium-232 in sediment are consistent with historical spring sampling analytical results. Thorium-232 results from on-site background locations:

Th-232 Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	0.970	1.060
SWSD021	1.290	1.250

The 2008 results for thorium-232 in samples collected at on-site locations WDD 1, 2 and 3, SWSD010, 11, 22, 23 and 24 were:

2008 Spring Ranges: 0.755 to 1.360 pCi/g

2008 Fall Ranges: 0.686 to 1.450 pCi/g

Historical spring sampling (from 1997 to present) findings for the on-site background concentration of thorium-232 has ranged from non-detect to 1.78 pCi/g. All thorium-232 concentrations in sediment were less than the USDOE surface soil cleanup criterion of 5 pCi/g above on-site background. Historic spring sampling concentrations of thorium-232 in sediment from 1997 to 2008 were below this criterion as shown in Figure 21.

- The 2008 analytical results for total uranium (sum of isotopes) in sediment are consistent with historical spring sampling analytical results. Total uranium results from on-site background locations:

Total -U Background Findings (pCi/g) in 2008

Location	Spring	Fall
SWSD009	2.824	2.301
SWSD021	2.807	2.360

The 2008 results for total uranium in samples collected at on-site locations (WDD1, 2 and 3, SWSD010, 11, 22, 23 and 24):

2008 Spring Ranges: 1.813 to 5.623 pCi/g
 2008 Fall Ranges: 1.850 to 6.292 pCi/g

Historical spring sampling (from 1997 to present) findings for on-site background concentration of total uranium has ranged from 1.8 to 10.10 pCi/g from both on-site background locations or 1.8 to 5.97 pCi/g from sediment location SWSD009, which is considered to be more representative of background. All uranium concentrations in sediment were less than the USDOE derived surface soil cleanup criterion of 90 pCi/g above on-site background. In addition, the historic (spring sampling) concentrations of total uranium (uranium-234, uranium-235 and uranium-238) in sediment from 1997 to 2008 were below this criterion as shown in Figure 22.

5.5.2.2 Sediment Chemical Findings

Sediment samples collected for organic and inorganic analysis, these analytical parameters were added in 2008 to the ESP, are compared against those of New York State unrestricted and restricted (industrial) use of soil cleanup objectives (6 NYCRR Part 375, Subpart 375-6, Tables 6.8 [a and b]). Spring and fall 2008 sediment findings are posted in Appendix-A in Tables 8 and 9.

- Background samples (SWSD009 and SWSD021) for metal findings exceeded the NYS unrestricted use of soil cleanup objectives, based on rural soil, for zinc and nickel. Samples collected at locations WDD 1, 2 and 3 and SWSD010, 011, 022, 023 and 024 were in exceedance of the NYS unrestricted use of soil cleanup objectives, based on rural soil, for copper, lead, mercury, nickel and zinc at several locations for the spring and fall sampling.
- Background samples (SWSD009 and SWSD021) for volatile organic compound findings were non-detect with the exception of acetone and total xylenes both being below the NYS unrestricted use of soil cleanup objective. Samples collected at locations WDD 1, 2, and 3 and SWSD 010, 011, 022, 023, and 024 were below the NYS unrestricted use soil cleanup objective.
- Polycyclic aromatic hydrocarbons for spring and fall background samples (SWSD009 and SWSD021) findings were either non-detect and/or below the NYS unrestricted use soil cleanup objective. Samples collected (spring and fall) at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were all non-detect with the following exception: WDD3 (fall) had exceedances of the NYS unrestricted use soil cleanup objective for the following PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene and indeno(1,2,3-cd)pyrene. Benzo(a)pyrene also exceeded the NYS restricted use, industrial objective. These elevated readings may have been attributed to the extensive use of yard/landscaping equipment with two-stroke engines used to clear high vegetation and trees on the site's outer fence perimeter for the purpose of site security.
- Background samples (SWSD009 and SWSD021) for polychlorinated biphenyls (PCB) were non-detect or

below the NYS unrestricted use soil cleanup objective. Samples collected at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were mostly non-detect or less than the NYS unrestricted use soil cleanup objective with the following exceptions: SWSD011 field duplicate spring sample finding had a concentration of 114 $\mu\text{g}/\text{kg}$, which exceeds NYS unrestricted use soil cleanup objective of 100 $\mu\text{g}/\text{kg}$ for Aroclor-1254. SWSD024 (spring finding) had a concentration of 101 $\mu\text{g}/\text{kg}$, this is above the NYS unrestricted use soil cleanup objective of 100 $\mu\text{g}/\text{kg}$ for Aroclor-1242. Both findings are less than the NYS restricted use, industrial objective, of 25,000 $\mu\text{g}/\text{kg}$.

- Background samples (SWSD009 and SWSD021) for pesticides were all non-detect for spring and fall. Samples collected at locations WDD 1, 2 and 3 and SWSD 010, 011, 022, 023 and 024 were non-detect for the spring and fall.

5.6 Groundwater

The locations of environmental surveillance groundwater monitoring wells at NFSS are shown in Figure 2. On-site background information, descriptions of activities performed under the groundwater surveillance program, and surveillance results are discussed below.

5.6.1 Groundwater Flow System

5.6.1.1 Natural System

Four unconsolidated geologic units and one bedrock unit are identified in the subsurface at the site. These units are consolidated into the following three principle hydrostratigraphic zones (listed top to bottom): the Upper Water Bearing Zone (surface fill and an Upper Brown Clay Till Unit that contains sand lenses), an aquitard or confining unit (Glacio-Lacustrine Clay and Middle Silt Till Units), and the Lower Water Bearing Zone (Alluvial Sand and Gravel, Basal Red Till, and Upper Queenston Formation). *See Figure-7: Schematic of Conceptualized Hydrostratigraphy in Appendix A, page F-7.* Groundwater at the NFSS primarily flows in two deposits: the upper water-bearing zone in the surficial brown clay till unit and the lower water-bearing zone in the combined sand and gravel unit, red till unit, and weathered portion of the Queenston Shale bedrock. As stated in Section 3.0, the glacio-lacustrine clay aquitard that hydraulically separates the upper and lower water-bearing zones also minimizes transport between the two zones. Regional groundwater flow in both the upper and lower groundwater systems 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.

Surface drainage from the site originally entered Four Mile, Six Mile, and Twelve Mile Creeks, which all flow northward to Lake Ontario. However during the 1940s, drainage modifications routed surface water to a series of ditches that eventually coalesce into the central drainage ditch north of the site. These ditches have variable depths that seasonally influence groundwater flow in the upper water-bearing zone on the site. The current discharge from the central drainage ditch is routed to Four Mile Creek.

5.6.1.2 Water Level Measurements

Groundwater levels were measured in ninety-one (91) NFSS wells with an electronic depth-to-water meter.

Potentiometric data were recorded from forty-nine (49) wells in the upper ground water system and forty-two (42) wells in the lower groundwater system (including 6 bedrock wells).

Figures 3 through 6 in Appendix-A 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 in report-quality graphics.

The screened intervals for wells completed in the upper groundwater zone range from 4.7 to 27.6 ft (1.4 to 8.4 meters) below ground surface, while screened intervals for wells completed in the lower groundwater zone range from 22.4 to 104.5 ft (6.8 to 31.9 meters) below ground surface. The ninety-one groundwater monitoring wells are located throughout the NFSS and provide significant areal coverage for groundwater flow characterization. The monitored (sampled) subset of eighteen (18) wells provide adequate data to assess the IWCS performance and monitor specific areas of concern identified by the RI (Appendix A, Figure 2).

In the upper water-bearing zone, the depth to water ranged from 0.42 to 18.39 ft (0.13 to 5.61 meters) below ground surface during 2008. The quarterly water level fluctuations in the upper water-bearing zone averaged 1.68 ft (0.51 meters) and showed high and low elevations during the February and October measurements, respectively. In the lower groundwater system, the depth to water ranged from 3.02 to 12.58 ft (0.92 to 3.83 meters) below ground surface during 2008. Quarterly water-level fluctuations in the lower groundwater system averaged 0.37 m (1.21 ft) and showed high and low elevations during the August and February measurements respectively.

Groundwater elevations measured quarterly during 2008 in the upper water-bearing zone show a high condition occurred on February 19, 2008, and a low condition on October 21, 2008. The high-water elevations in the upper system ranged from 297.61 to 318.62 ft (90.71 to 97.12 meters) above mean sea level, whereas the low-water condition ranged from 299.22 to 318.61 ft (91.20 to 97.11 meters). Groundwater elevations in the lower water-bearing zone indicate a seasonal high occurred on August 25, 2008, and a seasonal low occurred on February 19, 2008. The high-water elevation in the lower system ranged from 308.82 to 316.62 ft (94.13 to 96.51 meters) above mean sea level, whereas the low-water condition ranged from 304.37 to 314.27 ft (92.77 to 95.79 meters). See Figures 3 through 6 in Appendix A for a graphical representation of these data, interpreted groundwater flow directions, and conditions evident from local clay mining west of the NFSS.

Head fluctuations in both the upper and lower water-bearing zones were less in 2008 than 2007 due to abundant summer rains that lessened summer-season soil-moisture stresses on the upper zone groundwater. Precipitation data recorded at the Niagara Falls International Airport indicate that from May 2008 through October 2008 precipitation was 19.82 inches or 1.71 inches greater than the norm for this period. Similar trends are likely for the NFSS, as evident in the water level data. Even though 2008 was a wetter summer than 2007, several wells appeared dry or reflected local dryness during the sounding periods: 215A (August/October), 810A (February/October), OW12B (October), 314 (dry all year), and 422 (dry all year). Wells 314 and 422 indicate that they were screened too high (within the vadose zone) and are routinely dry, whereas wells 215A, 810A, and OW12B simply exhibit large head fluctuations throughout the screened interval.

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 and Middle Silt Till Units (as a regional 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 lower water levels in the upper water-bearing zone (i.e., October was the low-water period in the upper water-bearing), although the lower water-bearing zone lags by several months due to the separation (i.e., February was the low-water period for the lower water-bearing zone). The three-month time lag between head extremes in 2007 was nearly six months in 2008, which indicates the aquitard restricts vertical flow between the units, even where thin (e.g., a 2.5-foot thickness at wells OW10A and OW10B still produces up to 5.59 ft (1.7 meters) of head differential.

Vertical gradients derived from heads in monitoring well pairs vary with seasonality. Flow from the upper zone to the lower zone was dominant during the first and second quarterly measurements. However, during the third and fourth quarters, the majority of elevations in the lower system were greater than those measured in the upper system, albeit very slight in some cases. This seasonal variation in the direction and magnitude of vertical gradients will affect vertical flow between water-bearing zones and potentially long-term transport of contaminants between water-bearing zones, thereby maintaining the upper zone as the primary transport pathway at the NFSS. While groundwater flow is primarily horizontal in these upper and lower zones, the upward vertical gradients help impede the potential for downward migration of contaminants into the lower zone from possible contaminant sources in the upper zone.

5.6.1.3 Groundwater Flow

Water-bearing hydrostratigraphic zones in the layered glacial sediments underlying the NFSS include the upper surficial clay till unit, the lower alluvial sand and gravel, and the weathered bedrock unit (i.e., approximated as the upper 10 ft or 3 meters of bedrock). Groundwater-level data indicate that the intervening glaciolacustrine clay unit hydraulically separates the upper clay till unit from the lower sand and gravel unit; this glaciolacustrine clay is present across the entire site. The average horizontal gradients in the upper system range between 0.0026 and 0.01 ft/ft and are dependent on seasonality and regional to local flow conditions (i.e., flow across the site versus along the IWCS to the central drainage ditch).

Local groundwater flow in the upper water-bearing zone is interrupted by the central drainage ditch throughout the year, whereas smaller tributary ditches appear to have a lesser influence on site-wide groundwater flow. The northwesterly regional flow gradient across the site is presented to illustrate the potential for long-term (and larger scale) flow and transport directions from the site.

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-ft or 3 meters deep); consequently they do not fully penetrate the upper water-bearing zone and some groundwater is assumed to pass beneath the ditches during high-water periods. Water-level contours may be drawn through the ditches to reflect some groundwater flow beneath them (where data allow). During the

summer, vegetation within the ditches will evapotranspire groundwater and promote lower local heads near site ditches.

The lower groundwater system generally shows a northerly to northwesterly flow under gradients of 0.0022 to 0.003 ft/ft. This flow vector has been affected by the excavation of a clay borrow operation west of the site (mining the Glaciolacustrine Clay), where local surface-water recharges the lower water-bearing zone in the spring, which has caused the normally northwestern gradients to have a northerly component during the high-water period (May 2008). The local groundwater low underlying the IWCS is likely a combined artifact of impressed heads to the west, variations in the thickness of the gray clay aquitard and underlying hydrostratigraphic layers, and topography of the Queenston Shale. The October potentiometry in Figure 5 shows an alleviation of the impressed heads to the west and a return to normal flow westerly directions, which may be due to lower rainfall and evaporative losses at the nearby clay pit.

A groundwater flow velocity of 38 cm/y (15 in/y) was estimated at NFSS in 1994 (USDOE 1994b). More recent RI modeling estimated an average flow velocity of 28 cm/y (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.

5.6.2 Groundwater Analytical Results

5.6.2.1 Field Parameters

Table 5, Appendix A summarizes field measurements (temperature, pH, specific conductance, oxidation-reduction potential, and turbidity) for 2008 environmental surveillance sampling, including those wells added to the ESP for 2008.. These measurements represent water conditions at the time of sampling.

5.6.2.2 Water Quality Parameters

At 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 produced by long residence times associated with long flow paths from aerial recharge zones. It is likely that the lower groundwater system receives recharge along the base of the Niagara Escarpment, situated approximately 3.2 km south of the site (USDOE 1994b) and, to a lesser extent, via downward flow from the upper unit during spring recharge. Water quality parameter data for 2008 spring and fall groundwater are provided in Tables 10 and 11, Appendix A.

Analytical spring and fall results for sodium and sulfate were consistently above the drinking water standards in both the up-gradient (background) and down-gradient samples. These values indicate that groundwater in the area is naturally saline and confirm the findings of regional to local studies that state groundwater quality is poor near the site because of high mineralization (La Sala 1968; Wehran 1977; Acres American 1981).

Groundwater at NFSS is not used as a public water supply, although the comparison to the drinking water standard will continue to be used to provide a conservative evaluation of groundwater analytical results.

For comparative purposes, the NYSDEC Class GA water quality standards are utilized when primary Federal standards are not available.

- Sodium samples collected at the original surveillance seven wells (A45, A50, BO2W20S, OW04B, OW06B, OW13B, OW15B and OW17B) had detects in all seven, including the background well, with all concentrations consistently greater than the NYSDEC Class GA groundwater quality standard of 20,000 µ/L for sodium.

Sodium concentration ranges in GW for 2008

Spring	58,800 - 80,200 µg/L
Fall	59,600 - 72,800 µg/L

- Sulfate samples collected at the eighteen surveillance wells had detects in all with concentrations greater than the NYSDEC Class GA groundwater quality standard for sulfate of 250 mg/L.

Sulfate concentration ranges in GW for 2008

Spring	286 - 4,900 mg/L
Fall	348 - 1,030 mg/L

- Fluoride samples collected at all eighteen surveillance wells had detects. All being below the NYSDEC Class GA groundwater quality standard of 1.5 mg/L for fluoride with the exception of GW well 415A for the spring at 2.980 mg/L and fall finding at 3.490 mg/L.

Fluoride concentration ranges in GW for 2008

Spring	0.125 - 2.980 mg/L
Fall	0.117 - 3.490 mg/L

5.6.2.3 Groundwater - Radioactive Constituents

In 2008, as mentioned in section: 1.2 ESP Enhancements for 2008, the fall sampling event was added in 2008 making sampling biannual (spring and fall) for groundwater. In 2008, unfiltered groundwater samples collected for the spring and fall sampling events from seventeen groundwater monitoring wells (16-upper water-bearing zone and 1-lower water-bearing zone) were analyzed for uranium-234, uranium-235, and uranium-238. Eight wells in the upper water-bearing zone, from the previous surveillance program (1997-2008), were analyzed for radium-226, radium-228, thorium-230, thorium-228 and thorium-232. See Table 1b (Appendix A, page T-8) radiological parameters for those ESP groundwater wells, including those wells added to the ESP added in 2008. Environmental surveillance analytical results for radioactive constituents in groundwater are presented in Appendix A, Table 10 and 11. See Figures 23 through 26 for trended data collected during spring sampling from the years 1997 to 2008.

Combined concentrations of radium-226 and radium-228 at NFSS are below the SDWA MCL of 5 pCi/L.

Thorium-230 and thorium-232 concentrations are below USDOE DCGs (100 pCi/L and 50 pCi/L, respectively) and the SDWA MCL of 15 pCi/L, adjusted gross alpha MCL, for combined thorium-230 and thorium-232 in drinking water. The 2008 total uranium analytical results are consistent with the historical spring sampling results.

Total uranium concentrations are below the SDWA MCL 30 µg/L or 27 pCi/L for wells: BO2W20S, A50, OW13B, OW06B, OW15B, OW17B, BH49A, OW04A, OW18B, and 415A. The following wells exceeded SDWA MCL of 30 µg/L or 27 pCi/L: A45, OW04B, 313, 302A, 505, A42, OW11B. Historical (for spring sampling) Technical Memorandum results are consistent with the 2008 findings and indicate the groundwater is contaminated from legacy residue/waste handling and/or surface-storage practices. Declining to dynamic steady-state (i.e., annually fluctuating about a mean) uranium trends in wells surrounding the IWCS also are indicative of attenuating legacy sources (i.e., surface stored wastes) that contaminated soil and groundwater prior to the IWCS construction. Since 1992, total uranium concentrations in all sampled wells have been less than (background not subtracted) the USDOE DCG of 600 pCi/L for water.

All analytical results for radium-226, radium-228, thorium-230, thorium-232, and total uranium in groundwater were well below the USDOE DCGs. At all sampled locations, results were less than the USDOE guideline for mixtures of radionuclides (using the sum-of-the-ratios method). Current analytical results (background not subtracted) are summarized below.

Note: Groundwater at NFSS is not a drinking water source. Samples from all seventeen wells have unfiltered results for comparison purposes.

- The 2008 total (unfiltered) analytical results for radium-226 were:

Ra-226 Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	Non-Detect (ND)	Non-Detect (ND)
Range of 7 wells sampled	Non-Detect - 0.490	Non-Detect - 1.050

The USDOE DCG for radium-226 is 100 pCi/L above background and the SDWA MCL for combined radium-226 and radium-228 is 5 pCi/L. Total radium (Ra-226 and Ra-228) concentrations in groundwater are below the SDWA limit of 5 pCi/L and the USDOE DCG of 100 pCi/L, as shown in Figure 23 from 1997 to 2008 (spring sampling results).

- The 2008 total (unfiltered) analytical results for radium-228 were:

Ra-228 Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	Non-Detect (ND)	1.090
Range of 7 wells sampled	Non-Detect - 0.826	Non-Detect - 1.080

The USDOE DCG for radium-228 is 100 pCi/L above background and the SDWA MCL for combined radium-226 and radium-228 is 5 pCi/L. Total radium (Ra-226 and Ra-228) concentrations in groundwater

are below the SDWA limit (5 pCi/L) and the USDOE DCG (100 pCi/L), as shown in Figure 23 from 1997 to 2008 (spring sampling results).

- The 2008 total (unfiltered) analytical results for thorium-228 were:

Th-228 Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	Non-Detect (ND)	Non-Detect (ND)
Range of 7 wells sampled	Non-Detect - 0.309	Non-Detect - 0.050

The USDOE DCG for thorium-228 is 400 pCi/L above background and the SDWA MCL for thorium-228, thorium-230 and thorium-232 is 15 pCi/L. Thorium-228 concentrations in groundwater are below the SDWA limit of 15 pCi/L and the USDOE DCG of 400 pCi/L.

- The 2008 total (unfiltered) analytical results for thorium-230 were:

Th-230 Background Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	Non-Detect (ND)	Non-Detect (ND)
Range of 7 wells sampled	Non-Detect - 0.490	Non-Detect - 1.050

The USDOE DCG for thorium-230 is 300 pCi/L above background and the SDWA MCL for thorium-230 and thorium-232 is 15 pCi/L, adjusted gross alpha MCL (2008 background levels was non-detect). Thorium-230 concentrations in groundwater are below the SDWA limit of 15 pCi/L and the USDOE DCG of 300 pCi/L, as shown in Figure 24 from 1997 to 2008 (spring sampling results).

- The 2008 total (unfiltered) analytical results for thorium-232 were:

Th-232 Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	Non-Detect (ND)	Non-Detect (ND)
Range of 7 wells sampled	All Non-Detect	All Non-Detect

The USDOE DCG for thorium-232 is 50 pCi/L above background and the SDWA MCL for thorium-230 and thorium-232 is 15 pCi/L, adjusted gross alpha MCL. Thorium-232 concentrations in groundwater are below the SDWA limit of 15 pCi/L and the USDOE DCG of 50 pCi/L, as shown in Figure 25 from 1997 to 2008 (spring sampling results).

- The 2008 total (unfiltered) analytical results for total uranium were:

Total Uranium Findings (pCi/L) in 2008

Location	Spring	Fall
BO2W20S (Background)	9.540	8.849
Range of 15 wells sampled in upper water-bearing zone	5.023 – 253.680	5.770 – 175.970
Lower water-bearing zone sample (OW04A)	0.929	2.085

The USDOE DCG for total uranium is 600 pCi/L above background. The USEPA National Primary Drinking Water Regulation for Radionuclides (Final Rule – effective 2003) states the SDWA MCL for total uranium is 30 µg/L or 27 pCi/L. As shown below, seven wells exceed this limit for unfiltered groundwater samples.

Total Uranium SWDA Exceedances of 30 µg/L or 27 pCi/L in 2008

Location	Spring		Fall	
	pCi/L	µg/L	pCi/L	µg/L
A45	28.699	31.888	33.740	37.489
OW04B	48.500	53.889	39.489	43.877
313*	34.627	38.474	39.053	43.392
505*	27.206	30.229	25.303	28.114
302A*	99.680	110.756	101.380	112.644
A42*	61.880	68.756	78.820	87.578
OW11B*	253.680	281.867	175.970	195.522

*Added to the ESP in 2008.

As discussed previously, the above wells are in areas that have been affected by past storage and handling of materials at NFSS. Total uranium concentrations in groundwater are below the USDOE DCG of 600 pCi/L, as shown in Figure 26. *Note: The total uranium MCL of 30 µg/L is for comparative purposes only and includes background.*

5.6.2.4 Groundwater - Chemical Constituents

Groundwater at NFSS is not used as a public drinking water supply, although sampling results are compared to the SDWA MCLs and New York State Water Quality Regulation Class GA standards as a conservative baseline. See Table 1b (Appendix A, page T-8) analytical parameters for those ESP groundwater wells. The 2008 environmental surveillance analytical results for metals in groundwater are presented in Tables 10 and 11, Appendix A, and discussed below.

5.6.2.4.1 Metals

Metals (expanded parameter added to the existing ESP groundwater wells) that exceed the above mentioned comparison criteria for metals are discussed below.

- Sodium exceedance is covered in Section 5.6.2.2 Water Quality Parameters.
- Metals samples collected at the original surveillance seven wells (A45, A50, BO2W20S, OW04B, OW06B, OW13B, OW15B and OW17B) had exceedances in all seven for iron including the background well. All had concentrations consistently greater than the SDWA (secondary) MCL and NYSDEC Class GA groundwater quality standard of 300 µg/L for iron with the exception of well OW17B (fall sampling).

Iron concentration ranges in GW in 2008

Spring	390 - 2,200 µg/L
Fall	237 - 2,450 µg/L

5.6.2.4.2 Volatile Organic Compounds (VOC)

The 2008 environmental surveillance analytical results for VOCs in groundwater were taken for the purpose of monitoring two wells that had VOC findings in the RI. The two wells, added to the ESP in 2008, are in areas that have been affected by past processing and handling of materials at NFSS. Analytical results for VOCs are presented in Tables 10 and 11, Appendix A, and discussed below.

- Well 201A findings were all non-detect for VOCs for both the spring and fall sampling rounds.
- Well 415 had exceedances of SDWA MCLs and New York State Water Quality Regulation Class GA standards for the spring and fall sampling rounds.

Well 415 VOC findings (µg/L) in 2008

VOC Compound	Spring	Fall	Federal Regulations MCLs	NY State Water Quality Stds.
Acetone	201	ND at 300	Not Established	Not Established
cis-1,2-Dichloroethylene	9,650	11,200	70	5
Tetrachloroethylene	29,800	22,800	5	5
trans-1,2-Dichloroethylene	104	139	100	5
Trichloroethylene	11,500	10,200	5	5
Vinyl chloride	513	763	2	2

6.0 CONCLUSIONS

6.1 External Gamma Radiation

For 2008 the calculated hypothetical doses from external gamma radiation are 0.005 mrem for the nearest resident and 0.003 mrem for the nearest off-site worker.

6.2 Radon Gas

Results of the 2008 radon gas surveillance program indicate radon gas emissions are comparable to background. The radon gas concentrations at the site were consistently low (non-detect to 0.7 pCi/L, including background [Appendix A, Table 3]). All radon gas concentration analytical results at NFSS were well below the USDOE limit for radon-222 of 3.0 pCi/L above background (Appendix A, Table 3).

6.3 Radon-222 Flux

The 2008 radon-222 flux measurements were indistinguishable from background. Results ranged from non-detect to 0.23490 pCi/m²/s, with an average (of detects and non-detects) result of 0.05368 pCi/m²/s (Appendix A, Table 4). The average value is less than one percent of the standard of 20 pCi/m²/s specified in 40 CFR Part 61, Subpart Q of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), demonstrating the effectiveness of the containment cell design and construction in mitigating radon-222 migration.

6.4 Airborne Particulate Dose

The 2008 airborne particulate annual dose from the wind erosion of soil to a hypothetical maximally exposed individual is calculated at 0.00067 mrem (Appendix C, FUSRAP CY2008 NESHAP Annual Report for Niagara Falls Storage Site (NFSS), section 4.3). The hypothetical annual dose to the individual can be compared to the 10 mrem/year dose standard in 40 CFR Part 61, Subpart H of NESHAPs. The 2008 hypothetical airborne particulate annual collective dose to the population within an 80 km radius of the site is calculated at 0.047 person-rem (Appendix C, FUSRAP CY2008 NESHAP Annual Report for Niagara Falls Storage Site (NFSS), section 5.1).

6.5 Cumulative Dose from External Gamma Radiation and Airborne Particulates

The CY 2008 maximum annual total external gamma radiation and airborne particulate dose to a hypothetical individual is 0.006 mrem [0.005 + 0.00067 (assumes same individual receives both maximum doses from external and airborne dose pathways)], Appendix B, CY2008 Calculation Of External Gamma Radiation Dose Rates For Niagara Falls Storage Site (NFSS), Section 4.2 and Appendix C, FUSRAP CY2008 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS), Section 4.3, respectively. This value can be compared to the USDOE limit of 100 mrem/year and the US average per capita background dose of approximately 620 mrem/year.

6.6 Surface Water

In 2008, on-site radionuclide concentrations in surface water samples were consistent with radiological historical results that indicate no evidence of a release. Chemical findings had one exceedance for sampling location SWSD010 (fall sampling) for VOC-tetrachloroethylene at 7.91 µg/L which exceeds the SDWA and state MCL (5 µg/L).

6.7 Sediment

In 2008, on-site radionuclide concentrations in sediment samples were consistent with historical radiological results that are comparable to background and indicate no evidence of a release. Metals (copper, lead, mercury, nickel and zinc) had exceedances of the NYS unrestricted use of soil cleanup objective at several locations, but not that of the NYS restricted use soil cleanup objectives (industrial). All volatile organic compounds (VOC) samples were below that of the NYS unrestricted use of soil cleanup objective. One PAH sample location, from the fall sampling event, had an exceedance of NYS unrestricted use of soil cleanup objective for several PAHs. That exceedance was less than the NYS restricted use soil cleanup objectives (industrial) with the exception of PAH benzo(a)pyrene. Two polychlorinated biphenyls (PCB) were slightly elevated above the NYS unrestricted use of soil cleanup objective at two separate locations, but below that of the industrial-use objective.

6.8 Groundwater

Current and past on-site radionuclide concentrations in groundwater samples from the upper water-bearing zone indicate total uranium levels in excess of background; total uranium levels in several wells exceed the SDWA MCL. Wells with the most elevated uranium levels, as identified during the RI, were selected for inclusion into the environmental surveillance program, beginning in 2008, in addition to those historically sampled as part of the program. Historic and RI findings indicate that the most likely source of these elevated uranium levels is past radioactive waste storage practices as they are limited in extent, do not indicate a continuously increasing trend (see Figure 26), and are generally coincident with historical use areas. Uranium levels in groundwater will continue to be monitored as part of the environmental surveillance program and the on-going CERCLA process will evaluate the extent of uranium in groundwater in excess of background levels and applicable regulatory limits throughout NFSS.

7.0 REFERENCES

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APPENDIX A

NFSS 2008 ENVIRONMENTAL SUREVEILLANCE TECHNICAL MEMORANDUM TABLES AND FIGURES

Environmental Monitoring at NFSS

This appendix documents the results of environmental monitoring activities conducted in 2008 and supplements the environmental surveillance information included in the body of this technical memorandum.

These activities are described to present a more complete picture of the site activities during the year and to provide technical reviewers with sufficient information to determine how much these activities influenced site conditions and ultimately the environmental surveillance program.

Two distinct activities compose the FUSRAP monitoring program at NFSS: environmental monitoring and environmental surveillance. Environmental monitoring consists of measuring the quantities and concentrations of pollutants in solid wastes, liquid effluents, and air that are discharged directly to the environment from on-site activities. Environmental surveillance documents the effects, if any, of USACE activities on on-site and off-site environmental and natural resources. At FUSRAP sites, because there are typically no on-site waste treatment facilities with routine point discharges, the monitoring program consists primarily of environmental surveillance (USACE 2008). The Environmental Surveillance Technical Memorandum specifically reports the results of routine environmental surveillance sampling and, at applicable sites, includes information about routine environmental monitoring (storm water discharges and radon flux measurement).

From November 1999 to October 2003, surface water, sediment, soil, groundwater, and other media was sampled to support a three-phased Remedial Investigation (RI) at NFSS.

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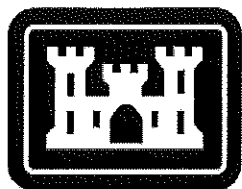
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FUSRAP NIAGARA FALLS STORAGE SITE

2008

TABLES

ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM



**US Army Corps
of Engineers ®**

Buffalo District

Table A.1

(Section 1.2 Unit Conversions)

Units of Measurement and Conversion Factors – Dose and Radioactivity

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

Table A.2**Units of Measurement and Conversion Factors - Mass, Length, Area, and Volume**

Parameter	English Units	SI Units	Conversion Factor
Mass	Ounce (oz)	gram (g)	1 g = 0.035 oz
	Pound (lb)	Kilogram (kg)	1 kg = 2.2046 lb
Length	Inch (in.)	centimeter (cm)	1 cm = 0.394 in.
	foot (ft)	meter (m)	1 m = 3.281 ft
	mile (mi.)	kilometer (km)	1 km = 0.621 mi.
Area	Acre	hectare (ha)	1 ha = 2.47 acres
Volume	Fluid ounce (fl.)	Milliliter (mL)	1 mL = 0.0338 fl. oz.
	gallon (gal)	liter (L)	1 L = 0.264 gal
	Cubic yard (yd ³)	cubic meter (m ³)	1 m ³ = 1.30795 yd ³

Table B

(Section: 2.1 External Gamma Radiations and Air (Radon Gas and Airborne Particulates))

Summary of Radiological Standards and Guidelines for External Gamma Radiation and Air

Parameter	USDOE Order 5400.5 ^a	Other Federal Standard or Guidelines
Radon-222 flux	20 pCi/m ² /s	20 pCi/m ² /s ^b
Radon-222	3.0 pCi/L ^c	-
Radionuclide emissions (airborne particulates and radioactive gases excluding radon-220 and radon-222)	10 mrem/y	10 mrem/y ^b
Effective dose equivalent (total contribution from all sources ^e)	100 mrem/y	100 mrem/y ^d

a. Guidelines provided in the USDOE Order are above background concentrations or exposure rates.

b. Federal (USEPA) Standard from 40 CFR, Part 61, subparts H (radionuclide emissions) and Q (radon-222 flux).

c. Contributing sources at NFSS consist of external gamma radiation exposure, radionuclide emissions listed above, and ingested radionuclides in water and soil/sediment (listed in the following table).

d. Federal (USNRC) Standard 10 CFR 20

e. The guideline of 3.0 pCi/L is based on an annual average value at or above any location outside of the facility site.

Table C**(Section: 2.2.2 Safe Drinking Water Act (SDWA))****Summary of Radiological Standards and Guidelines for Water and Sediment**

Parameter	USDOE DCG ^a for Water ^b	Other Federal Standards	USDOE Guideline Limit for Residual Radioactivity in Surface Soil ^{c,d}
Total uranium	600 pCi/L	30 µg/L ^e	90 pCi/g
Thorium-228	400 pCi/L	15 pCi/L ^f	5 pCi/g
Thorium-232	50 pCi/L	15 pCi/L ^f	5 pCi/g
Thorium-230	300 pCi/L	15 pCi/L ^f	5 pCi/g
Combined Radium-226&228	100 pCi/L	5 pCi/L ^e	5 pCi/g

a. USDOE derived concentration guide USDOE Order 5400.5) for drinking water. Groundwater at NFSS is not a drinking water source. The above concentration is for comparative purposes only.

b. Surface water and groundwater (non-drinking water values); criteria represent concentrations above background. If a mixture of radionuclides is present, the sum of the ratios of each isotope to its respective DCG must be less than one.

c. Above background concentrations in soil, averaged over the topmost 15-cm of soil.

d. There are no standards for sediment; therefore, the USDOE residual (radium and thorium) and site-specific (uranium) surface soil cleanup guideline criteria are used as a basis for evaluating analytical results for sediment. If a mixture of the radionuclides is present in soil, then the sum of the ratios of the concentration of each isotope to the allowable limit must be less than one. This guideline applies for total uranium in natural isotopic abundance.

e. This regulation for uranium of 30 µg/L became effective December 8, 2003 –National Primary Drinking Water Regulations; Radionuclides; Final Rule (Federal Register- December 7, 2000). Current SDWA MCL for the combined concentration of radium-226 and radium-228 in drinking water is 5 pCi/L (40CFR141.1) Groundwater at NFSS is not a drinking water source. The above concentration is for comparative purposes only.

f. "Gross alpha activity MCL is 15 pCi/L, including the contribution from radium-226 but excluding the contributions from radon and uranium - National Primary Drinking Water Regulations; Maximum contaminant levels for radionuclides; (40CFR141.66-Subpart G (c))

Table D

State and Federal Comparison Values for Groundwater, Surface Water and Sediment

Parameter ^c	Analyte	Water ^a			Sediment ^b		
		Units ^d	Federal Regulations MCLs*	NY State Water Quality Stds.*	Units ^d	NY State-Unrestricted Use**	NY State-Restricted Use - Industrial**
Water Quality	Alkalinity, Total as CaCO ₃	mg/L	500 ¹	500		NA	NA
Water Quality	Total Dissolved Solids	mg/L	NE	NE		NA	NA
						NA	NA
Anion	Chloride	mg/L	250 ¹	250		NA	NA
Anion	Fluoride	mg/L	4	1.5		NA	NA
Anion	Nitrate	mg/L	10	10		NA	NA
Anion	Nitrite	mg/L	1	1		NA	NA
Anion	Ortho-phosphate	mg/L	NE	NE		NA	NA
Anion	Sulfate	mg/L	250 ¹	250		NA	NA
Metal	Aluminum	µg/L	50-200 ¹	NE	mg/kg	NE	NE
Metal	Antimony	µg/L	6	3	mg/kg	NE	NE
Metal	Arsenic	µg/L	10	25	mg/kg	13	16
Metal	Barium	µg/L	2000	1000	mg/kg	350	10,000
Metal	Beryllium	µg/L	4	11	mg/kg	7	2,700
Metal	Boron	µg/L	NE	1000	mg/kg	NE	NE
Metal	Cadmium	µg/L	5	5	mg/kg	3	60
Metal	Calcium	µg/L	NE	NE	mg/kg	NE	NE
Metal	Chromium	µg/L	100	50	mg/kg	NE	NE
Metal	Cobalt	µg/L	NE	NE	mg/kg	NE	NE
Metal	Copper	µg/L	1300	200	mg/kg	50	10,000
Metal	Iron	µg/L	300 ¹	300	mg/kg	NE	NE
Metal	Lead	µg/L	15	25	mg/kg	63	3,900
Metal	Lithium	µg/L	NE	NE	mg/kg	NE	NE
Metal	Magnesium	µg/L	NE	NE	mg/kg	NE	NE
Metal	Manganese	µg/L	50 ¹	300	mg/kg	1,600	10,000
Metal	Mercury	µg/L	2	0.7	µg/kg	180 ¹	5700 ¹
Metal	Nickel	µg/L	NE	100	mg/kg	30	10,000
Metal	Potassium	µg/L	NE	NE	mg/kg	NE	NE
Metal	Selenium	µg/L	50	10	mg/kg	4	6,800
Metal	Silver	µg/L	100 ¹	50	mg/kg	2	6,800
Metal	Sodium	µg/L	NE	20000	mg/kg	NE	NE
Metal	Thallium	µg/L	2	NE	mg/kg	NE	NE
Metal	Vanadium	µg/L	NE	14	mg/kg	NE	NE
Metal	Zinc	µg/L	5000 ¹	NE	mg/kg	109	10,000

Table D

State and Federal Comparison Values for Groundwater, Surface Water and Sediment

Parameter ^c	Analyte	Water ^a			Sediment ^b		
		Units ^d	Federal Regulations MCLs*	NY State Water Quality Stds.*	Units ^d	NY State-Unrestricted Use**	NY State-Restricted Use - Industrial**
VOC	1,1,1-Trichloroethane	µg/L	200	5	µg/kg	680	1,000,000
VOC	1,1,2,2-Tetrachloroethane	µg/L	NE	5	µg/kg	NE	NE
VOC	1,1,2-Trichloroethane	µg/L	5	1	µg/kg	NE	NE
VOC	1,1-Dichloroethane	µg/L	NE	5	µg/kg	270	480,000
VOC	1,1-Dichloroethylene	µg/L	7	5	µg/kg	330	1,000,000
VOC	1,2-Dichloroethane	µg/L	5	0.6	µg/kg	20	60,000
VOC	1,2-Dichloropropane	µg/L	5	1	µg/kg	NE	NE
VOC	2-Butanone	µg/L	NE	NE	µg/kg	120	1,000,000
VOC	2-Hexanone	µg/L	NE	NE	µg/kg	NE	NE
VOC	4-Methyl-2-pentanone	µg/L	NE	NE	µg/kg	NE	NE
VOC	Acetone	µg/L	NE	NE	µg/kg	50	1,000,000
VOC	Benzene	µg/L	5	1	µg/kg	60	89,000
VOC	Bromodichloromethane	µg/L	NE	NE	µg/kg	NE	NE
VOC	Bromoform	µg/L	NE	NE	µg/kg	NE	NE
VOC	Bromomethane	µg/L	NE	5	µg/kg	NE	NE
VOC	Carbon disulfide	µg/L	NE	60	µg/kg	NE	NE
VOC	Carbon tetrachloride	µg/L	5	5	µg/kg	760	44,000
VOC	Chlorobenzene	µg/L	100	5	µg/kg	1,100	1,000,000
VOC	Chloroethane	µg/L	NE	5	µg/kg	NE	NE
VOC	Chloroform	µg/L	NE	7	µg/kg	370	700,000
VOC	Chloromethane	µg/L	NE	5	µg/kg	NE	NE
VOC	cis-1,2-Dichloroethylene	µg/L	70	5	µg/kg	250	1,000,000
VOC	cis-1,3-Dichloropropylene	µg/L	NE	0.4 ²	µg/kg	NE	NE
VOC	Ethylbenzene	µg/L	700	5	µg/kg	1,000	780,000
VOC	Methylene chloride	µg/L	5	5	µg/kg	50	1,000,000
VOC	Styrene	µg/L	100	5	µg/kg	NE	NE
VOC	Tetrachloroethylene	µg/L	5	5	µg/kg	1,300	300,000
VOC	Toluene	µg/L	1000	5	µg/kg	700	1,000,000
VOC	trans-1,2-Dichloroethylene	µg/L	100	5	µg/kg	190	1,000,000
VOC	trans-1,3-Dichloropropylene	µg/L	NE	0.4 ²	µg/kg	NE	NE
VOC	Trichloroethylene	µg/L	5	5	µg/kg	470	400,000
VOC	Vinyl chloride	µg/L	2	2	µg/kg	20	27,000
VOC	Xylenes (total)	µg/L	1000	5 ³	µg/kg	260	1,000,000

Table D

State and Federal Comparison Values for Groundwater, Surface Water and Sediment

Parameter ^c	Analyte	Water ^a			Sediment ^b		
		Units ^d	Federal Regulations MCLs*	NY State Water Quality Stds.*	Units ^d	NY State-Unrestricted Use**	NY State-Restricted Use - Industrial**
PAH	Acenaphthene	µg/L	NE	NE	µg/kg	20,000	1,000,000
PAH	Acenaphthylene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PAH	Anthracene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PAH	Benzo(a)anthracene	µg/L	NE	NE	µg/kg	1,000	11,000
PAH	Benzo(a)pyrene	µg/L	0.2	ND	µg/kg	1,000	1,100
PAH	Benzo(b)fluoranthene	µg/L	NE	NE	µg/kg	1,000	11,000
PAH	Benzo(ghi)perylene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PAH	Benzo(k)fluoranthene	µg/L	NE	NE	µg/kg	800,000	110,000
PAH	Chrysene	µg/L	NE	NE	µg/kg	1,000	110,000
PAH	Dibenzo(a,h)anthracene	µg/L	NE	NE	µg/kg	330	1,100
PAH	Fluoranthene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PAH	Fluorene	µg/L	NE	NE	µg/kg	30,000	1,000,000
PAH	Indeno(1,2,3-cd)pyrene	µg/L	NE	NE	µg/kg	500	11,000
PAH	Naphthalene	µg/L	NE	NE	µg/kg	12,000	1,000,000
PAH	Phenanthrene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PAH	Pyrene	µg/L	NE	NE	µg/kg	100,000	1,000,000
PCB	Aroclor-1016	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1221	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1232	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1242	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1248	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1254	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
PCB	Aroclor-1260	µg/L	0.5	0.09 ¹	µg/kg	100	25,000
Pesticide	4,4'-DDD	µg/L	NE	0.3	µg/kg	3.3	180,000
Pesticide	4,4'-DDE	µg/L	NE	0.3	µg/kg	3.3	120,000
Pesticide	4,4'-DDT	µg/L	NE	0.2	µg/kg	3.3	94,000
Pesticide	Aldrin	µg/L	NE	ND	µg/kg	5	1,400
Pesticide	alpha-BHC	µg/L	NE	0.01	µg/kg	20	6,800
Pesticide	alpha-Chlordane	µg/L	NE	NE	µg/kg	94	47,000
Pesticide	beta-BHC	µg/L	NE	0.04	µg/kg	36	14,000
Pesticide	delta-BHC	µg/L	NE	0.4	µg/kg	40	1,000,000
Pesticide	Dieldrin	µg/L	NE	0.001	µg/kg	5	2,800
Pesticide	Endosulfan I	µg/L	NE	NE	µg/kg	2,400 ³	920,000 ³
Pesticide	Endosulfan II	µg/L	NE	NE	µg/kg	2,400 ³	920,000 ³
Pesticide	Endosulfan sulfate	µg/L	NE	NE	µg/kg	2,400 ³	920,000 ³
Pesticide	Endrin	µg/L	2	ND	µg/kg	14	410,000
Pesticide	Endrin aldehyde	µg/L	NE	5	µg/kg	NE	NE
Pesticide	Endrin ketone	µg/L	NE	5	µg/kg	NE	NE
Pesticide	gamma-BHC (Lindane)	µg/L	0.2	0.5	µg/kg	100	23,000
Pesticide	gamma-Chlordane	µg/L	NE	NE	µg/kg	NE	NE
Pesticide	Heptachlor	µg/L	0.4	0.4	µg/kg	42	29,000
Pesticide	Heptachlor epoxide	µg/L	0.2	0.3	µg/kg	NE	NE
Pesticide	Methoxychlor	µg/L	40	35	µg/kg	NE	NE
Pesticide	Toxaphene	µg/L	3	0.06	µg/kg	NE	NE

Table D**State and Federal Comparison Values for Groundwater, Surface Water and Sediment**

Parameter ^c	Analyte	Water ^a			Sediment ^b		
		Units ^d	Federal Regulations MCLs*	NY State Water Quality Stds.*	Units ^d	NY State- Unrestricted Use**	NY State- Restricted Use - Industrial**

a. Surface Water and Groundwater comparison criteria.

Surface Water and Groundwater at NFSS is not a drinking water source.

The above federal and state regulation concentrations are for comparative purposes only.

***Federal Regulations:**

National Primary Drinking Water Regulations 40CFR141.62&63

***New York State:**

New York State Standards -Water Quality Criteria (class GA) per 6 NYCRR, Part 703.

NE - Not Established

Note:

NA - Not applicable

1. National Secondary Drinking Water Regulations (40CFR143.3)

2. Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.

3. Not a sum total for Dimethyl Benzene (Xylene) , applies to 1,2--Xylene, 1,3-Xylene and 1,4-Xylene individually.

b. Sediment comparison criteria:

Values are provided for comparative purposes only. ARARs and media-specific cleanup goals will be evaluated independently and presented in future CERCLA decision documents that will be available for public comment.

****New York State:**

6 NYCRR PART 375

NY State- Unrestricted Use Soil Cleanup Objectives Table 375-6.8(a)

NY State- Restricted Use Soil Cleanup Objectives Table 375-6.8(b) -Industrial

NE - Not Established

Note:

NA - Not applicable

4. Total Mercury

5. Sum of endosulfan I, endosulfan II, and endosulfan sulfate

c. PARAMETER

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

d. UNITS

pCi/g - picocuries per gram

µg/L - microgram per liter (ppb)

mg/kg - milligrams per kilograms (ppm)

µg/kg - micrograms per kilogram (ppb)

Table E**(Section: 4.0 SURVEILLANCE METHODOLOGIES)****FUSRAP Instruction Guides Used for Environmental Surveillance Activities**

Document Number	Document Title
191-IG-007	Groundwater Level and Meteorological Measurements (BNI 1996b)
191-IG-011	Decontamination of Field Sampling Equipment at FUSRAP Sites (BNI 1996c)
191-IG-028	Surface Water and Sediment Sampling Activities (BNI 1993a)
191-IG-029	Radon/Thoron and TETLD Exchange (BNI 1993b)
EPA/540/S-95/504	EPA Ground Water Issue Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.

Table 1a
Environmental Surveillance Summary
External Radiation, Radon Gas and Radon-222 Flux
Niagara Falls Storage Site

1 of 3

TABLE 1a		Station Identification	Number of Analyses or Measurement																Total Analyses per Year
Measured Parameter	No. of Sample Locations				Sample Duplicate				Ship Blank				Contingency Sample						
	CY Quarter				CY Quarter				CY Quarter				CY Quarter						
	1		2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
	LABORATORY MEASUREMENTS																		
External gamma radiation (OSLs) ^a	1, 7, 8, 10, 11, 12, 13, 15	20	20	1		1			1			1		20	20		84		
Radon gas	18, 21, 23, 24, 28, 29, 36																		
	105, 116, 120 122, 123	20	20	1		1											42		
Radon-222 flux	Waste Containment Structure			183													183		

a. OSL = Optically Stimulated Luminescence

Table 1b
Environmental Surveillance Summary
Spring and Fall Groundwater Sampling
Niagara Falls Storage Site

Well Location	*Laboratory Analytical Parameters									**Field Parameters
	Iso Uranium	Iso Thorium ¹	Radium -226	Radium -228	Metals ¹	VOAs	Alkalinity	TDS	Anions	
A45	X	X	X	X	X		X	X	X	X
A50	X	X	X	X	X		X	X	X	X
BO2W20S	X	X	X	X	X		X	X	X	X
OW04B	X	X	X	X	X		X	X	X	X
OW06B	X	X	X	X	X		X	X	X	X
OW13B	X	X	X	X	X		X	X	X	X
OW15B	X	X	X	X	X		X	X	X	X
OW17B	X	X	X	X	X		X	X	X	X
Field Duplicate	X	X	X	X	X		X	X	X	X
OW18B ²	X						X	X	X	X
313 ²	X						X	X	X	X
505 ²	X						X	X	X	X
302A ²	X						X	X	X	X
A42 ²	X						X	X	X	X
BH49A ²	X						X	X	X	X
OW04A ²	X						X	X	X	X
OW11B ²	X						X	X	X	X
415A ²	X					X	X	X	X	X
201A ²						X	X	X	X	X

***Laboratory Analytical Parameters**

VOA - Volatile Organic Aromatic
TDS - Total Dissolved Solids
Anions: Chloride
Fluoride
Nitrate
Nitrite
Phosphate
Sulfate

****Field Parameters:**

pH
Temperature
Specific conductivity
Oxidation-Reduction Potential
Dissolved oxygen
Turbidity

¹ Expanded parameter in 2008.² Well added to the ESP in 2008.

Table 1c
Environmental Surveillance
Spring and Fall
Surface Water and Sediment Sampling
Niagara Falls Storage Site

Sample Location	*Laboratory Analytical Parameters									**Field
	Iso Uranium	Iso Thorium ¹	Radium -226	Radium -228	Metals ²	PAHs ²	PCBs ²	Pesticides ²	VOAs ²	Parameters
SWSD009	X	X	X	X	X	X	X	X	X	X
SWSD010	X	X	X	X	X	X	X	X	X	X
SWSD011	X	X	X	X	X	X	X	X	X	X
SWSD021	X	X	X	X	X	X	X	X	X	X
SWSD022	X	X	X	X	X	X	X	X	X	X
SWSD023	X	X	X	X	X	X	X	X	X	X
SWSD024	X	X	X	X	X	X	X	X	X	X
WDD1	X	X	X	X	X	X	X	X	X	X
WDD2	X	X	X	X	X	X	X	X	X	X
WDD3	X	X	X	X	X	X	X	X	X	X
Field Duplicate	X	X	X	X	X	X	X	X	X	X

***Laboratory Analytical Parameters:**

PAH - Poly Aromatic Hydrocarbons
 PCB - Polycyclic Biphenyls
 VOA - Volatile Organic Aromatic
 TDS - Total Dissolved Solids

¹ Expanded parameter in 2008.

² Parameter added to ESP program in 2008.

****Field Parameters:**

pH
 Temperature
 Specific conductivity
 Oxidation-Reduction Potential
 Dissolved oxygen
 Turbidity

Table 2
2008 External Gamma Radiation Dose Rates
Niagara Falls Storage Site

Monitoring Location	Monitoring Station	Gross OSL Data ^a (mrem) (12/18/07 - 07/01/08) ^d	Gross OSL Data ^a (mrem) (07/1/08 - 12/17/08) ^d	Normalized Gross TLD Data ^b (mrem/yr)	CY2008 Net OSL Data ^c (mrem/yr)
NFSS Perimeter	1	17	18	35.1	3.7
	1	18	20	38.1	6.7
	7	19	15	34.1	2.7
	7	12	17	29.1	-2.3
	11	14	12	26.1	-5.3
	11	10	15	25.1	-6.4
	12	15	19	34.1	2.7
	12	13	16	29.1	-2.3
	13	12	18	30.1	-1.3
	13	15	16	31.1	-0.3
	15	14	16	30.1	-1.3
	15	19	14	33.1	1.7
	28	24	19	43.1	11.7
	28	23	22	45.1	13.7
	29	20	18	38.1	6.7
	29	20	21	41.1	9.7
	36	24	16	40.1	8.7
	36	22	17	39.1	7.7
	122	17	18	35.1	3.7
	122	19	20	38.6	7.2
	123	17	17	34.1	2.7
	123	15	17	32.1	0.7
IWCS Perimeter	8	12	14	26.1	-5.3
	8	11	15	26.1	-5.3
	10	17	20	37.1	5.7
	10	17	14	31.1	-0.3
	18	14	16	30.1	-1.3
	18	17	15	32.1	0.7
	21	15	13	28.1	-3.3
	21	17	16	33.1	1.7
	23	17	19	36.1	4.7
	23	17	19	36.1	4.7
	24	13	18	31.1	-0.3
	24	17	15	32.1	0.7
Background	105	19	17	36.1	
	105	16	14	30.1	
	116	13	13	26.1	
	116	11	18	29.1	
	120	16	16	32.1	
	120	19	16	35.1	
Average Background		15.7	15.7	31.4	

^a All data reported from the vendor are gross results in mrem per monitoring period.

^b Gross data for each period are normalized to a daily dose rate, averaged, and then normalized for the length of the leap year (366 days).

^c Net data are corrected by subtracting the average normalized background value.

^d Exposure period date format mm/dd/yy.

OSL = Optically Stimulated Luminescence

Table 3
2008 Radon Gas Concentrations^a

Average Daily Concentration (pCi/L)^b

Monitoring Location ^c	Monitoring Station	Start Dates ^d :	12/18/2007	7/1/2008
		End Dates ^d :	7/1/2008	12/17/2008
NFSS Perimeter ^g	1		< 0.2	0.3
	7		< 0.2	0.3
	11		< 0.2	0.2
	12		< 0.2	< 0.2
	12 (dup ^e)		< 0.2	0.2
	13		< 0.2	0.2
	15		< 0.2	0.3
	28		< 0.2	< 0.2
	29		< 0.2	0.3
	36		< 0.2	< 0.2
	122		< 0.2	0.3
	123		< 0.2	< 0.2
IWCS ^f Perimeter	8		< 0.2	0.2
	10		< 0.2	0.2
	18		< 0.2	< 0.2
	21		< 0.2	< 0.2
	23		< 0.2	< 0.2
	24		< 0.2	< 0.2
Background	105		< 0.2	< 0.2
	116		< 0.2	< 0.2
	120		< 0.2	< 0.2

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.

(<0.2) Indicates detection limit is reported. Actual result is less than this value.

1 pCi = 0.037 becquerel

Table 4
2008 Radon Flux Monitoring Results^a
Niagara Falls Storage Site

NFSS Sample ID	Qualifier ^d	Radon-222 Flux			NFSS Sample ID	Qualifier ^d	Radon-222 Flux		
		(pCi/m ² /s)		MDA			(pCi/m ² /s)		MDA
1		0.07660	± 0.02089	0.02772	51	U	0.02737	± 0.02555	0.05530
2	U	0.04897	± 0.02647	0.07154	52	U	0.03420	± 0.02636	0.05905
3	U	0.07181	± 0.04095	0.08064	53	U	0.04101	± 0.02498	0.06334
4	U	0.06392	± 0.03595	0.08745	54	U	0.06912	± 0.03903	0.09125
5		0.04815	± 0.01447	0.02788	55	U	0.05430	± 0.02720	0.07180
6	U	0.07575	± 0.03597	0.09396	56	U	0.04779	± 0.03084	0.07280
7	U	0.08489	± 0.04143	0.09480	57	U	0.04180	± 0.02388	0.06410
8	U	0.07147	± 0.04070	0.09298	58	U	0.03119	± 0.02407	0.05931
9	U	0.03345	± 0.02915	0.05932	59	U	0.04341	± 0.02620	0.06573
10		0.08968	± 0.02245	0.03961	60	U	0.05583	± 0.03353	0.08151
10-DUP ^b	U	0.09612	± 0.04698	0.09943	60-DUP ^b	U	0.03874	± 0.02366	0.06559
11		0.07990	± 0.02018	0.03215	61	U	0.06357	± 0.03101	0.07523
12	U	0.12120	± 0.04476	0.10730	62		0.23490	± 0.03927	0.04055
13	U	0.04466	± 0.02655	0.07176	63	U	0.08423	± 0.03335	0.08601
14	U	0.04510	± 0.02512	0.06495	64	U	0.01937	± 0.01855	0.05370
15	U	0.03573	± 0.03535	0.06901	65	U	0.04656	± 0.03002	0.06791
16	U	0.04748	± 0.02552	0.06764	66	U	0.04461	± 0.03179	0.07310
17	U	0.05007	± 0.02776	0.07487	67	U	0.02588	± 0.02461	0.05586
18	U	0.05802	± 0.03192	0.07589	68	U	0.00320	± 0.02300	0.05240
19	U	0.06202	± 0.03356	0.08818	69	U	0.05522	± 0.03093	0.07558
20	U	0.02669	± 0.02149	0.05157	70	U	0.05514	± 0.03004	0.08063
20-DUP ^b	U	0.04762	± 0.03295	0.07052	70-DUP ^b	U	0.06768	± 0.03313	0.08781
21	U	0.07385	± 0.02325	0.05692	71	U	0.02924	± 0.02729	0.06118
22		0.09196	± 0.02223	0.03990	72	U	0.04424	± 0.02623	0.06535
23	U	0.03671	± 0.02428	0.06049	73		0.07925	± 0.02450	0.04598
24	U	0.02123	± 0.02159	0.05788	74	U	0.05683	± 0.02875	0.07547
25	U	0.03367	± 0.02180	0.05539	75	U	0.06380	± 0.03701	0.08816
26	U	0.04939	± 0.02895	0.07769	76		0.05953	± 0.02155	0.03359
27		0.08960	± 0.02083	0.02815	77	U	0.03971	± 0.02396	0.06610
28	U	0.06123	± 0.03034	0.08081	78	U	0.04149	± 0.03012	0.07244
29	U	-0.00860	± 0.02091	0.04123	79	U	0.04804	± 0.03212	0.07989
30	U	0.07416	± 0.03313	0.08467	80	U	0.06474	± 0.03705	0.08721
30-DUP ^b	U	0.06147	± 0.03030	0.08095	80-DUP ^b	U	0.05277	± 0.03382	0.07987
31	U	0.04637	± 0.02435	0.06498	81	U	0.05052	± 0.03269	0.08342
32	U	0.04300	± 0.02514	0.06686	82	U	0.04604	± 0.02686	0.07205
33	U	0.00857	± 0.02418	0.05625	83	U	0.04403	± 0.02815	0.07739
34	U	0.04396	± 0.02507	0.06671	84	U	0.02683	± 0.02401	0.05950
35	U	0.05118	± 0.03305	0.08034	85	U	0.08949	± 0.03861	0.10170
36	U	0.03022	± 0.01876	0.05199	86	U	0.04071	± 0.02528	0.06600
37		0.12670	± 0.02836	0.03519	87	U	0.07053	± 0.04051	0.09869
38	U	0.02746	± 0.01960	0.05267	88	U	0.06111	± 0.03274	0.08257
39	U	0.05599	± 0.03142	0.08336	89	U	0.01541	± 0.02126	0.05764
40	U	0.00600	± 0.01639	0.04135	90	U	0.08621	± 0.04064	0.09744
40-DUP ^b	U	0.03417	± 0.02000	0.05499	90-DUP ^b		0.11620	± 0.02655	0.03198
41	U	0.04155	± 0.02277	0.06138	91	U	0.07590	± 0.04106	0.10120
42	U	0.05523	± 0.03461	0.07996	92	U	0.05453	± 0.03289	0.08827
43	U	0.08843	± 0.03949	0.09158	93	U	0.03494	± 0.02247	0.06177
44	U	0.08841	± 0.04100	0.10240	94	U	0.05041	± 0.03593	0.08432
45	U	0.07256	± 0.04026	0.08132	95	U	0.04081	± 0.02477	0.06715
46	U	0.05023	± 0.03974	0.08468	96	U	0.03633	± 0.02962	0.07015
47	U	0.03627	± 0.02176	0.05903	97	U	0.03592	± 0.02386	0.06506
48		0.06382	± 0.01765	0.03490	98		0.08241	± 0.02243	0.01209
49	U	0.05040	± 0.02605	0.06906	99	U	0.05145	± 0.02901	0.07721
50	U	0.04952	± 0.02609	0.07120	100	U	0.05878	± 0.05075	0.10240
50-DUP ^b	U	0.03630	± 0.02084	0.05864	100-DUP ^b	U	0.09947	± 0.04384	0.11290

Table 4
2008 Radon Flux Monitoring Results^a
Niagara Falls Storage Site

NFSS Sample ID	Qualifier ^d	Radon-222 Flux			NFSS Sample ID	Qualifier ^d	Radon-222 Flux													
		(pCi/m ² /s)		MDA			(pCi/m ² /s)		MDA											
101	U	0.07361	± 0.04156	0.09195	151	U	0.06209	± 0.02979	0.07697											
102	U	0.06915	± 0.03485	0.09311	152	U	0.06928	± 0.03770	0.09586											
103	U	0.02087	± 0.01925	0.05452	153	U	0.00924	± 0.02018	0.05103											
104	U	0.05011	± 0.04334	0.09078	154	U	0.05514	± 0.03216	0.08661											
105	U	0.03845	± 0.02717	0.06765	155	U	0.04256	± 0.03740	0.07928											
106	U	0.05466	± 0.02969	0.08073	156	U	0.05377	± 0.03335	0.08661											
107	U	0.02956	± 0.02505	0.05881	157		0.06598	± 0.01885	0.03351											
108	U	0.08063	± 0.04303	0.10410	158	U	0.07029	± 0.04145	0.10320											
109	U	0.01050	± 0.02024	0.05125	159	U	0.04799	± 0.02772	0.07434											
110	U	0.04083	± 0.03326	0.07530	160	U	0.03818	± 0.02602	0.07243											
110-DUP ^b	U	0.00955	± 0.02246	0.05692	160-DUP ^b	U	0.04264	± 0.03381	0.07656											
111		0.06592	± 0.01841	0.03803	161	U	0.07265	± 0.04229	0.10180											
112	U	0.05723	± 0.03261	0.08178	162	U	0.05074	± 0.03253	0.08042											
113	U	0.01172	± 0.02322	0.05899	163	U	0.01621	± 0.02545	0.06483											
114	U	0.07325	± 0.04808	0.09799	164	U	0.06716	± 0.03519	0.08761											
115	U	0.04003	± 0.02544	0.07119	165	U	0.04603	± 0.02631	0.07364											
116		0.06283	± 0.02011	0.02602	166	U	0.03860	± 0.03360	0.07520											
117	U	0.02027	± 0.02354	0.06343	167		0.06568	± 0.02124	0.04170											
118	U	0.04077	± 0.03026	0.07036	168	U	0.13050	± 0.05390	0.12370											
119	U	0.11230	± 0.04740	0.12210	169	U	0.05379	± 0.02971	0.08131											
120	U	0.00240	± 0.02376	0.05261	170		0.07637	± 0.02127	0.04412											
120-DUP ^b	U	0.04147	± 0.02501	0.06674	170-DUP ^b	U	0.06504	± 0.03555	0.09202											
121	U	0.02063	± 0.02636	0.06727	171	U	0.08487	± 0.04527	0.11540											
122	U	0.07744	± 0.03336	0.08721	172	U	0.08004	± 0.04231	0.10990											
123	U	0.07139	± 0.03378	0.09066	173		0.10850	± 0.02462	0.03979											
124	U	0.00718	± 0.02133	0.05124	174	U	0.01237	± 0.02439	0.06197											
125	U	0.07924	± 0.03614	0.09615	175	U	0.07921	± 0.03652	0.09512											
126		0.06053	± 0.01822	0.02978	176	U	0.01940	± 0.02967	0.07254											
127	U	0.03984	± 0.03492	0.07641	177	U	0.00715	± 0.01968	0.04964											
128		0.07942	± 0.02126	0.03793	178	U	0.00521	± 0.02134	0.05362											
129	U	0.05259	± 0.04479	0.10090	179	U	0.07862	± 0.03542	0.09242											
130		0.04612	± 0.01618	0.03280	180	U	0.06914	± 0.04970	0.10720											
130-DUP ^b	U	0.04752	± 0.02776	0.07210	180-DUP ^b	U	0.08115	± 0.03977	0.10450											
131		0.07038	± 0.02207	0.04665	181 ^c	U	0.01054	± 0.01817	0.04907											
132	U	0.03903	± 0.03493	0.07976	182 ^c		0.05763	± 0.01878	0.03385											
133	U	-0.00372	± 0.01717	0.03901	183 ^c	U	0.02055	± 0.01948	0.05534											
134	U	0.07172	± 0.03481	0.09272	Average background	U	0.02957	(pCi/m ² /s)												
135	U	0.07532	± 0.01989	0.00976																
136	U	0.05466	± 0.04695	0.09283																
137	U	0.05303	± 0.02809	0.07503																
138	U	0.10220	± 0.05664	0.11460	<table><tr><th>IWCS</th><th>All Values</th><th>Units</th></tr><tr><td>Average:</td><td>0.05368</td><td>(pCi/m²/s)</td></tr><tr><td>High</td><td>0.23490</td><td>(pCi/m²/s)</td></tr><tr><td>Low</td><td>-0.00860</td><td>(pCi/m²/s)</td></tr></table>					IWCS	All Values	Units	Average:	0.05368	(pCi/m ² /s)	High	0.23490	(pCi/m ² /s)	Low	-0.00860
IWCS	All Values	Units																		
Average:	0.05368	(pCi/m ² /s)																		
High	0.23490	(pCi/m ² /s)																		
Low	-0.00860	(pCi/m ² /s)																		
139	U	0.03095	± 0.02363	0.06049																
140	U	0.01579	± 0.02478	0.06314																
140-DUP ^b	U	0.05848	± 0.03508	0.08432																
141	U	0.02139	± 0.02936	0.07198																
142	U	0.05229	± 0.03137	0.07935																
143	U	0.05210	± 0.02861	0.07641																
144	U	0.09214	± 0.04759	0.11040																
145	U	0.06362	± 0.03312	0.08241																
146	U	0.04883	± 0.04743	0.08999																
147	U	0.03186	± 0.02088	0.05844																
148	U	0.04915	± 0.02905	0.07951																
149	U	0.04658	± 0.03104	0.07481																
150	U	0.04075	± 0.02444	0.06919																
150-DUP ^b	U	0.00466	± 0.01687	0.04645																

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

a. Radon-222 flux was performed on August 4-5, 2008

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-Balmer Rd. (CWM Secondary Gate)
183-Lewiston Water Pollution Control Center

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

Table 5
2008 Field Parameter Summary
Niagara Falls Storage Site

GROUNDWATER

Well ID	Date	Temperature (°C ^a)	pH	Spec. Cond. ^b (uS/cm ^c)	DO ^d (mg/L ^e)	ORP ^f (mV ^g)	Turbidity (NTU ^h)	Volume Purged (Liters ⁱ)	Discharge milliter PM ^j
A45	6/12/2008	15.2	8.71	2233	1.24	48	0.0	5.60	280
A50	6/12/2008	18.2	7.07	1123	2.65	126	7.5	3.10	102
OW04B	6/13/2008	17.8	9.07	1953	0.31	-94	1.6	4.24	141
OW06B	6/16/2008	20.7	6.73	1439	4.40	-32	1.9	4.10	116
OW13B	6/10/2008	16.5	7.68	2492	1.18	132	0.9	4.34	97
OW15B	6/13/2008	21.9	7.23	1011	3.15	139	0.1	3.60	103
OW17B	6/17/2008	17.5	7.93	1244	0.23	49	0.3	5.90	131
B02W20S	6/11/2008	20.6	7.10	1293	0.52	73	2.5	3.53	118
OW18B	6/18/2008	15.8	7.24	2322	0.32	109	4.8	3.16	105
313	6/11/2008	15.5	7.79	4071	7.29	85	1.5	3.30	110
505	6/18/2008	13.8	8.10	4383	0.99	120	0.0	3.91	98
302A	6/17/2008	17.8	6.56	7164	0.18	102	31.2	3.84	96
A42	6/18/2008	14.4	8.09	1168	0.20	145	0.0	3.99	133
BH49A	6/17/2008	15.9	7.10	1384	0.29	80	1.8	2.77	92
OW04A	6/17/2008	14.8	8.38	1131	0.22	122	16.1	2.67	107
OW11B	6/11/2008	14.6	7.42	1447	0.34	38	6.5	4.40	112
415A	6/17/2008	11.4	9.28	2544	0.44	13	0.3	3.29	132
201A	6/18/2008	16.6	8.57	1541	0.76	-8	0.2	4.40	110
A45	10/27/2008	11.6	6.84	2072	0.11	-197	3.1	4.10	164
A50	10/28/2008	9.2	6.98	1727	0.26	94	3.2	3.41	171
OW04B	10/27/2008	12.8	7.02	2119	0.26	19	0.4	3.40	225
OW06B	10/28/2008	11.0	7.01	1780	0.27	-5	3.0	3.09	103
OW13B	10/28/2008	9.3	6.84	2448	0.43	137	4.2	4.56	101
OW15B	10/27/2008	12.3	6.95	1558	1.43	153	6.8	5.11	113
OW17B	10/28/2008	11.1	7.25	1424	0.34	60	0.9	4.60	153
B02W20S	10/29/2008	11.4	7.16	1374	1.12	108	7.7	4.45	171
OW18B	10/28/2008	11.1	7.22	2310	0.47	14	3.2	3.25	108
313	10/29/2008	10.9	6.62	4254	0.54	28	3.8	1.80	51
505	10/29/2008	9.9	6.8	4555	0.86	32	23.0	1.40	40
302A	10/29/2008	11.4	6.87	8267	1.09	69	3.9	3.55	101
A42	10/29/2008	11.4	6.86	1293	0.13	60	0.8	8.25	275
BH49A	10/30/2008	13.5	7.22	1691	0.19	-300	3.2	6.45	215
OW04A	10/29/2008	9.6	8.03	1306	0.47	-78	3.3	3.38	135
OW11B	10/30/2008	14.7	6.95	1597	0.27	111	11.4	3.86	110
415A	10/29/2008	9.2	6.60	2816	0.51	-14	9.9	3.20	80
201A	10/30/2008	13.0	6.99	1704	3.24	134	7.5	2.67	89

Table 5
2008 Field Parameter Summary
Niagara Falls Storage Site

SURFACE WATER

Surface Water	Date	Temperature	pH	Spec. Cond. ^b (uS/cm ^c)	DO ^d (mg/L ^e)	ORP ^f (mV ^g)	Turbidity (NTU ^h)	Volume Purged (Liters) ⁱ	Discharge milliliter PM ^j
SWSD009	6/11/2008	19.07	7.06	1677	6.29	164	40.3	NA	NA
SWSD010	6/18/2008	18.5	7.63	1433	8.12	146	15.7	NA	NA
SWSD011	6/16/2008	20.8	7.05	187	7.02	187	10.0	NA	NA
SWSD021	6/11/2008	20.2	9.79	717	3.46	179	17.0	NA	NA
SWSD022	6/17/2008	17.5	7.23	655	5.84	139	20.0	NA	NA
SWSD023	6/11/2008	*	*	*	*	*	NA	NA	NA
SWSD024	6/13/2008	21.5	5.79	1224	7.02	102	15.8	NA	NA
WDD1	6/11/2008	23.1	9.70	1609	3.86	143	3.2	NA	NA
WDD2	6/12/2008	19.2	7.03	1574	5.30	79	1.0	NA	NA
WDD3	6/12/2008	19.0	7.33	1541	5.35	75	3.8	NA	NA
SWSD009	10/29/2008	10.4	7.04	2098	8.15	145	NA	NA	NA
SWSD010	10/29/2008	6.8	7.74	1333	9.10	97	42.30	NA	NA
SWSD011	10/30/2008	*	*	*	*	*	NA	NA	NA
SWSD021	10/30/2008	*	*	*	*	*	NA	NA	NA
SWSD022	10/30/2008	*	*	*	*	*	NA	NA	NA
SWSD023	10/29/2008	10.4	7.39	1390	10.94	135	13.70	NA	NA
SWSD024	10/28/2008	13.6	7.47	1164	9.79	138	15.30	NA	NA
WDD1	10/27/2008	12.2	7.06	1231	11.70	171	7.20	NA	NA
WDD2	10/27/2008	10.9	7.01	1323	11.33	176	7.00	NA	NA
WDD3	10/28/2008	12.8	7.20	1245	9.79	150	10.80	NA	NA

- a. °C - Degrees Celsius.
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. milliliter PM = milliliter per minute (1000ml = 1.0 liter)
NA - Not applicable
* - parameters not taken



Table 6 NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

1 of 23

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/17/2008										
SWSD009	Radiological	Radium-226	0.568	U	0.706	pCi/L	0.471	5 ^a	5 ^a	100 ^a
SWSD009	Radiological	Radium-228	0.102	U	0.516	pCi/L	0.288	5 ^a	5 ^a	100 ^a
		Total Radium ^d	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
SWSD009	Radiological	Thorium-228	0.112	U	0.260	pCi/L	0.160	15 ^b	NE	400
SWSD009	Radiological	Thorium-230	0.113	U	0.197	pCi/L	0.140	15 ^b	NE	300
SWSD009	Radiological	Thorium-232	0.084	U	0.178	pCi/L	0.119	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD009	Radiological	Uranium-234	1.150		0.797	pCi/L	0.713	27 ^c	NE	600 ^c
SWSD009	Radiological	Uranium-235	0.263	U	0.548	pCi/L	0.369	27 ^c	NE	600 ^c
SWSD009	Radiological	Uranium-238	1.810		0.732	pCi/L	0.839	27 ^c	NE	600 ^c
		Total Uranium ^c	2.960			pCi/L		27 ^c	NE	600 ^c
SWSD009	Metal	Aluminum	1470		5.0	µg/L		50-200 ^d	NE	
SWSD009	Metal	Antimony	12.2		0.5	µg/L		6	3	
SWSD009	Metal	Arsenic	2.1	J	1.5	µg/L		10	25	
SWSD009	Metal	Barium	95.3		0.5	µg/L		2000	1000	
SWSD009	Metal	Beryllium	0.12	J	0.1	µg/L		4	11	
SWSD009	Metal	Boron	373		20.0	µg/L		NE	1000	
SWSD009	Metal	Cadmium	0.19	J	0.1	µg/L		5	5	
SWSD009	Metal	Calcium	190000		100.0	µg/L		NE	NE	
SWSD009	Metal	Chromium	2.6	J	1.0	µg/L		100	50	
SWSD009	Metal	Cobalt	1.8		0.1	µg/L		NE	NE	
SWSD009	Metal	Copper	12.7		0.2	µg/L		1300	200	
SWSD009	Metal	Iron	2990		10.0	µg/L		300 ^e	300	
SWSD009	Metal	Lead	7.9		0.5	µg/L		15	25	
SWSD009	Metal	Lithium	31.8		2.0	µg/L		NE	NE	
SWSD009	Metal	Magnesium	51700		25.0	µg/L		NE	NE	
SWSD009	Metal	Manganese	140		1.0	µg/L		50 ^f	300	
SWSD009	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD009	Metal	Nickel	10.1		0.5	µg/L		NE	100	
SWSD009	Metal	Potassium	18600		80.0	µg/L		NE	NE	
SWSD009	Metal	Selenium	2	J	1.0	µg/L		50	10	
SWSD009	Metal	Silver	0.2	U	0.2	µg/L		100 ^g	50	
SWSD009	Metal	Sodium	101000		400.0	µg/L		NE	20000	
SWSD009	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
SWSD009	Metal	Vanadium	6.6	J	3.0	µg/L		NE	14	
SWSD009	Metal	Zinc	43.1		2.6	µg/L		5000 ^h	NE	
SWSD009	VOC	1,1,1-Trichloroethane	1.0	U	1.0	µg/L		200	5	
SWSD009	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD009	VOC	1,1,2-Trichloroethane	1.0	U	1.0	µg/L		5	1	
SWSD009	VOC	1,1-Dichloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD009	VOC	1,1-Dichloroethylene	1.0	U	1.0	µg/L		7	5	
SWSD009	VOC	1,2-Dichloroethane	1.0	U	1.0	µg/L		5	0.6	
SWSD009	VOC	1,2-Dichloropropane	1.0	U	1.0	µg/L		5	1	
SWSD009	VOC	2-Butanone	1.5	J	5.0	µg/L		NE	NE	
SWSD009	VOC	2-Hexanone	5.0	U	5.0	µg/L		NE	NE	
SWSD009	VOC	4-Methyl-2-pentanone	6.4		5.0	µg/L		NE	NE	
SWSD009	VOC	Acetone	33.2	J	5.0	µg/L		NE	NE	
SWSD009	VOC	Benzene	0.7	J	1.0	µg/L		5	1	
SWSD009	VOC	Bromodichloromethane	1.0	U	1.0	µg/L		NE	NE	
SWSD009	VOC	Bromoform	1.0	U	1.0	µg/L		NE	NE	
SWSD009	VOC	Bromomethane	1.0	U	1.0	µg/L		NE	5	
SWSD009	VOC	Carbon disulfide	5.0	U	5.0	µg/L		NE	60	
SWSD009	VOC	Carbon tetrachloride	1.0	U	1.0	µg/L		5	5	
SWSD009	VOC	Chlorobenzene	0.4	J	1.0	µg/L		100	5	
SWSD009	VOC	Chloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD009	VOC	Chloroform	1.0	U	1.0	µg/L		NE	7	
SWSD009	VOC	Chloromethane	1.0	U	1.0	µg/L		NE	5	
SWSD009	VOC	cis-1,2-Dichloroethylene	1.0	U	1.0	µg/L		70	5	
SWSD009	VOC	cis-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^c	
SWSD009	VOC	Ethylbenzene	1.0	U	1.0	µg/L		700	5	
SWSD009	VOC	Methylene chloride	5.0	U	5.0	µg/L		5	5	
SWSD009	VOC	Styrene	1.0	U	1.0	µg/L		100	5	
SWSD009	VOC	Tetrachloroethylene	1.0	U	1.0	µg/L		5	5	
SWSD009	VOC	Toluene	0.3	J	1.0	µg/L		1000	5	
SWSD009	VOC	trans-1,2-Dichloroethylene	1.0	U	1.0	µg/L		100	5	
SWSD009	VOC	trans-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^c	
SWSD009	VOC	Trichloroethylene	1.0	U	1.0	µg/L		5	5	
SWSD009	VOC	Vinyl chloride	1.0	U	1.0	µg/L		2	2	
SWSD009	VOC	Xylenes (total)	1.0	U	1.0	µg/L		10000	5 ⁱ	

Table 6-1

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds. **	DOE DCGs**
SWSD009	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
SWSD009	PAH	Acenaphthylene	0.203	J	0.472	µg/L		NE	NE	
SWSD009	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
SWSD009	PAH	Benzo(a)anthracene	0.0372	J	0.0472	µg/L		NE	NE	
SWSD009	PAH	Benzo(a)pyrene	0.0394	J	0.0472	µg/L		0.2	NE	
SWSD009	PAH	Benzo(b)fluoranthene	0.0759	J	0.0472	µg/L		NE	NE	
SWSD009	PAH	Benzo(ghi)perylene	0.0172	J	0.0472	µg/L		NE	NE	
SWSD009	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
SWSD009	PAH	Chrysene	0.0321	J	0.0472	µg/L		NE	NE	
SWSD009	PAH	Dibenz(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD009	PAH	Fluoranthene	0.149		0.0472	µg/L		NE	NE	
SWSD009	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
SWSD009	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD009	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
SWSD009	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
SWSD009	PAH	Pyrene	0.117		0.0472	µg/L		NE	NE	
SWSD009	PCB	Aroclor-1016	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1221	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1232	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1242	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1248	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1254	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L		0.5	0.09 ^µ	
SWSD009	Pesticide	4,4'-DDD	0.1890	U	0.1890	µg/L		NE	0.3	
SWSD009	Pesticide	4,4'-DDE	0.1890	U	0.1890	µg/L		NE	0.3	
SWSD009	Pesticide	4,4'-DDT	0.1890	U	0.1890	µg/L		NE	0.2	
SWSD009	Pesticide	Aldrin	0.0943	U	0.0943	µg/L		NE	ND	
SWSD009	Pesticide	alpha-BHC	0.0943	U	0.0943	µg/L		NE	0.01	
SWSD009	Pesticide	alpha-Chlordane	0.0943	U	0.0943	µg/L		NE	NE	
SWSD009	Pesticide	beta-BHC	0.0943	U	0.0943	µg/L		NE	0.04	
SWSD009	Pesticide	delta-BHC	0.0943	U	0.0943	µg/L		NE	0.4	
SWSD009	Pesticide	Dieldrin	0.1890	U	0.1890	µg/L		NE	0.001	
SWSD009	Pesticide	Endosulfan I	0.0943	U	0.0943	µg/L		NE	NE	
SWSD009	Pesticide	Endosulfan II	0.1890	U	0.1890	µg/L		NE	NE	
SWSD009	Pesticide	Endosulfan sulfate	0.1890	U	0.1890	µg/L		NE	NE	
SWSD009	Pesticide	Endrin	0.1890	U	0.1890	µg/L		2	ND	
SWSD009	Pesticide	Endrin aldehyde	0.1890	U	0.1890	µg/L		NE	5	
SWSD009	Pesticide	Endrin ketone	0.1890	U	0.1890	µg/L		NE	5	
SWSD009	Pesticide	gamma-BHC (Lindane)	0.0943	U	0.0943	µg/L		0.2	0.5	
SWSD009	Pesticide	gamma-Chlordane	0.0943	U	0.0943	µg/L		NE	NE	
SWSD009	Pesticide	Heptachlor	0.0943	U	0.0943	µg/L		0.4	0.4	
SWSD009	Pesticide	Heptachlor epoxide	0.0943	U	0.0943	µg/L		0.2	0.3	
SWSD009	Pesticide	Methoxychlor	0.9430	U	0.9430	µg/L		40	35	
SWSD009	Pesticide	Toxaphene	2.3600	U	2.3600	µg/L		3	0.06	

Table 6-2

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radio logical Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/1/2008										
SWSD021	Radiological	Radium-226	0.245	U	0.469	pCi/L	0.288	5 ^a	5 ^a	100 ^a
SWSD021	Radiological	Radium-228	-0.848	U	0.847	pCi/L	0.391	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
SWSD021	Radiological	Thorium-228	-0.030	U	0.380	pCi/L	0.141	15 ^b	NE	400
SWSD021	Radiological	Thorium-230	-0.033	U	0.361	pCi/L	0.128	15 ^b	NE	300
SWSD021	Radiological	Thorium-232	-0.053	U	0.290	pCi/L	0.098	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD021	Radiological	Uranium-234	5.070		0.037	pCi/L	0.528	27 ^c	NE	600 ^c
SWSD021	Radiological	Uranium-235	0.655		0.089	pCi/L	0.213	27 ^c	NE	600 ^c
SWSD021	Radiological	Uranium-238	4.090		0.080	pCi/L	0.475	27 ^c	NE	600 ^c
		Total Uranium ^c	9.815			pCi/L		27 ^c	NE	600 ^c
SWSD021	Metal	Aluminum	322		5.0	µg/L		50-200 ^d	NE	
SWSD021	Metal	Antimony	0.5	U	0.5	µg/L		6	3	
SWSD021	Metal	Arsenic	2.2	J	1.5	µg/L		10	25	
SWSD021	Metal	Barium	61		0.5	µg/L		2000	1000	
SWSD021	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD021	Metal	Boron	99.7		4.0	µg/L		NE	1000	
SWSD021	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD021	Metal	Calcium	93000		200.0	µg/L		NE	NE	
SWSD021	Metal	Chromium	50.1		1.0	µg/L		100	50	
SWSD021	Metal	Cobalt	0.87	J	0.1	µg/L		NE	NE	
SWSD021	Metal	Copper	2.7		0.2	µg/L		1300	200	
SWSD021	Metal	Iron	1160		10.0	µg/L		300 ^d	300	
SWSD021	Metal	Lead	0.5	U	0.5	µg/L		15	25	
SWSD021	Metal	Lithium	10		2.0	µg/L		NE	NE	
SWSD021	Metal	Magnesium	28700		50.0	µg/L		NE	NE	
SWSD021	Metal	Manganese	529		1.0	µg/L		50 ^d	300	
SWSD021	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD021	Metal	Nickel	3.1		0.5	µg/L		NE	100	
SWSD021	Metal	Potassium	2880		80.0	µg/L		NE	NE	
SWSD021	Metal	Selenium	1	U	1.0	µg/L		50	10	
SWSD021	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD021	Metal	Sodium	14700		800.0	µg/L		NE	20000	
SWSD021	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
SWSD021	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
SWSD021	Metal	Zinc	6.9	J	2.6	µg/L		5000 ^d	NE	
SWSD021	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
SWSD021	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
SWSD021	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
SWSD021	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
SWSD021	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
SWSD021	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
SWSD021	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
SWSD021	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
SWSD021	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
SWSD021	VOC	4-Methyl-2-pentanone	5.0	U	5	µg/L		NE	NE	
SWSD021	VOC	Acetone	5.0	U	5	µg/L		NE	NE	
SWSD021	VOC	Benzene	1.0	U	1	µg/L		5	1	
SWSD021	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
SWSD021	VOC	Bromoform	1.0	U	1	µg/L		NE	NE	
SWSD021	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
SWSD021	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
SWSD021	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
SWSD021	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
SWSD021	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
SWSD021	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
SWSD021	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
SWSD021	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
SWSD021	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD021	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
SWSD021	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
SWSD021	VOC	Styrene	1.0	U	1	µg/L		100	5	
SWSD021	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
SWSD021	VOC	Toluene	1.0	U	1	µg/L		1000	5	
SWSD021	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
SWSD021	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD021	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
SWSD021	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
SWSD021	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-3

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCCS**
SWSD021	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Acenaphthylene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Benzo(a)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Benzo(a)pyrene	0.0472	U	0.0472	µg/L		0.2	ND	
SWSD021	PAH	Benzo(b)fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Benzo(ghi)perylene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
SWSD021	PAH	Chrysene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Dibenzo(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
SWSD021	PAH	Pyrene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD021	PCB	Aroclor-1016	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1221	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1232	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1242	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1248	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1254	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	PCB	Aroclor-1260	0.0952	U	0.0952	µg/L		0.5	0.09 ^u	
SWSD021	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L		NE	0.3	
SWSD021	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L		NE	0.3	
SWSD021	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L		NE	0.2	
SWSD021	Pesticide	Aldrin	0.0189	U	0.0189	µg/L		NE	ND	
SWSD021	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L		NE	0.01	
SWSD021	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L		NE	NE	
SWSD021	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L		NE	0.04	
SWSD021	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L		NE	0.4	
SWSD021	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L		NE	0.001	
SWSD021	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L		NE	NE	
SWSD021	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L		NE	NE	
SWSD021	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L		NE	NE	
SWSD021	Pesticide	Endrin	0.0377	U	0.0377	µg/L		2	ND	
SWSD021	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L		NE	5	
SWSD021	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L		NE	5	
SWSD021	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L		0.2	0.5	
SWSD021	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L		NE	NE	
SWSD021	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L		0.4	0.4	
SWSD021	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L		0.2	0.3	
SWSD021	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L		40	35	
SWSD021	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L		3	0.06	

Table 6-4

Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/18/2008										
SWSD010	Radiological	Radium-226	0.616	U	0.766	pCi/L	0.510	5 ^a	5 ^a	100 ^a
SWSD010	Radiological	Radium-228	0.200	U	0.397	pCi/L	0.241	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
SWSD010	Radiological	Thorium-228	-0.039	U	0.299	pCi/L	0.093	15 ^b	NE	400
SWSD010	Radiological	Thorium-230	0.034	U	0.169	pCi/L	0.082	15 ^b	NE	300
SWSD010	Radiological	Thorium-232	-0.011	U	0.169	pCi/L	0.077	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD010	Radiological	Uranium-234	2.140		0.409	pCi/L	0.826	27 ^c	NE	600 ^c
SWSD010	Radiological	Uranium-235	-0.023	U	0.434	pCi/L	0.198	27 ^c	NE	600 ^c
SWSD010	Radiological	Uranium-238	2.070		0.409	pCi/L	0.811	27 ^c	NE	600 ^c
		Total Uranium ^c	4.210			pCi/L		27 ^c	NE	600 ^c
SWSD010	Metal	Aluminum	227		5.0	µg/L		50-200 ^d	NE	
SWSD010	Metal	Antimony	6.2		0.5	µg/L		6	3	
SWSD010	Metal	Arsenic	5	U	5.0	µg/L		10	25	
SWSD010	Metal	Barium	88.4		0.5	µg/L		2000	1000	
SWSD010	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD010	Metal	Boron	534		40.0	µg/L		NE	1000	
SWSD010	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD010	Metal	Calcium	172000		200.0	µg/L		NE	NE	
SWSD010	Metal	Chromium	5.5		1.0	µg/L		100	50	
SWSD010	Metal	Cobalt	0.94	J	0.1	µg/L		NE	NE	
SWSD010	Metal	Copper	5.8		0.2	µg/L		1300	200	
SWSD010	Metal	Iron	1190		10.0	µg/L		300 ^d	300	
SWSD010	Metal	Lead	2.8		0.5	µg/L		15	25	
SWSD010	Metal	Lithium	29		2.0	µg/L		NE	NE	
SWSD010	Metal	Magnesium	42400		5.0	µg/L		NE	NE	
SWSD010	Metal	Manganese	250		1.0	µg/L		50 ^d	300	
SWSD010	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD010	Metal	Nickel	7.9		0.5	µg/L		NE	100	
SWSD010	Metal	Potassium	14700		80.0	µg/L		NE	NE	
SWSD010	Metal	Selenium	1.3	J	1.0	µg/L		50	10	
SWSD010	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD010	Metal	Sodium	97300		800.0	µg/L		NE	20000	
SWSD010	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
SWSD010	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
SWSD010	Metal	Zinc	21.1		2.6	µg/L		5000 ^d	NE	
SWSD010	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
SWSD010	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
SWSD010	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
SWSD010	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
SWSD010	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
SWSD010	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
SWSD010	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
SWSD010	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
SWSD010	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
SWSD010	VOC	4-Methyl-2-pentanone	3.6	J	5	µg/L		NE	NE	
SWSD010	VOC	Acetone	5.6	J	5	µg/L		NE	NE	
SWSD010	VOC	Benzene	1.0	U	1	µg/L		5	1	
SWSD010	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
SWSD010	VOC	Bromoforn	1.0	U	1	µg/L		NE	NE	
SWSD010	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
SWSD010	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
SWSD010	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
SWSD010	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
SWSD010	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
SWSD010	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
SWSD010	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
SWSD010	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
SWSD010	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD010	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
SWSD010	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
SWSD010	VOC	Styrene	1.0	U	1	µg/L		100	5	
SWSD010	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
SWSD010	VOC	Toluene	1.0	U	1	µg/L		1000	5	
SWSD010	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
SWSD010	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD010	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
SWSD010	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
SWSD010	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-5

Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

6 of 23

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD010	PAH	Accenaphthene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Accenaphthylene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Anthracene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L		0.2	ND	
SWSD010	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L		NE	NE	
SWSD010	PAH	Chrysene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Fluorene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD010	PAH	Naphthalene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Phenanthrene	0.476	U	0.476	µg/L		NE	NE	
SWSD010	PAH	Pyrene	0.0228	J	0.0476	µg/L		NE	NE	
SWSD010	PCB	Aroclor-1016	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1221	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1232	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1242	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1248	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1254	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	PCB	Aroclor-1260	0.1	U	0.1	µg/L		0.5	0.09 ^a	
SWSD010	Pesticide	4,4'-DDD	0.192	U	0.192	µg/L		NE	0.3	
SWSD010	Pesticide	4,4'-DDE	0.192	U	0.192	µg/L		NE	0.3	
SWSD010	Pesticide	4,4'-DDT	0.1920	U	0.1920	µg/L		NE	0.2	
SWSD010	Pesticide	Aldrin	0.0962	U	0.0962	µg/L		NE	ND	
SWSD010	Pesticide	alpha-BHC	0.0962	U	0.0962	µg/L		NE	0.01	
SWSD010	Pesticide	alpha-Chlordane	0.0962	U	0.0962	µg/L		NE	NE	
SWSD010	Pesticide	beta-BHC	0.0962	U	0.0962	µg/L		NE	0.04	
SWSD010	Pesticide	delta-BHC	0.0962	U	0.0962	µg/L		NE	0.4	
SWSD010	Pesticide	Dieldrin	0.1920	U	0.1920	µg/L		NE	0.001	
SWSD010	Pesticide	Endosulfan I	0.0962	U	0.0962	µg/L		NE	NE	
SWSD010	Pesticide	Endosulfan II	0.1920	U	0.1920	µg/L		NE	NE	
SWSD010	Pesticide	Endosulfan sulfate	0.1920	U	0.1920	µg/L		NE	NE	
SWSD010	Pesticide	Endrin	0.1920	U	0.1920	µg/L		2	ND	
SWSD010	Pesticide	Endrin aldehyde	0.1920	U	0.1920	µg/L		NE	5	
SWSD010	Pesticide	Endrin ketone	0.1920	U	0.1920	µg/L		NE	5	
SWSD010	Pesticide	gamma-BHC (Lindane)	0.0962	U	0.0962	µg/L		0.2	0.5	
SWSD010	Pesticide	gamma-Chlordane	0.0962	U	0.0962	µg/L		NE	NE	
SWSD010	Pesticide	Heptachlor	0.0962	U	0.0962	µg/L		0.4	0.4	
SWSD010	Pesticide	Heptachlor epoxide	0.0962	U	0.0962	µg/L		0.2	0.3	
SWSD010	Pesticide	Methoxychlor	0.9620	U	0.9620	µg/L		40	35	
SWSD010	Pesticide	Toxaphene	2.4000	U	2.4000	µg/L		3	0.06	

Table 6-6

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/16/2008										
SWSD011	Radiological	Radium-226	0.260		0.599	pCi/L	0.356	5 ^a	5 ^a	100 ^a
SWSD011	Radiological	Radium-228	0.44	U	0.473	pCi/L	0.318	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.260			pCi/L		5 ^a	5 ^a	100 ^a
SWSD011	Radiological	Thorium-228	0.010	U	0.484	pCi/L	0.202	15 ^b	NE	400
SWSD011	Radiological	Thorium-230	0.251	U	0.269	pCi/L	0.240	15 ^b	NE	300
SWSD011	Radiological	Thorium-232	0.037	U	0.231	pCi/L	0.106	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD011	Radiological	Uranium-234	1.25		0.190	pCi/L	0.430	27 ^c	NE	600 ^c
SWSD011	Radiological	Uranium-235	0.09	U	0.122	pCi/L	0.127	27 ^c	NE	600 ^c
SWSD011	Radiological	Uranium-238	1.06		0.211	pCi/L	0.399	27 ^c	NE	600 ^c
		Total Uranium ^c	2.310			pCi/L		27 ^c	NE	600 ^c
SWSD011	Metal	Aluminum	273		5.0	µg/L		50-200 ^d	NE	
SWSD011	Metal	Antimony	5.7		0.5	µg/L		6	3	
SWSD011	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
SWSD011	Metal	Barium	87.6		0.5	µg/L		2000	1000	
SWSD011	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD011	Metal	Boron	496		40.0	µg/L		NE	1000	
SWSD011	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD011	Metal	Calcium	138000		200.0	µg/L		NE	NE	
SWSD011	Metal	Chromium	4.3	J	1.0	µg/L		100	50	
SWSD011	Metal	Cobalt	0.77	J	0.1	µg/L		NE	NE	
SWSD011	Metal	Copper	6		0.2	µg/L		1300	200	
SWSD011	Metal	Iron	1460		10.0	µg/L		300 ^d	300	
SWSD011	Metal	Lead	2.3		0.5	µg/L		15	25	
SWSD011	Metal	Lithium	26		2.0	µg/L		NE	NE	
SWSD011	Metal	Magnesium	46000		50.0	µg/L		NE	NE	
SWSD011	Metal	Manganese	77.7		1.0	µg/L		50 ^d	300	
SWSD011	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD011	Metal	Nickel	6.4		0.5	µg/L		NE	100	
SWSD011	Metal	Potassium	13000		800.0	µg/L		NE	NE	
SWSD011	Metal	Selenium	1	U	1.0	µg/L		50	10	
SWSD011	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD011	Metal	Sodium	69400		800.0	µg/L		NE	20000	
SWSD011	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
SWSD011	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
SWSD011	Metal	Zinc	19.4		2.6	µg/L		5000 ^d	NE	
SWSD011	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
SWSD011	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
SWSD011	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
SWSD011	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
SWSD011	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
SWSD011	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
SWSD011	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
SWSD011	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
SWSD011	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
SWSD011	VOC	4-Methyl-2-pentanone	3.7	J	5	µg/L		NE	NE	
SWSD011	VOC	Acetone	3.2	J	5	µg/L		NE	NE	
SWSD011	VOC	Benzene	1.0	U	1	µg/L		5	1	
SWSD011	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
SWSD011	VOC	Bromoform	1.0	U	1	µg/L		NE	NE	
SWSD011	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
SWSD011	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
SWSD011	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
SWSD011	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
SWSD011	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
SWSD011	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
SWSD011	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
SWSD011	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
SWSD011	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD011	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
SWSD011	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
SWSD011	VOC	Styrene	1.0	U	1	µg/L		100	5	
SWSD011	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
SWSD011	VOC	Toluene	1.0	U	1	µg/L		1000	5	
SWSD011	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
SWSD011	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD011	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
SWSD011	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
SWSD011	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-7

Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD011	PAH	Acenaphthene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Acenaphthylene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Anthracene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L		0.2	ND	
SWSD011	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L		NE	NE	
SWSD011	PAH	Chrysene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Fluorene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PAH	Naphthalene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Phenanthrene	0.476	U	0.476	µg/L		NE	NE	
SWSD011	PAH	Pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD011	PCB	Aroclor-1016	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1221	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1232	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1242	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1248	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1254	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	PCB	Aroclor-1260	0.0893	U	0.0893	µg/L		0.5	0.09 ^a	
SWSD011	Pesticide	4,4'-DDD	0.1790	U	0.1790	µg/L		NE	0.3	
SWSD011	Pesticide	4,4'-DDE	0.1790	U	0.1790	µg/L		NE	0.3	
SWSD011	Pesticide	4,4'-DDT	0.1790	U	0.1790	µg/L		NE	0.2	
SWSD011	Pesticide	Aldrin	0.0893	U	0.0893	µg/L		NE	ND	
SWSD011	Pesticide	alpha-BHC	0.0893	U	0.0893	µg/L		NE	0.01	
SWSD011	Pesticide	alpha-Chlordane	0.0893	U	0.0893	µg/L		NE	NE	
SWSD011	Pesticide	beta-BHC	0.0893	U	0.0893	µg/L		NE	0.04	
SWSD011	Pesticide	delta-BHC	0.0893	U	0.0893	µg/L		NE	0.4	
SWSD011	Pesticide	Dieldrin	0.1790	U	0.1790	µg/L		NE	0.001	
SWSD011	Pesticide	Endosulfan I	0.0893	U	0.0893	µg/L		NE	NE	
SWSD011	Pesticide	Endosulfan II	0.1790	U	0.1790	µg/L		NE	NE	
SWSD011	Pesticide	Endosulfan sulfate	0.1790	U	0.1790	µg/L		NE	NE	
SWSD011	Pesticide	Endrin	0.1790	U	0.1790	µg/L		2	ND	
SWSD011	Pesticide	Endrin aldehyde	0.1790	U	0.1790	µg/L		NE	5	
SWSD011	Pesticide	Endrin ketone	0.1790	U	0.1790	µg/L		NE	5	
SWSD011	Pesticide	gamma-BHC (Lindane)	0.0893	U	0.0893	µg/L		0.2	0.5	
SWSD011	Pesticide	gamma-Chlordane	0.0893	U	0.0893	µg/L		NE	NE	
SWSD011	Pesticide	Heptachlor	0.0893	U	0.0893	µg/L		0.4	0.4	
SWSD011	Pesticide	Heptachlor epoxide	0.0893	U	0.0893	µg/L		0.2	0.3	
SWSD011	Pesticide	Methoxychlor	0.8930	U	0.8930	µg/L		40	35	
SWSD011	Pesticide	Toxaphene	2.2300	U	2.2300	µg/L		3	0.06	

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/16/2008										
*SW-DUP _(SWSD011)	Radiological	Radium-226	0.635	U	0.733	Ci/L	0.497	5 ^a	5 ^a	100 ^a
*SW-DUP _(SWSD011)	Radiological	Radium-228	0.180	U	0.536	Ci/L	0.312	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
*SW-DUP _(SWSD011)	Radiological	Thorium-228	-0.125	U	0.438	Ci/L	0.141	15 ^b	NE	400
*SW-DUP _(SWSD011)	Radiological	Thorium-230	0.029	U	0.277	Ci/L	0.124	15 ^b	NE	300
*SW-DUP _(SWSD011)	Radiological	Thorium-232	-0.039	U	0.245	Ci/L	0.086	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
*SW-DUP _(SWSD011)	Radiological	Uranium-234	1.290		0.250	Ci/L	0.412	27 ^c	NE	600 ^c
*SW-DUP _(SWSD011)	Radiological	Uranium-235	0.096	U	0.200	Ci/L	0.135	27 ^c	NE	600 ^c
*SW-DUP _(SWSD011)	Radiological	Uranium-238	0.999		0.268	Ci/L	0.369	27 ^c	NE	600 ^c
		Total Uranium ^c	2.289			pCi/L		27 ^c	NE	600 ^c
*SW-DUP _(SWSD011)	Metal	Aluminum	268		5.00	µg/L		50-200 ^d	NE	
*SW-DUP _(SWSD011)	Metal	Antimony	6.1		0.5	µg/L		6	3	
*SW-DUP _(SWSD011)	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
*SW-DUP _(SWSD011)	Metal	Barium	88.9		0.5	µg/L		2000	1000	
*SW-DUP _(SWSD011)	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
*SW-DUP _(SWSD011)	Metal	Boron	499		40.00	µg/L		NE	1000	
*SW-DUP _(SWSD011)	Metal	Cadmium	0.11	U	0.11	µg/L		5	5	
*SW-DUP _(SWSD011)	Metal	Calcium	138000		200	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Metal	Chromium	3.9	J	1	µg/L		100	50	
*SW-DUP _(SWSD011)	Metal	Cobalt	0.75	J	0.1	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Metal	Copper	6.2		0.2	µg/L		1300	200	
*SW-DUP _(SWSD011)	Metal	Iron	1470		10.00	µg/L		300 ^d	300	
*SW-DUP _(SWSD011)	Metal	Lead	2.4		0.5	µg/L		15	25	
*SW-DUP _(SWSD011)	Metal	Lithium	26		2	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Metal	Magnesium	48300		50.00	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Metal	Manganese	77.9		1	µg/L		50 ^d	300	
*SW-DUP _(SWSD011)	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
*SW-DUP _(SWSD011)	Metal	Nickel	6.4		0.5	µg/L		NE	100	
*SW-DUP _(SWSD011)	Metal	Potassium	13500		800.00	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Metal	Selenium	1.6	J	1	µg/L		50	10	
*SW-DUP _(SWSD011)	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
*SW-DUP _(SWSD011)	Metal	Sodium	67900		800	µg/L		NE	20000	
*SW-DUP _(SWSD011)	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
*SW-DUP _(SWSD011)	Metal	Vanadium	3	U	3	µg/L		NE	14	
*SW-DUP _(SWSD011)	Metal	Zinc	19.4		2.6	µg/L		5000 ^d	NE	
*SW-DUP _(SWSD011)	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
*SW-DUP _(SWSD011)	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
*SW-DUP _(SWSD011)	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
*SW-DUP _(SWSD011)	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
*SW-DUP _(SWSD011)	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
*SW-DUP _(SWSD011)	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
*SW-DUP _(SWSD011)	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
*SW-DUP _(SWSD011)	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	4-Methyl-2-pentanone	4.1	J	5	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	Acetone	5.0	U	5	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	Benzene	1.0	U	1	µg/L		5	1	
*SW-DUP _(SWSD011)	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	Bromoform	1.0	U	1	µg/L		NE	NE	
*SW-DUP _(SWSD011)	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
*SW-DUP _(SWSD011)	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
*SW-DUP _(SWSD011)	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
*SW-DUP _(SWSD011)	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
*SW-DUP _(SWSD011)	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
*SW-DUP _(SWSD011)	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
*SW-DUP _(SWSD011)	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
*SW-DUP _(SWSD011)	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
*SW-DUP _(SWSD011)	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
*SW-DUP _(SWSD011)	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
*SW-DUP _(SWSD011)	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
*SW-DUP _(SWSD011)	VOC	Styrene	1.0	U	1	µg/L		100	5	
*SW-DUP _(SWSD011)	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
*SW-DUP _(SWSD011)	VOC	Toluene	1.0	U	1	µg/L		1000	5	
*SW-DUP _(SWSD011)	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
*SW-DUP _(SWSD011)	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
*SW-DUP _(SWSD011)	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
*SW-DUP _(SWSD011)	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
*SW-DUP _(SWSD011)	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-9

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
*SW-DUP _(SWSD011)	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Acenaphthylene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Benzo(a)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Benzo(a)pyrene	0.0472	U	0.0472	µg/L		0.2	ND	
*SW-DUP _(SWSD011)	PAH	Benzo(b)fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Benzo(ghi)perylene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Chrysene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Dibenzo(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PAH	Pyrene	0.0472	U	0.0472	µg/L		NE	NE	
*SW-DUP _(SWSD011)	PCB	Aroclor-1016	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1221	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1232	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1242	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1248	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1254	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
*SW-DUP _(SWSD011)	Pesticide	4,4'-DDD	0.1890	U	0.1890	µg/L		NE	0.3	
*SW-DUP _(SWSD011)	Pesticide	4,4'-DDE	0.1890	U	0.1890	µg/L		NE	0.3	
*SW-DUP _(SWSD011)	Pesticide	4,4'-DDT	0.1890	U	0.1890	µg/L		NE	0.2	
*SW-DUP _(SWSD011)	Pesticide	Aldrin	0.0943	U	0.0943	µg/L		NE	ND	
*SW-DUP _(SWSD011)	Pesticide	alpha-BHC	0.0943	U	0.0943	µg/L		NE	0.01	
*SW-DUP _(SWSD011)	Pesticide	alpha-Chlordane	0.0943	U	0.0943	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Pesticide	beta-BHC	0.0943	U	0.0943	µg/L		NE	0.04	
*SW-DUP _(SWSD011)	Pesticide	delta-BHC	0.0943	U	0.0943	µg/L		NE	0.4	
*SW-DUP _(SWSD011)	Pesticide	Dieldrin	0.1890	U	0.1890	µg/L		NE	0.001	
*SW-DUP _(SWSD011)	Pesticide	Endosulfan I	0.0943	U	0.0943	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Pesticide	Endosulfan II	0.1890	U	0.1890	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Pesticide	Endosulfan sulfate	0.1890	U	0.1890	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Pesticide	Endrin	0.1890	U	0.1890	µg/L		2	ND	
*SW-DUP _(SWSD011)	Pesticide	Endrin aldehyde	0.1890	U	0.1890	µg/L		NE	5	
*SW-DUP _(SWSD011)	Pesticide	Endrin ketone	0.1890	U	0.1890	µg/L		NE	5	
*SW-DUP _(SWSD011)	Pesticide	gamma-BHC (Lindane)	0.0943	U	0.0943	µg/L		0.2	0.5	
*SW-DUP _(SWSD011)	Pesticide	gamma-Chlordane	0.0943	U	0.0943	µg/L		NE	NE	
*SW-DUP _(SWSD011)	Pesticide	Heptachlor	0.0943	U	0.0943	µg/L		0.4	0.4	
*SW-DUP _(SWSD011)	Pesticide	Heptachlor epoxide	0.0943	U	0.0943	µg/L		0.2	0.3	
*SW-DUP _(SWSD011)	Pesticide	Methoxychlor	0.9430	U	0.9430	µg/L		40	35	
*SW-DUP _(SWSD011)	Pesticide	Toxaphene	2.3600	U	2.3600	µg/L		3	0.06	

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/17/2008										
SWSD022	Radiological	Radium-226	-0.153	U	0.617	pCi/L	0.265	5 ^a	5 ^a	100 ^a
SWSD022	Radiological	Radium-228	1.030		0.673	pCi/L	0.478	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.030			pCi/L		5 ^a	5 ^a	100 ^a
SWSD022	Radiological	Thorium-228	0.030	U	0.285	pCi/L	0.126	15 ^b	NE	400
SWSD022	Radiological	Thorium-230	0.062	U	0.241	pCi/L	0.128	15 ^b	NE	300
SWSD022	Radiological	Thorium-232	0.051	U	0.241	pCi/L	0.121	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD022	Radiological	Uranium-234	5.030		0.391	pCi/L	1.230	27 ^c	NE	600 ^c
SWSD022	Radiological	Uranium-235	0.347	U	0.415	pCi/L	0.371	27 ^c	NE	600 ^c
SWSD022	Radiological	Uranium-238	5.250		0.646	pCi/L	1.280	27 ^c	NE	600 ^c
		Total Uranium ^c	10.280			pCi/L		27 ^c	NE	600 ^c
SWSD022	Metal	Aluminum	626		5.0	µg/L		50-200 ^d	NE	
SWSD022	Metal	Antimony	0.72	J	0.5	µg/L		6	3	
SWSD022	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
SWSD022	Metal	Barium	67.4		0.5	µg/L		2000	1000	
SWSD022	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD022	Metal	Boron	454		20.0	µg/L		NE	1000	
SWSD022	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD022	Metal	Calcium	106000		100.0	µg/L		NE	NE	
SWSD022	Metal	Chromium	6.5		1.0	µg/L		100	50	
SWSD022	Metal	Cobalt	0.57	J	0.1	µg/L		NE	NE	
SWSD022	Metal	Copper	7.3		0.2	µg/L		1300	200	
SWSD022	Metal	Iron	1090		10.0	µg/L		300 ^d	300	
SWSD022	Metal	Lead	0.71	J	0.5	µg/L		15	25	
SWSD022	Metal	Lithium	9.5	J	2.0	µg/L		NE	NE	
SWSD022	Metal	Magnesium	22600		5.0	µg/L		NE	NE	
SWSD022	Metal	Manganese	137		1.0	µg/L		50 ^d	300	
SWSD022	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD022	Metal	Nickel	3.7		0.5	µg/L		NE	100	
SWSD022	Metal	Potassium	4440		80.0	µg/L		NE	NE	
SWSD022	Metal	Selenium	1	U	1.0	µg/L		50	10	
SWSD022	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD022	Metal	Sodium	15400		80.0	µg/L		NE	20000	
SWSD022	Metal	Thallium	0.37	J	0.3	µg/L		2	NE	
SWSD022	Metal	Vanadium	4.1	J	3.0	µg/L		NE	14	
SWSD022	Metal	Zinc	7.9	J	2.6	µg/L		5000 ^d	NE	
SWSD022	VOC	1,1,1-Trichloroethane	1.0	U	1.0	µg/L		200	5	
SWSD022	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD022	VOC	1,1,2-Trichloroethane	1.0	U	1.0	µg/L		5	1	
SWSD022	VOC	1,1-Dichloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD022	VOC	1,1-Dichloroethylene	1.0	U	1.0	µg/L		7	5	
SWSD022	VOC	1,2-Dichloroethane	1.0	U	1.0	µg/L		5	0.6	
SWSD022	VOC	1,2-Dichloropropane	1.0	U	1.0	µg/L		5	1	
SWSD022	VOC	2-Butanone	5.0	U	5.0	µg/L		NE	NE	
SWSD022	VOC	2-Hexanone	5.0	U	5.0	µg/L		NE	NE	
SWSD022	VOC	4-Methyl-2-pentanone	5.0	U	5.0	µg/L		NE	NE	
SWSD022	VOC	Acetone	5.0	U	5.0	µg/L		NE	NE	
SWSD022	VOC	Benzene	1.0	U	1.0	µg/L		5	1	
SWSD022	VOC	Bromodichloromethane	1.0	U	1.0	µg/L		NE	NE	
SWSD022	VOC	Bromoform	1.0	U	1.0	µg/L		NE	NE	
SWSD022	VOC	Bromomethane	1.0	U	1.0	µg/L		NE	5	
SWSD022	VOC	Carbon disulfide	5.0	U	5.0	µg/L		NE	60	
SWSD022	VOC	Carbon tetrachloride	1.0	U	1.0	µg/L		5	5	
SWSD022	VOC	Chlorobenzene	1.0	U	1.0	µg/L		100	5	
SWSD022	VOC	Chloroethane	1.0	U	1.0	µg/L		NE	5	
SWSD022	VOC	Chloroform	1.0	U	1.0	µg/L		NE	7	
SWSD022	VOC	Chloromethane	1.0	U	1.0	µg/L		NE	5	
SWSD022	VOC	cis-1,2-Dichloroethylene	4.0		1.0	µg/L		70	5	
SWSD022	VOC	cis-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
SWSD022	VOC	Ethylbenzene	1.0	U	1.0	µg/L		700	5	
SWSD022	VOC	Methylene chloride	5.0	U	5.0	µg/L		5	5	
SWSD022	VOC	Styrene	1.0	U	1.0	µg/L		100	5	
SWSD022	VOC	Tetrachloroethylene	2.1		1.0	µg/L		5	5	
SWSD022	VOC	Toluene	1.0	U	1.0	µg/L		1000	5	
SWSD022	VOC	trans-1,2-Dichloroethylene	1.0	U	1.0	µg/L		100	5	
SWSD022	VOC	trans-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
SWSD022	VOC	Trichloroethylene	1.7		1.0	µg/L		5	5	
SWSD022	VOC	Vinyl chloride	1.0	U	1.0	µg/L		2	2	
SWSD022	VOC	Xylenes (total)	1.0	U	1.0	µg/L		10000	5 ^f	

Table 6-11

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD022	PAH	Acenaphthene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Acenaphthylene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Anthracene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L		0.2	ND	
SWSD022	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L		NE	NE	
SWSD022	PAH	Chrysene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Fluorene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PAH	Naphthalene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Phenanthrene	0.476	U	0.476	µg/L		NE	NE	
SWSD022	PAH	Pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD022	PCB	Aroclor-1016	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1221	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1232	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1242	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1248	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1254	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L		0.5	0.09 ^s	
SWSD022	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD022	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD022	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L		NE	0.2	
SWSD022	Pesticide	Aldrin	0.0190	U	0.0190	µg/L		NE	ND	
SWSD022	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L		NE	0.01	
SWSD022	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD022	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L		NE	0.04	
SWSD022	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L		NE	0.4	
SWSD022	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L		NE	0.001	
SWSD022	Pesticide	Endosulfan I	0.0190	U	0.0190	µg/L		NE	NE	
SWSD022	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L		NE	NE	
SWSD022	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L		NE	NE	
SWSD022	Pesticide	Endrin	0.0381	U	0.0381	µg/L		2	ND	
SWSD022	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L		NE	5	
SWSD022	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L		NE	5	
SWSD022	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L		0.2	0.5	
SWSD022	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD022	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L		0.4	0.4	
SWSD022	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L		0.2	0.3	
SWSD022	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L		40	35	
SWSD022	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L		3	0.06	

Table 6-12

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/10/2008										
SWSD023	Radiological	Radium-226	0.416		0.375	pCi/L	0.273	5 ^a	5 ^a	100 ^a
SWSD023	Radiological	Radium-228	0.134	U	0.463	pCi/L	0.267	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.416			pCi/L		5 ^a	5 ^a	100 ^a
SWSD023	Radiological	Thorium-228	0.104	U	0.324	pCi/L	0.186	15 ^b	NE	400
SWSD023	Radiological	Thorium-230	-0.027	U	0.182	pCi/L	0.059	15 ^b	NE	300
SWSD023	Radiological	Thorium-232	0.039	U	0.182	pCi/L	0.093	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
SWSD023	Radiological	Uranium-234	1.870		0.074	pCi/L	0.350	27 ^c	NE	600 ^c
SWSD023	Radiological	Uranium-235	0.051	U	0.106	pCi/L	0.071	27 ^c	NE	600 ^c
SWSD023	Radiological	Uranium-238	1.400		0.074	pCi/L	0.303	27 ^c	NE	600 ^c
		Total Uranium ^c	3.270			pCi/L		27 ^c	NE	600 ^c
SWSD023	Metal	Aluminum	622		5.0	µg/L		50-200 ^d	NE	NE
SWSD023	Metal	Antimony	1.8	J	0.5	µg/L		6	3	
SWSD023	Metal	Arsenic	1.7	J	1.5	µg/L		10	25	
SWSD023	Metal	Barium	73.7		0.5	µg/L		2000	1000	
SWSD023	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD023	Metal	Boron	356		40.0	µg/L		NE	1000	
SWSD023	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD023	Metal	Calcium	170000		200.0	µg/L		NE	NE	
SWSD023	Metal	Chromium	2.8	J	1.0	µg/L		100	50	
SWSD023	Metal	Cobalt	1		0.1	µg/L		NE	NE	
SWSD023	Metal	Copper	8.8		0.2	µg/L		1300	200	
SWSD023	Metal	Iron	1770		10.0	µg/L		300 ^d	300	
SWSD023	Metal	Lead	3.7		0.5	µg/L		15	25	
SWSD023	Metal	Lithium	28.3		2.0	µg/L		NE	NE	
SWSD023	Metal	Magnesium	54000		50.0	µg/L		NE	NE	
SWSD023	Metal	Manganese	262		1.0	µg/L		50 ^d	300	
SWSD023	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD023	Metal	Nickel	10.4		0.5	µg/L		NE	100	
SWSD023	Metal	Potassium	8790		80.0	µg/L		NE	NE	
SWSD023	Metal	Selenium	1.4	J	1.0	µg/L		50	10	
SWSD023	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD023	Metal	Sodium	127000		800.0	µg/L		NE	20000	
SWSD023	Metal	Thallium	0.46	J	0.3	µg/L		2	NE	
SWSD023	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
SWSD023	Metal	Zinc	26.2	J	2.6	µg/L		5000 ^d	NE	
SWSD023	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
SWSD023	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
SWSD023	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
SWSD023	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
SWSD023	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
SWSD023	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
SWSD023	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
SWSD023	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
SWSD023	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
SWSD023	VOC	4-Methyl-2-pentanone	5.0	U	5	µg/L		NE	NE	
SWSD023	VOC	Acetone	5.0	U	5	µg/L		NE	NE	
SWSD023	VOC	Benzene	1.0	U	1	µg/L		5	1	
SWSD023	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
SWSD023	VOC	Bromoform	1.0	U	1	µg/L		NE	NE	
SWSD023	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
SWSD023	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
SWSD023	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
SWSD023	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
SWSD023	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
SWSD023	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
SWSD023	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
SWSD023	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
SWSD023	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD023	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
SWSD023	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
SWSD023	VOC	Styrene	1.0	U	1	µg/L		100	5	
SWSD023	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
SWSD023	VOC	Toluene	1.0	U	1	µg/L		1000	5	
SWSD023	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
SWSD023	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD023	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
SWSD023	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
SWSD023	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-13

Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD023	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Acenaphthylene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Benzo(a)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Benzo(a)pyrene	0.0472	U	0.0472	µg/L		0.2	ND	
SWSD023	PAH	Benzo(b)fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Benzo(ghi)perylene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
SWSD023	PAH	Chrysene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Dibenzo(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
SWSD023	PAH	Pyrene	0.0472	U	0.0472	µg/L		NE	NE	
SWSD023	PCB	Aroclor-1016	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1221	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1232	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1242	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1248	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1254	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	PCB	Aroclor-1260	0.0893	U	0.0893	µg/L		0.5	0.09 ^b	
SWSD023	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD023	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD023	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L		NE	0.2	
SWSD023	Pesticide	Aldrin	0.0190	U	0.0190	µg/L		NE	ND	
SWSD023	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L		NE	0.01	
SWSD023	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD023	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L		NE	0.04	
SWSD023	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L		NE	0.4	
SWSD023	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L		NE	0.001	
SWSD023	Pesticide	Endosulfan I	0.0949		0.0190	µg/L		NE	NE	
SWSD023	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L		NE	NE	
SWSD023	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L		NE	NE	
SWSD023	Pesticide	Endrin	0.0381	U	0.0381	µg/L		2	ND	
SWSD023	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L		NE	5	
SWSD023	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L		NE	5	
SWSD023	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L		0.2	0.5	
SWSD023	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD023	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L		0.4	0.4	
SWSD023	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L		0.2	0.3	
SWSD023	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L		40	35	
SWSD023	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L		3	0.06	

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds. **	DOE DCGs**
Sample Date: 6/13/2008										
SWSD024	Radiological	Radium-226	0.564		0.315	pCi/L	0.281	5 ^a	5 ^a	100 ^a
SWSD024	Radiological	Radium-228	0.289	U	0.504	pCi/L	0.309	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.564			pCi/L		5 ^a	5 ^a	100 ^a
SWSD024	Radiological	Thorium-228	0.111	U	0.271	pCi/L	0.166	15 ^b	NE	400
SWSD024	Radiological	Thorium-230	1.430		0.177	pCi/L	0.476	15 ^b	NE	300
SWSD024	Radiological	Thorium-232	0.040	U	0.247	pCi/L	0.117	15 ^b	NE	50
		Total Thorium ^b	1.430			pCi/L		15 ^b	NE	NE
SWSD024	Radiological	Uranium-234	2.180		0.116	pCi/L	0.345	27 ^c	NE	600 ^c
SWSD024	Radiological	Uranium-235	0.157		0.087	pCi/L	0.105	27 ^c	NE	600 ^c
SWSD024	Radiological	Uranium-238	1.630		0.100	pCi/L	0.298	27 ^c	NE	600 ^c
		Total Uranium ^c	3.967			pCi/L		27 ^c	NE	600 ^c
SWSD024	Metal	Aluminum	289		5.0	µg/L		50-200 ^d	NE	
SWSD024	Metal	Antimony	0.58	J	0.5	µg/L		6	3	
SWSD024	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
SWSD024	Metal	Barium	59.6	J	0.5	µg/L		2000	1000	
SWSD024	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
SWSD024	Metal	Boron	558		40.0	µg/L		NE	1000	
SWSD024	Metal	Cadmium	0.11	U	0.1	µg/L		5	5	
SWSD024	Metal	Calcium	169000			µg/L		NE	NE	
SWSD024	Metal	Chromium	3.1	J	1.0	µg/L		100	50	
SWSD024	Metal	Cobalt	1.5		0.1	µg/L		NE	NE	
SWSD024	Metal	Copper	4		0.2	µg/L		1300	200	
SWSD024	Metal	Iron	2700		10.0	µg/L		300 ^d	300	
SWSD024	Metal	Lead	0.5	U	0.5	µg/L		15	25	
SWSD024	Metal	Lithium	17.4		2.0	µg/L		NE	NE	
SWSD024	Metal	Magnesium	90100		50.0	µg/L		NE	NE	
SWSD024	Metal	Manganese	1230		10.0	µg/L		50 ^d	300	
SWSD024	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
SWSD024	Metal	Nickel	5		0.5	µg/L		NE	100	
SWSD024	Metal	Potassium	15100		800.0	µg/L		NE	NE	
SWSD024	Metal	Selenium	1	U	1.0	µg/L		50	10	
SWSD024	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
SWSD024	Metal	Sodium	14700		800.0	µg/L		NE	20000	
SWSD024	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
SWSD024	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
SWSD024	Metal	Zinc	18.1		2.6	µg/L		5000 ^d	NE	
SWSD024	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
SWSD024	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
SWSD024	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
SWSD024	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
SWSD024	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
SWSD024	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
SWSD024	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
SWSD024	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
SWSD024	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
SWSD024	VOC	4-Methyl-2-pentanone	5.0	U	5	µg/L		NE	NE	
SWSD024	VOC	Acetone	5.0	U	5	µg/L		NE	NE	
SWSD024	VOC	Benzene	1.0	U	1	µg/L		5	1	
SWSD024	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
SWSD024	VOC	Bromoform	1.0	U	1	µg/L		NE	NE	
SWSD024	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
SWSD024	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
SWSD024	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
SWSD024	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
SWSD024	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
SWSD024	VOC	Chloroform	1.0	U	1	µg/L		NE	7	
SWSD024	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
SWSD024	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
SWSD024	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD024	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
SWSD024	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
SWSD024	VOC	Styrene	1.0	U	1	µg/L		100	5	
SWSD024	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
SWSD024	VOC	Toluene	1.0	U	1	µg/L		1000	5	
SWSD024	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
SWSD024	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
SWSD024	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
SWSD024	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
SWSD024	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

Table 6-15

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD024	PAH	Acenaphthene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Acenaphthylene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Anthracene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L		0.2	ND	
SWSD024	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L		NE	NE	
SWSD024	PAH	Chrysene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Fluorene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PAH	Naphthalene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Phenanthrene	0.476	U	0.476	µg/L		NE	NE	
SWSD024	PAH	Pyrene	0.0476	U	0.0476	µg/L		NE	NE	
SWSD024	PCB	Aroclor-1016	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1221	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1232	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1242	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1248	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1254	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	PCB	Aroclor-1260	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
SWSD024	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD024	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L		NE	0.3	
SWSD024	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L		NE	0.2	
SWSD024	Pesticide	Aldrin	0.0190	U	0.0190	µg/L		NE	ND	
SWSD024	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L		NE	0.01	
SWSD024	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD024	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L		NE	0.04	
SWSD024	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L		NE	0.4	
SWSD024	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L		NE	0.001	
SWSD024	Pesticide	Endosulfan I	0.0190	U	0.0190	µg/L		NE	NE	
SWSD024	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L		NE	NE	
SWSD024	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L		NE	NE	
SWSD024	Pesticide	Endrin	0.0381	U	0.0381	µg/L		2	ND	
SWSD024	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L		NE	5	
SWSD024	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L		NE	5	
SWSD024	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L		0.2	0.5	
SWSD024	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
SWSD024	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L		0.4	0.4	
SWSD024	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L		0.2	0.3	
SWSD024	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L		40	35	
SWSD024	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L		3	0.06	

Table 6-16

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs**
Sample Date: 6/10 and 6/11/2008										
WDD1	Radiological	Radium-226	0.335	U	0.386	pCi/L	0.262	5 ^a	5 ^a	100 ^a
WDD1	Radiological	Radium-228	0.882		0.505	pCi/L	0.375	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.882			pCi/L		5 ^a	5 ^a	100 ^a
WDD1	Radiological	Thorium-228	0.220	U	0.393	pCi/L	0.268	15 ^b	NE	400
WDD1	Radiological	Thorium-230	0.057	U	0.334	pCi/L	0.158	15 ^b	NE	300
WDD1	Radiological	Thorium-232	0.075	U	0.428	pCi/L	0.211	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
WDD1	Radiological	Uranium-234	0.386		0.048	pCi/L	0.165	27 ^c	NE	600 ^c
WDD1	Radiological	Uranium-235	0.010	U	0.114	pCi/L	0.046	27 ^c	NE	600 ^c
WDD1	Radiological	Uranium-238	0.405		0.111	pCi/L	0.173	27 ^c	NE	600 ^c
		Total Uranium ^c	0.791			pCi/L		27 ^c	NE	600 ^c
WDD1	Metal	Aluminum	115		5.0	µg/L		50-200 ^d	NE	
WDD1	Metal	Antimony	2	U	2.0	µg/L		6	3	
WDD1	Metal	Arsenic	2.8	J	1.5	µg/L		10	25	
WDD1	Metal	Barium	51		0.5	µg/L		2000	1000	
WDD1	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
WDD1	Metal	Boron	305		40.0	µg/L		NE	1000	
WDD1	Metal	Cadmium	0.23	J	0.1	µg/L		5	5	
WDD1	Metal	Calcium	87800		200.0	µg/L		NE	NE	
WDD1	Metal	Chromium	3.2	J	1.0	µg/L		100	50	
WDD1	Metal	Cobalt	4.7		0.1	µg/L		NE	NE	
WDD1	Metal	Copper	24.3		0.2	µg/L		1300	200	
WDD1	Metal	Iron	910		10.0	µg/L		300 ^d	300	
WDD1	Metal	Lead	1.3	J	0.5	µg/L		15	25	
WDD1	Metal	Lithium	16.9		2.0	µg/L		NE	NE	
WDD1	Metal	Magnesium	29900		50.0	µg/L		NE	NE	
WDD1	Metal	Manganese	445		1.0	µg/L		50 ^d	300	
WDD1	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
WDD1	Metal	Nickel	11.1		0.5	µg/L		NE	100	
WDD1	Metal	Potassium	101000		800.0	µg/L		NE	NE	
WDD1	Metal	Selenium	1	U	1.0	µg/L		50	10	
WDD1	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
WDD1	Metal	Sodium	43100		800.0	µg/L		NE	20000	
WDD1	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
WDD1	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
WDD1	Metal	Zinc	274	J	2.6	µg/L		5000 ^d	NE	
WDD1	VOC	1,1,1-Trichloroethane	1.0	U	1.0	µg/L		200	5	
WDD1	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1.0	µg/L		NE	5	
WDD1	VOC	1,1,2-Trichloroethane	1.0	U	1.0	µg/L		5	1	
WDD1	VOC	1,1-Dichloroethane	1.0	U	1.0	µg/L		NE	5	
WDD1	VOC	1,1-Dichloroethylene	1.0	U	1.0	µg/L		7	5	
WDD1	VOC	1,2-Dichloroethane	1.0	U	1.0	µg/L		5	0.6	
WDD1	VOC	1,2-Dichloropropane	1.0	U	1.0	µg/L		5	1	
WDD1	VOC	2-Butanone	5.0	U	5.0	µg/L		NE	NE	
WDD1	VOC	2-Hexanone	5.0	U	5.0	µg/L		NE	NE	
WDD1	VOC	4-Methyl-2-pentanone	5.0	U	5.0	µg/L		NE	NE	
WDD1	VOC	Acetone	5.0	U	5.0	µg/L		NE	NE	
WDD1	VOC	Benzene	1.0	U	1.0	µg/L		5	1	
WDD1	VOC	Bromodichloromethane	1.0	U	1.0	µg/L		NE	NE	
WDD1	VOC	Bromoform	1.0	U	1.0	µg/L		NE	NE	
WDD1	VOC	Bromomethane	1.0	U	1.0	µg/L		NE	5	
WDD1	VOC	Carbon disulfide	5.0	U	5.0	µg/L		NE	60	
WDD1	VOC	Carbon tetrachloride	1.0	U	1.0	µg/L		5	5	
WDD1	VOC	Chlorobenzene	1.0	U	1.0	µg/L		100	5	
WDD1	VOC	Chloroform	1.0	U	1.0	µg/L		NE	5	
WDD1	VOC	Chloroform	1.0	U	1.0	µg/L		NE	7	
WDD1	VOC	Chloromethane	1.0	U	1.0	µg/L		NE	5	
WDD1	VOC	cis-1,2-Dichloroethylene	1.0	U	1.0	µg/L		70	5	
WDD1	VOC	cis-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
WDD1	VOC	Ethylbenzene	1.0	U	1.0	µg/L		700	5	
WDD1	VOC	Methylene chloride	5.0	U	5.0	µg/L		5	5	
WDD1	VOC	Styrene	1.0	U	1.0	µg/L		100	5	
WDD1	VOC	Tetrachloroethylene	1.0	U	1.0	µg/L		5	5	
WDD1	VOC	Toluene	1.0	U	1.0	µg/L		1000	5	
WDD1	VOC	trans-1,2-Dichloroethylene	1.0	U	1.0	µg/L		100	5	
WDD1	VOC	trans-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
WDD1	VOC	Trichloroethylene	1.0	U	1.0	µg/L		5	5	
WDD1	VOC	Vinyl chloride	1.0	U	1.0	µg/L		2	2	
WDD1	VOC	Xylenes (total)	1.0	U	1.0	µg/L		10000	5 ^f	

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Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
WDD1	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Acenaphthylene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Benzo(a)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Benzo(a)pyrene	0.0472	U	0.0472	µg/L		0.2	ND	
WDD1	PAH	Benzo(b)fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Benzo(ghi)perylene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
WDD1	PAH	Chrysene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Dibenzo(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
WDD1	PAH	Pyrene	0.0472	U	0.0472	µg/L		NE	NE	
WDD1	PCB	Aroclor-1016	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1221	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1232	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1242	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1248	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1254	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	PCB	Aroclor-1260	0.0952	U	0.0952	µg/L		0.5	0.09 ^B	
WDD1	Pesticide	4,4'-DDD	0.0360	U	0.0360	µg/L		NE	0.3	
WDD1	Pesticide	4,4'-DDE	0.0360	U	0.0360	µg/L		NE	0.3	
WDD1	Pesticide	4,4'-DDT	0.0360	U	0.0360	µg/L		NE	0.2	
WDD1	Pesticide	Aldrin	0.0180	U	0.0180	µg/L		NE	ND	
WDD1	Pesticide	alpha-BHC	0.0180	U	0.0180	µg/L		NE	0.01	
WDD1	Pesticide	alpha-Chlordane	0.0180	U	0.0180	µg/L		NE	NE	
WDD1	Pesticide	beta-BHC	0.0180	U	0.0180	µg/L		NE	0.04	
WDD1	Pesticide	delta-BHC	0.0180	U	0.0180	µg/L		NE	0.4	
WDD1	Pesticide	Dieldrin	0.0360	U	0.0360	µg/L		NE	0.001	
WDD1	Pesticide	Endosulfan I	0.0180	U	0.0180	µg/L		NE	NE	
WDD1	Pesticide	Endosulfan II	0.0360	U	0.0360	µg/L		NE	NE	
WDD1	Pesticide	Endosulfan sulfate	0.0360	U	0.0360	µg/L		NE	NE	
WDD1	Pesticide	Endrin	0.0360	U	0.0360	µg/L		2	ND	
WDD1	Pesticide	Endrin aldehyde	0.0360	U	0.0360	µg/L		NE	5	
WDD1	Pesticide	Endrin ketone	0.0360	U	0.0360	µg/L		NE	5	
WDD1	Pesticide	gamma-BHC (Lindane)	0.0180	U	0.0180	µg/L		0.2	0.5	
WDD1	Pesticide	gamma-Chlordane	0.0180	U	0.0180	µg/L		NE	NE	
WDD1	Pesticide	Heptachlor	0.0180	U	0.0180	µg/L		0.4	0.4	
WDD1	Pesticide	Heptachlor epoxide	0.0180	U	0.0180	µg/L		0.2	0.3	
WDD1	Pesticide	Methoxychlor	0.1800	U	0.1800	µg/L		40	35	
WDD1	Pesticide	Toxaphene	0.4500	U	0.4500	µg/L		3	0.06	

Table 6-18

Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 6/12/2008										
WDD2	Radiological	Radium-226	0.311	U	0.387	pCi/L	0.258	5 ^a	5 ^a	100 ^a
WDD2	Radiological	Radium-228	0.308	U	0.532	pCi/L	0.327	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
WDD2	Radiological	Thorium-228	0.067	U	0.164	pCi/L	0.100	15 ^b	NE	400
WDD2	Radiological	Thorium-230	0.211		0.125	pCi/L	0.146	15 ^b	NE	300
WDD2	Radiological	Thorium-232	0.035	U	0.125	pCi/L	0.069	15 ^b	NE	50
		Total Thorium ^b	0.211			pCi/L		15 ^b	NE	NE
WDD2	Radiological	Uranium-234	0.890		0.081	pCi/L	0.223	27 ^c	NE	600 ^c
WDD2	Radiological	Uranium-235	0.103		0.046	pCi/L	0.084	27 ^c	NE	600 ^c
WDD2	Radiological	Uranium-238	0.817		0.087	pCi/L	0.215	27 ^c	NE	600 ^c
		Total Uranium ^c	1.810			pCi/L		27 ^c	NE	600 ^c
WDD2	Metal	Aluminum	41.9		5.0	µg/L		50-200 ^d	NE	
WDD2	Metal	Antimony	0.5	U	0.5	µg/L		6	3	
WDD2	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
WDD2	Metal	Barium	55.9		0.5	µg/L		2000	1000	
WDD2	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
WDD2	Metal	Boron	354		40.0	µg/L		NE	1000	
WDD2	Metal	Cadmium	0.29	J	0.1	µg/L		5	5	
WDD2	Metal	Calcium	110000		200.0	µg/L		NE	NE	
WDD2	Metal	Chromium	3.6	J	1.0	µg/L		100	50	
WDD2	Metal	Cobalt	6.9		0.1	µg/L		NE	NE	
WDD2	Metal	Copper	20.8		0.2	µg/L		1300	200	
WDD2	Metal	Iron	843		10.0	µg/L		300 ^d	300	
WDD2	Metal	Lead	1.2	J	0.5	µg/L		15	25	
WDD2	Metal	Lithium	16.6		2.0	µg/L		NE	NE	
WDD2	Metal	Magnesium	37300		50.0	µg/L		NE	NE	
WDD2	Metal	Manganese	168		1.0	µg/L		50 ^d	300	
WDD2	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
WDD2	Metal	Nickel	13		0.5	µg/L		NE	100	
WDD2	Metal	Potassium	120000		800.0	µg/L		NE	NE	
WDD2	Metal	Selenium	1	U	1.0	µg/L		50	10	
WDD2	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
WDD2	Metal	Sodium	52400		800.0	µg/L		NE	20000	
WDD2	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
WDD2	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
WDD2	Metal	Zinc	304	J	2.6	µg/L		5000 ^d	NE	
WDD2	VOC	1,1,1-Trichloroethane	1.0	U	1	µg/L		200	5	
WDD2	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1	µg/L		NE	5	
WDD2	VOC	1,1,2-Trichloroethane	1.0	U	1	µg/L		5	1	
WDD2	VOC	1,1-Dichloroethane	1.0	U	1	µg/L		NE	5	
WDD2	VOC	1,1-Dichloroethylene	1.0	U	1	µg/L		7	5	
WDD2	VOC	1,2-Dichloroethane	1.0	U	1	µg/L		5	0.6	
WDD2	VOC	1,2-Dichloropropane	1.0	U	1	µg/L		5	1	
WDD2	VOC	2-Butanone	5.0	U	5	µg/L		NE	NE	
WDD2	VOC	2-Hexanone	5.0	U	5	µg/L		NE	NE	
WDD2	VOC	4-Methyl-2-pentanone	5.0	U	5	µg/L		NE	NE	
WDD2	VOC	Acetone	5.0	U	5	µg/L		NE	NE	
WDD2	VOC	Benzene	1.0	U	1	µg/L		5	1	
WDD2	VOC	Bromodichloromethane	1.0	U	1	µg/L		NE	NE	
WDD2	VOC	Bromofom	1.0	U	1	µg/L		NE	NE	
WDD2	VOC	Bromomethane	1.0	U	1	µg/L		NE	5	
WDD2	VOC	Carbon disulfide	5.0	U	5	µg/L		NE	60	
WDD2	VOC	Carbon tetrachloride	1.0	U	1	µg/L		5	5	
WDD2	VOC	Chlorobenzene	1.0	U	1	µg/L		100	5	
WDD2	VOC	Chloroethane	1.0	U	1	µg/L		NE	5	
WDD2	VOC	Chlorofom	1.0	U	1	µg/L		NE	7	
WDD2	VOC	Chloromethane	1.0	U	1	µg/L		NE	5	
WDD2	VOC	cis-1,2-Dichloroethylene	1.0	U	1	µg/L		70	5	
WDD2	VOC	cis-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
WDD2	VOC	Ethylbenzene	1.0	U	1	µg/L		700	5	
WDD2	VOC	Methylene chloride	5.0	U	5	µg/L		5	5	
WDD2	VOC	Styrene	1.0	U	1	µg/L		100	5	
WDD2	VOC	Tetrachloroethylene	1.0	U	1	µg/L		5	5	
WDD2	VOC	Toluene	1.0	U	1	µg/L		1000	5	
WDD2	VOC	trans-1,2-Dichloroethylene	1.0	U	1	µg/L		100	5	
WDD2	VOC	trans-1,3-Dichloropropylene	1.0	U	1	µg/L		NE	0.4 ^e	
WDD2	VOC	Trichloroethylene	1.0	U	1	µg/L		5	5	
WDD2	VOC	Vinyl chloride	1.0	U	1	µg/L		2	2	
WDD2	VOC	Xylenes (total)	1.0	U	1	µg/L		10000	5 ^f	

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Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

20 of 23

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
WDD2	PAH	Acenaphthene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Acenaphthylene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Anthracene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Benzo(a)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Benzo(a)pyrene	0.0472	U	0.0472	µg/L		0.2	ND	
WDD2	PAH	Benzo(b)fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Benzo(ghi)perylene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Benzo(k)fluoranthene	0.0236	U	0.0236	µg/L		NE	NE	
WDD2	PAH	Chrysene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Dibenzo(a,h)anthracene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Fluoranthene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Fluorene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Indeno(1,2,3-cd)pyrene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PAH	Naphthalene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Phenanthrene	0.472	U	0.472	µg/L		NE	NE	
WDD2	PAH	Pyrene	0.0472	U	0.0472	µg/L		NE	NE	
WDD2	PCB	Aroclor-1016	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1221	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1232	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1242	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1248	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1254	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L		0.5	0.09 ^g	
WDD2	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L		NE	0.3	
WDD2	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L		NE	0.3	
WDD2	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L		NE	0.2	
WDD2	Pesticide	Aldrin	0.0190	U	0.0190	µg/L		NE	ND	
WDD2	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L		NE	0.01	
WDD2	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
WDD2	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L		NE	0.04	
WDD2	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L		NE	0.4	
WDD2	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L		NE	0.001	
WDD2	Pesticide	Endosulfan I	0.0190	U	0.0190	µg/L		NE	NE	
WDD2	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L		NE	NE	
WDD2	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L		NE	NE	
WDD2	Pesticide	Endrin	0.0381	U	0.0381	µg/L		2	ND	
WDD2	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L		NE	5	
WDD2	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L		NE	5	
WDD2	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L		0.2	0.5	
WDD2	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
WDD2	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L		0.4	0.4	
WDD2	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L		0.2	0.3	
WDD2	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L		40	35	
WDD2	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L		3	0.06	

Table 6 - NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Std.**	DOE DCGs**
Sample Date: 6/12/2008										
WDD3	Radiological	Radium-226	0.158	U	0.366	pCi/L	0.217	5 ^a	5 ^a	100 ^a
WDD3	Radiological	Radium-228	0.307	U	0.531	pCi/L	0.327	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L		5 ^a	5 ^a	100 ^a
WDD3	Radiological	Thorium-228	0.142	U	0.509	pCi/L	0.285	15 ^b	NE	400
WDD3	Radiological	Thorium-230	0.058	U	0.274	pCi/L	0.096	15 ^b	NE	300
WDD3	Radiological	Thorium-232	0.053	U	0.292	pCi/L	0.099	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L		15 ^b	NE	NE
WDD3	Radiological	Uranium-234	1.200		0.114	pCi/L	0.275	27 ^c	NE	600 ^c
WDD3	Radiological	Uranium-235	0.062	U	0.110	pCi/L	0.077	27 ^c	NE	600 ^c
WDD3	Radiological	Uranium-238	0.858		0.097	pCi/L	0.232	27 ^c	NE	600 ^c
		Total Uranium ^c	2.058			pCi/L		27 ^c	NE	600 ^c
WDD3	Metal	Aluminum	79.5		5.0	µg/L		50-200 ^d	NE	
WDD3	Metal	Antimony	2	U	2.0	µg/L		6	3	
WDD3	Metal	Arsenic	1.5	U	1.5	µg/L		10	25	
WDD3	Metal	Barium	58.5		0.5	µg/L		2000	1000	
WDD3	Metal	Beryllium	0.1	U	0.1	µg/L		4	11	
WDD3	Metal	Boron	339		40.0	µg/L		NE	1000	
WDD3	Metal	Cadmium	0.42	J	0.1	µg/L		5	5	
WDD3	Metal	Calcium	108000		200.0	µg/L		NE	NE	
WDD3	Metal	Chromium	3.3		1.0	µg/L		100	50	
WDD3	Metal	Cobalt	7		0.1	µg/L		NE	NE	
WDD3	Metal	Copper	20.5		0.2	µg/L		1300	200	
WDD3	Metal	Iron	869		10.0	µg/L		300 ^d	300	
WDD3	Metal	Lead	1.4	J	0.5	µg/L		15	25	
WDD3	Metal	Lithium	16.4		2.0	µg/L		NE	NE	
WDD3	Metal	Magnesium	36900		50.0	µg/L		NE	NE	
WDD3	Metal	Manganese	138		1.0	µg/L		50 ^d	300	
WDD3	Metal	Mercury	0.03	U	0.03	µg/L		2	0.7	
WDD3	Metal	Nickel	13.2		0.5	µg/L		NE	100	
WDD3	Metal	Potassium	113000		800.0	µg/L		NE	NE	
WDD3	Metal	Selenium	1	U	1.0	µg/L		50	10	
WDD3	Metal	Silver	0.2	U	0.2	µg/L		100 ^d	50	
WDD3	Metal	Sodium	51400		800.0	µg/L		NE	20000	
WDD3	Metal	Thallium	0.3	U	0.3	µg/L		2	NE	
WDD3	Metal	Vanadium	3	U	3.0	µg/L		NE	14	
WDD3	Metal	Zinc	306	J	2.6	µg/L		5000 ^d	NE	
WDD3	VOC	1,1,1-Trichloroethane	1.0	U	1.0	µg/L		200	5	
WDD3	VOC	1,1,2,2-Tetrachloroethane	1.0	U	1.0	µg/L		NE	5	
WDD3	VOC	1,1,2-Trichloroethane	1.0	U	1.0	µg/L		5	1	
WDD3	VOC	1,1-Dichloroethane	1.0	U	1.0	µg/L		NE	5	
WDD3	VOC	1,1-Dichloroethylene	1.0	U	1.0	µg/L		7	5	
WDD3	VOC	1,2-Dichloroethane	1.0	U	1.0	µg/L		5	0.6	
WDD3	VOC	1,2-Dichloropropane	1.0	U	1.0	µg/L		5	1	
WDD3	VOC	2-Butanone	5.0	U	5.0	µg/L		NE	NE	
WDD3	VOC	2-Hexanone	5.0	U	5.0	µg/L		NE	NE	
WDD3	VOC	4-Methyl-2-pentanone	5.0	U	5.0	µg/L		NE	NE	
WDD3	VOC	Acetone	5.0	U	5.0	µg/L		NE	NE	
WDD3	VOC	Benzene	1.0	U	1.0	µg/L		5	1	
WDD3	VOC	Bromodichloromethane	1.0	U	1.0	µg/L		NE	NE	
WDD3	VOC	Bromoform	1.0	U	1.0	µg/L		NE	NE	
WDD3	VOC	Bromomethane	1.0	U	1.0	µg/L		NE	5	
WDD3	VOC	Carbon disulfide	5.0	U	5.0	µg/L		NE	60	
WDD3	VOC	Carbon tetrachloride	1.0	U	1.0	µg/L		5	5	
WDD3	VOC	Chlorobenzene	1.0	U	1.0	µg/L		100	5	
WDD3	VOC	Chloroethane	1.0	U	1.0	µg/L		NE	5	
WDD3	VOC	Chloroform	1.0	U	1.0	µg/L		NE	7	
WDD3	VOC	Chloromethane	1.0	U	1.0	µg/L		NE	5	
WDD3	VOC	cis-1,2-Dichloroethylene	1.0	U	1.0	µg/L		70	5	
WDD3	VOC	cis-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
WDD3	VOC	Ethylbenzene	1.0	U	1.0	µg/L		700	5	
WDD3	VOC	Methylene chloride	5.0	U	5.0	µg/L		5	5	
WDD3	VOC	Styrene	1.0	U	1.0	µg/L		100	5	
WDD3	VOC	Tetrachloroethylene	1.0	U	1.0	µg/L		5	5	
WDD3	VOC	Toluene	1.0	U	1.0	µg/L		1000	5	
WDD3	VOC	trans-1,2-Dichloroethylene	1.0	U	1.0	µg/L		100	5	
WDD3	VOC	trans-1,3-Dichloropropylene	1.0	U	1.0	µg/L		NE	0.4 ^e	
WDD3	VOC	Trichloroethylene	1.0	U	1.0	µg/L		5	5	
WDD3	VOC	Vinyl chloride	1.0	U	1.0	µg/L		2	2	
WDD3	VOC	Xylenes (total)	1.0	U	1.0	µg/L		10000	5 ^f	

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Table 6

NFSS Spring 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
WDD3	PAH	Acenaphthene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Acenaphthylene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Anthracene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L		0.2	ND	
WDD3	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L		NE	NE	
WDD3	PAH	Chrysene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Fluoranthene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Fluorene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PAH	Naphthalene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Phenanthrene	0.476	U	0.476	µg/L		NE	NE	
WDD3	PAH	Pyrene	0.0476	U	0.0476	µg/L		NE	NE	
WDD3	PCB	Aroclor-1016	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1221	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1232	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1242	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1248	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1254	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	PCB	Aroclor-1260	0.0952	U	0.0952	µg/L		0.5	0.09 ^g	
WDD3	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L		NE	0.3	
WDD3	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L		NE	0.3	
WDD3	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L		NE	0.2	
WDD3	Pesticide	Aldrin	0.0190	U	0.0190	µg/L		NE	ND	
WDD3	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L		NE	0.01	
WDD3	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
WDD3	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L		NE	0.04	
WDD3	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L		NE	0.4	
WDD3	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L		NE	0.001	
WDD3	Pesticide	Endosulfan I	0.0190	U	0.0190	µg/L		NE	NE	
WDD3	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L		NE	NE	
WDD3	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L		NE	NE	
WDD3	Pesticide	Endrin	0.0381	U	0.0381	µg/L		2	ND	
WDD3	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L		NE	5	
WDD3	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L		NE	5	
WDD3	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L		0.2	0.5	
WDD3	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L		NE	NE	
WDD3	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L		0.4	0.4	
WDD3	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L		0.2	0.3	
WDD3	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L		40	35	
WDD3	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L		3	0.06	

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
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***Surface Water Location**

SWSD009 and SWSD021 - Site Background

SW-DUP (SWSD011) - Field Duplicate of surface water and sediment location SWSD011

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/L - picocuries per liter

µg/L - micrograms per liter (ppb)

***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

***Detection or Reporting Limit**

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC, PAH, PCB and Pesticides) - Reporting Limit (gray shading)

**** Surface Water at NFSS is not a drinking water source.****The above federal and state regulation concentrations are for comparative purposes only.****Federal Regulations:**

National Primary Drinking Water Regulations 40CFR141.62&63

US Dept of Energy:

USDOE derived concentration guide (USDOE Order 5400.5) for drinking water.

New York State:

New York State Standards -Water Quality Criteria (class GA) per 6 NYCRR, Part 703.

NE - Not Established

- Applies to the sum of Ra-226 and Ra-228
- "Adjusted" gross alpha MCL of 15 pCi/L, including Thorium isotopes, excluding radon and uranium
-National Primary Drinking Water Regulations; Radionuclide; Final Rule (Federal Register -December 7, 2000)
- Sum of Uranium Isotopes (27 pCi/L or 30 µg/L).
- National Secondary Drinking Water Regulations (40CFR143.3)
- Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.
- Not a sum total for Dimethyl Benzene (Xylene), applies to 1,2-Xylene, 1,3-Xylene and 1,4-Xylene individually.
- Sum of Aroclors (polychlorinated biphenyls)

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

1 of 23

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds. **	DOE DCGs**
Sample Date: 10/30/2008									
SWSD009	Radiological	Radium-226	0.281		0.505	pCi/L	5 ^a	5 ^a	100 ^a
SWSD009	Radiological	Radium-228	0.203		0.780	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.484			pCi/L	5 ^a	5 ^a	100 ^a
SWSD009	Radiological	Thorium-228	0.029	U	0.234	pCi/L	15 ^b	NE	400
SWSD009	Radiological	Thorium-230	-0.015	U	0.246	pCi/L	15 ^b	NE	300
SWSD009	Radiological	Thorium-232	-0.023	U	0.171	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SWSD009	Radiological	Uranium-234	4.400		0.151	pCi/L	27 ^c	NE	600 ^c
SWSD009	Radiological	Uranium-235	0.197		0.187	pCi/L	27 ^c	NE	600 ^c
SWSD009	Radiological	Uranium-238	4.080		0.151	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	8.677			pCi/L	27 ^c	NE	600 ^c
SWSD009	Metal	Aluminum	2210		5	µg/L	50-200 ^d	NE	
SWSD009	Metal	Antimony	2.0		0.5	µg/L	6	3	
SWSD009	Metal	Arsenic	2.3	J	1.5	µg/L	10	25	
SWSD009	Metal	Barium	84.4		0.5	µg/L	2000	1000	
SWSD009	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SWSD009	Metal	Boron	531.0		20.0	µg/L	NE	1000	
SWSD009	Metal	Cadmium	0.2	J	0.1	µg/L	5	5	
SWSD009	Metal	Calcium	204000		100	µg/L	NE	NE	
SWSD009	Metal	Chromium	6.8		1.5	µg/L	100	50	
SWSD009	Metal	Cobalt	1.8		0.1	µg/L	NE	NE	
SWSD009	Metal	Copper	10.9		0.3	µg/L	1300	200	
SWSD009	Metal	Iron	3880		10	µg/L	300 ^d	300	
SWSD009	Metal	Lead	8.2		0.5	µg/L	15	25	
SWSD009	Metal	Lithium	23.0		2.0	µg/L	NE	NE	
SWSD009	Metal	Magnesium	63100.0		26.0	µg/L	NE	NE	
SWSD009	Metal	Manganese	119.0		5.0	µg/L	50 ^d	300	
SWSD009	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD009	Metal	Nickel	9.2		0.5	µg/L	NE	100	
SWSD009	Metal	Potassium	5940		80	µg/L	NE	NE	
SWSD009	Metal	Selenium	1.7	J	1.0	µg/L	50	10	
SWSD009	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD009	Metal	Sodium	164000	J	400	µg/L	NE	20000	
SWSD009	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD009	Metal	Vanadium	5.5	J	3.0	µg/L	NE	14	
SWSD009	Metal	Zinc	48.7	J	2.6	µg/L	5000 ^d	NE	
SWSD009	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD009	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD009	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD009	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD009	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD009	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD009	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD009	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD009	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD009	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD009	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD009	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD009	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD009	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD009	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD009	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD009	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD009	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD009	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD009	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD009	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD009	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SWSD009	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD009	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD009	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD009	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD009	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SWSD009	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD009	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD009	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD009	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SWSD009	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD009	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-1

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD009	PAH	Acenaphthene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Anthracene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Benzo(a)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Benzo(a)pyrene	0.047	U	0.047	µg/L	0.2	NE	
SWSD009	PAH	Benzo(b)fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Benzo(ghi)perylene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD009	PAH	Chrysene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Dibenzo(a,h)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Fluorene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Indeno(1,2,3-cd)pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Phenanthrene	0.472	U	0.472	µg/L	NE	NE	
SWSD009	PAH	Pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD009	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	PCB	Aroclor-1260	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD009	Pesticide	4,4'-DDD	0.036	U	0.036	µg/L	NE	0.3	
SWSD009	Pesticide	4,4'-DDE	0.036	U	0.036	µg/L	NE	0.3	
SWSD009	Pesticide	4,4'-DDT	0.036	U	0.036	µg/L	NE	0.2	
SWSD009	Pesticide	Aldrin	0.018	U	0.018	µg/L	NE	NE	
SWSD009	Pesticide	alpha-BHC	0.018	U	0.018	µg/L	NE	0.01	
SWSD009	Pesticide	alpha-Chlordane	0.018	U	0.018	µg/L	NE	NE	
SWSD009	Pesticide	beta-BHC	0.018	U	0.018	µg/L	NE	0.04	
SWSD009	Pesticide	delta-BHC	0.018	U	0.018	µg/L	NE	0.4	
SWSD009	Pesticide	Dieldrin	0.036	U	0.036	µg/L	NE	0.001	
SWSD009	Pesticide	Endosulfan I	0.018	U	0.018	µg/L	NE	NE	
SWSD009	Pesticide	Endosulfan II	0.036	U	0.036	µg/L	NE	NE	
SWSD009	Pesticide	Endosulfan sulfate	0.036	U	0.036	µg/L	NE	NE	
SWSD009	Pesticide	Endrin	0.036	U	0.036	µg/L	2	ND	
SWSD009	Pesticide	Endrin aldehyde	0.036	U	0.036	µg/L	NE	5	
SWSD009	Pesticide	Endrin ketone	0.036	U	0.036	µg/L	NE	5	
SWSD009	Pesticide	gamma-BHC (Lindane)	0.018	U	0.018	µg/L	0.2	0.5	
SWSD009	Pesticide	gamma-Chlordane	0.018	U	0.018	µg/L	NE	NE	
SWSD009	Pesticide	Heptachlor	0.018	U	0.018	µg/L	0.4	0.4	
SWSD009	Pesticide	Heptachlor epoxide	0.018	U	0.018	µg/L	0.2	0.3	
SWSD009	Pesticide	Methoxychlor	0.179	U	0.179	µg/L	40	35	
SWSD009	Pesticide	Toxaphene	0.446	U	0.446	µg/L	3	0.06	

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Sds. **	DOE DCGs**
Sample Date: 10/30/2008									
SWSD021	Radiological	Radium-226	0.125	U	0.400	pCi/L	5 ^a	5 ^a	100 ^a
SWSD021	Radiological	Radium-228	0.693		0.593	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.693			pCi/L	5 ^a	5 ^a	100 ^a
SWSD021	Radiological	Thorium-228	0.000	U	0.140	pCi/L	15 ^b	NE	400
SWSD021	Radiological	Thorium-230	0.080	U	0.089	pCi/L	15 ^b	NE	300
SWSD021	Radiological	Thorium-232	0.015	U	0.096	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SWSD021	Radiological	Uranium-234	2.640		0.371	pCi/L	27 ^c	NE	600 ^c
SWSD021	Radiological	Uranium-235	0.148	U	0.325	pCi/L	27 ^c	NE	600 ^c
SWSD021	Radiological	Uranium-238	1.780		0.334	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	4.420			pCi/L	27 ^c	NE	600 ^c
SWSD021	Metal	Aluminum	4090		5	µg/L	50-200 ^d	NE	
SWSD021	Metal	Antimony	0.5	U	0.5	µg/L	6	3	
SWSD021	Metal	Arsenic	1.5	U	1.5	µg/L	10	25	
SWSD021	Metal	Barium	76.5		0.5	µg/L	2000	1000	
SWSD021	Metal	Beryllium	0.2	J	0.1	µg/L	4	11	
SWSD021	Metal	Boron	66.2		4.0	µg/L	NE	1000	
SWSD021	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SWSD021	Metal	Calcium	63900		100	µg/L	NE	NE	
SWSD021	Metal	Chromium	267.0		7.5	µg/L	100	50	
SWSD021	Metal	Cobalt	1.6		0.1	µg/L	NE	NE	
SWSD021	Metal	Copper	6.6		0.3	µg/L	1300	200	
SWSD021	Metal	Iron	3910		10	µg/L	300 ^d	300	
SWSD021	Metal	Lead	1.5	J	0.5	µg/L	15	25	
SWSD021	Metal	Lithium	10.9		2.0	µg/L	NE	NE	
SWSD021	Metal	Magnesium	19900.0		5.2	µg/L	NE	NE	
SWSD021	Metal	Manganese	47.7		1.0	µg/L	50 ^d	300	
SWSD021	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD021	Metal	Nickel	5.0		0.5	µg/L	NE	100	
SWSD021	Metal	Potassium	5100	J	80	µg/L	NE	NE	
SWSD021	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
SWSD021	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD021	Metal	Sodium	9010		80	µg/L	NE	20000	
SWSD021	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD021	Metal	Vanadium	16.5		3.0	µg/L	NE	14	
SWSD021	Metal	Zinc	11.0		2.6	µg/L	5000 ^d	NE	
SWSD021	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD021	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD021	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD021	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD021	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD021	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD021	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD021	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD021	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD021	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD021	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD021	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD021	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD021	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD021	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD021	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD021	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD021	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD021	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD021	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD021	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD021	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SWSD021	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD021	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD021	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD021	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD021	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SWSD021	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD021	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD021	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD021	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SWSD021	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD021	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-3

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD021	PAH	Acenaphthene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Anthracene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Benzo(a)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Benzo(a)pyrene	0.047	U	0.047	µg/L	0.2	NE	
SWSD021	PAH	Benzo(b)fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Benzo(ghi)perylene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD021	PAH	Chrysene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Dibenzo(a,h)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Fluorene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Indeno(1,2,3-cd)pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Phenanthrene	0.472	U	0.472	µg/L	NE	NE	
SWSD021	PAH	Pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD021	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	PCB	Aroclor-1260	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD021	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
SWSD021	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.3	
SWSD021	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
SWSD021	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
SWSD021	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
SWSD021	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD021	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
SWSD021	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L	NE	0.4	
SWSD021	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
SWSD021	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L	NE	NE	
SWSD021	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
SWSD021	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
SWSD021	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
SWSD021	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
SWSD021	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
SWSD021	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
SWSD021	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD021	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
SWSD021	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
SWSD021	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
SWSD021	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/29/2008									
SWSD010	Radiological	Radium-226	0.884		0.680	pCi/L	5 ^a	5 ^a	100 ^a
SWSD010	Radiological	Radium-228	1.070	J	0.516	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.954			pCi/L	5 ^a	5 ^a	100 ^a
SWSD010	Radiological	Thorium-228	0.084	U	0.120	pCi/L	15 ^b	NE	400
SWSD010	Radiological	Thorium-230	0.019	U	0.110	pCi/L	15 ^b	NE	300
SWSD010	Radiological	Thorium-232	0.012	U	0.079	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SWSD010	Radiological	Uranium-234	2.550		0.198	pCi/L	27 ^c	NE	600 ^c
SWSD010	Radiological	Uranium-235	0.195		0.136	pCi/L	27 ^c	NE	600 ^c
SWSD010	Radiological	Uranium-238	1.920		0.176	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	4.665			pCi/L	27 ^c	NE	600 ^c
SWSD010	Metal	Aluminum	1320			µg/L	50-200 ^d	NE	
SWSD010	Metal	Antimony	1.8	J	0.5	µg/L	6	3	
SWSD010	Metal	Arsenic	1.9	J	1.5	µg/L	10	25	
SWSD010	Metal	Barium	74.7		0.5	µg/L	2000	1000	
SWSD010	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SWSD010	Metal	Boron	984.0		20.0	µg/L	NE	1000	
SWSD010	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SWSD010	Metal	Calcium	146000		100	µg/L	NE	NE	
SWSD010	Metal	Chromium	23.9		1.5	µg/L	100	50	
SWSD010	Metal	Cobalt	1.2		0.1	µg/L	NE	NE	
SWSD010	Metal	Copper	7.3		0.3	µg/L	1300	200	
SWSD010	Metal	Iron	2430		10	µg/L	300 ^d	300	
SWSD010	Metal	Lead	4.4		0.5	µg/L	15	25	
SWSD010	Metal	Lithium	22.6		2.0	µg/L	NE	NE	
SWSD010	Metal	Magnesium	36600.0		26.0	µg/L	NE	NE	
SWSD010	Metal	Manganese	156.0		5.0	µg/L	50 ^d	300	
SWSD010	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD010	Metal	Nickel	6.9		0.5	µg/L	NE	100	
SWSD010	Metal	Potassium	6010		80	µg/L	NE	NE	
SWSD010	Metal	Selenium	3.2	J	1.0	µg/L	50	10	
SWSD010	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD010	Metal	Sodium	76300	J	400	µg/L	NE	20000	
SWSD010	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD010	Metal	Vanadium	4.4	J	3.0	µg/L	NE	14	
SWSD010	Metal	Zinc	31.2		2.6	µg/L	5000 ^d	NE	
SWSD010	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD010	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD010	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD010	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD010	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD010	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD010	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD010	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD010	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD010	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD010	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD010	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD010	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD010	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD010	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD010	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD010	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD010	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD010	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD010	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD010	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD010	VOC	cis-1,2-Dichloroethylene	3.58		1.00	µg/L	70	5	
SWSD010	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD010	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD010	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD010	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD010	VOC	Tetrachloroethylene	7.91		2.00	µg/L	5	5	
SWSD010	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD010	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD010	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD010	VOC	Trichloroethylene	3.63		1.00	µg/L	5	5	
SWSD010	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD010	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-5

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD010	PAH	Acenaphthene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Acenaphthylene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Anthracene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Benzo(a)anthracene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Benzo(a)pyrene	0.048	U	0.048	µg/L	0.2	NE	
SWSD010	PAH	Benzo(b)fluoranthene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Benzo(ghi)perylene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD010	PAH	Chrysene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Dibenzo(a,h)anthracene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Fluoranthene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Fluorene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Indeno(1,2,3-cd)pyrene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PAH	Naphthalene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Phenanthrene	0.481	U	0.481	µg/L	NE	NE	
SWSD010	PAH	Pyrene	0.048	U	0.048	µg/L	NE	NE	
SWSD010	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	PCB	Aroclor-1260	0.094	U	0.094	µg/L	0.5	0.09 ^g	
SWSD010	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
SWSD010	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.3	
SWSD010	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
SWSD010	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
SWSD010	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
SWSD010	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD010	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
SWSD010	Pesticide	delta-BHC	0.0063	J	0.0189	µg/L	NE	0.4	
SWSD010	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
SWSD010	Pesticide	Endosulfan I	0.0771		0.0189	µg/L	NE	NE	
SWSD010	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
SWSD010	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
SWSD010	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
SWSD010	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
SWSD010	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
SWSD010	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
SWSD010	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD010	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
SWSD010	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
SWSD010	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
SWSD010	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

7 of 23

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/30/2008									
SWSD011	Radiological	Radium-226	0.710	U	0.717	pCi/L	5 ^a	5 ^a	100 ^a
SWSD011	Radiological	Radium-228	0.270	U	0.732	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L	5 ^a	5 ^a	100 ^a
SWSD011	Radiological	Thorium-228	-0.007	U	0.186	pCi/L	15 ^b	NE	400
SWSD011	Radiological	Thorium-230	0.020	U	0.136	pCi/L	15 ^b	NE	300
SWSD011	Radiological	Thorium-232	-0.035	U	0.136	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SWSD011	Radiological	Uranium-234	3.190		0.375	pCi/L	27 ^c	NE	600 ^c
SWSD011	Radiological	Uranium-235	0.102	U	0.138	pCi/L	27 ^c	NE	600 ^c
SWSD011	Radiological	Uranium-238	2.900		0.424	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	6.090			pCi/L	27 ^c	NE	600 ^c
SWSD011	Metal	Aluminum	351		5	µg/L	50-200 ^d	NE	
SWSD011	Metal	Antimony	1.3	J	0.5	µg/L	6	3	
SWSD011	Metal	Arsenic	1.5	U	1.5	µg/L	10	25	
SWSD011	Metal	Barium	49.5		0.5	µg/L	2000	1000	
SWSD011	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SWSD011	Metal	Boron	750.0		20.0	µg/L	NE	1000	
SWSD011	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SWSD011	Metal	Calcium	175000		100	µg/L	NE	NE	
SWSD011	Metal	Chromium	2.2	J	1.5	µg/L	100	50	
SWSD011	Metal	Cobalt	0.8	J	0.1	µg/L	NE	NE	
SWSD011	Metal	Copper	4.0		0.3	µg/L	1300	200	
SWSD011	Metal	Iron	1440		10	µg/L	300 ^d	300	
SWSD011	Metal	Lead	0.5	J	0.5	µg/L	15	25	
SWSD011	Metal	Lithium	22.6		2.0	µg/L	NE	NE	
SWSD011	Metal	Magnesium	46600.0		5.2	µg/L	NE	NE	
SWSD011	Metal	Manganese	159.0		5.0	µg/L	50 ^d	300	
SWSD011	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD011	Metal	Nickel	6.0		0.5	µg/L	NE	100	
SWSD011	Metal	Potassium	8460	J	80	µg/L	NE	NE	
SWSD011	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
SWSD011	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD011	Metal	Sodium	68200		400	µg/L	NE	20000	
SWSD011	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD011	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
SWSD011	Metal	Zinc	14.6		2.6	µg/L	5000 ^d	NE	
SWSD011	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD011	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD011	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD011	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD011	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD011	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD011	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD011	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD011	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD011	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD011	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD011	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD011	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD011	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD011	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD011	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD011	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD011	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD011	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD011	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD011	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD011	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SWSD011	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD011	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD011	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD011	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD011	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SWSD011	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD011	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD011	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD011	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SWSD011	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD011	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-7

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD011	PAH	Acenaphthene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Acenaphthylene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Anthracene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Benzo(a)anthracene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Benzo(a)pyrene	0.049	U	0.049	µg/L	0.2	ND	
SWSD011	PAH	Benzo(b)fluoranthene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Benzo(ghi)perylene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD011	PAH	Chrysene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Dibenzo(a,h)anthracene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Fluoranthene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Fluorene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Indeno(1,2,3-cd)pyrene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PAH	Naphthalene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Phenanthrene	0.485	U	0.485	µg/L	NE	NE	
SWSD011	PAH	Pyrene	0.049	U	0.049	µg/L	NE	NE	
SWSD011	PCB	Aroclor-1016	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1221	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1232	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1242	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1248	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1254	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	PCB	Aroclor-1260	0.093	U	0.093	µg/L	0.5	0.09 [#]	
SWSD011	Pesticide	4,4'-DDD	0.0400	U	0.0400	µg/L	NE	0.3	
SWSD011	Pesticide	4,4'-DDE	0.0400	U	0.0400	µg/L	NE	0.3	
SWSD011	Pesticide	4,4'-DDT	0.0400	U	0.0400	µg/L	NE	0.2	
SWSD011	Pesticide	Aldrin	0.0200	U	0.0200	µg/L	NE	ND	
SWSD011	Pesticide	alpha-BHC	0.0200	U	0.0200	µg/L	NE	0.01	
SWSD011	Pesticide	alpha-Chlordane	0.0200	U	0.0200	µg/L	NE	NE	
SWSD011	Pesticide	beta-BHC	0.0200	U	0.0200	µg/L	NE	0.04	
SWSD011	Pesticide	delta-BHC	0.0200	U	0.0200	µg/L	NE	0.4	
SWSD011	Pesticide	Dieldrin	0.0400	U	0.0400	µg/L	NE	0.001	
SWSD011	Pesticide	Endosulfan I	0.0200	U	0.0200	µg/L	NE	NE	
SWSD011	Pesticide	Endosulfan II	0.0400	U	0.0400	µg/L	NE	NE	
SWSD011	Pesticide	Endosulfan sulfate	0.0400	U	0.0400	µg/L	NE	NE	
SWSD011	Pesticide	Endrin	0.0400	U	0.0400	µg/L	2	ND	
SWSD011	Pesticide	Endrin aldehyde	0.0400	U	0.0400	µg/L	NE	5	
SWSD011	Pesticide	Endrin ketone	0.0400	U	0.0400	µg/L	NE	5	
SWSD011	Pesticide	gamma-BHC (Lindane)	0.0200	U	0.0200	µg/L	0.2	0.5	
SWSD011	Pesticide	gamma-Chlordane	0.0200	U	0.0200	µg/L	NE	NE	
SWSD011	Pesticide	Heptachlor	0.0200	U	0.0200	µg/L	0.4	0.4	
SWSD011	Pesticide	Heptachlor epoxide	0.0200	U	0.0200	µg/L	0.2	0.3	
SWSD011	Pesticide	Methoxychlor	0.2000	U	0.2000	µg/L	40	35	
SWSD011	Pesticide	Toxaphene	0.5000	U	0.5000	µg/L	3	0.06	

Table 7-8

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/30/2008									
SW-DUP(SWSD011)	Radiological	Radium-226	0.256	U	0.688	pCi/L	5 ^a	5 ^a	100 ^a
SW-DUP(SWSD011)	Radiological	Radium-228	0.978	U	0.978	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L	5 ^a	5 ^a	100 ^a
SW-DUP(SWSD011)	Radiological	Thorium-228	0.121	U	0.194	pCi/L	15 ^b	NE	400
SW-DUP(SWSD011)	Radiological	Thorium-230	0.002	U	0.128	pCi/L	15 ^b	NE	300
SW-DUP(SWSD011)	Radiological	Thorium-232	-0.008	U	0.117	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SW-DUP(SWSD011)	Radiological	Uranium-234	3.370		0.386	pCi/L	27 ^c	NE	600 ^c
SW-DUP(SWSD011)	Radiological	Uranium-235	0.220	U	0.273	pCi/L	27 ^c	NE	600 ^c
SW-DUP(SWSD011)	Radiological	Uranium-238	2.650		0.335	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	6.020			pCi/L	27 ^c	NE	600 ^c
SW-DUP(SWSD011)	Metal	Aluminum	417		5	µg/L	50-200 ^d	NE	
SW-DUP(SWSD011)	Metal	Antimony	1.3	J	0.5	µg/L	6	3	
SW-DUP(SWSD011)	Metal	Arsenic	1.5	U	1.5	µg/L	10	25	
SW-DUP(SWSD011)	Metal	Barium	51.7		0.5	µg/L	2000	1000	
SW-DUP(SWSD011)	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SW-DUP(SWSD011)	Metal	Boron	725.0		20.0	µg/L	NE	1000	
SW-DUP(SWSD011)	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SW-DUP(SWSD011)	Metal	Calcium	166000		100	µg/L	NE	NE	
SW-DUP(SWSD011)	Metal	Chromium	2.6	J	1.5	µg/L	100	50	
SW-DUP(SWSD011)	Metal	Cobalt	0.9	J	0.1	µg/L	NE	NE	
SW-DUP(SWSD011)	Metal	Copper	4.4		0.3	µg/L	1300	200	
SW-DUP(SWSD011)	Metal	Iron	1630		10	µg/L	300 ^d	300	
SW-DUP(SWSD011)	Metal	Lead	0.7	J	0.5	µg/L	15	25	
SW-DUP(SWSD011)	Metal	Lithium	22.2		2.0	µg/L	NE	NE	
SW-DUP(SWSD011)	Metal	Magnesium	45300.0		5.2	µg/L	NE	NE	
SW-DUP(SWSD011)	Metal	Manganese	176.0		5.0	µg/L	50 ^d	300	
SW-DUP(SWSD011)	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SW-DUP(SWSD011)	Metal	Nickel	6.4		0.5	µg/L	NE	100	
SW-DUP(SWSD011)	Metal	Potassium	7570	J	80	µg/L	NE	NE	
SW-DUP(SWSD011)	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
SW-DUP(SWSD011)	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SW-DUP(SWSD011)	Metal	Sodium	69500		400	µg/L	NE	20000	
SW-DUP(SWSD011)	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SW-DUP(SWSD011)	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
SW-DUP(SWSD011)	Metal	Zinc	16.3		2.6	µg/L	5000 ^d	NE	
SW-DUP(SWSD011)	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SW-DUP(SWSD011)	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SW-DUP(SWSD011)	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SW-DUP(SWSD011)	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SW-DUP(SWSD011)	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SW-DUP(SWSD011)	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SW-DUP(SWSD011)	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SW-DUP(SWSD011)	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SW-DUP(SWSD011)	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SW-DUP(SWSD011)	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SW-DUP(SWSD011)	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SW-DUP(SWSD011)	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SW-DUP(SWSD011)	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SW-DUP(SWSD011)	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SW-DUP(SWSD011)	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SW-DUP(SWSD011)	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SW-DUP(SWSD011)	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SW-DUP(SWSD011)	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SW-DUP(SWSD011)	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SW-DUP(SWSD011)	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SW-DUP(SWSD011)	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SW-DUP(SWSD011)	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SW-DUP(SWSD011)	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SW-DUP(SWSD011)	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SW-DUP(SWSD011)	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SW-DUP(SWSD011)	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SW-DUP(SWSD011)	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SW-DUP(SWSD011)	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-9

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SW-DUP(SWSD011)	PAH	Acenaphthene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Anthracene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Benzo(a)anthracene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Benzo(a)pyrene	0.047	U	0.047	µg/L	0.2	ND	
SW-DUP(SWSD011)	PAH	Benzo(b)fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Benzo(ghi)perylene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Chrysene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Dibenzo(a,h)anthracene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Fluorene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Indeno(1,2,3-cd)pyrene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Phenanthrene	0.472	U	0.472	µg/L	NE	NE	
SW-DUP(SWSD011)	PAH	Pyrene	0.047	U	0.047	µg/L	NE	NE	
SW-DUP(SWSD011)	PCB	Aroclor-1016	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1221	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1232	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1242	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1248	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1254	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	PCB	Aroclor-1260	0.095	U	0.095	µg/L	0.5	0.09 [†]	
SW-DUP(SWSD011)	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
SW-DUP(SWSD011)	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.3	
SW-DUP(SWSD011)	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
SW-DUP(SWSD011)	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
SW-DUP(SWSD011)	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
SW-DUP(SWSD011)	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SW-DUP(SWSD011)	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
SW-DUP(SWSD011)	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L	NE	0.4	
SW-DUP(SWSD011)	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
SW-DUP(SWSD011)	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L	NE	NE	
SW-DUP(SWSD011)	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
SW-DUP(SWSD011)	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
SW-DUP(SWSD011)	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
SW-DUP(SWSD011)	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
SW-DUP(SWSD011)	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
SW-DUP(SWSD011)	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
SW-DUP(SWSD011)	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SW-DUP(SWSD011)	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
SW-DUP(SWSD011)	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
SW-DUP(SWSD011)	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
SW-DUP(SWSD011)	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs**
Sample Date: 10/30/2008									
SWSD022	Radiological	Radium-226	0.579		0.520	pCi/L	5 ^a	5 ^a	100 ^a
SWSD022	Radiological	Radium-228	0.379	U	0.915	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.579			pCi/L	5 ^a	5 ^a	100 ^a
SWSD022	Radiological	Thorium-228	0.063	U	0.179	pCi/L	15 ^b	NE	400
SWSD022	Radiological	Thorium-230	0.025	U	0.113	pCi/L	15 ^b	NE	300
SWSD022	Radiological	Thorium-232	-0.039	U	0.134	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
SWSD022	Radiological	Uranium-234	2.160		0.396	pCi/L	27 ^c	NE	600 ^c
SWSD022	Radiological	Uranium-235	0.201		0.136	pCi/L	27 ^c	NE	600 ^c
SWSD022	Radiological	Uranium-238	1.490		0.313	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	3.851			pCi/L	27 ^c	NE	600 ^c
SWSD022	Metal	Aluminum	66		5	µg/L	50-200 ^d	NE	
SWSD022	Metal	Antimony	1.5	J	0.5	µg/L	6	3	
SWSD022	Metal	Arsenic	1.5	U	1.5	µg/L	10	25	
SWSD022	Metal	Barium	60.0		0.5	µg/L	2000	1000	
SWSD022	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SWSD022	Metal	Boron	760.0		20.0	µg/L	NE	1000	
SWSD022	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SWSD022	Metal	Calcium	149000		100	µg/L	NE	NE	
SWSD022	Metal	Chromium	3.5		1.5	µg/L	100	50	
SWSD022	Metal	Cobalt	0.6	J	0.1	µg/L	NE	NE	
SWSD022	Metal	Copper	3.4		0.3	µg/L	1300	200	
SWSD022	Metal	Iron	1110		10	µg/L	300 ^d	300	
SWSD022	Metal	Lead	0.5	U	0.5	µg/L	15	25	
SWSD022	Metal	Lithium	24.4		2.0	µg/L	NE	NE	
SWSD022	Metal	Magnesium	38400.0		5.2	µg/L	NE	NE	
SWSD022	Metal	Manganese	71.4		1.0	µg/L	50 ^d	300	
SWSD022	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD022	Metal	Nickel	5.9		0.5	µg/L	NE	100	
SWSD022	Metal	Potassium	7540	J	80	µg/L	NE	NE	
SWSD022	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
SWSD022	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD022	Metal	Sodium	84300		400	µg/L	NE	20000	
SWSD022	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD022	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
SWSD022	Metal	Zinc	8.7	J	2.6	µg/L	5000 ^d	NE	
SWSD022	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD022	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD022	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD022	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD022	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD022	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD022	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD022	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD022	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD022	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD022	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD022	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD022	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD022	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD022	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD022	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD022	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD022	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD022	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD022	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD022	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD022	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SWSD022	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD022	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD022	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD022	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD022	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SWSD022	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD022	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD022	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD022	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SWSD022	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD022	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-11

Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCCs**
SWSD022	PAH	Acenaphthene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Anthracene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Benzo(a)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Benzo(a)pyrene	0.047	U	0.047	µg/L	0.2	ND	
SWSD022	PAH	Benzo(b)fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Benzo(ghi)perylene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD022	PAH	Chrysene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Dibenzo(a,h)anthracene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Fluoranthene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Fluorene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Indeno(1,2,3-cd)pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Phenanthrene	0.472	U	0.472	µg/L	NE	NE	
SWSD022	PAH	Pyrene	0.047	U	0.047	µg/L	NE	NE	
SWSD022	PCB	Aroclor-1016	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1221	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1232	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1242	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1248	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1254	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	PCB	Aroclor-1260	0.096	U	0.096	µg/L	0.5	0.09*	
SWSD022	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
SWSD022	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.2	
SWSD022	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
SWSD022	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
SWSD022	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
SWSD022	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD022	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
SWSD022	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L	NE	0.4	
SWSD022	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
SWSD022	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L	NE	NE	
SWSD022	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
SWSD022	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
SWSD022	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
SWSD022	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
SWSD022	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
SWSD022	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
SWSD022	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
SWSD022	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
SWSD022	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
SWSD022	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
SWSD022	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

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Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/28/2008									
SWSD024	Radiological	Radium-226	0.307	U	0.496	pCi/L	5 ^a	5 ^a	100 ^a
SWSD024	Radiological	Radium-228	1.760	J	0.873	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.760			pCi/L	5 ^a	5 ^a	100 ^a
SWSD024	Radiological	Thorium-228	0.066	U	0.212	pCi/L	15 ^b	NE	400
SWSD024	Radiological	Thorium-230	0.117	U	0.233	pCi/L	15 ^b	NE	300
SWSD024	Radiological	Thorium-232	-0.001	U	0.207	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Not-detect			pCi/L	15 ^b	NE	NE
SWSD024	Radiological	Uranium-234	1.740		0.297	pCi/L	27 ^c	NE	600 ^c
SWSD024	Radiological	Uranium-235	0.027	U	0.271	pCi/L	27 ^c	NE	600 ^c
SWSD024	Radiological	Uranium-238	1.020		0.243	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	2.760			pCi/L	27 ^c	NE	600 ^c
SWSD024	Metal	Aluminum	1030	J	5	µg/L	50-200 ^d	NE	
SWSD024	Metal	Antimony	2.3		0.5	µg/L	6	3	
SWSD024	Metal	Arsenic	1.5	U	1.5	µg/L	10	25	
SWSD024	Metal	Barium	26.4		0.5	µg/L	2000	1000	
SWSD024	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
SWSD024	Metal	Boron	348.0		40.0	µg/L	NE	1000	
SWSD024	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
SWSD024	Metal	Calcium	172000		200	µg/L	NE	NE	
SWSD024	Metal	Chromium	2.0	J	1.5	µg/L	100	50	
SWSD024	Metal	Cobalt	1.0	J	0.1	µg/L	NE	NE	
SWSD024	Metal	Copper	5.5		0.3	µg/L	1000	200	
SWSD024	Metal	Iron	1960		10	µg/L	300 ^d	300	
SWSD024	Metal	Lead	1.1	J	0.5	µg/L	15	25	
SWSD024	Metal	Lithium	16.7		2.0	µg/L	NE	NE	
SWSD024	Metal	Magnesium	58100.0		52.0	µg/L	NE	NE	
SWSD024	Metal	Manganese	49.9		1.0	µg/L	50 ^d	300	
SWSD024	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
SWSD024	Metal	Nickel	4.9		0.5	µg/L	NE	100	
SWSD024	Metal	Potassium	13200		80	µg/L	NE	NE	
SWSD024	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
SWSD024	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
SWSD024	Metal	Sodium	6750		80	µg/L	NE	20000	
SWSD024	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
SWSD024	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
SWSD024	Metal	Zinc	21.0		2.6	µg/L	5000 ^d	NE	
SWSD024	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
SWSD024	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD024	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
SWSD024	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD024	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
SWSD024	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
SWSD024	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
SWSD024	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
SWSD024	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
SWSD024	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
SWSD024	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
SWSD024	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
SWSD024	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
SWSD024	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
SWSD024	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
SWSD024	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
SWSD024	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
SWSD024	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
SWSD024	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
SWSD024	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
SWSD024	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
SWSD024	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
SWSD024	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD024	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
SWSD024	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
SWSD024	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
SWSD024	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
SWSD024	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
SWSD024	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
SWSD024	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
SWSD024	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
SWSD024	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
SWSD024	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5	

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Table 7

NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
SWSD024	PAH	Acenaphthene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Acenaphthylene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Anthracene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Benzo(a)anthracene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Benzo(a)pyrene	0.049	U	0.049	µg/L	0.2	ND	
SWSD024	PAH	Benzo(b)fluoranthene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Benzo(ghi)perylene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
SWSD024	PAH	Chrysene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Dibenzo(a,h)anthracene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Fluoranthene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Fluorene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Indeno(1,2,3-cd)pyrene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PAH	Naphthalene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Phenanthrene	0.485	U	0.485	µg/L	NE	NE	
SWSD024	PAH	Pyrene	0.049	U	0.049	µg/L	NE	NE	
SWSD024	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	PCB	Aroclor-1260	0.094	U	0.094	µg/L	0.5	0.09 ^B	
SWSD024	Pesticide	4,4'-DDD	0.0385	U	0.0385	µg/L	NE	0.3	
SWSD024	Pesticide	4,4'-DDE	0.0385	U	0.0385	µg/L	NE	0.2	
SWSD024	Pesticide	4,4'-DDT	0.0385	U	0.0385	µg/L	NE	0.2	
SWSD024	Pesticide	Aldrin	0.0192	U	0.0192	µg/L	NE	ND	
SWSD024	Pesticide	alpha-BHC	0.0192	U	0.0192	µg/L	NE	0.01	
SWSD024	Pesticide	alpha-Chlordane	0.0192	U	0.0192	µg/L	NE	NE	
SWSD024	Pesticide	beta-BHC	0.0192	U	0.0192	µg/L	NE	0.04	
SWSD024	Pesticide	delta-BHC	0.0192	U	0.0192	µg/L	NE	0.4	
SWSD024	Pesticide	Dieldrin	0.0385	U	0.0385	µg/L	NE	0.001	
SWSD024	Pesticide	Endosulfan I	0.0192	U	0.0192	µg/L	NE	NE	
SWSD024	Pesticide	Endosulfan II	0.0385	U	0.0385	µg/L	NE	NE	
SWSD024	Pesticide	Endosulfan sulfate	0.0385	U	0.0385	µg/L	NE	NE	
SWSD024	Pesticide	Endrin	0.0385	U	0.0385	µg/L	2	ND	
SWSD024	Pesticide	Endrin aldehyde	0.0385	U	0.0385	µg/L	NE	5	
SWSD024	Pesticide	Endrin ketone	0.0385	U	0.0385	µg/L	NE	5	
SWSD024	Pesticide	gamma-BHC (Lindane)	0.0192	U	0.0192	µg/L	0.2	0.5	
SWSD024	Pesticide	gamma-Chlordane	0.0192	U	0.0192	µg/L	NE	NE	
SWSD024	Pesticide	Heptachlor	0.0192	U	0.0192	µg/L	0.4	0.4	
SWSD024	Pesticide	Heptachlor epoxide	0.0192	U	0.0192	µg/L	0.2	0.3	
SWSD024	Pesticide	Methoxychlor	0.1920	U	0.1920	µg/L	40	35	
SWSD024	Pesticide	Toxaphene	0.4810	U	0.4810	µg/L	3	0.06	

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs**
Sample Date: 10/27/2008									
WDD1	Radiological	Radium-226	0.388	U	0.434	pCi/L	5 ^a	5 ^a	100 ^a
WDD1	Radiological	Radium-228	0.521	U	0.918	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect			pCi/L	5 ^a	5 ^a	100 ^a
WDD1	Radiological	Thorium-228	0.133	U	0.276	pCi/L	15 ^b	NE	400
WDD1	Radiological	Thorium-230	0.274		0.128	pCi/L	15 ^b	NE	300
WDD1	Radiological	Thorium-232	0.055	U	0.077	pCi/L	15 ^b	NE	50
		Total Thorium ^b	0.274			pCi/L	15 ^b	NE	NE
WDD1	Radiological	Uranium-234	0.881		0.085	pCi/L	27 ^c	NE	600 ^c
WDD1	Radiological	Uranium-235	0.078	U	0.105	pCi/L	27 ^c	NE	600 ^c
WDD1	Radiological	Uranium-238	0.425		0.163	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	1.306			pCi/L	27 ^c	NE	600 ^c
WDD1	Metal	Aluminum	417.0		5.0	µg/L	50-200 ^d	NE	
WDD1	Metal	Antimony	1.1	J	0.5	µg/L	6	3	
WDD1	Metal	Arsenic	3.3	J	1.5	µg/L	10	25	
WDD1	Metal	Barium	36.2		0.5	µg/L	2000	1000	
WDD1	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
WDD1	Metal	Boron	265.0		20.0	µg/L	NE	1000	
WDD1	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
WDD1	Metal	Calcium	93100.0		400.0	µg/L	NE	NE	
WDD1	Metal	Chromium	1.5	U	1.5	µg/L	100	50	
WDD1	Metal	Cobalt	1.8		0.1	µg/L	NE	NE	
WDD1	Metal	Copper	15.6		0.3	µg/L	1000	200	
WDD1	Metal	Iron	970.0		10.0	µg/L	300 ^d	300	
WDD1	Metal	Lead	0.8	J	0.5	µg/L	15	25	
WDD1	Metal	Lithium	17.4		2.0	µg/L	NE	NE	
WDD1	Metal	Magnesium	33100.0		104.0	µg/L	NE	NE	
WDD1	Metal	Manganese	20.5		1.0	µg/L	50 ^d	300	
WDD1	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
WDD1	Metal	Nickel	8.3		0.5	µg/L	NE	100	
WDD1	Metal	Potassium	74000.0		1600.0	µg/L	NE	NE	
WDD1	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
WDD1	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
WDD1	Metal	Sodium	52200.0		1600.0	µg/L	NE	20000	
WDD1	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
WDD1	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
WDD1	Metal	Zinc	112.0		2.6	µg/L	5000 ^d	NE	
WDD1	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
WDD1	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
WDD1	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
WDD1	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
WDD1	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
WDD1	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
WDD1	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
WDD1	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
WDD1	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
WDD1	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
WDD1	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
WDD1	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
WDD1	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
WDD1	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
WDD1	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
WDD1	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
WDD1	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
WDD1	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
WDD1	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
WDD1	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
WDD1	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
WDD1	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
WDD1	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD1	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
WDD1	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
WDD1	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
WDD1	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
WDD1	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
WDD1	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
WDD1	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD1	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
WDD1	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
WDD1	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-17

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Sds. **	DOE DCGs**
WDD1	PAH	Acenaphthene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Acenaphthylene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Anthracene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Benzo(a)anthracene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Benzo(a)pyrene	0.0476	U	0.0476	µg/L	0.2	ND	
WDD1	PAH	Benzo(b)fluoranthene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Benzo(ghi)perylene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Benzo(k)fluoranthene	0.0238	U	0.0238	µg/L	NE	NE	
WDD1	PAH	Chrysene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Dibenzo(a,h)anthracene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Fluoranthene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Fluorene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Indeno(1,2,3-cd)pyrene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PAH	Naphthalene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Phenanthrene	0.476	U	0.476	µg/L	NE	NE	
WDD1	PAH	Pyrene	0.0476	U	0.0476	µg/L	NE	NE	
WDD1	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09µ	
WDD1	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L	0.5	0.09µ	
WDD1	Pesticide	4,4'-DDD	0.0381	U	0.0381	µg/L	NE	0.3	
WDD1	Pesticide	4,4'-DDE	0.0381	U	0.0381	µg/L	NE	0.2	
WDD1	Pesticide	4,4'-DDT	0.0381	U	0.0381	µg/L	NE	0.2	
WDD1	Pesticide	Aldrin	0.0190	U	0.0190	µg/L	NE	ND	
WDD1	Pesticide	alpha-BHC	0.0190	U	0.0190	µg/L	NE	0.01	
WDD1	Pesticide	alpha-Chlordane	0.0190	U	0.0190	µg/L	NE	NE	
WDD1	Pesticide	beta-BHC	0.0190	U	0.0190	µg/L	NE	0.04	
WDD1	Pesticide	delta-BHC	0.0190	U	0.0190	µg/L	NE	0.4	
WDD1	Pesticide	Dieldrin	0.0381	U	0.0381	µg/L	NE	0.001	
WDD1	Pesticide	Endosulfan I	0.0190	U	0.0190	µg/L	NE	NE	
WDD1	Pesticide	Endosulfan II	0.0381	U	0.0381	µg/L	NE	NE	
WDD1	Pesticide	Endosulfan sulfate	0.0381	U	0.0381	µg/L	NE	NE	
WDD1	Pesticide	Endrin	0.0381	U	0.0381	µg/L	2	ND	
WDD1	Pesticide	Endrin aldehyde	0.0381	U	0.0381	µg/L	NE	5	
WDD1	Pesticide	Endrin ketone	0.0381	U	0.0381	µg/L	NE	5	
WDD1	Pesticide	gamma-BHC (Lindane)	0.0190	U	0.0190	µg/L	0.2	0.5	
WDD1	Pesticide	gamma-Chlordane	0.0190	U	0.0190	µg/L	NE	NE	
WDD1	Pesticide	Heptachlor	0.0190	U	0.0190	µg/L	0.4	0.4	
WDD1	Pesticide	Heptachlor epoxide	0.0190	U	0.0190	µg/L	0.2	0.3	
WDD1	Pesticide	Methoxychlor	0.1900	U	0.1900	µg/L	40	35	
WDD1	Pesticide	Toxaphene	0.4760	U	0.4760	µg/L	3	0.06	

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/27/2008									
WDD2	Radiological	Radium-226	0.328	U	0.588	pCi/L	5 ^a	5 ^a	100 ^a
WDD2	Radiological	Radium-228	1.650		0.960	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.650			pCi/L	5 ^a	5 ^a	100 ^a
WDD2	Radiological	Thorium-228	0.086	U	0.227	pCi/L	15 ^b	NE	400
WDD2	Radiological	Thorium-230	0.111	U	0.171	pCi/L	15 ^b	NE	300
WDD2	Radiological	Thorium-232	0.027	U	0.171	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
WDD2	Radiological	Uranium-234	0.746		0.148	pCi/L	27 ^c	NE	600 ^c
WDD2	Radiological	Uranium-235	0.104		0.094	pCi/L	27 ^c	NE	600 ^c
WDD2	Radiological	Uranium-238	0.394		0.076	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	1.244			pCi/L	27 ^c	NE	600 ^c
WDD2	Metal	Aluminum	309.0		5.0	µg/L	50-200 ^d	NE	
WDD2	Metal	Antimony	1.1	J	0.5	µg/L	6	3	
WDD2	Metal	Arsenic	3.8	J	1.5	µg/L	10	25	
WDD2	Metal	Barium	39.0		0.5	µg/L	2000	1000	
WDD2	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
WDD2	Metal	Boron	281.0		20.0	µg/L	NE	1000	
WDD2	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
WDD2	Metal	Calcium	97000.0		400.0	µg/L	NE	NE	
WDD2	Metal	Chromium	1.5	U	1.5	µg/L	100	50	
WDD2	Metal	Cobalt	1.9		0.1	µg/L	NE	NE	
WDD2	Metal	Copper	15.3		0.3	µg/L	1000	200	
WDD2	Metal	Iron	888.0		10.0	µg/L	300 ^d	300	
WDD2	Metal	Lead	0.6	J	0.5	µg/L	15	25	
WDD2	Metal	Lithium	17.9		2.0	µg/L	NE	NE	
WDD2	Metal	Magnesium	34500.0		104.0	µg/L	NE	NE	
WDD2	Metal	Manganese	17.5		1.0	µg/L	50 ^d	300	
WDD2	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
WDD2	Metal	Nickel	8.8		0.5	µg/L	NE	100	
WDD2	Metal	Potassium	74300.0		1600.0	µg/L	NE	NE	
WDD2	Metal	Selenium	1.1	J	1.0	µg/L	50	10	
WDD2	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
WDD2	Metal	Sodium	54100.0		1600.0	µg/L	NE	20000	
WDD2	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
WDD2	Metal	Vanadium	3.0	U	3.0	µg/L	NE	14	
WDD2	Metal	Zinc	112.0		2.6	µg/L	5000 ^d	NE	
WDD2	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
WDD2	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
WDD2	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
WDD2	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
WDD2	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
WDD2	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
WDD2	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
WDD2	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
WDD2	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
WDD2	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
WDD2	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
WDD2	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
WDD2	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
WDD2	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
WDD2	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
WDD2	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
WDD2	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
WDD2	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
WDD2	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
WDD2	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
WDD2	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
WDD2	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
WDD2	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD2	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
WDD2	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
WDD2	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
WDD2	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
WDD2	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
WDD2	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
WDD2	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD2	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
WDD2	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
WDD2	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

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Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
WDD2	PAH	Acenaphthene	0.476	U	0.476	µg/L	NE	NE	
WDD2	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
WDD2	PAH	Anthracene	0.476	U	0.476	µg/L	NE	NE	
WDD2	PAH	Benzo(a)anthracene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Benzo(a)pyrene	0.048	U	0.048	µg/L	0.2	ND	
WDD2	PAH	Benzo(b)fluoranthene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Benzo(ghi)perylene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
WDD2	PAH	Chrysene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Dibenzo(a,h)anthracene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Fluoranthene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Fluorene	0.476	U	0.476	µg/L	NE	NE	
WDD2	PAH	Indeno(1,2,3-cd)pyrene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
WDD2	PAH	Phenanthrene	0.476	U	0.476	µg/L	NE	NE	
WDD2	PAH	Pyrene	0.048	U	0.048	µg/L	NE	NE	
WDD2	PCB	Aroclor-1016	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1221	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1232	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1242	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1248	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1254	0.094	U	0.094	µg/L	0.5	0.09 ^g	
WDD2	PCB	Aroclor-1260	0.0943	U	0.0943	µg/L	0.5	0.09 ^g	
WDD2	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
WDD2	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.2	
WDD2	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
WDD2	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
WDD2	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
WDD2	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
WDD2	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
WDD2	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L	NE	0.4	
WDD2	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
WDD2	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L	NE	NE	
WDD2	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
WDD2	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
WDD2	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
WDD2	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
WDD2	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
WDD2	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
WDD2	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
WDD2	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
WDD2	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
WDD2	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
WDD2	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/28/2008									
WDD3	Radiological	Radium-226	0.515	U	0.520	pCi/L	5 ^a	5 ^a	100 ^a
WDD3	Radiological	Radium-228	1.750	J	0.966	pCi/L	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.750			pCi/L	5 ^a	5 ^a	100 ^a
WDD3	Radiological	Thorium-228	0.157	U	0.186	pCi/L	15 ^b	NE	400
WDD3	Radiological	Thorium-230	0.116	U	0.201	pCi/L	15 ^b	NE	300
WDD3	Radiological	Thorium-232	-0.002	U	0.094	pCi/L	15 ^b	NE	50
		Total Thorium ^b	Non-detect			pCi/L	15 ^b	NE	NE
WDD3	Radiological	Uranium-234	0.339		0.205	pCi/L	27 ^c	NE	600 ^c
WDD3	Radiological	Uranium-235	0.018	U	0.178	pCi/L	27 ^c	NE	600 ^c
WDD3	Radiological	Uranium-238	0.625		0.124	pCi/L	27 ^c	NE	600 ^c
		Total Uranium ^c	0.964			pCi/L	27 ^c	NE	600 ^c
WDD3	Metal	Aluminum	1870	J		µg/L	50-200 ^d	NE	
WDD3	Metal	Antimony	1.1	J	0.5	µg/L	6	3	
WDD3	Metal	Arsenic	1.8	J	1.5	µg/L	10	25	
WDD3	Metal	Barium	54.4		0.5	µg/L	2000	1000	
WDD3	Metal	Beryllium	0.1	U	0.1	µg/L	4	11	
WDD3	Metal	Boron	298.0		40.0	µg/L	NE	1000	
WDD3	Metal	Cadmium	0.1	U	0.1	µg/L	5	5	
WDD3	Metal	Calcium	105000		200	µg/L	NE	NE	
WDD3	Metal	Chromium	3.2		1.5	µg/L	100	50	
WDD3	Metal	Cobalt	2.6		0.1	µg/L	NE	NE	
WDD3	Metal	Copper	17.1		0.3	µg/L	1000	200	
WDD3	Metal	Iron	2860		10	µg/L	300 ^d	300	
WDD3	Metal	Lead	1.8	J	0.5	µg/L	15	25	
WDD3	Metal	Lithium	19.4		2.0	µg/L	NE	NE	
WDD3	Metal	Magnesium	34700.0		5.2	µg/L	NE	NE	
WDD3	Metal	Manganese	169.0		1.0	µg/L	50 ^d	300	
WDD3	Metal	Mercury	0.1	U	0.1	µg/L	2	0.7	
WDD3	Metal	Nickel	10.2		0.5	µg/L	NE	100	
WDD3	Metal	Potassium	68700		800	µg/L	NE	NE	
WDD3	Metal	Selenium	1.0	U	1.0	µg/L	50	10	
WDD3	Metal	Silver	0.2	U	0.2	µg/L	100 ^d	50	
WDD3	Metal	Sodium	54200		800	µg/L	NE	20000	
WDD3	Metal	Thallium	0.3	U	0.3	µg/L	2	NE	
WDD3	Metal	Vanadium	4.2	J	3.0	µg/L	NE	14	
WDD3	Metal	Zinc	116.0		2.6	µg/L	5000 ^d	NE	
WDD3	VOC	1,1,1-Trichloroethane	1.00	U	1.00	µg/L	200	5	
WDD3	VOC	1,1,2,2-Tetrachloroethane	1.00	U	1.00	µg/L	NE	5	
WDD3	VOC	1,1,2-Trichloroethane	1.00	U	1.00	µg/L	5	1	
WDD3	VOC	1,1-Dichloroethane	1.00	U	1.00	µg/L	NE	5	
WDD3	VOC	1,1-Dichloroethylene	1.00	U	1.00	µg/L	7	5	
WDD3	VOC	1,2-Dichloroethane	1.00	U	1.00	µg/L	5	0.6	
WDD3	VOC	1,2-Dichloropropane	1.00	U	1.00	µg/L	5	1	
WDD3	VOC	2-Butanone	5.00	U	5.00	µg/L	NE	NE	
WDD3	VOC	2-Hexanone	5.00	U	5.00	µg/L	NE	NE	
WDD3	VOC	4-Methyl-2-pentanone	5.00	U	5.00	µg/L	NE	NE	
WDD3	VOC	Acetone	5.00	U	5.00	µg/L	NE	NE	
WDD3	VOC	Benzene	1.00	U	1.00	µg/L	5	1	
WDD3	VOC	Bromodichloromethane	1.00	U	1.00	µg/L	NE	NE	
WDD3	VOC	Bromoform	1.00	U	1.00	µg/L	NE	NE	
WDD3	VOC	Bromomethane	1.00	U	1.00	µg/L	NE	5	
WDD3	VOC	Carbon disulfide	5.00	U	5.00	µg/L	NE	60	
WDD3	VOC	Carbon tetrachloride	1.00	U	1.00	µg/L	5	5	
WDD3	VOC	Chlorobenzene	1.00	U	1.00	µg/L	100	5	
WDD3	VOC	Chloroethane	1.00	U	1.00	µg/L	NE	5	
WDD3	VOC	Chloroform	1.00	U	1.00	µg/L	NE	7	
WDD3	VOC	Chloromethane	1.00	U	1.00	µg/L	NE	5	
WDD3	VOC	cis-1,2-Dichloroethylene	1.00	U	1.00	µg/L	70	5	
WDD3	VOC	cis-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD3	VOC	Ethylbenzene	1.00	U	1.00	µg/L	700	5	
WDD3	VOC	Methylene chloride	10.00	U	10.00	µg/L	5	5	
WDD3	VOC	Styrene	1.00	U	1.00	µg/L	100	5	
WDD3	VOC	Tetrachloroethylene	2.00	U	2.00	µg/L	5	5	
WDD3	VOC	Toluene	1.00	U	1.00	µg/L	1000	5	
WDD3	VOC	trans-1,2-Dichloroethylene	1.00	U	1.00	µg/L	100	5	
WDD3	VOC	trans-1,3-Dichloropropylene	1.00	U	1.00	µg/L	NE	0.4 ^e	
WDD3	VOC	Trichloroethylene	1.00	U	1.00	µg/L	5	5	
WDD3	VOC	Vinyl chloride	1.00	U	1.00	µg/L	2	2	
WDD3	VOC	Xylenes (total)	1.00	U	1.00	µg/L	10000	5 ^f	

Table 7-21

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
WDD3	PAH	Acenaphthene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Acenaphthylene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Anthracene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Benzo(a)anthracene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Benzo(a)pyrene	0.047	U	0.047	µg/L	0.2	ND	
WDD3	PAH	Benzo(b)fluoranthene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Benzo(ghi)perylene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Benzo(k)fluoranthene	0.024	U	0.024	µg/L	NE	NE	
WDD3	PAH	Chrysene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Dibenzo(a,h)anthracene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Fluoranthene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Fluorene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Indeno(1,2,3-cd)pyrene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PAH	Naphthalene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Phenanthrene	0.472	U	0.472	µg/L	NE	NE	
WDD3	PAH	Pyrene	0.047	U	0.047	µg/L	NE	NE	
WDD3	PCB	Aroclor-1016	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1221	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1232	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1242	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1248	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1254	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	PCB	Aroclor-1260	0.095	U	0.095	µg/L	0.5	0.09 ^u	
WDD3	Pesticide	4,4'-DDD	0.0377	U	0.0377	µg/L	NE	0.3	
WDD3	Pesticide	4,4'-DDE	0.0377	U	0.0377	µg/L	NE	0.2	
WDD3	Pesticide	4,4'-DDT	0.0377	U	0.0377	µg/L	NE	0.2	
WDD3	Pesticide	Aldrin	0.0189	U	0.0189	µg/L	NE	ND	
WDD3	Pesticide	alpha-BHC	0.0189	U	0.0189	µg/L	NE	0.01	
WDD3	Pesticide	alpha-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
WDD3	Pesticide	beta-BHC	0.0189	U	0.0189	µg/L	NE	0.04	
WDD3	Pesticide	delta-BHC	0.0189	U	0.0189	µg/L	NE	0.4	
WDD3	Pesticide	Dieldrin	0.0377	U	0.0377	µg/L	NE	0.001	
WDD3	Pesticide	Endosulfan I	0.0189	U	0.0189	µg/L	NE	NE	
WDD3	Pesticide	Endosulfan II	0.0377	U	0.0377	µg/L	NE	NE	
WDD3	Pesticide	Endosulfan sulfate	0.0377	U	0.0377	µg/L	NE	NE	
WDD3	Pesticide	Endrin	0.0377	U	0.0377	µg/L	2	ND	
WDD3	Pesticide	Endrin aldehyde	0.0377	U	0.0377	µg/L	NE	5	
WDD3	Pesticide	Endrin ketone	0.0377	U	0.0377	µg/L	NE	5	
WDD3	Pesticide	gamma-BHC (Lindane)	0.0189	U	0.0189	µg/L	0.2	0.5	
WDD3	Pesticide	gamma-Chlordane	0.0189	U	0.0189	µg/L	NE	NE	
WDD3	Pesticide	Heptachlor	0.0189	U	0.0189	µg/L	0.4	0.4	
WDD3	Pesticide	Heptachlor epoxide	0.0189	U	0.0189	µg/L	0.2	0.3	
WDD3	Pesticide	Methoxychlor	0.1890	U	0.1890	µg/L	40	35	
WDD3	Pesticide	Toxaphene	0.4720	U	0.4720	µg/L	3	0.06	

Table 7 - NFSS Fall 2008 Environmental Surveillance Program Findings for Surface Water

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Surface Water Location*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
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***Surface Water Location**

SWSD009 - Site Background

SWSD021 - Site Background

SW-DUP (SWSD011) - Field Duplicate of surface water and sediment location SWSD011

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/L - picocuries per liter

µg/L - micrograms per liter (ppb)

***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

***Detection or Reporting Limit**

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC, PAH, PCB and Pesticides) - Reporting Limit (gray shading)

**** Surface water at NFSS is not a drinking water source.****The above federal and state regulation concentrations are for comparative purposes only.****Federal Regulations:**

National Primary Drinking Water Regulations 40CFR141.62&63

US Dept of Energy:

USDOE derived concentration guide (USDOE Order 5400.5) for drinking water.

New York State:

New York State Standards -Water Quality Criteria (class GA) per 6 NYCRR, Part 703.

NE - Not Established

- a. Applies to the sum of Ra-226 and Ra-228
- b. "Adjusted" gross alpha MCL of 15 pCi/L, including Thorium isotopes, excluding radon and uranium
 - National Primary Drinking Water Regulations; Radionuclide; Final Rule (Federal Register -December 7, 2000)
- c. Sum of Uranium Isotopes (27 pCi/L or 30 µg/L).
- d. National Secondary Drinking Water Regulations (40CFR143.3)
- e. Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.
- f. Not a sum total for Dimethyl Benzene (Xylene), applies to 1,2--Xylene, 1,3-Xylene and 1,4-Xylene individually.
- g. Sum of Aroclors (polychlorinated biphenyls)

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 6/17/2008										
SWSD009	Radiological	Radium-226	1.000	pCi/g		0.216	0.266	NE	NE	5 ⁿ
SWSD009	Radiological	Radium-228	1.230	pCi/g		0.432	0.379	NE	NE	5 ⁿ
		Total Radium ^a	2.230	pCi/g						5 ⁿ
SWSD009	Radiological	Thorium-228	1.600	pCi/g	J	0.295	0.460	NE	NE	5
SWSD009	Radiological	Thorium-230	1.140	pCi/g		0.188	0.374	NE	NE	5
SWSD009	Radiological	Thorium-232	0.970	pCi/g		0.157	0.344	NE	NE	5
SWSD009	Radiological	Uranium-234	1.410	pCi/g		0.222	0.440	NE	NE	90 ^b
SWSD009	Radiological	Uranium-235	0.194	pCi/g		0.184	0.184	NE	NE	90 ^b
SWSD009	Radiological	Uranium-238	1.220	pCi/g		0.090	0.402	NE	NE	90 ^b
		Total Uranium ^b	2.824	pCi/g						90 ^b
SWSD009	Metal	Aluminum	12800	mg/kg		11		NE	NE	
SWSD009	Metal	Antimony	2.1	mg/kg	J	0.674		NE	NE	
SWSD009	Metal	Arsenic	4.4	mg/kg		0.661		13	16	
SWSD009	Metal	Barium	86.9	mg/kg		0.22		350	10,000	
SWSD009	Metal	Beryllium	0.58	mg/kg		0.0441		7	2,700	
SWSD009	Metal	Boron	24.4	mg/kg		1.76		NE	NE	
SWSD009	Metal	Cadmium	0.71	mg/kg		0.0441		3	60	
SWSD009	Metal	Calcium	44200	mg/kg		66.1		NE	NE	
SWSD009	Metal	Chromium	35.1	mg/kg		0.441		NE	NE	
SWSD009	Metal	Cobalt	8.1	mg/kg		0.0441		NE	NE	
SWSD009	Metal	Copper	46.1	mg/kg		0.0881		50	10,000	
SWSD009	Metal	Iron	17900	mg/kg		22		NE	NE	
SWSD009	Metal	Lead	36.7	mg/kg		0.22		63	3,900	
SWSD009	Metal	Lithium	20.5	mg/kg		0.881		NE	NE	
SWSD009	Metal	Magnesium	9530	mg/kg		2.2		NE	NE	
SWSD009	Metal	Manganese	518	mg/kg		2.2		1,600	10,000	
SWSD009	Metal	Mercury	159	µg/kg		3.19		180 ^c	5700 ^c	
SWSD009	Metal	Nickel	20.6	mg/kg		0.22		30	10,000	
SWSD009	Metal	Potassium	2470	mg/kg		35.2		NE	NE	
SWSD009	Metal	Selenium	1.1	mg/kg	U	1.1		4	6,800	
SWSD009	Metal	Silver	1.1	mg/kg	J	0.217		2	6,800	
SWSD009	Metal	Sodium	433	mg/kg		35.2		NE	NE	
SWSD009	Metal	Thallium	0.15	mg/kg	J	0.0881		NE	NE	
SWSD009	Metal	Vanadium	22.9	mg/kg		0.881		NE	NE	
SWSD009	Metal	Zinc	233	mg/kg		0.881		109	10,000	
SWSD009	VOC	1,1,1-Trichloroethane	1.98	µg/kg	U	1.98		680	1,000,000	
SWSD009	VOC	1,1,2,2-Tetrachloroethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	1,1,2-Trichloroethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	1,1-Dichloroethane	1.98	µg/kg	U	1.98		270	480,000	
SWSD009	VOC	1,1-Dichloroethylene	1.98	µg/kg	U	1.98		330	1,000,000	
SWSD009	VOC	1,2-Dichloroethane	1.98	µg/kg	U	1.98		20	60,000	
SWSD009	VOC	1,2-Dichloropropane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	2-Butanone	4.65	µg/kg	J	2.89		120	1,000,000	
SWSD009	VOC	2-Hexanone	9.89	µg/kg	U	9.89		NE	NE	
SWSD009	VOC	4-Methyl-2-pentanone	9.89	µg/kg	U	9.89		NE	NE	
SWSD009	VOC	Acetone	39.8	µg/kg		9.89		50	1,000,000	
SWSD009	VOC	Benzene	1.98	µg/kg	U	1.98		60	89,000	
SWSD009	VOC	Bromodichloromethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Bromoform	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Bromomethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Carbon disulfide	9.89	µg/kg	U	9.89		NE	NE	
SWSD009	VOC	Carbon tetrachloride	1.98	µg/kg	U	1.98		760	44,000	
SWSD009	VOC	Chlorobenzene	1.98	µg/kg	U	1.98		1,100	1,000,000	
SWSD009	VOC	Chloroethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Chloroform	1.98	µg/kg	U	1.98		370	700,000	
SWSD009	VOC	Chloromethane	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	cis-1,2-Dichloroethylene	1.98	µg/kg	U	1.98		250	1,000,000	
SWSD009	VOC	cis-1,3-Dichloropropylene	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Ethylbenzene	1.98	µg/kg	U	1.98		1,000	780,000	
SWSD009	VOC	Methylene chloride	9.89	µg/kg	U	9.89		50	1,000,000	
SWSD009	VOC	Styrene	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Tetrachloroethylene	1.98	µg/kg	U	1.98		1,300	300,000	
SWSD009	VOC	Toluene	1.98	µg/kg	U	1.98		700	1,000,000	
SWSD009	VOC	trans-1,2-Dichloroethylene	1.98	µg/kg	U	1.98		190	1,000,000	
SWSD009	VOC	trans-1,3-Dichloropropylene	1.98	µg/kg	U	1.98		NE	NE	
SWSD009	VOC	Trichloroethylene	1.98	µg/kg	U	1.98		470	400,000	
SWSD009	VOC	Vinyl chloride	1.98	µg/kg	U	1.98		20	27,000	
SWSD009	VOC	Xylenes (total)	0.641	µg/kg	J	1.98		260	1,000,000	

Table 8 - 1

Table 8

NFSS Spring 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SWSD009	PAH	Acenaphthene	37.7	µg/kg	U	37.7		20,000	1,000,000	
SWSD009	PAH	Acenaphthylene	37.7	µg/kg	U	37.7		100,000	1,000,000	
SWSD009	PAH	Anthracene	37.7	µg/kg	U	37.7		100,000	1,000,000	
SWSD009	PAH	Benzo(a)anthracene	77.9	µg/kg		3.77		1,000	11,000	
SWSD009	PAH	Benzo(a)pyrene	86	µg/kg		3.77		1,000	1,100	
SWSD009	PAH	Benzo(b)fluoranthene	150	µg/kg	J	3.77		1,000	11,000	
SWSD009	PAH	Benzo(ghi)perylene	43	µg/kg		3.77		100,000	1,000,000	
SWSD009	PAH	Benzo(k)fluoranthene	1.89	µg/kg	U	1.89		800,000	110,000	
SWSD009	PAH	Chrysene	60.7	µg/kg		3.77		1,000	110,000	
SWSD009	PAH	Dibenzo(a,h)anthracene	3.77	µg/kg	U	3.77		330	1,100	
SWSD009	PAH	Fluoranthene	123	µg/kg		3.77		100,000	1,000,000	
SWSD009	PAH	Fluorene	37.7	µg/kg	U	37.7		30,000	1,000,000	
SWSD009	PAH	Indeno(1,2,3-cd)pyrene	3.77	µg/kg	U	3.77		500	11,000	
SWSD009	PAH	Naphthalene	37.7	µg/kg	U	37.7		12,000	1,000,000	
SWSD009	PAH	Phenanthrene	60.4	µg/kg		3.77		100,000	1,000,000	
SWSD009	PAH	Pyrene	115	µg/kg		3.77		100,000	1,000,000	
SWSD009	PCB	Aroclor-1016	74.9	µg/kg	U	24.9		100	25,000	
SWSD009	PCB	Aroclor-1221	74.9	µg/kg	U	24.9		100	25,000	
SWSD009	PCB	Aroclor-1232	74.9	µg/kg	U	24.9		100	25,000	
SWSD009	PCB	Aroclor-1242	54.7	µg/kg	J	24.9		100	25,000	
SWSD009	PCB	Aroclor-1248	74.9	µg/kg	U	24.9		100	25,000	
SWSD009	PCB	Aroclor-1254	51.8	µg/kg	J	24.9		100	25,000	
SWSD009	PCB	Aroclor-1260	74.9	µg/kg	U	24.9		100	25,000	
SWSD009	Pesticide	4,4'-DDD	30	µg/kg	U	30		3.3	180,000	
SWSD009	Pesticide	4,4'-DDE	30	µg/kg	U	30		3.3	120,000	
SWSD009	Pesticide	4,4'-DDT	30	µg/kg	U	30		3.3	94,000	
SWSD009	Pesticide	Aldrin	15	µg/kg	U	15		5	1,400	
SWSD009	Pesticide	alpha-BHC	15	µg/kg	U	15		20	6,800	
SWSD009	Pesticide	alpha-Chlordane	15	µg/kg	U	15		94	47,000	
SWSD009	Pesticide	beta-BHC	15	µg/kg	U	15		36	14,000	
SWSD009	Pesticide	delta-BHC	15	µg/kg	U	15		40	1,000,000	
SWSD009	Pesticide	Dieldrin	30	µg/kg	U	30		5	2,800	
SWSD009	Pesticide	Endosulfan I	15	µg/kg	U	15		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endosulfan II	30	µg/kg	U	30		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endosulfan sulfate	30	µg/kg	U	30		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endrin	30	µg/kg	U	30		14	410,000	
SWSD009	Pesticide	Endrin aldehyde	30	µg/kg	U	30		NE	NE	
SWSD009	Pesticide	Endrin ketone	30	µg/kg	U	30		NE	NE	
SWSD009	Pesticide	gamma-BHC (Lindane)	15	µg/kg	U	15		100	23,000	
SWSD009	Pesticide	gamma-Chlordane	15	µg/kg	U	15		NE	NE	
SWSD009	Pesticide	Heptachlor	15	µg/kg	U	15		42	29,000	
SWSD009	Pesticide	Heptachlor epoxide	15	µg/kg	U	15		NE	NE	
SWSD009	Pesticide	Methoxychlor	150	µg/kg	U	150		NE	NE	
SWSD009	Pesticide	Toxaphene	749	µg/kg	U	749		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	NY State-Unrestricted Use**	NY State-Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 6/11/2008										
SWSD021	Radiological	Radium-226	1.120	pCi/g		0.188	0.246	NE	NE	5 ^a
SWSD021	Radiological	Radium-228	1.450	pCi/g		0.360	0.377	NE	NE	5 ^a
		Total Radium ^a	2.570	pCi/g						5 ^a
SWSD021	Radiological	Thorium-228	1.380	pCi/g		0.240	0.416	NE	NE	5
SWSD021	Radiological	Thorium-230	0.963	pCi/g		0.183	0.340	NE	NE	5
SWSD021	Radiological	Thorium-232	1.290	pCi/g		0.152	0.390	NE	NE	5
SWSD021	Radiological	Uranium-234	1.170	pCi/g		0.164	0.353	NE	NE	90 ^b
SWSD021	Radiological	Uranium-235	0.177	pCi/g		0.168	0.159	NE	NE	90 ^b
SWSD021	Radiological	Uranium-238	1.460	pCi/g		0.164	0.393	NE	NE	90 ^b
		Total Uranium ^b	2.807	pCi/g						90 ^b
SWSD021	Metal	Aluminum	25100	mg/kg		15.10		NE	NE	
SWSD021	Metal	Antimony	0.46	mg/kg	U	0.46		NE	NE	
SWSD021	Metal	Arsenic	4.30	mg/kg	J	0.45		13	16	
SWSD021	Metal	Barium	165.00	mg/kg		0.15		350	10,000	
SWSD021	Metal	Beryllium	1.20	mg/kg	J	0.03		7	2,700	
SWSD021	Metal	Boron	21.10	mg/kg	J	1.20		NE	NE	
SWSD021	Metal	Cadmium	0.27	mg/kg	J	0.03		3	60	
SWSD021	Metal	Calcium	51900	mg/kg		90.30		NE	NE	
SWSD021	Metal	Chromium	38.10	mg/kg	J	0.30		NE	NE	
SWSD021	Metal	Cobalt	12.40	mg/kg	J	0.03		NE	NE	
SWSD021	Metal	Copper	30.60	mg/kg	J	0.06		50	10,000	
SWSD021	Metal	Iron	36000	mg/kg		30.10		NE	NE	
SWSD021	Metal	Lead	10.60	mg/kg	J	0.15		63	3,900	
SWSD021	Metal	Lithium	38.10	mg/kg		0.60		NE	NE	
SWSD021	Metal	Magnesium	13400	mg/kg		15.10		NE	NE	
SWSD021	Metal	Manganese	649.00	mg/kg		3.01		1,600	10,000	
SWSD021	Metal	Mercury	24.20	µg/kg		2.19		180 ^c	5700 ^c	
SWSD021	Metal	Nickel	30.90	mg/kg	J	0.15		30	10,000	
SWSD021	Metal	Potassium	5700	mg/kg		241.0		NE	NE	
SWSD021	Metal	Selenium	0.75	mg/kg		0.75		4	6,800	
SWSD021	Metal	Silver	0.69	mg/kg	J	0.15		2	6,800	
SWSD021	Metal	Sodium	308.00	mg/kg	J	24.10		NE	NE	
SWSD021	Metal	Thallium	0.26	mg/kg	J	0.06		NE	NE	
SWSD021	Metal	Vanadium	56.90	mg/kg		6.02		NE	NE	
SWSD021	Metal	Zinc	78.10	mg/kg		0.60		109	10,000	
SWSD021	VOC	1,1,1-Trichloroethane	1.51	µg/kg	U	1.51		680	1,000,000	
SWSD021	VOC	1,1,2,2-Tetrachloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	1,1,2-Trichloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	1,1-Dichloroethane	1.51	µg/kg	U	1.51		270	480,000	
SWSD021	VOC	1,1-Dichloroethylene	1.51	µg/kg	U	1.51		330	1,000,000	
SWSD021	VOC	1,2-Dichloroethane	1.51	µg/kg	U	1.51		20	60,000	
SWSD021	VOC	1,2-Dichloropropane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	2-Butanone	7.53	µg/kg	U	7.53		120	1,000,000	
SWSD021	VOC	2-Hexanone	7.53	µg/kg	U	7.53		NE	NE	
SWSD021	VOC	4-Methyl-2-pentanone	7.53	µg/kg	U	7.53		NE	NE	
SWSD021	VOC	Acetone	7.53	µg/kg	U	7.53		50	1,000,000	
SWSD021	VOC	Benzene	1.51	µg/kg	U	1.51		60	89,000	
SWSD021	VOC	Bromodichloromethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Bromoform	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Bromomethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Carbon disulfide	7.53	µg/kg	U	7.53		NE	NE	
SWSD021	VOC	Carbon tetrachloride	1.51	µg/kg	U	1.51		760	44,000	
SWSD021	VOC	Chlorobenzene	1.51	µg/kg	U	1.51		1,100	1,000,000	
SWSD021	VOC	Chloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Chloroform	1.51	µg/kg	U	1.51		370	700,000	
SWSD021	VOC	Chloromethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	cis-1,2-Dichloroethylene	1.51	µg/kg	U	1.51		250	1,000,000	
SWSD021	VOC	cis-1,3-Dichloropropylene	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Ethylbenzene	1.51	µg/kg	U	1.51		1,000	780,000	
SWSD021	VOC	Methylene chloride	7.53	µg/kg	U	7.53		50	1,000,000	
SWSD021	VOC	Styrene	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Tetrachloroethylene	1.51	µg/kg	U	1.51		1,300	300,000	
SWSD021	VOC	Toluene	1.51	µg/kg	U	1.51		700	1,000,000	
SWSD021	VOC	trans-1,2-Dichloroethylene	1.51	µg/kg	U	1.51		190	1,000,000	
SWSD021	VOC	trans-1,3-Dichloropropylene	1.51	µg/kg	U	1.51		NE	NE	
SWSD021	VOC	Trichloroethylene	1.51	µg/kg	U	1.51		470	400,000	
SWSD021	VOC	Vinyl chloride	1.51	µg/kg	U	1.51		20	27,000	
SWSD021	VOC	Xylenes (total)	1.51	µg/kg	U	1.51		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiochemical Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD021	PAH	Acenaphthene	25.60	µg/kg	U	25.60		20,000	1,000,000	
SWSD021	PAH	Acenaphthylene	25.60	µg/kg	U	25.60		100,000	1,000,000	
SWSD021	PAH	Anthracene	25.60	µg/kg	U	25.60		100,000	1,000,000	
SWSD021	PAH	Benzo(a)anthracene	18.20	µg/kg	J	2.56		1,000	11,000	
SWSD021	PAH	Benzo(a)pyrene	19.00	µg/kg	J	2.56		1,000	1,100	
SWSD021	PAH	Benzo(b)fluoranthene	40.70	µg/kg	J	2.56		1,000	11,000	
SWSD021	PAH	Benzo(ghi)perylene	2.56	µg/kg	U	2.56		100,000	1,000,000	
SWSD021	PAH	Benzo(k)fluoranthene	1.28	µg/kg	U	1.28		800,000	110,000	
SWSD021	PAH	Chrysene	16.50	µg/kg	J	2.56		1,000	110,000	
SWSD021	PAH	Dibenzo(a,h)anthracene	2.56	µg/kg	U	2.56		330	1,100	
SWSD021	PAH	Fluoranthene	26.50	µg/kg	J	2.56		100,000	1,000,000	
SWSD021	PAH	Fluorene	25.60	µg/kg	U	25.60		30,000	1,000,000	
SWSD021	PAH	Indeno(1,2,3-cd)pyrene	2.56	µg/kg	U	2.56		500	11,000	
SWSD021	PAH	Naphthalene	25.60	µg/kg	U	25.60		12,000	1,000,000	
SWSD021	PAH	Phenanthrene	12.40	µg/kg	J	25.60		100,000	1,000,000	
SWSD021	PAH	Pyrene	23.50	µg/kg	J	2.56		100,000	1,000,000	
SWSD021	PCB	Aroclor-1016	5.09	µg/kg	U	5.09		100	25,000	
SWSD021	PCB	Aroclor-1221	5.09	µg/kg	U	5.09		100	25,000	
SWSD021	PCB	Aroclor-1232	5.09	µg/kg	U	5.09		100	25,000	
SWSD021	PCB	Aroclor-1242	4.00	µg/kg	J	5.09		100	25,000	
SWSD021	PCB	Aroclor-1248	5.09	µg/kg	U	5.09		100	25,000	
SWSD021	PCB	Aroclor-1254	2.80	µg/kg	J	5.09		100	25,000	
SWSD021	PCB	Aroclor-1260	5.09	µg/kg	U	5.09		100	25,000	
SWSD021	Pesticide	4,4'-DDD	2.04	µg/kg	U	2.04		3.3	180,000	
SWSD021	Pesticide	4,4'-DDE	2.04	µg/kg	U	2.04		3.3	120,000	
SWSD021	Pesticide	4,4'-DDT	2.04	µg/kg	U	2.04		3.3	94,000	
SWSD021	Pesticide	Aldrin	1.02	µg/kg	U	1.02		5	1,400	
SWSD021	Pesticide	alpha-BHC	1.02	µg/kg	U	1.02		20	6,800	
SWSD021	Pesticide	alpha-Chlordane	1.02	µg/kg	U	1.02		94	47,000	
SWSD021	Pesticide	beta-BHC	1.02	µg/kg	U	1.02		36	14,000	
SWSD021	Pesticide	delta-BHC	1.02	µg/kg	U	1.02		40	1,000,000	
SWSD021	Pesticide	Dieldrin	2.04	µg/kg	U	2.04		5	2,800	
SWSD021	Pesticide	Endosulfan I	1.02	µg/kg	U	1.02		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endosulfan II	2.04	µg/kg	U	2.04		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endosulfan sulfate	2.04	µg/kg	U	2.04		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endrin	2.04	µg/kg	U	2.04		14	410,000	
SWSD021	Pesticide	Endrin aldehyde	2.04	µg/kg	U	2.04		NE	NE	
SWSD021	Pesticide	Endrin ketone	2.04	µg/kg	U	2.04		NE	NE	
SWSD021	Pesticide	gamma-BHC (Lindane)	1.02	µg/kg	U	1.02		100	23,000	
SWSD021	Pesticide	gamma-Chlordane	1.02	µg/kg	U	1.02		NE	NE	
SWSD021	Pesticide	Heptachlor	1.02	µg/kg	U	1.02		42	29,000	
SWSD021	Pesticide	Heptachlor epoxide	1.02	µg/kg	U	1.02		NE	NE	
SWSD021	Pesticide	Methoxychlor	10.20	µg/kg	U	10.20		NE	NE	
SWSD021	Pesticide	Toxaphene	51.00	µg/kg	U	51.00		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 6/18/2008										
SWSD010	Radiological	Radium-226	1.330	pCi/g		0.225	0.307	NE	NE	5 ^a
SWSD010	Radiological	Radium-228	0.236	pCi/g	U	0.497	0.299	NE	NE	5 ^a
		Total Radium ^a	1.330	pCi/g						5 ^a
SWSD010	Radiological	Thorium-228	1.530	pCi/g	J	0.365	0.461	NE	NE	5
SWSD010	Radiological	Thorium-230	1.230	pCi/g		0.184	0.385	NE	NE	5
SWSD010	Radiological	Thorium-232	1.000	pCi/g		0.218	0.353	NE	NE	5
SWSD010	Radiological	Uranium-234	1.330	pCi/g		0.232	0.450	NE	NE	90 ^b
SWSD010	Radiological	Uranium-235	0.182	pCi/g		0.124	0.182	NE	NE	90 ^b
SWSD010	Radiological	Uranium-238	1.670	pCi/g		0.215	0.501	NE	NE	90 ^b
		Total Uranium ^b	3.182	pCi/g						90 ^b
SWSD010	Metal	Aluminum	19900	mg/kg	J	2.24		NE	NE	
SWSD010	Metal	Antimony	0.74	mg/kg	J	0.694		NE	NE	
SWSD010	Metal	Arsenic	7	mg/kg	J	0.673		13	16	
SWSD010	Metal	Barium	148	mg/kg	J	1.12		350	10,000	
SWSD010	Metal	Beryllium	0.97	mg/kg	J	0.0448		7	2,700	
SWSD010	Metal	Boron	36.4	mg/kg	J	1.79		NE	NE	
SWSD010	Metal	Cadmium	0.78	mg/kg	J	0.0448		3	60	
SWSD010	Metal	Calcium	59300	mg/kg	J	67.3		NE	NE	
SWSD010	Metal	Chromium	49.7	mg/kg	J	2.24		NE	NE	
SWSD010	Metal	Cobalt	11.5	mg/kg	J	0.0448		NE	NE	
SWSD010	Metal	Copper	64.9	mg/kg	J	0.0897		50	10,000	
SWSD010	Metal	Iron	34500	mg/kg	J	22.4		NE	NE	
SWSD010	Metal	Lead	67.6	mg/kg	J	1.12		63	3,900	
SWSD010	Metal	Lithium	32.4	mg/kg	J	0.897		NE	NE	
SWSD010	Metal	Magnesium	13800	mg/kg	J	2.24		NE	NE	
SWSD010	Metal	Manganese	798	mg/kg	J	11.2		1,600	10,000	
SWSD010	Metal	Mercury	305	µg/kg	J	8.45		180 ^c	5700 ^c	
SWSD010	Metal	Nickel	28.4	mg/kg	J	0.224		30	10,000	
SWSD010	Metal	Potassium	5440	mg/kg	J	35.9		NE	NE	
SWSD010	Metal	Selenium	1.12	mg/kg	U	1.12		4	6,800	
SWSD010	Metal	Silver	0.63	mg/kg	J	0.224		2	6,800	
SWSD010	Metal	Sodium	698	mg/kg	J	35.9		NE	NE	
SWSD010	Metal	Thallium	0.25	mg/kg	J	0.0897		NE	NE	
SWSD010	Metal	Vanadium	36.1	mg/kg	J	0.897		NE	NE	
SWSD010	Metal	Zinc	364	mg/kg	J	0.897		109	10,000	
SWSD010	VOC	1,1,1-Trichloroethane	2.27	µg/kg	U	2.27		680	1,000,000	
SWSD010	VOC	1,1,2,2-Tetrachloroethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	1,1,2-Trichloroethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	1,1-Dichloroethane	2.27	µg/kg	U	2.27		270	480,000	
SWSD010	VOC	1,1-Dichloroethylene	2.27	µg/kg	U	2.27		330	1,000,000	
SWSD010	VOC	1,2-Dichloroethane	2.27	µg/kg	U	2.27		20	60,000	
SWSD010	VOC	1,2-Dichloropropane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	2-Butanone	12.00	µg/kg		11.40		120	1,000,000	
SWSD010	VOC	2-Hexanone	11.40	µg/kg	U	11.40		NE	NE	
SWSD010	VOC	4-Methyl-2-pentanone	11.40	µg/kg	U	11.40		NE	NE	
SWSD010	VOC	Acetone	38.20	µg/kg		11.40		50	1,000,000	
SWSD010	VOC	Benzene	2.27	µg/kg	U	2.27		60	89,000	
SWSD010	VOC	Bromodichloromethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Bromoform	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Bromomethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Carbon disulfide	11.40	µg/kg	U	11.40		NE	NE	
SWSD010	VOC	Carbon tetrachloride	2.27	µg/kg	U	2.27		760	44,000	
SWSD010	VOC	Chlorobenzene	2.27	µg/kg	U	2.27		1,100	1,000,000	
SWSD010	VOC	Chloroethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Chloroform	2.27	µg/kg	U	2.27		370	700,000	
SWSD010	VOC	Chloromethane	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	cis-1,2-Dichloroethylene	2.27	µg/kg	U	2.27		250	1,000,000	
SWSD010	VOC	cis-1,3-Dichloropropylene	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Ethylbenzene	2.27	µg/kg	U	2.27		1,000	780,000	
SWSD010	VOC	Methylene chloride	11.40	µg/kg	U	11.40		50	1,000,000	
SWSD010	VOC	Styrene	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Tetrachloroethylene	2.27	µg/kg	U	2.27		1,300	300,000	
SWSD010	VOC	Toluene	2.27	µg/kg	U	2.27		700	1,000,000	
SWSD010	VOC	trans-1,2-Dichloroethylene	2.27	µg/kg	U	2.27		190	1,000,000	
SWSD010	VOC	trans-1,3-Dichloropropylene	2.27	µg/kg	U	2.27		NE	NE	
SWSD010	VOC	Trichloroethylene	2.27	µg/kg	U	2.27		470	400,000	
SWSD010	VOC	Vinyl chloride	2.27	µg/kg	U	2.27		20	27,000	
SWSD010	VOC	Xylenes (total)	2.27	µg/kg	U	2.27		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD010	PAH	Acenaphthene	37.90	µg/kg	U	37.90		20,000	1,000,000	
SWSD010	PAH	Acenaphthylene	37.90	µg/kg	U	37.90		100,000	1,000,000	
SWSD010	PAH	Anthracene	37.90	µg/kg	U	37.90		100,000	1,000,000	
SWSD010	PAH	Benzo(a)anthracene	88.60	µg/kg		3.79		1,000	11,000	
SWSD010	PAH	Benzo(a)pyrene	88.50	µg/kg		3.79		1,000	1,100	
SWSD010	PAH	Benzo(b)fluoranthene	176.00	µg/kg		3.79		1,000	11,000	
SWSD010	PAH	Benzo(ghi)perylene	55.10	µg/kg		3.79		100,000	1,000,000	
SWSD010	PAH	Benzo(k)fluoranthene	1.90	µg/kg	U	1.90		800,000	110,000	
SWSD010	PAH	Chrysene	76.00	µg/kg		3.79		1,000	110,000	
SWSD010	PAH	Dibenzo(a,h)anthracene	3.79	µg/kg	U	3.79		330	1,100	
SWSD010	PAH	Fluoranthene	124.00	µg/kg		3.79		100,000	1,000,000	
SWSD010	PAH	Fluorene	37.90	µg/kg	U	37.90		30,000	1,000,000	
SWSD010	PAH	Indeno(1,2,3-cd)pyrene	3.79	µg/kg	U	3.79		500	11,000	
SWSD010	PAH	Naphthalene	37.90	µg/kg	U	37.90		12,000	1,000,000	
SWSD010	PAH	Phenanthrene	56.70	µg/kg	J	37.90		100,000	1,000,000	
SWSD010	PAH	Pyrene	136.00	µg/kg		3.79		100,000	1,000,000	
SWSD010	PCB	Aroclor-1016	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	PCB	Aroclor-1221	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	PCB	Aroclor-1232	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	PCB	Aroclor-1242	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	PCB	Aroclor-1248	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	PCB	Aroclor-1254	51.3	µg/kg	J	25.1		100	25,000	
SWSD010	PCB	Aroclor-1260	75.3	µg/kg	U	25.1		100	25,000	
SWSD010	Pesticide	4,4'-DDD	30.2	µg/kg	U	30.2		3.3	180,000	
SWSD010	Pesticide	4,4'-DDE	30.2	µg/kg	U	30.2		3.3	120,000	
SWSD010	Pesticide	4,4'-DDT	30.2	µg/kg	U	30.2		3.3	94,000	
SWSD010	Pesticide	Aldrin	15.1	µg/kg	U	15.1		5	1,400	
SWSD010	Pesticide	alpha-BHC	15.1	µg/kg	U	15.1		20	6,800	
SWSD010	Pesticide	alpha-Chlordane	15.1	µg/kg	U	15.1		94	47,000	
SWSD010	Pesticide	beta-BHC	15.1	µg/kg	U	15.1		36	14,000	
SWSD010	Pesticide	delta-BHC	15.1	µg/kg	U	15.1		40	1,000,000	
SWSD010	Pesticide	Dieldrin	30.2	µg/kg	U	30.2		5	2,800	
SWSD010	Pesticide	Endosulfan I	15.1	µg/kg	U	15.1		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endosulfan II	30.2	µg/kg	U	30.2		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endosulfan sulfate	30.2	µg/kg	U	30.2		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endrin	30.2	µg/kg	U	30.2		14	410,000	
SWSD010	Pesticide	Endrin aldehyde	30.2	µg/kg	U	30.2		NE	NE	
SWSD010	Pesticide	Endrin ketone	30.2	µg/kg	U	30.2		NE	NE	
SWSD010	Pesticide	gamma-BHC (Lindane)	15.1	µg/kg	U	15.1		100	23,000	
SWSD010	Pesticide	gamma-Chlordane	15.1	µg/kg	U	15.1		NE	NE	
SWSD010	Pesticide	Heptachlor	15.1	µg/kg	U	15.1		42	29,000	
SWSD010	Pesticide	Heptachlor epoxide	15.1	µg/kg	U	15.1		NE	NE	
SWSD010	Pesticide	Methoxychlor	151.0	µg/kg	U	151.0		NE	NE	
SWSD010	Pesticide	Toxaphene	756	µg/kg	U	756		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use - Industrial**	DOE Cleanup Criteria**
Sample Date: 6/16/2008										
SWSD011	Radiological	Radium-226	1.140	pCi/g		0.312	0.341	NE	NE	5 ^a
SWSD011	Radiological	Radium-228	1.640	pCi/g		0.536	0.482	NE	NE	5 ^a
		Total Radium ^a	2.780	pCi/g						5 ^a
SWSD011	Radiological	Thorium-228	1.610	pCi/g		0.273	0.447	NE	NE	5
SWSD011	Radiological	Thorium-230	1.780	pCi/g		0.220	0.458	NE	NE	5
SWSD011	Radiological	Thorium-232	1.000	pCi/g		0.149	0.340	NE	NE	5
SWSD011	Radiological	Uranium-234	1.160	pCi/g		0.079	0.368	NE	NE	90 ^b
SWSD011	Radiological	Uranium-235	0.144	pCi/g		0.098	0.144	NE	NE	90 ^b
SWSD011	Radiological	Uranium-238	1.400	pCi/g		0.079	0.403	NE	NE	90 ^b
		Total Uranium ^b	2.704	pCi/g						90 ^b
SWSD011	Metal	Aluminum	16500	mg/kg		13.2		NE	NE	
SWSD011	Metal	Antimony	2.1	mg/kg	J	0.805		NE	NE	
SWSD011	Metal	Arsenic	4.3	mg/kg		0.789		13	16	
SWSD011	Metal	Barium	109	mg/kg		0.263		350	10,000	
SWSD011	Metal	Beryllium	0.68	mg/kg		0.0526		7	2,700	
SWSD011	Metal	Boron	21.1	mg/kg		2.11		NE	NE	
SWSD011	Metal	Cadmium	0.48	mg/kg	J	0.0526		3	60	
SWSD011	Metal	Calcium	36500	mg/kg		78.9		NE	NE	
SWSD011	Metal	Chromium	39.4	mg/kg		0.526		NE	NE	
SWSD011	Metal	Cobalt	9.6	mg/kg		0.0526		NE	NE	
SWSD011	Metal	Copper	38.5	mg/kg		0.105		50	10,000	
SWSD011	Metal	Iron	22200	mg/kg		26.3		NE	NE	
SWSD011	Metal	Lead	27.4	mg/kg		0.263		63	3,900	
SWSD011	Metal	Lithium	24.5	mg/kg		1.05		NE	NE	
SWSD011	Metal	Magnesium	9130	mg/kg		2.63		NE	NE	
SWSD011	Metal	Manganese	792	mg/kg		2.63		1,600	10,000	
SWSD011	Metal	Mercury	128	µg/kg		3.58		180 ^c	5700 ^c	
SWSD011	Metal	Nickel	23.3	mg/kg		0.263		30	10,000	
SWSD011	Metal	Potassium	3420	mg/kg		42.1		NE	NE	
SWSD011	Metal	Selenium	1.32	mg/kg	U	1.32		4	6,800	
SWSD011	Metal	Silver	1.2	mg/kg	J	0.26		2	6,800	
SWSD011	Metal	Sodium	455	mg/kg		42.1		NE	NE	
SWSD011	Metal	Thallium	0.18	mg/kg	J	0.105		NE	NE	
SWSD011	Metal	Vanadium	28.4	mg/kg		1.05		NE	NE	
SWSD011	Metal	Zinc	202	mg/kg		1.05		109	10,000	
SWSD011	VOC	1,1,1-Trichloroethane	2.69	µg/kg	U	2.69		680	1,000,000	
SWSD011	VOC	1,1,2,2-Tetrachloroethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	1,1,2-Trichloroethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	1,1-Dichloroethane	2.69	µg/kg	U	2.69		270	480,000	
SWSD011	VOC	1,1-Dichloroethylene	2.69	µg/kg	U	2.69		330	1,000,000	
SWSD011	VOC	1,2-Dichloroethane	2.69	µg/kg	U	2.69		20	60,000	
SWSD011	VOC	1,2-Dichloropropane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	2-Butanone	12.2	µg/kg	J	13.4		120	1,000,000	
SWSD011	VOC	2-Hexanone	13.4	µg/kg	U	13.4		NE	NE	
SWSD011	VOC	4-Methyl-2-pentanone	13.4	µg/kg	U	13.4		NE	NE	
SWSD011	VOC	Acetone	44.4	µg/kg	U	13.4		50	1,000,000	
SWSD011	VOC	Benzene	2.69	µg/kg	U	2.69		60	89,000	
SWSD011	VOC	Bromodichloromethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Bromoform	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Bromomethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Carbon disulfide	13.4	µg/kg	U	13.4		NE	NE	
SWSD011	VOC	Carbon tetrachloride	2.69	µg/kg	U	2.69		760	44,000	
SWSD011	VOC	Chlorobenzene	2.69	µg/kg	U	2.69		1,100	1,000,000	
SWSD011	VOC	Chloroethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Chloroform	2.69	µg/kg	U	2.69		370	700,000	
SWSD011	VOC	Chloromethane	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	cis-1,2-Dichloroethylene	2.69	µg/kg	U	2.69		250	1,000,000	
SWSD011	VOC	cis-1,3-Dichloropropylene	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Ethylbenzene	2.69	µg/kg	U	2.69		1,000	780,000	
SWSD011	VOC	Methylene chloride	13.4	µg/kg	U	13.4		50	1,000,000	
SWSD011	VOC	Styrene	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Tetrachloroethylene	2.69	µg/kg	U	2.69		1,300	300,000	
SWSD011	VOC	Toluene	2.69	µg/kg	U	2.69		700	1,000,000	
SWSD011	VOC	trans-1,2-Dichloroethylene	2.69	µg/kg	U	2.69		190	1,000,000	
SWSD011	VOC	trans-1,3-Dichloropropylene	2.69	µg/kg	U	2.69		NE	NE	
SWSD011	VOC	Trichloroethylene	2.69	µg/kg	U	2.69		470	400,000	
SWSD011	VOC	Vinyl chloride	2.69	µg/kg	U	2.69		20	27,000	
SWSD011	VOC	Xylenes (total)	2.69	µg/kg	U	2.69		260	1,000,000	

Table 8

NFSS Spring 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SWSD011	PAH	Acenaphthene	44.9	µg/kg	U	44.9		20,000	1,000,000	
SWSD011	PAH	Acenaphthylene	44.9	µg/kg	U	44.9		100,000	1,000,000	
SWSD011	PAH	Anthracene	44.9	µg/kg	U	44.9		100,000	1,000,000	
SWSD011	PAH	Benzo(a)anthracene	34.1	µg/kg	J	4.49		1,000	11,000	
SWSD011	PAH	Benzo(a)pyrene	38.1	µg/kg	J	4.49		1,000	1,100	
SWSD011	PAH	Benzo(b)fluoranthene	4.49	µg/kg	U	4.49		1,000	11,000	
SWSD011	PAH	Benzo(ghi)perylene	4.49	µg/kg	U	4.49		100,000	1,000,000	
SWSD011	PAH	Benzo(k)fluoranthene	2.24	µg/kg	U	2.24		300,000	110,000	
SWSD011	PAH	Chrysene	28.9	µg/kg	J	4.49		1,000	110,000	
SWSD011	PAH	Dibenzo(a,h)anthracene	4.49	µg/kg	U	4.49		330	1,100	
SWSD011	PAH	Fluoranthene	59.9	µg/kg	J	4.49		100,000	1,000,000	
SWSD011	PAH	Fluorene	44.9	µg/kg	U	44.9		30,000	1,000,000	
SWSD011	PAH	Indeno(1,2,3-cd)pyrene	4.49	µg/kg	U	4.49		500	11,000	
SWSD011	PAH	Naphthalene	44.9	µg/kg	U	44.9		12,000	1,000,000	
SWSD011	PAH	Phenanthrene	27.4	µg/kg	J	44.9		100,000	1,000,000	
SWSD011	PAH	Pyrene	57.6	µg/kg	J	4.49		100,000	1,000,000	
SWSD011	PCB	Aroclor-1016	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1221	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1232	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1242	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1248	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1254	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	PCB	Aroclor-1260	89.6	µg/kg	U	29.8		100	25,000	
SWSD011	Pesticide	4,4'-DDD	71.3	µg/kg	U	71.3		3.3	180,000	
SWSD011	Pesticide	4,4'-DDE	71.3	µg/kg	U	71.3		3.3	120,000	
SWSD011	Pesticide	4,4'-DDT	71.3	µg/kg	U	71.3		3.3	94,000	
SWSD011	Pesticide	Aldrin	35.6	µg/kg	U	35.6		5	1,400	
SWSD011	Pesticide	alpha-BHC	35.6	µg/kg	U	35.6		20	6,800	
SWSD011	Pesticide	alpha-Chlordane	35.6	µg/kg	U	35.6		94	47,000	
SWSD011	Pesticide	beta-BHC	35.6	µg/kg	U	35.6		36	14,000	
SWSD011	Pesticide	delta-BHC	35.6	µg/kg	U	35.6		40	1,000,000	
SWSD011	Pesticide	Dieldrin	71.3	µg/kg	U	71.3		5	2,800	
SWSD011	Pesticide	Endosulfan I	35.6	µg/kg	U	35.6		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endosulfan II	71.3	µg/kg	U	71.3		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endosulfan sulfate	71.3	µg/kg	U	71.3		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endrin	71.3	µg/kg	U	71.3		14	410,000	
SWSD011	Pesticide	Endrin aldehyde	71.3	µg/kg	U	71.3		NE	NE	
SWSD011	Pesticide	Endrin ketone	71.3	µg/kg	U	71.3		NE	NE	
SWSD011	Pesticide	gamma-BHC (Lindane)	35.6	µg/kg	U	35.6		100	23,000	
SWSD011	Pesticide	gamma-Chlordane	35.6	µg/kg	U	35.6		NE	NE	
SWSD011	Pesticide	Heptachlor	35.6	µg/kg	U	35.6		42	29,000	
SWSD011	Pesticide	Heptachlor epoxide	35.6	µg/kg	U	35.6		NE	NE	
SWSD011	Pesticide	Methoxychlor	356	µg/kg	U	356		NE	NE	
SWSD011	Pesticide	Toxaphene	1780	µg/kg	U	1780		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 6/16/2008										
SED-DUP(SWSD011)	Radiological	Radium-226	0.949	pCi/g		0.159	0.244	NE	NE	5 ^a
SED-DUP(SWSD011)	Radiological	Radium-228	0.918	pCi/g		0.405	0.353	NE	NE	5 ^a
		Total Radium ^a	1.867	pCi/g						5 ^a
SED-DUP(SWSD011)	Radiological	Thorium-228	1.360	pCi/g		0.264	0.407	NE	NE	5
SED-DUP(SWSD011)	Radiological	Thorium-230	1.340	pCi/g		0.173	0.388	NE	NE	5
SED-DUP(SWSD011)	Radiological	Thorium-232	1.190	pCi/g		0.195	0.369	NE	NE	5
SED-DUP(SWSD011)	Radiological	Uranium-234	1.110	pCi/g		0.148	0.327	NE	NE	90 ^b
SED-DUP(SWSD011)	Radiological	Uranium-235	0.058	pCi/g	U	0.079	0.082	NE	NE	90 ^b
SED-DUP(SWSD011)	Radiological	Uranium-238	1.000	pCi/g		0.124	0.309	NE	NE	90 ^b
		Total Uranium ^b	2.110	pCi/g						90 ^b
SED-DUP(SWSD011)	Metal	Aluminum	18800	mg/kg		13.4		NE	NE	
SED-DUP(SWSD011)	Metal	Antimony	1.4	mg/kg	J	0.837		NE	NE	
SED-DUP(SWSD011)	Metal	Arsenic	4.4	mg/kg		0.804		13	16	
SED-DUP(SWSD011)	Metal	Barium	130	mg/kg		0.268		350	10,000	
SED-DUP(SWSD011)	Metal	Beryllium	0.81	mg/kg		0.0536		7	2,700	
SED-DUP(SWSD011)	Metal	Boron	24	mg/kg		2.14		NE	NE	
SED-DUP(SWSD011)	Metal	Cadmium	0.49	mg/kg	J	0.0536		3	60	
SED-DUP(SWSD011)	Metal	Calcium	54800	mg/kg		80.4		NE	NE	
SED-DUP(SWSD011)	Metal	Chromium	46.3	mg/kg		0.536		NE	NE	
SED-DUP(SWSD011)	Metal	Cobalt	11.3	mg/kg		0.0536		NE	NE	
SED-DUP(SWSD011)	Metal	Copper	44.2	mg/kg		0.107		50	10,000	
SED-DUP(SWSD011)	Metal	Iron	25000	mg/kg		26.8		NE	NE	
SED-DUP(SWSD011)	Metal	Lead	33	mg/kg		0.268		63	3,900	
SED-DUP(SWSD011)	Metal	Lithium	29.3	mg/kg		1.07		NE	NE	
SED-DUP(SWSD011)	Metal	Magnesium	10500	mg/kg		2.68		NE	NE	
SED-DUP(SWSD011)	Metal	Manganese	963	mg/kg		2.68		1,600	10,000	
SED-DUP(SWSD011)	Metal	Mercury	125	µg/kg		4		180 ^c	5700 ^c	
SED-DUP(SWSD011)	Metal	Nickel	27.3	mg/kg		0.268		30	10,000	
SED-DUP(SWSD011)	Metal	Potassium	3610	mg/kg		42.9		NE	NE	
SED-DUP(SWSD011)	Metal	Selenium	1.34	mg/kg	U	1.34		4	6,800	
SED-DUP(SWSD011)	Metal	Silver	0.73	mg/kg	J	0.27		2	6,800	
SED-DUP(SWSD011)	Metal	Sodium	478	mg/kg		42.9		NE	NE	
SED-DUP(SWSD011)	Metal	Thallium	0.21	mg/kg	J	0.107		NE	NE	
SED-DUP(SWSD011)	Metal	Vanadium	31.7	mg/kg		1.07		NE	NE	
SED-DUP(SWSD011)	Metal	Zinc	264	mg/kg		1.07		109	10,000	
SED-DUP(SWSD011)	VOC	1,1,1-Trichloroethane	2.63	µg/kg	U	2.63		680	1,000,000	
SED-DUP(SWSD011)	VOC	1,1,2,2-Tetrachloroethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	1,1,2-Trichloroethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	1,1-Dichloroethane	2.63	µg/kg	U	2.63		270	480,000	
SED-DUP(SWSD011)	VOC	1,1-Dichloroethylene	2.63	µg/kg	U	2.63		330	1,000,000	
SED-DUP(SWSD011)	VOC	1,2-Dichloroethane	2.63	µg/kg	U	2.63		20	60,000	
SED-DUP(SWSD011)	VOC	1,2-Dichloropropane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	2-Butanone	11.8	µg/kg	J	13.2		120	1,000,000	
SED-DUP(SWSD011)	VOC	2-Hexanone	13.2	µg/kg	U	13.2		NE	NE	
SED-DUP(SWSD011)	VOC	4-Methyl-2-pentanone	13.2	µg/kg	U	13.2		NE	NE	
SED-DUP(SWSD011)	VOC	Acetone	47	µg/kg		13.2		50	1,000,000	
SED-DUP(SWSD011)	VOC	Benzene	2.63	µg/kg	U	2.63		60	89,000	
SED-DUP(SWSD011)	VOC	Bromodichloromethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Bromoform	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Bromomethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Carbon disulfide	13.2	µg/kg	U	13.2		NE	NE	
SED-DUP(SWSD011)	VOC	Carbon tetrachloride	2.63	µg/kg	U	2.63		760	44,000	
SED-DUP(SWSD011)	VOC	Chlorobenzene	2.63	µg/kg	U	2.63		1,100	1,000,000	
SED-DUP(SWSD011)	VOC	Chloroethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Chloroform	2.63	µg/kg	U	2.63		370	700,000	
SED-DUP(SWSD011)	VOC	Chloromethane	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	cis-1,2-Dichloroethylene	2.63	µg/kg	U	2.63		250	1,000,000	
SED-DUP(SWSD011)	VOC	cis-1,3-Dichloropropylene	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Ethylbenzene	2.63	µg/kg	U	2.63		1,000	780,000	
SED-DUP(SWSD011)	VOC	Methylene chloride	13.2	µg/kg	U	13.2		50	1,000,000	
SED-DUP(SWSD011)	VOC	Styrene	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Tetrachloroethylene	2.63	µg/kg	U	2.63		1,300	300,000	
SED-DUP(SWSD011)	VOC	Toluene	2.63	µg/kg	U	2.63		700	1,000,000	
SED-DUP(SWSD011)	VOC	trans-1,2-Dichloroethylene	2.63	µg/kg	U	2.63		190	1,000,000	
SED-DUP(SWSD011)	VOC	trans-1,3-Dichloropropylene	2.63	µg/kg	U	2.63		NE	NE	
SED-DUP(SWSD011)	VOC	Trichloroethylene	2.63	µg/kg	U	2.63		470	400,000	
SED-DUP(SWSD011)	VOC	Vinyl chloride	2.63	µg/kg	U	2.63		20	27,000	
SED-DUP(SWSD011)	VOC	Xylenes (total)	2.63	µg/kg	U	2.63		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+/-)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
SED-DUP _(SWS001)	PAH	Acenaphthene	45.5	µg/kg	U	45.5		20,000	1,000,000	
SED-DUP _(SWS001)	PAH	Acenaphthylene	45.5	µg/kg	U	45.5		100,000	1,000,000	
SED-DUP _(SWS001)	PAH	Anthracene	45.5	µg/kg	U	45.5		100,000	1,000,000	
SED-DUP _(SWS001)	PAH	Benzo(a)anthracene	43.9	µg/kg	J	4.55		1,000	11,000	
SED-DUP _(SWS001)	PAH	Benzo(a)pyrene	50.4	µg/kg	J	4.55		1,000	1,100	
SED-DUP _(SWS001)	PAH	Benzo(b)fluoranthene	95.5	µg/kg	J	4.55		1,000	11,000	
SED-DUP _(SWS001)	PAH	Benzo(ghi)perylene	4.55	µg/kg	U	4.55		100,000	1,000,000	
SED-DUP _(SWS001)	PAH	Benzo(k)fluoranthene	2.28	µg/kg	U	2.28		800,000	110,000	
SED-DUP _(SWS001)	PAH	Chrysene	34.1	µg/kg	J	4.55		1,000	110,000	
SED-DUP _(SWS001)	PAH	Dibenzo(a,h)anthracene	4.55	µg/kg	U	4.55		330	1,100	
SED-DUP _(SWS001)	PAH	Fluoranthene	74.6	µg/kg	J	4.55		100,000	1,000,000	
SED-DUP _(SWS001)	PAH	Fluorene	45.5	µg/kg	U	45.5		30,000	1,000,000	
SED-DUP _(SWS001)	PAH	Indeno(1,2,3-cd)pyrene	4.55	µg/kg	U	4.55		500	11,000	
SED-DUP _(SWS001)	PAH	Naphthalene	45.5	µg/kg	U	45.5		12,000	1,000,000	
SED-DUP _(SWS001)	PAH	Phenanthrene	35.9	µg/kg	J	45.5		100,000	1,000,000	
SED-DUP _(SWS001)	PAH	Pyrene	76	µg/kg	J	4.55		100,000	1,000,000	
SED-DUP _(SWS001)	PCB	Aroclor-1016	91.2	µg/kg	U	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1221	91.2	µg/kg	U	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1232	91.2	µg/kg	U	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1242	53.3	µg/kg	J	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1248	91.2	µg/kg	U	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1254	114	µg/kg	J	30.4		100	25,000	
SED-DUP _(SWS001)	PCB	Aroclor-1260	91.2	µg/kg	U	30.4		100	25,000	
SED-DUP _(SWS001)	Pesticide	4,4'-DDD	36.5	µg/kg	U	36.5		3.3	180,000	
SED-DUP _(SWS001)	Pesticide	4,4'-DDE	36.5	µg/kg	U	36.5		3.3	120,000	
SED-DUP _(SWS001)	Pesticide	4,4'-DDT	36.5	µg/kg	U	36.5		3.3	94,000	
SED-DUP _(SWS001)	Pesticide	Aldrin	18.2	µg/kg	U	18.2		5	1,400	
SED-DUP _(SWS001)	Pesticide	alpha-BHC	18.2	µg/kg	U	18.2		20	6,800	
SED-DUP _(SWS001)	Pesticide	alpha-Chlordane	18.2	µg/kg	U	18.2		94	47,000	
SED-DUP _(SWS001)	Pesticide	beta-BHC	18.2	µg/kg	U	18.2		36	14,000	
SED-DUP _(SWS001)	Pesticide	delta-BHC	18.2	µg/kg	U	18.2		40	1,000,000	
SED-DUP _(SWS001)	Pesticide	Dieldrin	36.5	µg/kg	U	36.5		5	2,800	
SED-DUP _(SWS001)	Pesticide	Endosulfan I	18.2	µg/kg	U	18.2		2,400 ^d	920,000 ^d	
SED-DUP _(SWS001)	Pesticide	Endosulfan II	36.5	µg/kg	U	36.5		2,400 ^d	920,000 ^d	
SED-DUP _(SWS001)	Pesticide	Endosulfan sulfate	36.5	µg/kg	U	36.5		2,400 ^d	920,000 ^d	
SED-DUP _(SWS001)	Pesticide	Endrin	36.5	µg/kg	U	36.5		14	410,000	
SED-DUP _(SWS001)	Pesticide	Endrin aldehyde	36.5	µg/kg	U	36.5		NE	NE	
SED-DUP _(SWS001)	Pesticide	Endrin ketone	36.5	µg/kg	U	36.5		NE	NE	
SED-DUP _(SWS001)	Pesticide	gamma-BHC (Lindane)	18.2	µg/kg	U	18.2		100	23,000	
SED-DUP _(SWS001)	Pesticide	gamma-Chlordane	18.2	µg/kg	U	18.2		NE	NE	
SED-DUP _(SWS001)	Pesticide	Heptachlor	18.2	µg/kg	U	18.2		42	29,000	
SED-DUP _(SWS001)	Pesticide	Heptachlor epoxide	18.2	µg/kg	U	18.2		NE	NE	
SED-DUP _(SWS001)	Pesticide	Methoxychlor	182	µg/kg	U	182		NE	NE	
SED-DUP _(SWS001)	Pesticide	Toxaphene	912	µg/kg	U	912		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+/-)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 6/17/2008										
SWSD022	Radiological	Radium-226	1.820	pCi/g		0.245	0.353	NE	NE	5 ^a
SWSD022	Radiological	Radium-228	0.875	pCi/g	U	0.917	0.598	NE	NE	5 ^a
		Total Radium ^a	1.820	pCi/g						5 ^a
SWSD022	Radiological	Thorium-228	1.800	pCi/g	J	0.341	0.499	NE	NE	5
SWSD022	Radiological	Thorium-230	1.270	pCi/g		0.160	0.396	NE	NE	5
SWSD022	Radiological	Thorium-232	1.270	pCi/g		0.160	0.396	NE	NE	5
SWSD022	Radiological	Uranium-234	2.330	pCi/g		0.158	0.531	NE	NE	90 ^b
SWSD022	Radiological	Uranium-235	0.149	pCi/g		0.101	0.149	NE	NE	90 ^b
SWSD022	Radiological	Uranium-238	2.200	pCi/g		0.175	0.518	NE	NE	90 ^b
		Total Uranium ^b	4.679	pCi/g						90 ^b
SWSD022	Metal	Aluminum	14500	mg/kg		12.1		NE	NE	
SWSD022	Metal	Antimony	1.6	mg/kg	J	0.767		NE	NE	
SWSD022	Metal	Arsenic	4.5	mg/kg		0.725		13	16	
SWSD022	Metal	Barium	127	mg/kg		0.242		350	10,000	
SWSD022	Metal	Beryllium	0.71	mg/kg		0.0484		7	2,700	
SWSD022	Metal	Boron	20.2	mg/kg		1.93		NE	NE	
SWSD022	Metal	Cadmium	0.41	mg/kg	J	0.0484		3	60	
SWSD022	Metal	Calcium	29200	mg/kg		72.5		NE	NE	
SWSD022	Metal	Chromium	32	mg/kg		0.484		NE	NE	
SWSD022	Metal	Cobalt	10	mg/kg		0.0484		NE	NE	
SWSD022	Metal	Copper	36.3	mg/kg		0.0967		50	10,000	
SWSD022	Metal	Iron	20900	mg/kg		24.2		NE	NE	
SWSD022	Metal	Lead	25.4	mg/kg		0.242		63	3,900	
SWSD022	Metal	Lithium	23.3	mg/kg		0.967		NE	NE	
SWSD022	Metal	Magnesium	8580	mg/kg		2.42		NE	NE	
SWSD022	Metal	Manganese	801	mg/kg		2.42		1,600	10,000	
SWSD022	Metal	Mercury	72.5	µg/kg		3.69		180 ^c	5700 ^c	
SWSD022	Metal	Nickel	23.8	mg/kg		0.242		30	10,000	
SWSD022	Metal	Potassium	2720	mg/kg		38.7		NE	NE	
SWSD022	Metal	Selenium	1.3	mg/kg	J	1.21		4	6,800	
SWSD022	Metal	Silver	1.1	mg/kg	J	0.248		2	6,800	
SWSD022	Metal	Sodium	243	mg/kg		38.7		NE	NE	
SWSD022	Metal	Thallium	0.18	mg/kg	J	0.0967		NE	NE	
SWSD022	Metal	Vanadium	27.3	mg/kg		0.967		NE	NE	
SWSD022	Metal	Zinc	135	mg/kg		0.967		109	10,000	
SWSD022	VOC	1,1,1-Trichloroethane	2.45	µg/kg	U	2.45		680	1,000,000	
SWSD022	VOC	1,1,2,2-Tetrachloroethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	1,1,2-Trichloroethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	1,1-Dichloroethane	2.45	µg/kg	U	2.45		270	480,000	
SWSD022	VOC	1,1-Dichloroethylene	2.45	µg/kg	U	2.45		330	1,000,000	
SWSD022	VOC	1,2-Dichloroethane	2.45	µg/kg	U	2.45		20	60,000	
SWSD022	VOC	1,2-Dichloropropane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	2-Butanone	12.2	µg/kg	J	12.3		120	1,000,000	
SWSD022	VOC	2-Hexanone	12.3	µg/kg	U	12.3		NE	NE	
SWSD022	VOC	4-Methyl-2-pentanone	12.3	µg/kg	U	12.3		NE	NE	
SWSD022	VOC	Acetone	37.7	µg/kg		12.3		50	1,000,000	
SWSD022	VOC	Benzene	2.45	µg/kg	U	2.45		60	89,000	
SWSD022	VOC	Bromodichloromethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Bromoform	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Bromomethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Carbon disulfide	12.3	µg/kg	U	12.3		NE	NE	
SWSD022	VOC	Carbon tetrachloride	2.45	µg/kg	U	2.45		760	44,000	
SWSD022	VOC	Chlorobenzene	2.45	µg/kg	U	2.45		1,100	1,000,000	
SWSD022	VOC	Chloroethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Chloroform	2.45	µg/kg	U	2.45		370	700,000	
SWSD022	VOC	Chloromethane	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	cis-1,2-Dichloroethylene	1.61	µg/kg	J	2.45		250	1,000,000	
SWSD022	VOC	cis-1,3-Dichloropropylene	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Ethylbenzene	2.45	µg/kg	U	2.45		1,000	780,000	
SWSD022	VOC	Methylene chloride	12.3	µg/kg	U	12.3		50	1,000,000	
SWSD022	VOC	Styrene	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Tetrachloroethylene	2.45	µg/kg	U	2.45		1,300	300,000	
SWSD022	VOC	Toluene	2.45	µg/kg	U	2.45		700	1,000,000	
SWSD022	VOC	trans-1,2-Dichloroethylene	2.45	µg/kg	U	2.45		190	1,000,000	
SWSD022	VOC	trans-1,3-Dichloropropylene	2.45	µg/kg	U	2.45		NE	NE	
SWSD022	VOC	Trichloroethylene	2.45	µg/kg	U	2.45		470	400,000	
SWSD022	VOC	Vinyl chloride	2.45	µg/kg	U	2.45		20	27,000	
SWSD022	VOC	Xylenes (total)	2.45	µg/kg	U	2.45		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD022	PAH	Acenaphthene	41.7	µg/kg	U	41.7		20,000	1,000,000	
SWSD022	PAH	Acenaphthylene	41.7	µg/kg	U	41.7		100,000	1,000,000	
SWSD022	PAH	Anthracene	41.7	µg/kg	U	41.7		100,000	1,000,000	
SWSD022	PAH	Benzo(a)anthracene	35.5	µg/kg		41.7		1,000	11,000	
SWSD022	PAH	Benzo(a)pyrene	39.9	µg/kg		41.7		1,000	1,100	
SWSD022	PAH	Benzo(b)fluoranthene	4.17	µg/kg	U	4.17		1,000	11,000	
SWSD022	PAH	Benzo(ghi)perylene	4.17	µg/kg	U	4.17		100,000	1,000,000	
SWSD022	PAH	Benzo(k)fluoranthene	2.08	µg/kg	U	2.08		800,000	110,000	
SWSD022	PAH	Chrysene	34.7	µg/kg		41.7		1,000	110,000	
SWSD022	PAH	Dibenzo(a,h)anthracene	4.17	µg/kg	U	4.17		330	1,100	
SWSD022	PAH	Fluoranthene	51.9	µg/kg		4.17		100,000	1,000,000	
SWSD022	PAH	Fluorene	41.7	µg/kg	U	41.7		30,000	1,000,000	
SWSD022	PAH	Indeno(1,2,3-cd)pyrene	4.17	µg/kg	U	4.17		500	11,000	
SWSD022	PAH	Naphthalene	41.7	µg/kg	U	41.7		12,000	1,000,000	
SWSD022	PAH	Phenanthrene	32.1	µg/kg	J	41.7		100,000	1,000,000	
SWSD022	PAH	Pyrene	58.4	µg/kg		4.17		100,000	1,000,000	
SWSD022	PCB	Aroclor-1016	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1221	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1232	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1242	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1248	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1254	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	PCB	Aroclor-1260	83.3	µg/kg	U	27.7		100	25,000	
SWSD022	Pesticide	4,4'-DDD	33.2	µg/kg	U	33.2		3.3	180,000	
SWSD022	Pesticide	4,4'-DDE	33.2	µg/kg	U	33.2		3.3	120,000	
SWSD022	Pesticide	4,4'-DDT	33.2	µg/kg	U	33.2		3.3	94,000	
SWSD022	Pesticide	Aldrin	16.6	µg/kg	U	16.6		5	1,400	
SWSD022	Pesticide	alpha-BHC	16.6	µg/kg	U	16.6		20	6,800	
SWSD022	Pesticide	alpha-Chlordane	16.6	µg/kg	U	16.6		94	47,000	
SWSD022	Pesticide	beta-BHC	16.6	µg/kg	U	16.6		36	14,000	
SWSD022	Pesticide	delta-BHC	16.6	µg/kg	U	16.6		40	1,000,000	
SWSD022	Pesticide	Dieldrin	33.2	µg/kg	U	33.2		5	2,800	
SWSD022	Pesticide	Endosulfan I	16.6	µg/kg	U	16.6		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endosulfan II	33.2	µg/kg	U	33.2		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endosulfan sulfate	33.2	µg/kg	U	33.2		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endrin	33.2	µg/kg	U	33.2		14	410,000	
SWSD022	Pesticide	Endrin aldehyde	33.2	µg/kg	U	33.2		NE	NE	
SWSD022	Pesticide	Endrin ketone	33.2	µg/kg	U	33.2		NE	NE	
SWSD022	Pesticide	gamma-BHC (Lindane)	16.6	µg/kg	U	16.6		100	23,000	
SWSD022	Pesticide	gamma-Chlordane	16.6	µg/kg	U	16.6		NE	NE	
SWSD022	Pesticide	Heptachlor	16.6	µg/kg	U	16.6		42	29,000	
SWSD022	Pesticide	Heptachlor epoxide	16.6	µg/kg	U	16.6		NE	NE	
SWSD022	Pesticide	Methoxychlor	166	µg/kg	U	166		NE	NE	
SWSD022	Pesticide	Toxaphene	829	µg/kg	U	829		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 6/11/2008										
SWSD023	Radiological	Radium-226	1.310	pCi/g		0.253	0.319	NE	NE	5 ^a
SWSD023	Radiological	Radium-228	0.964	pCi/g		0.641	0.449	NE	NE	5 ^a
		Total Radium ^a	2.274	pCi/g						5 ^a
SWSD023	Radiological	Thorium-228	1.230	pCi/g		0.180	0.380	NE	NE	5
SWSD023	Radiological	Thorium-230	0.881	pCi/g		0.146	0.316	NE	NE	5
SWSD023	Radiological	Thorium-232	0.877	pCi/g		0.146	0.316	NE	NE	5
SWSD023	Radiological	Uranium-234	0.595	pCi/g		0.183	0.252	NE	NE	90 ^b
SWSD023	Radiological	Uranium-235	0.039	pCi/g	U	0.176	0.089	NE	NE	90 ^b
SWSD023	Radiological	Uranium-238	1.220	pCi/g		0.154	0.350	NE	NE	90 ^b
		Total Uranium ^b	1.815	pCi/g						90 ^b
SWSD023	Metal	Aluminum	12300	mg/kg		17		NE	NE	
SWSD023	Metal	Antimony	1.00	mg/kg	J	0.53		NE	NE	
SWSD023	Metal	Arsenic	4.70	mg/kg	J	0.51		13	16	
SWSD023	Metal	Barium	115.00	mg/kg		0.17		350	10,000	
SWSD023	Metal	Beryllium	0.59	mg/kg	J	0.03		7	2,700	
SWSD023	Metal	Boron	13.60	mg/kg	J	1.36		NE	NE	
SWSD023	Metal	Cadmium	0.58	mg/kg	J	0.03		3	60	
SWSD023	Metal	Calcium	45700	mg/kg		102		NE	NE	
SWSD023	Metal	Chromium	19.90	mg/kg	J	0.34		NE	NE	
SWSD023	Metal	Cobalt	7.80	mg/kg	J	0.03		NE	NE	
SWSD023	Metal	Copper	54.40	mg/kg	J	0.07		50	10,000	
SWSD023	Metal	Iron	20900	mg/kg		34		NE	NE	
SWSD023	Metal	Lead	63.70	mg/kg	J	0.17		63	3,900	
SWSD023	Metal	Lithium	20.50	mg/kg		0.68		NE	NE	
SWSD023	Metal	Magnesium	18500	mg/kg		17		NE	NE	
SWSD023	Metal	Manganese	568	mg/kg		3		1,600	10,000	
SWSD023	Metal	Mercury	129.00	µg/kg		2.57		180 ^c	5700 ^c	
SWSD023	Metal	Nickel	19.60	mg/kg	J	0.17		30	10,000	
SWSD023	Metal	Potassium	2550	mg/kg		272		NE	NE	
SWSD023	Metal	Selenium	0.85	mg/kg		0.85		4	6,800	
SWSD023	Metal	Silver	0.87	mg/kg		0.17		2	6,800	
SWSD023	Metal	Sodium	267.00	mg/kg	J	27.20		NE	NE	
SWSD023	Metal	Thallium	0.13	mg/kg	J	0.07		NE	NE	
SWSD023	Metal	Vanadium	24.90	mg/kg		0.68		NE	NE	
SWSD023	Metal	Zinc	294.00	mg/kg		0.68		109	10,000	
SWSD023	VOC	1,1,1-Trichloroethane	1.51	µg/kg	U	1.51		680	1,000,000	
SWSD023	VOC	1,1,2,2-Tetrachloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	1,1,2-Trichloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	1,1-Dichloroethane	1.51	µg/kg	U	1.51		270	480,000	
SWSD023	VOC	1,1-Dichloroethylene	1.51	µg/kg	U	1.51		330	1,000,000	
SWSD023	VOC	1,2-Dichloroethane	1.51	µg/kg	U	1.51		20	60,000	
SWSD023	VOC	1,2-Dichloropropane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	2-Butanone	4.35	µg/kg	J	7.57		120	1,000,000	
SWSD023	VOC	2-Hexanone	7.57	µg/kg	U	7.57		NE	NE	
SWSD023	VOC	4-Methyl-2-pentanone	7.57	µg/kg	U	7.57		NE	NE	
SWSD023	VOC	Acetone	7.57	µg/kg	U	7.57		50	1,000,000	
SWSD023	VOC	Benzene	1.51	µg/kg	U	1.51		60	89,000	
SWSD023	VOC	Bromodichloromethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Bromoform	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Bromomethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Carbon disulfide	7.57	µg/kg	U	7.57		NE	NE	
SWSD023	VOC	Carbon tetrachloride	1.51	µg/kg	U	1.51		760	44,000	
SWSD023	VOC	Chlorobenzene	1.51	µg/kg	U	1.51		1,100	1,000,000	
SWSD023	VOC	Chloroethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Chloroform	1.51	µg/kg	U	1.51		370	700,000	
SWSD023	VOC	Chloromethane	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	cis-1,2-Dichloroethylene	1.51	µg/kg	U	1.51		250	1,000,000	
SWSD023	VOC	cis-1,3-Dichloropropylene	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Ethylbenzene	1.51	µg/kg	U	1.51		1,000	780,000	
SWSD023	VOC	Methylene chloride	7.57	µg/kg	U	7.57		50	1,000,000	
SWSD023	VOC	Styrene	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Tetrachloroethylene	1.51	µg/kg	U	1.51		1,300	300,000	
SWSD023	VOC	Toluene	1.51	µg/kg	U	1.51		700	1,000,000	
SWSD023	VOC	trans-1,2-Dichloroethylene	1.51	µg/kg	U	1.51		190	1,000,000	
SWSD023	VOC	trans-1,3-Dichloropropylene	1.51	µg/kg	U	1.51		NE	NE	
SWSD023	VOC	Trichloroethylene	1.51	µg/kg	U	1.51		470	400,000	
SWSD023	VOC	Vinyl chloride	1.51	µg/kg	U	1.51		20	27,000	
SWSD023	VOC	Xylenes (total)	1.51	µg/kg	U	1.51		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD023	PAH	Accenaphthene	29.80	µg/kg	U	29.80		20,000	1,000,000	
SWSD023	PAH	Accenaphthylene	29.80	µg/kg	U	29.80		100,000	1,000,000	
SWSD023	PAH	Anthracene	48.50	µg/kg	J	29.80		100,000	1,000,000	
SWSD023	PAH	Benzo(a)anthracene	276.00	µg/kg	J	2.98		1,000	11,000	
SWSD023	PAH	Benzo(a)pyrene	298.00	µg/kg	J	2.98		1,000	1,100	
SWSD023	PAH	Benzo(b)fluoranthene	1040.00	µg/kg	J	2.97		1,000	11,000	
SWSD023	PAH	Benzo(ghi)perylene	247.00	µg/kg	J	2.98		100,000	1,000,000	
SWSD023	PAH	Benzo(k)fluoranthene	1.49	µg/kg	U	1.49		800,000	110,000	
SWSD023	PAH	Chrysene	237.00	µg/kg	J	2.98		1,000	110,000	
SWSD023	PAH	Dibenzo(a,h)anthracene	2.98	µg/kg	U	2.98		330	1,100	
SWSD023	PAH	Fluoranthene	482.00	µg/kg	J	2.98		100,000	1,000,000	
SWSD023	PAH	Fluorene	29.80	µg/kg	U	29.80		30,000	1,000,000	
SWSD023	PAH	Indeno(1,2,3-cd)pyrene	2.98	µg/kg	U	2.98		500	11,000	
SWSD023	PAH	Naphthalene	29.80	µg/kg	U	29.80		12,000	1,000,000	
SWSD023	PAH	Phenanthrene	227.00	µg/kg	J	29.80		100,000	1,000,000	
SWSD023	PAH	Pyrene	371.00	µg/kg	J	2.98		100,000	1,000,000	
SWSD023	PCB	Aroclor-1016	59.2	µg/kg	U	19.7		100	25,000	
SWSD023	PCB	Aroclor-1221	59.2	µg/kg	U	19.7		100	25,000	
SWSD023	PCB	Aroclor-1232	59.2	µg/kg	U	19.7		100	25,000	
SWSD023	PCB	Aroclor-1242	58.9	µg/kg	J	19.7		100	25,000	
SWSD023	PCB	Aroclor-1248	59.2	µg/kg	U	19.7		100	25,000	
SWSD023	PCB	Aroclor-1254	61.8	µg/kg		19.7		100	25,000	
SWSD023	PCB	Aroclor-1260	59.2	µg/kg	U	19.7		100	25,000	
SWSD023	Pesticide	4,4'-DDD	47.5	µg/kg	U	47.5		3.3	180,000	
SWSD023	Pesticide	4,4'-DDE	47.5	µg/kg	U	47.5		3.3	120,000	
SWSD023	Pesticide	4,4'-DDT	47.5	µg/kg	U	47.5		3.3	94,000	
SWSD023	Pesticide	Aldrin	23.8	µg/kg	U	23.8		5	1,400	
SWSD023	Pesticide	alpha-BHC	23.8	µg/kg	U	23.8		20	6,800	
SWSD023	Pesticide	alpha-Chlordane	23.8	µg/kg	U	23.8		94	47,000	
SWSD023	Pesticide	beta-BHC	23.8	µg/kg	U	23.8		36	14,000	
SWSD023	Pesticide	delta-BHC	23.8	µg/kg	U	23.8		40	1,000,000	
SWSD023	Pesticide	Dieldrin	47.5	µg/kg	U	47.5		5	2,800	
SWSD023	Pesticide	Endosulfan I	23.8	µg/kg	U	23.8		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endosulfan II	47.5	µg/kg	U	47.5		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endosulfan sulfate	47.5	µg/kg	U	47.5		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endrin	47.5	µg/kg	U	47.5		14	410,000	
SWSD023	Pesticide	Endrin aldehyde	47.5	µg/kg	U	47.5		NE	NE	
SWSD023	Pesticide	Endrin ketone	47.5	µg/kg	U	47.5		NE	NE	
SWSD023	Pesticide	gamma-BHC (Lindane)	23.8	µg/kg	U	23.8		100	23,000	
SWSD023	Pesticide	gamma-Chlordane	23.8	µg/kg	U	23.8		NE	NE	
SWSD023	Pesticide	Heptachlor	23.8	µg/kg	U	23.8		42	29,000	
SWSD023	Pesticide	Heptachlor epoxide	23.8	µg/kg	U	23.8		NE	NE	
SWSD023	Pesticide	Methoxychlor	238.0	µg/kg	U	238.0		NE	NE	
SWSD023	Pesticide	Toxaphene	1190.0	µg/kg	U	1190.0		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 6/13/2008										
SWSD024	Radiological	Radium-226	0.966	pCi/g		0.185	0.247	NE	NE	5 ^a
SWSD024	Radiological	Radium-228	0.498	pCi/g		0.460	0.313	NE	NE	5 ^a
		Total Radium ^a	1.464	pCi/g						5 ^a
SWSD024	Radiological	Thorium-228	1.350	pCi/g		0.279	0.374	NE	NE	5
SWSD024	Radiological	Thorium-230	0.809	pCi/g		0.148	0.272	NE	NE	5
SWSD024	Radiological	Thorium-232	0.810	pCi/g		0.148	0.273	NE	NE	5
SWSD024	Radiological	Uranium-234	2.800	pCi/g		0.217	0.538	NE	NE	90 ^b
SWSD024	Radiological	Uranium-235	0.233	pCi/g		0.163	0.177	NE	NE	90 ^b
SWSD024	Radiological	Uranium-238	2.590	pCi/g		0.187	0.516	NE	NE	90 ^b
		Total Uranium ^b	5.623	pCi/g						90 ^b
SWSD024	Metal	Aluminum	26900	mg/kg		29.6		NE	NE	
SWSD024	Metal	Antimony	2.60	mg/kg	J	0.93		NE	NE	
SWSD024	Metal	Arsenic	6.30	mg/kg	J	0.89		13	16	
SWSD024	Metal	Barium	195.00	mg/kg		0.30		350	10,000	
SWSD024	Metal	Beryllium	1.40	mg/kg	J	0.06		7	2,700	
SWSD024	Metal	Boron	40.10	mg/kg	J	2.37		NE	NE	
SWSD024	Metal	Cadmium	1.10	mg/kg	J	0.06		3	60	
SWSD024	Metal	Calcium	40000	mg/kg		178		NE	NE	
SWSD024	Metal	Chromium	37.20	mg/kg	J	0.59		NE	NE	
SWSD024	Metal	Cobalt	16.00	mg/kg	J	0.06		NE	NE	
SWSD024	Metal	Copper	96.60	mg/kg	J	0.12		50	10,000	
SWSD024	Metal	Iron	40900	mg/kg		59.30		NE	NE	
SWSD024	Metal	Lead	43.10	mg/kg	J	0.30		63	3,900	
SWSD024	Metal	Lithium	47.30	mg/kg		1.19		NE	NE	
SWSD024	Metal	Magnesium	17300	mg/kg		29.60		NE	NE	
SWSD024	Metal	Manganese	655.00	mg/kg		5.93		1,600	10,000	
SWSD024	Metal	Mercury	200.00	µg/kg		4.06		180 ^c	5700 ^c	
SWSD024	Metal	Nickel	40.60	mg/kg	J	0.30		30	10,000	
SWSD024	Metal	Potassium	6490	mg/kg		474		NE	NE	
SWSD024	Metal	Selenium	1.48	mg/kg		1.48		4	6,800	
SWSD024	Metal	Silver	1.50	mg/kg		0.30		2	6,800	
SWSD024	Metal	Sodium	425.00	mg/kg	J	47.40		NE	NE	
SWSD024	Metal	Thallium	0.30	mg/kg	J	0.12		NE	NE	
SWSD024	Metal	Vanadium	50.90	mg/kg		1.19		NE	NE	
SWSD024	Metal	Zinc	401.00	mg/kg		1.19		109	10,000	
SWSD024	VOC	1,1,1-Trichloroethane	3.05	µg/kg	U	3.05		680	1,000,000	
SWSD024	VOC	1,1,2,2-Tetrachloroethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	1,1,2-Trichloroethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	1,1-Dichloroethane	3.05	µg/kg	U	3.05		270	480,000	
SWSD024	VOC	1,1-Dichloroethylene	3.05	µg/kg	U	3.05		330	1,000,000	
SWSD024	VOC	1,2-Dichloroethane	3.05	µg/kg	U	3.05		20	60,000	
SWSD024	VOC	1,2-Dichloropropane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	2-Butanone	52.50	µg/kg	J	15.20		120	1,000,000	
SWSD024	VOC	2-Hexanone	15.20	µg/kg	U	15.20		NE	NE	
SWSD024	VOC	4-Methyl-2-pentanone	15.20	µg/kg	U	15.20		NE	NE	
SWSD024	VOC	Acetone	150.00	µg/kg	J	15.20		50	1,000,000	
SWSD024	VOC	Benzene	3.05	µg/kg	U	3.05		60	89,000	
SWSD024	VOC	Bromodichloromethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Bromoform	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Bromomethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Carbon disulfide	15.20	µg/kg	U	15.20		NE	NE	
SWSD024	VOC	Carbon tetrachloride	3.05	µg/kg	U	3.05		760	44,000	
SWSD024	VOC	Chlorobenzene	3.05	µg/kg	U	3.05		1,100	1,000,000	
SWSD024	VOC	Chloroethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Chloroform	3.05	µg/kg	U	3.05		370	700,000	
SWSD024	VOC	Chloromethane	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	cis-1,2-Dichloroethylene	3.05	µg/kg	U	3.05		250	1,000,000	
SWSD024	VOC	cis-1,3-Dichloropropylene	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Ethylbenzene	3.05	µg/kg	U	3.05		1,000	780,000	
SWSD024	VOC	Methylene chloride	15.20	µg/kg	U	15.20		50	1,000,000	
SWSD024	VOC	Styrene	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Tetrachloroethylene	3.05	µg/kg	U	3.05		1,300	300,000	
SWSD024	VOC	Toluene	3.05	µg/kg	U	3.05		700	1,000,000	
SWSD024	VOC	trans-1,2-Dichloroethylene	3.05	µg/kg	U	3.05		190	1,000,000	
SWSD024	VOC	trans-1,3-Dichloropropylene	3.05	µg/kg	U	3.05		NE	NE	
SWSD024	VOC	Trichloroethylene	3.05	µg/kg	U	3.05		470	400,000	
SWSD024	VOC	Vinyl chloride	3.05	µg/kg	U	3.05		20	27,000	
SWSD024	VOC	Xylenes (total)	3.05	µg/kg	U	3.05		260	1,000,000	
SWSD024	PAH	Acenaphthene	50.60	µg/kg	U	50.60		20,000	1,000,000	
SWSD024	PAH	Acenaphthylene	50.60	µg/kg	U	50.60		100,000	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD024	PAH	Anthracene	50.60	µg/kg	U	50.60		100,000	1,000,000	
SWSD024	PAH	Benzo(a)anthracene	33.30	µg/kg	J	5.06		1,000	11,000	
SWSD024	PAH	Benzo(a)pyrene	27.90	µg/kg	J	5.06		1,000	1,100	
SWSD024	PAH	Benzo(b)fluoranthene	5.06	µg/kg	U	5.06		1,000	11,000	
SWSD024	PAH	Benzo(ghi)perylene	5.06	µg/kg	U	5.06		100,000	1,000,000	
SWSD024	PAH	Benzo(k)fluoranthene	2.53	µg/kg	U	2.53		800,000	110,000	
SWSD024	PAH	Chrysene	32.90	µg/kg	J	5.06		1,000	110,000	
SWSD024	PAH	Dibenzo(a,h)anthracene	5.06	µg/kg	U	5.06		330	1,100	
SWSD024	PAH	Fluoranthene	41.90	µg/kg	J	5.06		100,000	1,000,000	
SWSD024	PAH	Fluorene	50.60	µg/kg	U	50.60		30,000	1,000,000	
SWSD024	PAH	Indeno(1,2,3-cd)pyrene	5.06	µg/kg	U	5.06		500	11,000	
SWSD024	PAH	Naphthalene	50.60	µg/kg	U	50.60		12,000	1,000,000	
SWSD024	PAH	Phenanthrene	29.70	µg/kg	J	50.60		100,000	1,000,000	
SWSD024	PAH	Pyrene	50.10	µg/kg	J	5.06		100,000	1,000,000	
SWSD024	PCB	Aroclor-1016	101.0	µg/kg	U	33.8		100	25,000	
SWSD024	PCB	Aroclor-1221	101.0	µg/kg	U	33.8		100	25,000	
SWSD024	PCB	Aroclor-1232	101.0	µg/kg	U	33.8		100	25,000	
SWSD024	PCB	Aroclor-1242	101.0	µg/kg	J	33.8		100	25,000	
SWSD024	PCB	Aroclor-1248	101.0	µg/kg	U	33.8		100	25,000	
SWSD024	PCB	Aroclor-1254	45.6	µg/kg	J	33.8		100	25,000	
SWSD024	PCB	Aroclor-1260	101.0	µg/kg	U	33.8		100	25,000	
SWSD024	Pesticide	4,4'-DDD	40.5	µg/kg	U	40.5		3.3	180,000	
SWSD024	Pesticide	4,4'-DDE	40.5	µg/kg	U	40.5		3.3	120,000	
SWSD024	Pesticide	4,4'-DDT	40.5	µg/kg	U	40.5		3.3	94,000	
SWSD024	Pesticide	Aldrin	20.3	µg/kg	U	20.3		5	1,400	
SWSD024	Pesticide	alpha-BHC	20.3	µg/kg	U	20.3		20	6,800	
SWSD024	Pesticide	alpha-Chlordane	20.3	µg/kg	U	20.3		94	47,000	
SWSD024	Pesticide	beta-BHC	20.3	µg/kg	U	20.3		36	14,000	
SWSD024	Pesticide	delta-BHC	20.3	µg/kg	U	20.3		40	1,000,000	
SWSD024	Pesticide	Dieldrin	40.5	µg/kg	U	40.5		5	2,800	
SWSD024	Pesticide	Endosulfan I	20.3	µg/kg	U	20.3		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endosulfan II	40.5	µg/kg	U	40.5		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endosulfan sulfate	40.5	µg/kg	U	40.5		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endrin	40.5	µg/kg	U	40.5		14	410,000	
SWSD024	Pesticide	Endrin aldehyde	40.5	µg/kg	U	40.5		NE	NE	
SWSD024	Pesticide	Endrin ketone	40.5	µg/kg	U	40.5		NE	NE	
SWSD024	Pesticide	gamma-BHC (Lindane)	20.3	µg/kg	U	20.3		100	23,000	
SWSD024	Pesticide	gamma-Chlordane	20.3	µg/kg	U	20.3		NE	NE	
SWSD024	Pesticide	Heptachlor	20.3	µg/kg	U	20.3		42	29,000	
SWSD024	Pesticide	Heptachlor epoxide	20.3	µg/kg	U	20.3		NE	NE	
SWSD024	Pesticide	Methoxychlor	203.0	µg/kg	U	203.0		NE	NE	
SWSD024	Pesticide	Toxaphene	1010	µg/kg	U	1010		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 6/11/2008										
WDD1	Radiological	Radium-226	1.070	pCi/g		0.197	0.249	NE	NE	5 ^a
WDD1	Radiological	Radium-228	1.170	pCi/g		0.485	0.420	NE	NE	5 ^a
		Total Radium ^a	2.240	pCi/g						5 ^a
WDD1	Radiological	Thorium-228	1.230	pCi/g		0.325	0.393	NE	NE	5
WDD1	Radiological	Thorium-230	1.070	pCi/g		0.163	0.337	NE	NE	5
WDD1	Radiological	Thorium-232	1.360	pCi/g		0.193	0.382	NE	NE	5
WDD1	Radiological	Uranium-234	1.040	pCi/g		0.160	0.330	NE	NE	90 ^b
WDD1	Radiological	Uranium-235	0.024	pCi/g	U	0.141	0.065	NE	NE	90 ^b
WDD1	Radiological	Uranium-238	1.010	pCi/g		0.114	0.322	NE	NE	90 ^b
		Total Uranium ^b	2.050	pCi/g						90 ^b
WDD1	Metal	Aluminum	23700	mg/kg		27.10		NE	NE	
WDD1	Metal	Antimony	0.84	mg/kg	U	0.84		NE	NE	
WDD1	Metal	Arsenic	3.30	mg/kg	J	0.81		13	16	
WDD1	Metal	Barium	156.00	mg/kg		0.27		350	10,000	
WDD1	Metal	Beryllium	1.10	mg/kg	J	0.05		7	2,700	
WDD1	Metal	Boron	27.60	mg/kg	J	2.17		NE	NE	
WDD1	Metal	Cadmium	0.37	mg/kg	J	0.05		3	60	
WDD1	Metal	Calcium	33600	mg/kg		163		NE	NE	
WDD1	Metal	Chromium	34.10	mg/kg	J	0.54		NE	NE	
WDD1	Metal	Cobalt	13.30	mg/kg	J	0.05		NE	NE	
WDD1	Metal	Copper	40.10	mg/kg	J	0.11		50	10,000	
WDD1	Metal	Iron	35100	mg/kg		54.20		NE	NE	
WDD1	Metal	Lead	16.20	mg/kg	J	0.27		63	3,900	
WDD1	Metal	Lithium	43.60	mg/kg		1.08		NE	NE	
WDD1	Metal	Magnesium	14100	mg/kg		27.10		NE	NE	
WDD1	Metal	Manganese	834.00	mg/kg		5.42		1,600	10,000	
WDD1	Metal	Mercury	42.00	µg/kg		4.10		180 ^c	5700 ^c	
WDD1	Metal	Nickel	31.60	mg/kg	J	0.27		30	10,000	
WDD1	Metal	Potassium	6270	mg/kg		434		NE	NE	
WDD1	Metal	Selenium	1.35	mg/kg		1.35		4	6,800	
WDD1	Metal	Silver	1.40	mg/kg		0.27		2	6,800	
WDD1	Metal	Sodium	480	mg/kg	J	43.40		NE	NE	
WDD1	Metal	Thallium	0.22	mg/kg	J	0.11		NE	NE	
WDD1	Metal	Vanadium	41.70	mg/kg		1.08		NE	NE	
WDD1	Metal	Zinc	152	mg/kg		1.08		109	10,000	
WDD1	VOC	1,1,1-Trichloroethane	2.67	µg/kg	U	2.67		680	1,000,000	
WDD1	VOC	1,1,2,2-Tetrachloroethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	1,1,2-Trichloroethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	1,1-Dichloroethane	2.67	µg/kg	U	2.67		270	480,000	
WDD1	VOC	1,1-Dichloroethylene	2.67	µg/kg	U	2.67		330	1,000,000	
WDD1	VOC	1,2-Dichloroethane	2.67	µg/kg	U	2.67		20	60,000	
WDD1	VOC	1,2-Dichloropropane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	2-Butanone	11.60	µg/kg	J	13.30		120	1,000,000	
WDD1	VOC	2-Hexanone	13.30	µg/kg	U	13.30		NE	NE	
WDD1	VOC	4-Methyl-2-pentanone	13.30	µg/kg	U	13.30		NE	NE	
WDD1	VOC	Acetone	20.30	µg/kg	J	13.30		50	1,000,000	
WDD1	VOC	Benzene	2.67	µg/kg	U	2.67		60	89,000	
WDD1	VOC	Bromodichloromethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Bromoform	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Bromomethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Carbon disulfide	13.30	µg/kg	U	13.30		NE	NE	
WDD1	VOC	Carbon tetrachloride	2.67	µg/kg	U	2.67		760	44,000	
WDD1	VOC	Chlorobenzene	2.67	µg/kg	U	2.67		1,100	1,000,000	
WDD1	VOC	Chloroethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Chloroform	2.67	µg/kg	U	2.67		370	700,000	
WDD1	VOC	Chloromethane	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	cis-1,2-Dichloroethylene	2.67	µg/kg	U	2.67		250	1,000,000	
WDD1	VOC	cis-1,3-Dichloropropylene	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Ethylbenzene	2.67	µg/kg	U	2.67		1,000	780,000	
WDD1	VOC	Methylene chloride	13.30	µg/kg	U	13.30		50	1,000,000	
WDD1	VOC	Styrene	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Tetrachloroethylene	2.67	µg/kg	U	2.67		1,300	300,000	
WDD1	VOC	Toluene	2.67	µg/kg	U	2.67		700	1,000,000	
WDD1	VOC	trans-1,2-Dichloroethylene	2.67	µg/kg	U	2.67		190	1,000,000	
WDD1	VOC	trans-1,3-Dichloropropylene	2.67	µg/kg	U	2.67		NE	NE	
WDD1	VOC	Trichloroethylene	2.67	µg/kg	U	2.67		470	400,000	
WDD1	VOC	Vinyl chloride	2.67	µg/kg	U	2.67		20	27,000	
WDD1	VOC	Xylenes (total)	2.67	µg/kg	U	2.67		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
WDD1	PAH	Acenaphthene	46.10	µg/kg	U	46.10		20,000	1,000,000	
WDD1	PAH	Acenaphthylene	46.10	µg/kg	U	46.10		100,000	1,000,000	
WDD1	PAH	Anthracene	46.10	µg/kg	U	46.10		100,000	1,000,000	
WDD1	PAH	Benzo(a)anthracene	4.61	µg/kg	U	4.61		1,000	11,000	
WDD1	PAH	Benzo(a)pyrene	4.61	µg/kg	U	4.61		1,000	1,100	
WDD1	PAH	Benzo(b)fluoranthene	4.61	µg/kg	U	4.61		1,000	11,000	
WDD1	PAH	Benzo(ghi)perylene	4.61	µg/kg	U	4.61		100,000	1,000,000	
WDD1	PAH	Benzo(k)fluoranthene	2.31	µg/kg	U	2.31		800,000	110,000	
WDD1	PAH	Chrysene	4.61	µg/kg	U	4.61		1,000	110,000	
WDD1	PAH	Dibenzo(a,b)anthracene	4.61	µg/kg	U	4.61		330	1,100	
WDD1	PAH	Fluoranthene	20.00	µg/kg	J	4.61		100,000	1,000,000	
WDD1	PAH	Fluorene	46.10	µg/kg	U	46.10		30,000	1,000,000	
WDD1	PAH	Indeno(1,2,3-cd)pyrene	4.61	µg/kg	U	4.61		500	11,000	
WDD1	PAH	Naphthalene	46.10	µg/kg	U	46.10		12,000	1,000,000	
WDD1	PAH	Phenanthrene	12.50	µg/kg	J	46.10		100,000	1,000,000	
WDD1	PAH	Pyrene	19.30	µg/kg	J	4.61		100,000	1,000,000	
WDD1	PCB	Aroclor-1016	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1221	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1232	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1242	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1248	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1254	92.3	µg/kg	U	30.7		100	25,000	
WDD1	PCB	Aroclor-1260	92.3	µg/kg	U	30.7		100	25,000	
WDD1	Pesticide	4,4'-DDD	73.7	µg/kg	U	73.7		3.3	180,000	
WDD1	Pesticide	4,4'-DDE	73.7	µg/kg	U	73.7		3.3	120,000	
WDD1	Pesticide	4,4'-DDT	73.7	µg/kg	U	73.7		3.3	94,000	
WDD1	Pesticide	Aldrin	36.9	µg/kg	U	36.9		5	1,400	
WDD1	Pesticide	alpha-BHC	36.9	µg/kg	U	36.9		20	6,800	
WDD1	Pesticide	alpha-Chlordane	36.9	µg/kg	U	36.9		94	47,000	
WDD1	Pesticide	beta-BHC	36.9	µg/kg	U	36.9		36	14,000	
WDD1	Pesticide	delta-BHC	36.9	µg/kg	U	36.9		40	1,000,000	
WDD1	Pesticide	Dieldrin	73.7	µg/kg	U	73.7		5	2,800	
WDD1	Pesticide	Endosulfan I	36.9	µg/kg	U	36.9		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endosulfan II	73.7	µg/kg	U	73.7		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endosulfan sulfate	73.7	µg/kg	U	73.7		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endrin	73.7	µg/kg	U	73.7		14	410,000	
WDD1	Pesticide	Endrin aldehyde	73.7	µg/kg	U	73.7		NE	NE	
WDD1	Pesticide	Endrin ketone	73.7	µg/kg	U	73.7		NE	NE	
WDD1	Pesticide	gamma-BHC (Lindane)	36.9	µg/kg	U	36.9		100	23,000	
WDD1	Pesticide	gamma-Chlordane	36.9	µg/kg	U	36.9		NE	NE	
WDD1	Pesticide	Heptachlor	36.9	µg/kg	U	36.9		42	29,000	
WDD1	Pesticide	Heptachlor epoxide	36.9	µg/kg	U	36.9		NE	NE	
WDD1	Pesticide	Methoxychlor	369	µg/kg	U	369		NE	NE	
WDD1	Pesticide	Toxaphene	1840	µg/kg	U	1840		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 6/12/2008										
WDD2	Radiological	Radium-226	0.679	pCi/g		0.183	0.197	NE	NE	5 ^a
WDD2	Radiological	Radium-228	0.948	pCi/g		0.439	0.350	NE	NE	5 ^a
		Total Radium ^a	1.627	pCi/g						5 ^a
WDD2	Radiological	Thorium-228	1.100	pCi/g		0.220	0.346	NE	NE	5
WDD2	Radiological	Thorium-230	0.831	pCi/g		0.130	0.290	NE	NE	5
WDD2	Radiological	Thorium-232	0.755	pCi/g		0.130	0.276	NE	NE	5
WDD2	Radiological	Uranium-234	0.855	pCi/g		0.190	0.298	NE	NE	90 ^b
WDD2	Radiological	Uranium-235	0.092	pCi/g	U	0.190	0.124	NE	NE	90 ^b
WDD2	Radiological	Uranium-238	0.866	pCi/g		0.128	0.293	NE	NE	90 ^b
		Total Uranium ^b	1.721	pCi/g						90 ^b
WDD2	Metal	Aluminum	17900	mg/kg		22.10		NE	NE	
WDD2	Metal	Antimony	1.10	mg/kg	J	0.67		NE	NE	
WDD2	Metal	Arsenic	2.70	mg/kg	J	0.66		13	16	
WDD2	Metal	Barium	130.00	mg/kg		0.22		350	10,000	
WDD2	Metal	Beryllium	0.82	mg/kg	J	0.04		7	2,700	
WDD2	Metal	Boron	18.80	mg/kg	J	1.77		NE	NE	
WDD2	Metal	Cadmium	0.24	mg/kg	J	0.04		3	60	
WDD2	Metal	Calcium	21500	mg/kg		132		NE	NE	
WDD2	Metal	Chromium	28.90	mg/kg	J	0.44		NE	NE	
WDD2	Metal	Cobalt	9.10	mg/kg	J	0.04		NE	NE	
WDD2	Metal	Copper	35.20	mg/kg	J	0.09		50	10,000	
WDD2	Metal	Iron	25200	mg/kg		44.10		NE	NE	
WDD2	Metal	Lead	13.50	mg/kg	J	0.22		63	3,900	
WDD2	Metal	Lithium	31.50	mg/kg		0.88		NE	NE	
WDD2	Metal	Magnesium	8730	mg/kg		22.10		NE	NE	
WDD2	Metal	Manganese	794	mg/kg		4.41		1,600	10,000	
WDD2	Metal	Mercury	48.80	µg/kg		3.00		180 ^c	5700 ^c	
WDD2	Metal	Nickel	21.80	mg/kg	J	0.22		30	10,000	
WDD2	Metal	Potassium	4330	mg/kg		353		NE	NE	
WDD2	Metal	Selenium	1.10	mg/kg		1.10		4	6,800	
WDD2	Metal	Silver	1.10	mg/kg	J	0.22		2	6,800	
WDD2	Metal	Sodium	276.0	mg/kg	J	35.3		NE	NE	
WDD2	Metal	Thallium	0.16	mg/kg	J	0.09		NE	NE	
WDD2	Metal	Vanadium	28.90	mg/kg		0.88		NE	NE	
WDD2	Metal	Zinc	159.00	mg/kg		0.88		109	10,000	
WDD2	VOC	1,1,1-Trichloroethane	2.14	µg/kg	U	2.14		680	1,000,000	
WDD2	VOC	1,1,2,2-Tetrachloroethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	1,1,2-Trichloroethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	1,1-Dichloroethane	2.14	µg/kg	U	2.14		270	480,000	
WDD2	VOC	1,1-Dichloroethylene	2.14	µg/kg	U	2.14		330	1,000,000	
WDD2	VOC	1,2-Dichloroethane	2.14	µg/kg	U	2.14		20	60,000	
WDD2	VOC	1,2-Dichloropropane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	2-Butanone	10.7	µg/kg	U	10.7		120	1,000,000	
WDD2	VOC	2-Hexanone	10.7	µg/kg	U	10.7		NE	NE	
WDD2	VOC	4-Methyl-2-pentanone	10.7	µg/kg	U	10.7		NE	NE	
WDD2	VOC	Acetone	10.7	µg/kg	U	10.7		50	1,000,000	
WDD2	VOC	Benzene	2.14	µg/kg	U	2.14		60	89,000	
WDD2	VOC	Bromodichloromethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Bromoform	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Bromomethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Carbon disulfide	10.70	µg/kg	U	10.70		NE	NE	
WDD2	VOC	Carbon tetrachloride	2.14	µg/kg	U	2.14		760	44,000	
WDD2	VOC	Chlorobenzene	2.14	µg/kg	U	2.14		1,100	1,000,000	
WDD2	VOC	Chloroethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Chloroform	2.14	µg/kg	U	2.14		370	700,000	
WDD2	VOC	Chloromethane	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	cis-1,2-Dichloroethylene	2.14	µg/kg	U	2.14		250	1,000,000	
WDD2	VOC	cis-1,3-Dichloropropylene	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Ethylbenzene	2.14	µg/kg	U	2.14		1,000	780,000	
WDD2	VOC	Methylene chloride	10.70	µg/kg	U	10.70		50	1,000,000	
WDD2	VOC	Styrene	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Tetrachloroethylene	2.14	µg/kg	U	2.14		1,300	300,000	
WDD2	VOC	Toluene	2.14	µg/kg	U	2.14		700	1,000,000	
WDD2	VOC	trans-1,2-Dichloroethylene	2.14	µg/kg	U	2.14		190	1,000,000	
WDD2	VOC	trans-1,3-Dichloropropylene	2.14	µg/kg	U	2.14		NE	NE	
WDD2	VOC	Trichloroethylene	2.14	µg/kg	U	2.14		470	400,000	
WDD2	VOC	Vinyl chloride	2.14	µg/kg	U	2.14		20	27,000	
WDD2	VOC	Xylenes (total)	2.14	µg/kg	U	2.14		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use - Industrial**	DOE Cleanup Criteria**
WDD2	PAH	Acenaphthene	37.20	µg/kg	U	37.20		20,000	1,000,000	
WDD2	PAH	Acenaphthylene	37.20	µg/kg	U	37.20		100,000	1,000,000	
WDD2	PAH	Anthracene	37.20	µg/kg	U	37.20		100,000	1,000,000	
WDD2	PAH	Benzo(a)anthracene	18.40	µg/kg	J	3.72		1,000	11,000	
WDD2	PAH	Benzo(a)pyrene	15.10	µg/kg	J	3.72		1,000	1,100	
WDD2	PAH	Benzo(b)fluoranthene	3.72	µg/kg	U	3.72		1,000	11,000	
WDD2	PAH	Benzo(ghi)perylene	3.72	µg/kg	U	3.72		100,000	1,000,000	
WDD2	PAH	Benzo(k)fluoranthene	1.86	µg/kg	U	1.86		800,000	110,000	
WDD2	PAH	Chrysene	15.90	µg/kg	J	3.72		1,000	110,000	
WDD2	PAH	Dibenzo(a,h)anthracene	3.72	µg/kg	U	3.72		330	1,100	
WDD2	PAH	Fluoranthene	23.10	µg/kg	J	3.72		100,000	1,000,000	
WDD2	PAH	Fluorene	37.20	µg/kg	U	37.20		30,000	1,000,000	
WDD2	PAH	Indeno(1,2,3-cd)pyrene	3.72	µg/kg	U	3.72		500	11,000	
WDD2	PAH	Naphthalene	37.20	µg/kg	U	37.20		12,000	1,000,000	
WDD2	PAH	Phenanthrene	37.20	µg/kg	U	37.20		100,000	1,000,000	
WDD2	PAH	Pyrene	26.40	µg/kg	J	3.72		100,000	1,000,000	
WDD2	PCB	Aroclor-1016	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1221	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1232	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1242	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1248	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1254	74	µg/kg	U	24.6		100	25,000	
WDD2	PCB	Aroclor-1260	74	µg/kg	U	24.6		100	25,000	
WDD2	Pesticide	4,4'-DDD	59.4	µg/kg	U	59.4		3.3	180,000	
WDD2	Pesticide	4,4'-DDE	59.4	µg/kg	U	59.4		3.3	120,000	
WDD2	Pesticide	4,4'-DDT	59.4	µg/kg	U	59.4		3.3	94,000	
WDD2	Pesticide	Aldrin	29.7	µg/kg	U	29.7		5	1,400	
WDD2	Pesticide	alpha-BHC	29.7	µg/kg	U	29.7		20	6,800	
WDD2	Pesticide	alpha-Chlordane	29.7	µg/kg	U	29.7		94	47,000	
WDD2	Pesticide	beta-BHC	29.7	µg/kg	U	29.7		36	14,000	
WDD2	Pesticide	delta-BHC	29.7	µg/kg	U	29.7		40	1,000,000	
WDD2	Pesticide	Dieldrin	59.4	µg/kg	U	59.4		5	2,800	
WDD2	Pesticide	Endosulfan I	29.7	µg/kg	U	29.7		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endosulfan II	59.4	µg/kg	U	59.4		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endosulfan sulfate	59.4	µg/kg	U	59.4		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endrin	59.4	µg/kg	U	59.4		14	410,000	
WDD2	Pesticide	Endrin aldehyde	59.4	µg/kg	U	59.4		NE	NE	
WDD2	Pesticide	Endrin ketone	59.4	µg/kg	U	59.4		NE	NE	
WDD2	Pesticide	gamma-BHC (Lindane)	29.7	µg/kg	U	29.7		100	23,000	
WDD2	Pesticide	gamma-Chlordane	29.7	µg/kg	U	29.7		NE	NE	
WDD2	Pesticide	Heptachlor	29.7	µg/kg	U	29.7		42	29,000	
WDD2	Pesticide	Heptachlor epoxide	29.7	µg/kg	U	29.7		NE	NE	
WDD2	Pesticide	Methoxychlor	297	µg/kg	U	297		NE	NE	
WDD2	Pesticide	Toxaphene	1480	µg/kg	U	1480		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 6/12/2008										
WDD3	Radiological	Radium-226	1.230	pCi/g		0.157	0.244	NE	NE	5 ^a
WDD3	Radiological	Radium-228	0.828	pCi/g		0.418	0.336	NE	NE	5 ^a
		Total Radium ^a	2.058	pCi/g						5 ^a
WDD3	Radiological	Thorium-228	1.100	pCi/g		0.259	0.374	NE	NE	5
WDD3	Radiological	Thorium-230	1.350	pCi/g		0.149	0.393	NE	NE	5
WDD3	Radiological	Thorium-232	1.100	pCi/g		0.077	0.353	NE	NE	5
WDD3	Radiological	Uranium-234	0.960	pCi/g		0.219	0.321	NE	NE	90 ^b
WDD3	Radiological	Uranium-235	0.130	pCi/g	U	0.176	0.138	NE	NE	90 ^b
WDD3	Radiological	Uranium-238	1.200	pCi/g		0.155	0.348	NE	NE	90 ^b
		Total Uranium ^b	2.160	pCi/g						90 ^b
WDD3	Metal	Aluminum	30300	mg/kg		28.70		NE	NE	
WDD3	Metal	Antimony	0.89	mg/kg	U	0.89		NE	NE	
WDD3	Metal	Arsenic	4.50	mg/kg	J	0.86		13	16	
WDD3	Metal	Barium	191.00	mg/kg		0.29		350	10,000	
WDD3	Metal	Beryllium	1.40	mg/kg	J	0.06		7	2,700	
WDD3	Metal	Boron	29.60	mg/kg	J	2.30		NE	NE	
WDD3	Metal	Cadmium	0.50	mg/kg	J	0.06		3	60	
WDD3	Metal	Calcium	59100	mg/kg		172		NE	NE	
WDD3	Metal	Chromium	38.70	mg/kg	J	0.58		NE	NE	
WDD3	Metal	Cobalt	17.00	mg/kg	J	0.06		NE	NE	
WDD3	Metal	Copper	48.90	mg/kg	J	0.12		50	10,000	
WDD3	Metal	Iron	42100	mg/kg		57.50		NE	NE	
WDD3	Metal	Lead	18.20	mg/kg	J	0.29		63	3,900	
WDD3	Metal	Lithium	49.60	mg/kg		1.15		NE	NE	
WDD3	Metal	Magnesium	18400	mg/kg		28.70		NE	NE	
WDD3	Metal	Manganese	1000	mg/kg		5.75		1,600	10,000	
WDD3	Metal	Mercury	48.20	µg/kg		4.18		180 ^c	5700 ^c	
WDD3	Metal	Nickel	37.40	mg/kg	J	0.29		30	10,000	
WDD3	Metal	Potassium	7700	mg/kg		460		NE	NE	
WDD3	Metal	Selenium	1.44	mg/kg		1.44		4	6,800	
WDD3	Metal	Silver	1.50	mg/kg		0.29		2	6,800	
WDD3	Metal	Sodium	513	mg/kg	J	46		NE	NE	
WDD3	Metal	Thallium	0.26	mg/kg	J	0.12		NE	NE	
WDD3	Metal	Vanadium	51.20	mg/kg		1.15		NE	NE	
WDD3	Metal	Zinc	176.00	mg/kg		1.15		109	10,000	
WDD3	VOC	1,1,1-Trichloroethane	2.82	µg/kg	U	2.82		680	1,000,000	
WDD3	VOC	1,1,2,2-Tetrachloroethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	1,1,2-Trichloroethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	1,1-Dichloroethane	2.82	µg/kg	U	2.82		270	480,000	
WDD3	VOC	1,1-Dichloroethylene	2.82	µg/kg	U	2.82		330	1,000,000	
WDD3	VOC	1,2-Dichloroethane	2.82	µg/kg	U	2.82		20	60,000	
WDD3	VOC	1,2-Dichloropropane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	2-Butanone	12.40	µg/kg	J	14.10		120	1,000,000	
WDD3	VOC	2-Hexanone	14.10	µg/kg	U	14.10		NE	NE	
WDD3	VOC	4-Methyl-2-pentanone	14.10	µg/kg	U	14.10		NE	NE	
WDD3	VOC	Acetone	18.50	µg/kg	J	14.10		50	1,000,000	
WDD3	VOC	Benzene	2.82	µg/kg	U	2.82		60	89,000	
WDD3	VOC	Bromodichloromethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Bromoform	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Bromomethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Carbon disulfide	14.10	µg/kg	U	14.10		NE	NE	
WDD3	VOC	Carbon tetrachloride	2.82	µg/kg	U	2.82		760	44,000	
WDD3	VOC	Chlorobenzene	2.82	µg/kg	U	2.82		1,100	1,000,000	
WDD3	VOC	Chloroethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Chloroform	2.82	µg/kg	U	2.82		370	700,000	
WDD3	VOC	Chloromethane	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	cis-1,2-Dichloroethylene	2.82	µg/kg	U	2.82		250	1,000,000	
WDD3	VOC	cis-1,3-Dichloropropylene	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Ethylbenzene	2.82	µg/kg	U	2.82		1,000	780,000	
WDD3	VOC	Methylene chloride	14.10	µg/kg	U	14.10		50	1,000,000	
WDD3	VOC	Styrene	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Tetrachloroethylene	2.82	µg/kg	U	2.82		1,300	300,000	
WDD3	VOC	Toluene	1.00	µg/kg	J	2.82		700	1,000,000	
WDD3	VOC	trans-1,2-Dichloroethylene	2.82	µg/kg	U	2.82		190	1,000,000	
WDD3	VOC	trans-1,3-Dichloropropylene	2.82	µg/kg	U	2.82		NE	NE	
WDD3	VOC	Trichloroethylene	2.82	µg/kg	U	2.82		470	400,000	
WDD3	VOC	Vinyl chloride	2.82	µg/kg	U	2.82		20	27,000	
WDD3	VOC	Xylenes (total)	2.82	µg/kg	U	2.82		260	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
WDD3	PAH	Acenaphthene	48	µg/kg	U	48		20,000	1,000,000	
WDD3	PAH	Acenaphthylene	48	µg/kg	U	48		100,000	1,000,000	
WDD3	PAH	Anthracene	48	µg/kg	U	48		100,000	1,000,000	
WDD3	PAH	Benzo(a)anthracene	4.8	µg/kg	U	4.8		1,000	11,000	
WDD3	PAH	Benzo(a)pyrene	4.8	µg/kg	U	4.8		1,000	1,100	
WDD3	PAH	Benzo(b)fluoranthene	4.8	µg/kg	U	4.8		1,000	11,000	
WDD3	PAH	Benzo(ghi)perylene	4.8	µg/kg	U	4.8		100,000	1,000,000	
WDD3	PAH	Benzo(k)fluoranthene	2.4	µg/kg	U	2.4		800,000	110,000	
WDD3	PAH	Chrysene	4.8	µg/kg	U	4.8		1,000	110,000	
WDD3	PAH	Dibenzo(a,h)anthracene	4.8	µg/kg	U	4.8		330	1,100	
WDD3	PAH	Fluoranthene	4.8	µg/kg	U	4.8		100,000	1,000,000	
WDD3	PAH	Fluorene	48.0	µg/kg	U	48.0		30,000	1,000,000	
WDD3	PAH	Indeno(1,2,3-cd)pyrene	4.8	µg/kg	U	4.8		500	11,000	
WDD3	PAH	Naphthalene	48.0	µg/kg	U	48.0		12,000	1,000,000	
WDD3	PAH	Phenanthrene	48.0	µg/kg	U	48.0		100,000	1,000,000	
WDD3	PAH	Pyrene	4.8	µg/kg	U	4.8		100,000	1,000,000	
WDD3	PCB	Aroclor-1016	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1221	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1232	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1242	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1248	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1254	95.6	µg/kg	U	31.8		100	25,000	
WDD3	PCB	Aroclor-1260	95.6	µg/kg	U	31.8		100	25,000	
WDD3	Pesticide	4,4'-DDD	76.3	µg/kg	U	76.3		3.3	180,000	
WDD3	Pesticide	4,4'-DDE	76.3	µg/kg	U	76.3		3.3	120,000	
WDD3	Pesticide	4,4'-DDT	76.3	µg/kg	U	76.3		3.3	94,000	
WDD3	Pesticide	Aldrin	38.2	µg/kg	U	38.2		5	1,400	
WDD3	Pesticide	alpha-BHC	38.2	µg/kg	U	38.2		20	6,800	
WDD3	Pesticide	alpha-Chlordane	38.2	µg/kg	U	38.2		94	47,000	
WDD3	Pesticide	beta-BHC	38.2	µg/kg	U	38.2		36	14,000	
WDD3	Pesticide	delta-BHC	38.2	µg/kg	U	38.2		40	1,000,000	
WDD3	Pesticide	Dieldrin	76.3	µg/kg	U	76.3		5	2,800	
WDD3	Pesticide	Endosulfan I	38.2	µg/kg	U	38.2		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endosulfan II	76.3	µg/kg	U	76.3		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endosulfan sulfate	76.3	µg/kg	U	76.3		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endrin	76.3	µg/kg	U	76.3		14	410,000	
WDD3	Pesticide	Endrin aldehyde	76.3	µg/kg	U	76.3		NE	NE	
WDD3	Pesticide	Endrin ketone	76.3	µg/kg	U	76.3		NE	NE	
WDD3	Pesticide	gamma-BHC (Lindane)	38.2	µg/kg	U	38.2		100	23,000	
WDD3	Pesticide	gamma-Chlordane	38.2	µg/kg	U	38.2		NE	NE	
WDD3	Pesticide	Heptachlor	38.2	µg/kg	U	38.2		42	29,000	
WDD3	Pesticide	Heptachlor epoxide	38.2	µg/kg	U	38.2		NE	NE	
WDD3	Pesticide	Methoxychlor	382	µg/kg	U	382		NE	NE	
WDD3	Pesticide	Toxaphene	1910	µg/kg	U	1910		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
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*** SEDIMENT LOCATION**

SWSD009 - Site Background

SW-DUP (SWSD011) - Field Duplicate of surface water and sediment location SWSD011

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/g - picocuries per gram

mg/kg - milligrams per kilograms (ppm)

µg/kg - micrograms per kilogram (ppb)

***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

***Detection or Reporting Limit**

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC, PAH, PCB and Pesticides) - Reporting Limit (gray shading)

**** Values are provided for comparative purposes only. ARARs and media-specific cleanup goals will be evaluated independently and presented in future CERCLA decision documents that will be available for public comment.**

****US Dept of Energy:**

DOE above-background surface soil cleanup criteria, averaged over topmost 6 in. (15 cm) of soil. Because there are no standards for radioactive constituents in sediment, these soil values (without background

****New York State:**

6 NYCRR PART 375

NY State- Unrestricted Use Soil Cleanup Objectives Table 375-6.8(a)

NY State- Restricted Use Soil Cleanup Objectives Table 375-6.8(b) -Industrial

NE - Not Established

- a. Applies to the sum of Ra-226 and Ra-228 concentrations
- b. Sum of uranium isotope concentrations (pCi/g).
- c. Total Mercury
- d. Sum of endosulfan I, endosulfan II, and endosulfan sulfate

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 10/29/2008										
SWSD009	Radiological	Radium-226	1.180		0.501	pCi/g	0.513	NE	NE	5 ^c
SWSD009	Radiological	Radium-228	1.870		0.648	pCi/g	0.563	NE	NE	5 ^c
		Total Radium ^a	3.050			pCi/g				5 ^c
SWSD009	Radiological	Thorium-228	0.633		0.348	pCi/g	0.348	NE	NE	5
SWSD009	Radiological	Thorium-230	0.982 J		0.221	pCi/g	0.407	NE	NE	5
SWSD009	Radiological	Thorium-232	1.060		0.196	pCi/g	0.423	NE	NE	5
SWSD009	Radiological	Uranium-234	1.100		0.052	pCi/g	0.329	NE	NE	90 ^b
SWSD009	Radiological	Uranium-235	0.071		0.064	pCi/g	0.082	NE	NE	90 ^b
SWSD009	Radiological	Uranium-238	1.130		0.111	pCi/g	0.335	NE	NE	90 ^b
		Total Uranium ^b	2.301			pCi/g				90 ^b
SWSD009	Metal	Aluminum	11500		2.22	mg/kg		NE	NE	
SWSD009	Metal	Antimony	2.9		0.662	mg/kg		NE	NE	
SWSD009	Metal	Arsenic	4.8		0.665	mg/kg		13	16	
SWSD009	Metal	Barium	93.6		0.222	mg/kg		350	10,000	
SWSD009	Metal	Beryllium	0.62		0.0443	mg/kg		7	2,700	
SWSD009	Metal	Boron	18.8		1.77	mg/kg		NE	NE	
SWSD009	Metal	Cadmium	0.8		0.0443	mg/kg		3	60	
SWSD009	Metal	Calcium	31900		66.5	mg/kg		NE	NE	
SWSD009	Metal	Chromium	31.1		0.443	mg/kg		NE	NE	
SWSD009	Metal	Cobalt	8.4		0.0443	mg/kg		NE	NE	
SWSD009	Metal	Copper	79.6 J		0.0886	mg/kg		50	10,000	
SWSD009	Metal	Iron	18100		4.43	mg/kg		NE	NE	
SWSD009	Metal	Lead	36.8		0.222	mg/kg		63	3,900	
SWSD009	Metal	Lithium	21		0.886	mg/kg		NE	NE	
SWSD009	Metal	Magnesium	10200		2.22	mg/kg		NE	NE	
SWSD009	Metal	Manganese	387		0.443	mg/kg		1,600	10,000	
SWSD009	Metal	Mercury	190		8.26	µg/kg		180 ^c	5700 ^c	
SWSD009	Metal	Nickel	20.8		0.222	mg/kg		30	10,000	
SWSD009	Metal	Potassium	2550 J		35.4	mg/kg		NE	NE	
SWSD009	Metal	Selenium	1.11 U		1.11	mg/kg		4	6,800	
SWSD009	Metal	Silver	0.213 U		0.213	mg/kg		2	6,800	
SWSD009	Metal	Sodium	425		35.4	mg/kg		NE	NE	
SWSD009	Metal	Thallium	0.18 J		0.0886	mg/kg		NE	NE	
SWSD009	Metal	Vanadium	26.4		0.886	mg/kg		NE	NE	
SWSD009	Metal	Zinc	217		0.886	mg/kg		109	10,000	
SWSD009	VOC	1,1,1-Trichloroethane	2.22 U		2.22	µg/kg		680	1,000,000	
SWSD009	VOC	1,1,2,2-Tetrachloroethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	1,1,2-Trichloroethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	1,1-Dichloroethane	2.22 U		2.22	µg/kg		270	480,000	
SWSD009	VOC	1,1-Dichloroethylene	2.22 U		2.22	µg/kg		330	1,000,000	
SWSD009	VOC	1,2-Dichloroethane	2.22 U		2.22	µg/kg		20	60,000	
SWSD009	VOC	1,2-Dichloropropane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	2-Butanone	11.1 U		11.1	µg/kg		120	1,000,000	
SWSD009	VOC	2-Hexanone	11.1 U		11.1	µg/kg		NE	NE	
SWSD009	VOC	4-Methyl-2-pentanone	11.1 U		11.1	µg/kg		NE	NE	
SWSD009	VOC	Acetone	11.1 U		11.1	µg/kg		50	1,000,000	
SWSD009	VOC	Benzene	2.22 U		2.22	µg/kg		60	89,000	
SWSD009	VOC	Bromodichloromethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Bromoform	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Bromomethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Carbon disulfide	11.1 U		11.1	µg/kg		NE	NE	
SWSD009	VOC	Carbon tetrachloride	2.22 U		2.22	µg/kg		760	44,000	
SWSD009	VOC	Chlorobenzene	2.22 U		2.22	µg/kg		1,100	1,000,000	
SWSD009	VOC	Chloroethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Chloroform	2.22 U		2.22	µg/kg		370	700,000	
SWSD009	VOC	Chloromethane	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	cis-1,2-Dichloroethylene	2.22 U		2.22	µg/kg		250	1,000,000	
SWSD009	VOC	cis-1,3-Dichloropropylene	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Ethylbenzene	2.22 U		2.22	µg/kg		1,000	780,000	
SWSD009	VOC	Methylene chloride	2.22 U		2.22	µg/kg		50	1,000,000	
SWSD009	VOC	Styrene	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Tetrachloroethylene	2.22 U		2.22	µg/kg		1,300	300,000	
SWSD009	VOC	Toluene	2.22 U		2.22	µg/kg		700	1,000,000	
SWSD009	VOC	trans-1,2-Dichloroethylene	2.22 U		2.22	µg/kg		190	1,000,000	
SWSD009	VOC	trans-1,3-Dichloropropylene	2.22 U		2.22	µg/kg		NE	NE	
SWSD009	VOC	Trichloroethylene	2.22 U		2.22	µg/kg		470	400,000	
SWSD009	VOC	Vinyl chloride	2.22 U		2.22	µg/kg		20	27,000	
SWSD009	VOC	Xylenes (total)	2.22 U		2.22	µg/kg		260	1,000,000	

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Table 9 - NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SWSD009	PAH	Accnaphthene	147	U	147	µg/kg		20,000	1,000,000	
SWSD009	PAH	Accnaphthylene	147	U	147	µg/kg		100,000	1,000,000	
SWSD009	PAH	Anthracene	79.8	J	147	µg/kg		100,000	1,000,000	
SWSD009	PAH	Benzo(a)anthracene	463		14.7	µg/kg		1,000	11,000	
SWSD009	PAH	Benzo(a)pyrene	477		14.7	µg/kg		1,000	1,100	
SWSD009	PAH	Benzo(b)fluoranthene	499		14.7	µg/kg		1,000	11,000	
SWSD009	PAH	Benzo(ghi)perylene	207		14.7	µg/kg		100,000	1,000,000	
SWSD009	PAH	Benzo(k)fluoranthene	7.36	U	7.36	µg/kg		800,000	110,000	
SWSD009	PAH	Chrysene	352		14.7	µg/kg		1,000	110,000	
SWSD009	PAH	Dibenzo(a,h)anthracene	14.7	U	14.7	µg/kg		330	1,100	
SWSD009	PAH	Fluoranthene	572		14.7	µg/kg		100,000	1,000,000	
SWSD009	PAH	Fluorene	147	U	147	µg/kg		30,000	1,000,000	
SWSD009	PAH	Indeno(1,2,3-cd)pyrene	14.7	U	14.7	µg/kg		500	11,000	
SWSD009	PAH	Naphthalene	147	U	147	µg/kg		12,000	1,000,000	
SWSD009	PAH	Phenanthrene	271		147	µg/kg		100,000	1,000,000	
SWSD009	PAH	Pyrene	620		14.7	µg/kg		100,000	1,000,000	
SWSD009	PCB	Aroclor-1016	36.7	U	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1221	36.7	U	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1232	36.7	U	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1242	36.7	U	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1248	29.6	J	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1254	23.5	J	12.2	µg/kg		100	25,000	
SWSD009	PCB	Aroclor-1260	36.7	U	12.2	µg/kg		100	25,000	
SWSD009	Pesticide	4,4'-DDD	29.4	U	29.4	µg/kg		3.3	180,000	
SWSD009	Pesticide	4,4'-DDE	29.4	U	29.4	µg/kg		3.3	120,000	
SWSD009	Pesticide	4,4'-DDT	29.4	U	29.4	µg/kg		3.3	94,000	
SWSD009	Pesticide	Aldrin	14.7	U	14.7	µg/kg		5	1,400	
SWSD009	Pesticide	alpha-BHC	14.7	U	14.7	µg/kg		20	6,800	
SWSD009	Pesticide	alpha-Chlordane	14.7	U	14.7	µg/kg		94	47,000	
SWSD009	Pesticide	beta-BHC	14.7	U	14.7	µg/kg		36	14,000	
SWSD009	Pesticide	delta-BHC	14.7	U	14.7	µg/kg		40	1,000,000	
SWSD009	Pesticide	Dieldrin	29.4	U	29.4	µg/kg		5	2,800	
SWSD009	Pesticide	Endosulfan I	14.7	U	14.7	µg/kg		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endosulfan II	29.4	U	29.4	µg/kg		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endosulfan sulfate	29.4	U	29.4	µg/kg		2,400 ^d	920,000 ^d	
SWSD009	Pesticide	Endrin	29.4	U	29.4	µg/kg		14	410,000	
SWSD009	Pesticide	Endrin aldehyde	29.4	U	29.4	µg/kg		NE	NE	
SWSD009	Pesticide	Endrin ketone	29.4	U	29.4	µg/kg		NE	NE	
SWSD009	Pesticide	gamma-BHC (Lindane)	14.7	U	14.7	µg/kg		100	23,000	
SWSD009	Pesticide	gamma-Chlordane	14.7	U	14.7	µg/kg		NE	NE	
SWSD009	Pesticide	Heptachlor	14.7	U	14.7	µg/kg		42	29,000	
SWSD009	Pesticide	Heptachlor epoxide	14.7	U	14.7	µg/kg		NE	NE	
SWSD009	Pesticide	Methoxychlor	147	U	147	µg/kg		NE	NE	
SWSD009	Pesticide	Toxaphene	734	U	734	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State-Unrestricted Use**	NY State-Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 10/30/2008										
SWSD021	Radiological	Radium-226	1.000		0.427	pCi/g	0.442	NE	NE	5 ^a
SWSD021	Radiological	Radium-228	1.030		0.499	pCi/g	0.408	NE	NE	5 ^a
		Total Radium ^a	2.030			pCi/g				5 ^a
SWSD021	Radiological	Thorium-228	1.690		0.360	pCi/g	0.575	NE	NE	5
SWSD021	Radiological	Thorium-230	1.160		0.132	pCi/g	0.430	NE	NE	5
SWSD021	Radiological	Thorium-232	1.250		0.132	pCi/g	0.450	NE	NE	5
SWSD021	Radiological	Uranium-234	1.170		0.101	pCi/g	0.329	NE	NE	90 ^b
SWSD021	Radiological	Uranium-235	0.081	U	0.097	pCi/g	0.087	NE	NE	90 ^b
SWSD021	Radiological	Uranium-238	1.190		0.101	pCi/g	0.332	NE	NE	90 ^b
		Total Uranium ^b	2.360			pCi/g				90 ^b
SWSD021	Metal	Aluminum	19000	J	8.62	mg/kg		NE	NE	
SWSD021	Metal	Antimony	1.1		0.537	mg/kg		NE	NE	
SWSD021	Metal	Arsenic	3.3		0.517	mg/kg		13	16	
SWSD021	Metal	Barium	119		0.172	mg/kg		350	10,000	
SWSD021	Metal	Beryllium	0.86		0.0345	mg/kg		7	2,700	
SWSD021	Metal	Boron	15.8		1.38	mg/kg		NE	NE	
SWSD021	Metal	Cadmium	0.27	J	0.0345	mg/kg		3	60	
SWSD021	Metal	Calcium	37000	J	51.7	mg/kg		NE	NE	
SWSD021	Metal	Chromium	47.7		0.345	mg/kg		NE	NE	
SWSD021	Metal	Cobalt	11.7		0.0345	mg/kg		NE	NE	
SWSD021	Metal	Copper	28.9		0.0689	mg/kg		50	10,000	
SWSD021	Metal	Iron	26400		17.2	mg/kg		NE	NE	
SWSD021	Metal	Lead	10.5	J	0.172	mg/kg		63	3,900	
SWSD021	Metal	Lithium	30.6		0.689	mg/kg		NE	NE	
SWSD021	Metal	Magnesium	10000	J	1.72	mg/kg		NE	NE	
SWSD021	Metal	Manganese	507		1.72	mg/kg		1,600	10,000	
SWSD021	Metal	Mercury	26.8		6.55	µg/kg		180 ^c	5700 ^c	
SWSD021	Metal	Nickel	27.4		0.172	mg/kg		30	10,000	
SWSD021	Metal	Potassium	4280		27.6	mg/kg		NE	NE	
SWSD021	Metal	Selenium	0.862	U	0.862	mg/kg		4	6,800	
SWSD021	Metal	Silver	0.173		0.173	mg/kg		2	6,800	
SWSD021	Metal	Sodium	190		27.6	mg/kg		NE	NE	
SWSD021	Metal	Thallium	0.18	J	0.0689	mg/kg		NE	NE	
SWSD021	Metal	Vanadium	34.1	J	3.45	mg/kg		NE	NE	
SWSD021	Metal	Zinc	68		0.689	mg/kg		109	10,000	
SWSD021	VOC	1,1,1-Trichloroethane	1.79	U	1.79	µg/kg		680	1,000,000	
SWSD021	VOC	1,1,2,2-Tetrachloroethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	1,1,2-Trichloroethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	1,1-Dichloroethane	1.79	U	1.79	µg/kg		270	480,000	
SWSD021	VOC	1,1-Dichloroethylene	1.79	U	1.79	µg/kg		330	1,000,000	
SWSD021	VOC	1,2-Dichloroethane	1.79	U	1.79	µg/kg		20	60,000	
SWSD021	VOC	1,2-Dichloropropane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	2-Butanone	8.93	U	8.93	µg/kg		120	1,000,000	
SWSD021	VOC	2-Hexanone	8.93	U	8.93	µg/kg		NE	NE	
SWSD021	VOC	4-Methyl-2-pentanone	8.93	U	8.93	µg/kg		NE	NE	
SWSD021	VOC	Acetone	8.93	U	8.93	µg/kg		50	1,000,000	
SWSD021	VOC	Benzene	1.79	U	1.79	µg/kg		60	89,000	
SWSD021	VOC	Bromodichloromethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Bromoform	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Bromomethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Carbon disulfide	8.93	U	8.93	µg/kg		NE	NE	
SWSD021	VOC	Carbon tetrachloride	1.79	U	1.79	µg/kg		760	44,000	
SWSD021	VOC	Chlorobenzene	1.79	U	1.79	µg/kg		1,100	1,000,000	
SWSD021	VOC	Chloroethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Chloroform	1.79	U	1.79	µg/kg		370	700,000	
SWSD021	VOC	Chloromethane	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	cis-1,2-Dichloroethylene	1.79	U	1.79	µg/kg		250	1,000,000	
SWSD021	VOC	cis-1,3-Dichloropropylene	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Ethylbenzene	1.79	U	1.79	µg/kg		1,000	780,000	
SWSD021	VOC	Methylene chloride	17.9	U	17.9	µg/kg		50	1,000,000	
SWSD021	VOC	Styrene	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Tetrachloroethylene	1.79	U	1.79	µg/kg		1,300	300,000	
SWSD021	VOC	Toluene	1.79	U	1.79	µg/kg		700	1,000,000	
SWSD021	VOC	trans-1,2-Dichloroethylene	1.79	U	1.79	µg/kg		190	1,000,000	
SWSD021	VOC	trans-1,3-Dichloropropylene	1.79	U	1.79	µg/kg		NE	NE	
SWSD021	VOC	Trichloroethylene	1.79	U	1.79	µg/kg		470	400,000	
SWSD021	VOC	Vinyl chloride	1.79	U	1.79	µg/kg		260	1,000,000	
SWSD021	VOC	Xylenes (total)	1.79	U	1.79	µg/kg		20,000	1,000,000	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SWSD021	PAH	Acenaphthene	29.7	U	29.7	µg/kg		100,000	1,000,000	
SWSD021	PAH	Acenaphthylene	29.7	U	29.7	µg/kg		100,000	1,000,000	
SWSD021	PAH	Anthracene	29.7	U	29.7	µg/kg		1,000	11,000	
SWSD021	PAH	Benzo(a)anthracene	2.97	U	2.97	µg/kg		1,000	1,100	
SWSD021	PAH	Benzo(a)pyrene	2.97	U	2.97	µg/kg		1,000	11,000	
SWSD021	PAH	Benzo(b)fluoranthene	2.97	U	2.97	µg/kg		100,000	1,000,000	
SWSD021	PAH	Benzo(ghi)perylene	2.97	U	2.97	µg/kg		800,000	110,000	
SWSD021	PAH	Benzo(k)fluoranthene	1.49	U	1.49	µg/kg		1,000	110,000	
SWSD021	PAH	Chrysene	9.86		2.97	µg/kg		330	1,100	
SWSD021	PAH	Dibenzo(a,h)anthracene	2.97	U	2.97	µg/kg		100,000	1,000,000	
SWSD021	PAH	Fluoranthene	21.8		2.97	µg/kg		30,000	1,000,000	
SWSD021	PAH	Fluorene	29.7	U	29.7	µg/kg		500	11,000	
SWSD021	PAH	Indeno(1,2,3-cd)pyrene	2.97	U	2.97	µg/kg		12,000	1,000,000	
SWSD021	PAH	Naphthalene	29.7	U	29.7	µg/kg		100,000	1,000,000	
SWSD021	PAH	Phenanthrene	13.9	J	29.7	µg/kg		100,000	1,000,000	
SWSD021	PAH	Pyrene	19.7		2.97	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1016	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1221	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1232	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1242	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1248	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1254	29.7	U	9.9	µg/kg		100	25,000	
SWSD021	PCB	Aroclor-1260	29.7	U	9.9	µg/kg		3.3	180,000	
SWSD021	Pesticide	4,4'-DDD	23.7	U	23.7	µg/kg		3.3	120,000	
SWSD021	Pesticide	4,4'-DDE	23.7	U	23.7	µg/kg		3.3	94,000	
SWSD021	Pesticide	4,4'-DDT	23.7	U	23.7	µg/kg		5	1,400	
SWSD021	Pesticide	Aldrin	11.8	U	11.8	µg/kg		20	6,800	
SWSD021	Pesticide	alpha-BHC	11.8	U	11.8	µg/kg		94	47,000	
SWSD021	Pesticide	alpha-Chlordane	11.8	U	11.8	µg/kg		36	14,000	
SWSD021	Pesticide	beta-BHC	11.8	U	11.8	µg/kg		40	1,000,000	
SWSD021	Pesticide	delta-BHC	11.8	U	11.8	µg/kg		5	2,800	
SWSD021	Pesticide	Dieldrin	23.7	U	23.7	µg/kg		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endosulfan I	11.8	U	11.8	µg/kg		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endosulfan II	23.7	U	23.7	µg/kg		2,400 ^d	920,000 ^d	
SWSD021	Pesticide	Endosulfan sulfate	23.7	U	23.7	µg/kg		14	410,000	
SWSD021	Pesticide	Endrin	23.7	U	23.7	µg/kg		NE	NE	
SWSD021	Pesticide	Endrin aldehyde	23.7	U	23.7	µg/kg		NE	NE	
SWSD021	Pesticide	Endrin ketone	23.7	U	23.7	µg/kg		100	23,000	
SWSD021	Pesticide	gamma-BHC (Lindane)	11.8	U	11.8	µg/kg		NE	NE	
SWSD021	Pesticide	gamma-Chlordane	11.8	U	11.8	µg/kg		42	29,000	
SWSD021	Pesticide	Heptachlor	11.8	U	11.8	µg/kg		NE	NE	
SWSD021	Pesticide	Heptachlor epoxide	11.8	U	11.8	µg/kg		NE	NE	
SWSD021	Pesticide	Methoxychlor	118	U	118	µg/kg		NE	NE	
SWSD021	Pesticide	Toxaphene	592	U	592	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State-Unrestricted Use**	NY State-Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 10/29/2008										
SWSD010	Radiological	Radium-226	0.948		0.547	pCi/g	0.487	NE	NE	5 ^a
SWSD010	Radiological	Radium-228	0.915		0.668	pCi/g	0.482	NE	NE	5 ^a
		Total Radium ^a	1.863			pCi/g				5 ^a
SWSD010	Radiological	Thorium-228	1.260		0.328	pCi/g	0.482	NE	NE	5
SWSD010	Radiological	Thorium-230	1.310		0.242	pCi/g	0.477	NE	NE	5
SWSD010	Radiological	Thorium-232	1.190		0.188	pCi/g	0.445	NE	NE	5
SWSD010	Radiological	Uranium-234	2.960		0.139	pCi/g	0.677	NE	NE	90 ^b
SWSD010	Radiological	Uranium-235	0.111		0.133	pCi/g	0.120	NE	NE	90 ^b
SWSD010	Radiological	Uranium-238	2.760		0.107	pCi/g	0.644	NE	NE	90 ^b
		Total Uranium ^b	5.831			pCi/g				90 ^b
SWSD010	Metal	Aluminum	13500		3.77	mg/kg		NE	NE	
SWSD010	Metal	Antimony	2.7 J		1.15	mg/kg		NE	NE	
SWSD010	Metal	Arsenic	5.6		1.13	mg/kg		13	16	
SWSD010	Metal	Barium	98.7		0.377	mg/kg		350	10,000	
SWSD010	Metal	Beryllium	0.71		0.0754	mg/kg		7	2,700	
SWSD010	Metal	Boron	27.1		3.02	mg/kg		NE	NE	
SWSD010	Metal	Cadmium	0.51 J		0.0754	mg/kg		3	60	
SWSD010	Metal	Calcium	18600		22.6	mg/kg		NE	NE	
SWSD010	Metal	Chromium	46.5		0.754	mg/kg		NE	NE	
SWSD010	Metal	Cobalt	9.2		0.0754	mg/kg		NE	NE	
SWSD010	Metal	Copper	124 J		0.147	mg/kg		50	10,000	
SWSD010	Metal	Iron	19000		7.54	mg/kg		NE	NE	
SWSD010	Metal	Lead	46.6		0.377	mg/kg		63	3,900	
SWSD010	Metal	Lithium	23.3		1.51	mg/kg		NE	NE	
SWSD010	Metal	Magnesium	9480		3.77	mg/kg		NE	NE	
SWSD010	Metal	Manganese	287		0.754	mg/kg		1,600	10,000	
SWSD010	Metal	Mercury	313		14.5	µg/kg		180 ^c	5700 ^c	
SWSD010	Metal	Nickel	23.6		0.377	mg/kg		30	10,000	
SWSD010	Metal	Potassium	3720 J		60.4	mg/kg		NE	NE	
SWSD010	Metal	Selenium	1.89 U		1.89	mg/kg		4	6,800	
SWSD010	Metal	Silver	0.372 U		0.372	mg/kg		2	6,800	
SWSD010	Metal	Sodium	591		60.4	mg/kg		NE	NE	
SWSD010	Metal	Thallium	0.22 J		0.151	mg/kg		NE	NE	
SWSD010	Metal	Vanadium	28.1		1.51	mg/kg		NE	NE	
SWSD010	Metal	Zinc	236		1.51	mg/kg		109	10,000	
SWSD010	VOC	1,1,1-Trichloroethane	3.82 U		3.82	µg/kg		680	1,000,000	
SWSD010	VOC	1,1,2,2-Tetrachloroethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	1,1,2-Trichloroethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	1,1-Dichloroethane	3.82 U		3.82	µg/kg		270	480,000	
SWSD010	VOC	1,1-Dichloroethylene	3.82 U		3.82	µg/kg		330	1,000,000	
SWSD010	VOC	1,2-Dichloroethane	3.82 U		3.82	µg/kg		20	60,000	
SWSD010	VOC	1,2-Dichloropropane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	2-Butanone	19.1 U		19.1	µg/kg		120	1,000,000	
SWSD010	VOC	2-Hexanone	19.1 U		19.1	µg/kg		NE	NE	
SWSD010	VOC	4-Methyl-2-pentanone	19.1 U		19.1	µg/kg		NE	NE	
SWSD010	VOC	Acetone	19.1 U		19.1	µg/kg		50	1,000,000	
SWSD010	VOC	Benzene	3.82 U		3.82	µg/kg		60	89,000	
SWSD010	VOC	Bromodichloromethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Bromoform	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Bromomethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Carbon disulfide	19.1 U		19.1	µg/kg		NE	NE	
SWSD010	VOC	Carbon tetrachloride	3.82 U		3.82	µg/kg		760	44,000	
SWSD010	VOC	Chlorobenzene	3.82 U		3.82	µg/kg		1,100	1,000,000	
SWSD010	VOC	Chloroethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Chloroform	3.82 U		3.82	µg/kg		370	700,000	
SWSD010	VOC	Chloromethane	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	cis-1,2-Dichloroethylene	3.82 U		3.82	µg/kg		250	1,000,000	
SWSD010	VOC	cis-1,3-Dichloropropylene	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Ethylbenzene	3.82 U		3.82	µg/kg		1,000	780,000	
SWSD010	VOC	Methylene chloride	38.2 U		38.2	µg/kg		50	1,000,000	
SWSD010	VOC	Styrene	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Tetrachloroethylene	3.82 U		3.82	µg/kg		1,300	300,000	
SWSD010	VOC	Toluene	3.82 U		3.82	µg/kg		700	1,000,000	
SWSD010	VOC	trans-1,2-Dichloroethylene	3.82 U		3.82	µg/kg		190	1,000,000	
SWSD010	VOC	trans-1,3-Dichloropropylene	3.82 U		3.82	µg/kg		NE	NE	
SWSD010	VOC	Trichloroethylene	3.82 U		3.82	µg/kg		470	400,000	
SWSD010	VOC	Vinyl chloride	3.82 U		3.82	µg/kg		20	27,000	
SWSD010	VOC	Xylenes (total)	3.82 U		3.82	µg/kg		260	1,000,000	

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Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
SWSD010	PAH	Acenaphthene	63.6	U	63.6	µg/kg		20,000	1,000,000	
SWSD010	PAH	Acenaphthylene	63.6	U	63.6	µg/kg		100,000	1,000,000	
SWSD010	PAH	Anthracene	63.6	U	63.6	µg/kg		100,000	1,000,000	
SWSD010	PAH	Benzo(a)anthracene	117		6.36	µg/kg		1,000	11,000	
SWSD010	PAH	Benzo(a)pyrene	129		6.36	µg/kg		1,000	1,100	
SWSD010	PAH	Benzo(b)fluoranthene	160		6.36	µg/kg		1,000	11,000	
SWSD010	PAH	Benzo(ghi)perylene	88.7	J	6.36	µg/kg		100,000	1,000,000	
SWSD010	PAH	Benzo(k)fluoranthene	71.5		3.18	µg/kg		800,000	110,000	
SWSD010	PAH	Chrysene	94.7		6.36	µg/kg		1,000	110,000	
SWSD010	PAH	Dibenzo(a,h)anthracene	6.36	U	6.36	µg/kg		330	1,100	
SWSD010	PAH	Fluoranthene	170		6.36	µg/kg		100,000	1,000,000	
SWSD010	PAH	Fluorene	63.6	U	63.6	µg/kg		30,000	1,000,000	
SWSD010	PAH	Indeno(1,2,3-cd)pyrene	91.4	J	6.36	µg/kg		500	11,000	
SWSD010	PAH	Naphthalene	63.6	U	63.6	µg/kg		12,000	1,000,000	
SWSD010	PAH	Phenanthrene	86.8		63.6	µg/kg		100,000	1,000,000	
SWSD010	PAH	Pyrene	172		6.36	µg/kg		100,000	1,000,000	
SWSD010	PCB	Aroclor-1016	63.4	U	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1221	63.4	U	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1232	63.4	U	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1242	63.4	U	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1248	42.1	J	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1254	40.2	J	21.1	µg/kg		100	25,000	
SWSD010	PCB	Aroclor-1260	28.5	J	21.1	µg/kg		100	25,000	
SWSD010	Pesticide	4,4'-DDD	50.6	U	50.6	µg/kg		3.3	180,000	
SWSD010	Pesticide	4,4'-DDE	50.6	U	50.6	µg/kg		3.3	120,000	
SWSD010	Pesticide	4,4'-DDT	50.6	U	50.6	µg/kg		3.3	94,000	
SWSD010	Pesticide	Aldrin	25.3	U	25.3	µg/kg		5	1,400	
SWSD010	Pesticide	alpha-BHC	25.3	U	25.3	µg/kg		20	6,800	
SWSD010	Pesticide	alpha-Chlordane	25.3	U	25.3	µg/kg		94	47,000	
SWSD010	Pesticide	beta-BHC	25.3	U	25.3	µg/kg		36	14,000	
SWSD010	Pesticide	delta-BHC	25.3	U	25.3	µg/kg		40	1,000,000	
SWSD010	Pesticide	Dieldrin	50.6	U	50.6	µg/kg		5	2,800	
SWSD010	Pesticide	Endosulfan I	25.3	U	25.3	µg/kg		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endosulfan II	50.6	U	50.6	µg/kg		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endosulfan sulfate	50.6	U	50.6	µg/kg		2,400 ^d	920,000 ^d	
SWSD010	Pesticide	Endrin	50.6	U	50.6	µg/kg		14	410,000	
SWSD010	Pesticide	Endrin aldehyde	50.6	U	50.6	µg/kg		NE	NE	
SWSD010	Pesticide	Endrin ketone	50.6	U	50.6	µg/kg		NE	NE	
SWSD010	Pesticide	gamma-BHC (Lindane)	25.3	U	25.3	µg/kg		100	23,000	
SWSD010	Pesticide	gamma-Chlordane	25.3	U	25.3	µg/kg		NE	NE	
SWSD010	Pesticide	Heptachlor	25.3	U	25.3	µg/kg		42	29,000	
SWSD010	Pesticide	Heptachlor epoxide	25.3	U	25.3	µg/kg		NE	NE	
SWSD010	Pesticide	Methoxychlor	253	U	253	µg/kg		NE	NE	
SWSD010	Pesticide	Toxaphene	1260	U	1260	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 10/30/2008										
SWSD011	Radiological	Radium-226	0.880		0.465	pCi/g	0.434	NE	NE	5 ^a
SWSD011	Radiological	Radium-228	1.880		0.604	pCi/g	0.528	NE	NE	5 ^a
		Total Radium ^a	2.760			pCi/g				5 ^a
SWSD011	Radiological	Thorium-228	1.210		0.333	pCi/g	0.483	NE	NE	5
SWSD011	Radiological	Thorium-230	1.320		0.256	pCi/g	0.492	NE	NE	5
SWSD011	Radiological	Thorium-232	1.450		0.199	pCi/g	0.516	NE	NE	5
SWSD011	Radiological	Uranium-234	1.370		0.118	pCi/g	0.377	NE	NE	90 ^b
SWSD011	Radiological	Uranium-235	0.023 U		0.063	pCi/g	0.047	NE	NE	90 ^b
SWSD011	Radiological	Uranium-238	1.220		0.118	pCi/g	0.351	NE	NE	90 ^b
		Total Uranium ^b	2.590			pCi/g				90 ^b
SWSD011	Metal	Aluminum	20500 J		2.69	mg/kg		NE	NE	
SWSD011	Metal	Antimony	2.8		0.808	mg/kg		NE	NE	
SWSD011	Metal	Arsenic	6.5		0.808	mg/kg		13	16	
SWSD011	Metal	Barium	154		0.269	mg/kg		350	10,000	
SWSD011	Metal	Beryllium	0.97		0.0539	mg/kg		7	2,700	
SWSD011	Metal	Boron	28.9		2.15	mg/kg		NE	NE	
SWSD011	Metal	Cadmium	0.81		0.0539	mg/kg		3	60	
SWSD011	Metal	Calcium	61600 J		80.8	mg/kg		NE	NE	
SWSD011	Metal	Chromium	59.2		0.539	mg/kg		NE	NE	
SWSD011	Metal	Cobalt	14.6		0.0539	mg/kg		NE	NE	
SWSD011	Metal	Copper	57.9		0.108	mg/kg		50	10,000	
SWSD011	Metal	Iron	34000		26.9	mg/kg		NE	NE	
SWSD011	Metal	Lead	42.6 J		0.269	mg/kg		63	3,900	
SWSD011	Metal	Lithium	36.3		1.08	mg/kg		NE	NE	
SWSD011	Metal	Magnesium	12000 J		2.69	mg/kg		NE	NE	
SWSD011	Metal	Manganese	1380		2.69	mg/kg		1,600	10,000	
SWSD011	Metal	Mercury	146		10.8	µg/kg		180 ^c	5700 ^c	
SWSD011	Metal	Nickel	35.6		0.269	mg/kg		30	10,000	
SWSD011	Metal	Potassium	4710		43.1	mg/kg		NE	NE	
SWSD011	Metal	Selenium	1.35 U		1.35	mg/kg		4	6,800	
SWSD011	Metal	Silver	0.261		0.261	mg/kg		2	6,800	
SWSD011	Metal	Sodium	512		43.1	mg/kg		NE	NE	
SWSD011	Metal	Thallium	0.27 J		0.108	mg/kg		NE	NE	
SWSD011	Metal	Vanadium	39.1 J		1.08	mg/kg		NE	NE	
SWSD011	Metal	Zinc	332		1.08	mg/kg		109	10,000	
SWSD011	VOC	1,1,1-Trichloroethane	2.73 U		2.73	µg/kg		680	1,000,000	
SWSD011	VOC	1,1,2,2-Tetrachloroethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	1,1,2-Trichloroethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	1,1-Dichloroethane	2.73 U		2.73	µg/kg		270	480,000	
SWSD011	VOC	1,1-Dichloroethylene	2.73 U		2.73	µg/kg		330	1,000,000	
SWSD011	VOC	1,2-Dichloroethane	2.73 U		2.73	µg/kg		20	60,000	
SWSD011	VOC	1,2-Dichloropropane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	2-Butanone	13.7 U		13.7	µg/kg		120	1,000,000	
SWSD011	VOC	2-Hexanone	13.7 U		13.7	µg/kg		NE	NE	
SWSD011	VOC	4-Methyl-2-pentanone	13.7 U		13.7	µg/kg		NE	NE	
SWSD011	VOC	Acetone	13.7 U		13.7	µg/kg		50	1,000,000	
SWSD011	VOC	Benzene	2.73 U		2.73	µg/kg		60	89,000	
SWSD011	VOC	Bromodichloromethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Bromoform	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Bromomethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Carbon disulfide	13.7 U		13.7	µg/kg		NE	NE	
SWSD011	VOC	Carbon tetrachloride	2.73 U		2.73	µg/kg		760	44,000	
SWSD011	VOC	Chlorobenzene	2.73 U		2.73	µg/kg		1,100	1,000,000	
SWSD011	VOC	Chloroethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Chloroform	2.73 U		2.73	µg/kg		370	700,000	
SWSD011	VOC	Chloromethane	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	cis-1,2-Dichloroethylene	2.73 U		2.73	µg/kg		250	1,000,000	
SWSD011	VOC	cis-1,3-Dichloropropylene	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Ethylbenzene	2.73 U		2.73	µg/kg		1,000	780,000	
SWSD011	VOC	Methylene chloride	2.73 U		2.73	µg/kg		50	1,000,000	
SWSD011	VOC	Styrene	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Tetrachloroethylene	2.73 U		2.73	µg/kg		1,300	300,000	
SWSD011	VOC	Toluene	2.73 U		2.73	µg/kg		700	1,000,000	
SWSD011	VOC	trans-1,2-Dichloroethylene	2.73 U		2.73	µg/kg		190	1,000,000	
SWSD011	VOC	trans-1,3-Dichloropropylene	2.73 U		2.73	µg/kg		NE	NE	
SWSD011	VOC	Trichloroethylene	2.73 U		2.73	µg/kg		470	400,000	
SWSD011	VOC	Vinyl chloride	2.73 U		2.73	µg/kg		20	27,000	
SWSD011	VOC	Xylenes (total)	2.73 U		2.73	µg/kg		260	1,000,000	

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Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
SWSD011	PAH	Acenaphthene	45.4	U	45.4	µg/kg		20,000	1,000,000	
SWSD011	PAH	Acenaphthylene	45.4	U	45.4	µg/kg		100,000	1,000,000	
SWSD011	PAH	Anthracene	45.4	U	45.4	µg/kg		100,000	1,000,000	
SWSD011	PAH	Benzo(a)anthracene	101		4.54	µg/kg		1,000	11,000	
SWSD011	PAH	Benzo(a)pyrene	99.8		4.54	µg/kg		1,000	1,100	
SWSD011	PAH	Benzo(b)fluoranthene	126		4.54	µg/kg		1,000	11,000	
SWSD011	PAH	Benzo(ghi)perylene	69.3		4.54	µg/kg		100,000	1,000,000	
SWSD011	PAH	Benzo(k)fluoranthene	2.27	U	2.27	µg/kg		800,000	110,000	
SWSD011	PAH	Chrysene	80.8		4.54	µg/kg		1,000	110,000	
SWSD011	PAH	Dibenzo(a,h)anthracene	4.54	U	4.54	µg/kg		330	1,100	
SWSD011	PAH	Fluoranthene	142		4.54	µg/kg		100,000	1,000,000	
SWSD011	PAH	Fluorene	45.4	U	45.4	µg/kg		30,000	1,000,000	
SWSD011	PAH	Indeno(1,2,3-cd)pyrene	4.54	U	4.54	µg/kg		500	11,000	
SWSD011	PAH	Naphthalene	45.4	U	45.4	µg/kg		12,000	1,000,000	
SWSD011	PAH	Phenanthrene	58.2		4.54	µg/kg		100,000	1,000,000	
SWSD011	PAH	Pyrene	141		4.54	µg/kg		100,000	1,000,000	
SWSD011	PCB	Aroclor-1016	45.4	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1221	45.4	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1232	45.4	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1242	39.4	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1248	45.4	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1254	36.1	U	15.1	µg/kg		100	25,000	
SWSD011	PCB	Aroclor-1260	20	U	15.1	µg/kg		100	25,000	
SWSD011	Pesticide	4,4'-DDD	36.3	U	36.3	µg/kg		3.3	180,000	
SWSD011	Pesticide	4,4'-DDE	36.3	U	36.3	µg/kg		3.3	120,000	
SWSD011	Pesticide	4,4'-DDT	36.3	U	36.3	µg/kg		3.3	94,000	
SWSD011	Pesticide	Aldrin	18.2	U	18.2	µg/kg		5	1,400	
SWSD011	Pesticide	alpha-BHC	18.2	U	18.2	µg/kg		20	6,800	
SWSD011	Pesticide	alpha-Chlordane	18.2	U	18.2	µg/kg		94	47,000	
SWSD011	Pesticide	beta-BHC	18.2	U	18.2	µg/kg		36	14,000	
SWSD011	Pesticide	delta-BHC	18.2	U	18.2	µg/kg		40	1,000,000	
SWSD011	Pesticide	Dieldrin	36.3	U	36.3	µg/kg		5	2,800	
SWSD011	Pesticide	Endosulfan I	18.2	U	18.2	µg/kg		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endosulfan II	36.3	U	36.3	µg/kg		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endosulfan sulfate	36.3	U	36.3	µg/kg		2,400 ^d	920,000 ^d	
SWSD011	Pesticide	Endrin	36.3	U	36.3	µg/kg		14	410,000	
SWSD011	Pesticide	Endrin aldehyde	36.3	U	36.3	µg/kg		NE	NE	
SWSD011	Pesticide	Endrin ketone	36.3	U	36.3	µg/kg		NE	NE	
SWSD011	Pesticide	gamma-BHC (Lindane)	18.2	U	18.2	µg/kg		100	23,000	
SWSD011	Pesticide	gamma-Chlordane	18.2	U	18.2	µg/kg		NE	NE	
SWSD011	Pesticide	Heptachlor	18.2	U	18.2	µg/kg		42	29,000	
SWSD011	Pesticide	Heptachlor epoxide	18.2	U	18.2	µg/kg		NE	NE	
SWSD011	Pesticide	Methoxychlor	182	U	182	µg/kg		NE	NE	
SWSD011	Pesticide	Toxaphene	908	U	908	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULT	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+/-)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 10/30/2008										
SED-DUP(SWSD011)	Radiological	Radium-226	1.020		0.375	pCi/g	0.421	NE	NE	5 ^a
SED-DUP(SWSD011)	Radiological	Radium-228	2.400		0.654	pCi/g	0.604	NE	NE	5 ^a
		Total Radium ^a	3.420			pCi/g				5 ^a
SED-DUP(SWSD011)	Radiological	Thorium-228	0.754		0.351	pCi/g	0.381	NE	NE	5
SED-DUP(SWSD011)	Radiological	Thorium-230	1.440		0.201	pCi/g	0.516	NE	NE	5
SED-DUP(SWSD011)	Radiological	Thorium-232	0.686		0.168	pCi/g	0.328	NE	NE	5
SED-DUP(SWSD011)	Radiological	Uranium-234	1.200		0.137	pCi/g	0.356	NE	NE	90 ^b
SED-DUP(SWSD011)	Radiological	Uranium-235	0.126		0.068	pCi/g	0.114	NE	NE	90 ^b
SED-DUP(SWSD011)	Radiological	Uranium-238	0.946		0.107	pCi/g	0.308	NE	NE	90 ^b
		Total Uranium ^b	2.272			pCi/g				90 ^b
SED-DUP(SWSD011)	Metal	Aluminum	18200	J	2.55	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Antimony	3.3		0.818	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Arsenic	6.4		0.764	mg/kg		13	16	
SED-DUP(SWSD011)	Metal	Barium	137		0.255	mg/kg		350	10,000	
SED-DUP(SWSD011)	Metal	Beryllium	0.9		0.0509	mg/kg		7	2,700	
SED-DUP(SWSD011)	Metal	Boron	27		2.04	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Cadmium	0.75		0.0509	mg/kg		3	60	
SED-DUP(SWSD011)	Metal	Calcium	51900	J	76.4	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Chromium	53.6		0.509	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Cobalt	12.8		0.0509	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Copper	51.1		0.102	mg/kg		50	10,000	
SED-DUP(SWSD011)	Metal	Iron	29600		25.5	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Lead	35.6	J	0.255	mg/kg		63	3,900	
SED-DUP(SWSD011)	Metal	Lithium	31.3		1.02	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Magnesium	11500	J	2.55	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Manganese	1140		2.55	mg/kg		1,600	10,000	
SED-DUP(SWSD011)	Metal	Mercury	115		9.14	µg/kg		180 ^c	5700 ^c	
SED-DUP(SWSD011)	Metal	Nickel	30.9		0.255	mg/kg		30	10,000	
SED-DUP(SWSD011)	Metal	Potassium	4260		40.8	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Selenium	1.27	U	1.27	mg/kg		4	6,800	
SED-DUP(SWSD011)	Metal	Silver	0.264		0.264	mg/kg		2	6,800	
SED-DUP(SWSD011)	Metal	Sodium	496		40.8	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Thallium	0.26	J	0.102	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Vanadium	35.5	J	1.02	mg/kg		NE	NE	
SED-DUP(SWSD011)	Metal	Zinc	285		1.02	mg/kg		109	10,000	
SED-DUP(SWSD011)	VOC	1,1,1-Trichloroethane	2.66	U	2.66	µg/kg		680	1,000,000	
SED-DUP(SWSD011)	VOC	1,1,2,2-Tetrachloroethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	1,1,2-Trichloroethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	1,1-Dichloroethane	2.66	U	2.66	µg/kg		270	480,000	
SED-DUP(SWSD011)	VOC	1,1-Dichloroethylene	2.66	U	2.66	µg/kg		330	1,000,000	
SED-DUP(SWSD011)	VOC	1,2-Dichloroethane	2.66	U	2.66	µg/kg		20	60,000	
SED-DUP(SWSD011)	VOC	1,2-Dichloropropane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	2-Butanone	13.3	U	13.3	µg/kg		120	1,000,000	
SED-DUP(SWSD011)	VOC	2-Hexanone	13.3	U	13.3	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	4-Methyl-2-pentanone	13.3	U	13.3	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Acetone	13.3	U	13.3	µg/kg		50	1,000,000	
SED-DUP(SWSD011)	VOC	Benzene	2.66	U	2.66	µg/kg		60	89,000	
SED-DUP(SWSD011)	VOC	Bromodichloromethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Bromoform	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Bromomethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Carbon disulfide	13.3	U	13.3	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Carbon tetrachloride	2.66	U	2.66	µg/kg		760	44,000	
SED-DUP(SWSD011)	VOC	Chlorobenzene	2.66	U	2.66	µg/kg		1,100	1,000,000	
SED-DUP(SWSD011)	VOC	Chloroethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Chloroform	2.66	U	2.66	µg/kg		370	700,000	
SED-DUP(SWSD011)	VOC	Chloromethane	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	cis-1,2-Dichloroethylene	2.66	U	2.66	µg/kg		250	1,000,000	
SED-DUP(SWSD011)	VOC	cis-1,3-Dichloropropylene	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Ethylbenzene	2.66	U	2.66	µg/kg		1,000	780,000	
SED-DUP(SWSD011)	VOC	Methylene chloride	26.6	U	26.6	µg/kg		50	1,000,000	
SED-DUP(SWSD011)	VOC	Styrene	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Tetrachloroethylene	2.66	U	2.66	µg/kg		1,300	300,000	
SED-DUP(SWSD011)	VOC	Toluene	2.66	U	2.66	µg/kg		700	1,000,000	
SED-DUP(SWSD011)	VOC	trans-1,2-Dichloroethylene	2.66	U	2.66	µg/kg		190	1,000,000	
SED-DUP(SWSD011)	VOC	trans-1,3-Dichloropropylene	2.66	U	2.66	µg/kg		NE	NE	
SED-DUP(SWSD011)	VOC	Trichloroethylene	2.66	U	2.66	µg/kg		470	400,000	
SED-DUP(SWSD011)	VOC	Vinyl chloride	2.66	U	2.66	µg/kg		20	27,000	
SED-DUP(SWSD011)	VOC	Xylenes (total)	2.66	U	2.66	µg/kg		260	1,000,000	

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Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SED-DUP(swsd011)	PAH	Acenaphthene	44.3	U	44.3	µg/kg		20,000	1,000,000	
SED-DUP(swsd011)	PAH	Acenaphthylene	44.3	U	44.3	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PAH	Anthracene	44.3	U	44.3	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PAH	Benzo(a)anthracene	95.8		4.43	µg/kg		1,000	11,000	
SED-DUP(swsd011)	PAH	Benzo(a)pyrene	96.3		4.43	µg/kg		1,000	1,100	
SED-DUP(swsd011)	PAH	Benzo(b)fluoranthene	107		4.43	µg/kg		1,000	11,000	
SED-DUP(swsd011)	PAH	Benzo(ghi)perylene	61.9		4.43	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PAH	Benzo(k)fluoranthene	2.21	U	2.21	µg/kg		800,000	110,000	
SED-DUP(swsd011)	PAH	Chrysene	84.6		4.43	µg/kg		1,000	110,000	
SED-DUP(swsd011)	PAH	Dibenzo(a,h)anthracene	4.43	U	4.43	µg/kg		330	1,100	
SED-DUP(swsd011)	PAH	Fluoranthene	137		4.43	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PAH	Fluorene	44.3	U	44.3	µg/kg		30,000	1,000,000	
SED-DUP(swsd011)	PAH	Indeno(1,2,3-cd)pyrene	4.43	U	4.43	µg/kg		500	11,000	
SED-DUP(swsd011)	PAH	Naphthalene	44.3	U	44.3	µg/kg		12,000	1,000,000	
SED-DUP(swsd011)	PAH	Phenanthrene	57.5		44.3	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PAH	Pyrene	131		4.43	µg/kg		100,000	1,000,000	
SED-DUP(swsd011)	PCB	Aroclor-1016	44.2	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1221	44.2	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1232	44.2	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1242	67.2	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1248	44.2	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1254	44.3	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	PCB	Aroclor-1260	23.3	U	15.1	µg/kg		100	25,000	
SED-DUP(swsd011)	Pesticide	4,4'-DDD	35.4	U	35.4	µg/kg		3.3	180,000	
SED-DUP(swsd011)	Pesticide	4,4'-DDE	35.4	U	35.4	µg/kg		3.3	120,000	
SED-DUP(swsd011)	Pesticide	4,4'-DDT	35.4	U	35.4	µg/kg		3.3	94,000	
SED-DUP(swsd011)	Pesticide	Aldrin	17.7	U	17.7	µg/kg		5	1,400	
SED-DUP(swsd011)	Pesticide	alpha-BHC	17.7	U	17.7	µg/kg		20	6,800	
SED-DUP(swsd011)	Pesticide	alpha-Chlordane	17.7	U	17.7	µg/kg		94	47,000	
SED-DUP(swsd011)	Pesticide	beta-BHC	17.7	U	17.7	µg/kg		36	14,000	
SED-DUP(swsd011)	Pesticide	delta-BHC	17.7	U	17.7	µg/kg		40	1,000,000	
SED-DUP(swsd011)	Pesticide	Dieldrin	35.4	U	35.4	µg/kg		5	2,800	
SED-DUP(swsd011)	Pesticide	Endosulfan I	17.7	U	17.7	µg/kg		2,400 ^d	920,000 ^d	
SED-DUP(swsd011)	Pesticide	Endosulfan II	35.4	U	35.4	µg/kg		2,400 ^d	920,000 ^d	
SED-DUP(swsd011)	Pesticide	Endosulfan sulfate	35.4	U	35.4	µg/kg		2,400 ^d	920,000 ^d	
SED-DUP(swsd011)	Pesticide	Endrin	35.4	U	35.4	µg/kg		14	410,000	
SED-DUP(swsd011)	Pesticide	Endrin aldehyde	35.4	U	35.4	µg/kg		NE	NE	
SED-DUP(swsd011)	Pesticide	Endrin ketone	35.4	U	35.4	µg/kg		NE	NE	
SED-DUP(swsd011)	Pesticide	gamma-BHC (Lindane)	17.7	U	17.7	µg/kg		100	23,000	
SED-DUP(swsd011)	Pesticide	gamma-Chlordane	17.7	U	17.7	µg/kg		NE	NE	
SED-DUP(swsd011)	Pesticide	Heptachlor	17.7	U	17.7	µg/kg		42	29,000	
SED-DUP(swsd011)	Pesticide	Heptachlor epoxide	17.7	U	17.7	µg/kg		NE	NE	
SED-DUP(swsd011)	Pesticide	Methoxychlor	17.7	U	17.7	µg/kg		NE	NE	
SED-DUP(swsd011)	Pesticide	Toxaphene	885	U	885	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 10/30/2008										
SWSD022	Radiological	Radium-226	1.140		0.419	pCi/g	0.462	NE	NE	5 ^a
SWSD022	Radiological	Radium-228	1.880		0.544	pCi/g	0.520	NE	NE	5 ^a
		Total Radium ^a	3.020			pCi/g				5 ^a
SWSD022	Radiological	Thorium-228	1.520		0.364	pCi/g	0.590	NE	NE	5
SWSD022	Radiological	Thorium-230	1.250		0.166	pCi/g	0.500	NE	NE	5
SWSD022	Radiological	Thorium-232	1.210		0.100	pCi/g	0.489	NE	NE	5
SWSD022	Radiological	Uranium-234	1.990		0.131	pCi/g	0.506	NE	NE	90 ^b
SWSD022	Radiological	Uranium-235	0.126 U		0.146	pCi/g	0.127	NE	NE	90 ^b
SWSD022	Radiological	Uranium-238	1.970		0.101	pCi/g	0.503	NE	NE	90 ^b
		Total Uranium ^b	3.960			pCi/g				90 ^b
SWSD022	Metal	Aluminum	21000 J		4.33	mg/kg		NE	NE	
SWSD022	Metal	Antimony	5.5		1.34	mg/kg		NE	NE	
SWSD022	Metal	Arsenic	9.4		1.3	mg/kg		13	16	
SWSD022	Metal	Barium	183		0.433	mg/kg		350	10,000	
SWSD022	Metal	Beryllium	1		0.0867	mg/kg		7	2,700	
SWSD022	Metal	Boron	36.5		3.47	mg/kg		NE	NE	
SWSD022	Metal	Cadmium	0.99		0.0867	mg/kg		3	60	
SWSD022	Metal	Calcium	30500 J		26	mg/kg		NE	NE	
SWSD022	Metal	Chromium	64.6		0.867	mg/kg		NE	NE	
SWSD022	Metal	Cobalt	15.2		0.0867	mg/kg		NE	NE	
SWSD022	Metal	Copper	67.4		0.173	mg/kg		50	10,000	
SWSD022	Metal	Iron	32800		8.67	mg/kg		NE	NE	
SWSD022	Metal	Lead	51.8 J		0.433	mg/kg		63	3,900	
SWSD022	Metal	Lithium	34.2		1.73	mg/kg		NE	NE	
SWSD022	Metal	Magnesium	12700 J		4.33	mg/kg		NE	NE	
SWSD022	Metal	Manganese	819		0.867	mg/kg		1,600	10,000	
SWSD022	Metal	Mercury	159		17.5	µg/kg		180 ^c	5700 ^c	
SWSD022	Metal	Nickel	36.7		0.433	mg/kg		30	10,000	
SWSD022	Metal	Potassium	5660		69.3	mg/kg		NE	NE	
SWSD022	Metal	Selenium	2.17 U		2.17	mg/kg		4	6,800	
SWSD022	Metal	Silver	0.432		0.432	mg/kg		2	6,800	
SWSD022	Metal	Sodium	582		69.3	mg/kg		NE	NE	
SWSD022	Metal	Thallium	0.28 J		0.173	mg/kg		NE	NE	
SWSD022	Metal	Vanadium	42.9 J		1.73	mg/kg		NE	NE	
SWSD022	Metal	Zinc	291		1.73	mg/kg		109	10,000	
SWSD022	VOC	1,1,1-Trichloroethane	4.51 U		4.51	µg/kg		680	1,000,000	
SWSD022	VOC	1,1,2,2-Tetrachloroethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	1,1,2-Trichloroethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	1,1-Dichloroethane	4.51 U		4.51	µg/kg		270	480,000	
SWSD022	VOC	1,1-Dichloroethylene	4.51 U		4.51	µg/kg		330	1,000,000	
SWSD022	VOC	1,2-Dichloroethane	4.51 U		4.51	µg/kg		20	60,000	
SWSD022	VOC	1,2-Dichloropropane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	2-Butanone	22.5 U		22.5	µg/kg		120	1,000,000	
SWSD022	VOC	2-Hexanone	22.5 U		22.5	µg/kg		NE	NE	
SWSD022	VOC	4-Methyl-2-pentanone	22.5 U		22.5	µg/kg		NE	NE	
SWSD022	VOC	Acetone	22.5 U		22.5	µg/kg		50	1,000,000	
SWSD022	VOC	Benzene	4.51 U		4.51	µg/kg		60	89,000	
SWSD022	VOC	Bromodichloromethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Bromoforn	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Bromomethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Carbon disulfide	22.5 U		22.5	µg/kg		NE	NE	
SWSD022	VOC	Carbon tetrachloride	4.51 U		4.51	µg/kg		760	44,000	
SWSD022	VOC	Chlorobenzene	4.51 U		4.51	µg/kg		1,100	1,000,000	
SWSD022	VOC	Chloroethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Chloroform	4.51 U		4.51	µg/kg		370	700,000	
SWSD022	VOC	Chloromethane	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	cis-1,2-Dichloroethylene	4.51 U		4.51	µg/kg		250	1,000,000	
SWSD022	VOC	cis-1,3-Dichloropropylene	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Ethylbenzene	4.51 U		4.51	µg/kg		1,000	780,000	
SWSD022	VOC	Methylene chloride	4.51 U		4.51	µg/kg		50	1,000,000	
SWSD022	VOC	Styrene	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Tetrachloroethylene	4.51 U		4.51	µg/kg		1,300	300,000	
SWSD022	VOC	Toluene	4.51 U		4.51	µg/kg		700	1,000,000	
SWSD022	VOC	trans-1,2-Dichloroethylene	4.51 U		4.51	µg/kg		190	1,000,000	
SWSD022	VOC	trans-1,3-Dichloropropylene	4.51 U		4.51	µg/kg		NE	NE	
SWSD022	VOC	Trichloroethylene	4.51 U		4.51	µg/kg		470	400,000	
SWSD022	VOC	Vinyl chloride	4.51 U		4.51	µg/kg		20	27,000	
SWSD022	VOC	Xylenes (total)	4.51 U		4.51	µg/kg		260	1,000,000	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
SWSD022	PAH	Acenaphthene	74.9	U	74.9	µg/kg		20,000	1,000,000	
SWSD022	PAH	Acenaphthylene	74.9	U	74.9	µg/kg		100,000	1,000,000	
SWSD022	PAH	Anthracene	74.9	U	74.9	µg/kg		100,000	1,000,000	
SWSD022	PAH	Benzo(a)anthracene	76.4		7.49	µg/kg		1,000	11,000	
SWSD022	PAH	Benzo(a)pyrene	68.4		7.49	µg/kg		1,000	1,100	
SWSD022	PAH	Benzo(b)fluoranthene	79.3		7.49	µg/kg		1,000	11,000	
SWSD022	PAH	Benzo(ghi)perylene	52.9		7.49	µg/kg		100,000	1,000,000	
SWSD022	PAH	Benzo(k)fluoranthene	3.74	U	3.74	µg/kg		800,000	110,000	
SWSD022	PAH	Chrysene	54.1		7.49	µg/kg		1,000	110,000	
SWSD022	PAH	Dibenzo(a,h)anthracene	7.49	U	7.49	µg/kg		330	1,100	
SWSD022	PAH	Fluoranthene	84.2		7.49	µg/kg		100,000	1,000,000	
SWSD022	PAH	Fluorene	74.9	U	74.9	µg/kg		30,000	1,000,000	
SWSD022	PAH	Indeno(1,2,3-cd)pyrene	7.49	U	7.49	µg/kg		500	11,000	
SWSD022	PAH	Naphthalene	74.9	U	74.9	µg/kg		12,000	1,000,000	
SWSD022	PAH	Phenanthrene	41.2	J	74.9	µg/kg		100,000	1,000,000	
SWSD022	PAH	Pyrene	84.4		7.49	µg/kg		100,000	1,000,000	
SWSD022	PCB	Aroclor-1016	74.7	U	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1221	74.7	U	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1232	74.7	U	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1242	74.7	U	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1248	74.7	U	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1254	48.5	J	24.9	µg/kg		100	25,000	
SWSD022	PCB	Aroclor-1260	30.1	J	24.9	µg/kg		100	25,000	
SWSD022	Pesticide	4,4'-DDD	59.8	U	59.8	µg/kg		3.3	180,000	
SWSD022	Pesticide	4,4'-DDE	59.8	U	59.8	µg/kg		3.3	120,000	
SWSD022	Pesticide	4,4'-DDT	59.8	U	59.8	µg/kg		3.3	94,000	
SWSD022	Pesticide	Aldrin	29.9	U	29.9	µg/kg		5	1,400	
SWSD022	Pesticide	alpha-BHC	29.9	U	29.9	µg/kg		20	6,800	
SWSD022	Pesticide	alpha-Chlordane	29.9	U	29.9	µg/kg		94	47,000	
SWSD022	Pesticide	beta-BHC	29.9	U	29.9	µg/kg		36	14,000	
SWSD022	Pesticide	delta-BHC	29.9	U	29.9	µg/kg		40	1,000,000	
SWSD022	Pesticide	Dieldrin	59.8	U	59.8	µg/kg		5	2,800	
SWSD022	Pesticide	Endosulfan I	29.9	U	29.9	µg/kg		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endosulfan II	59.8	U	59.8	µg/kg		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endosulfan sulfate	59.8	U	59.8	µg/kg		2,400 ^d	920,000 ^d	
SWSD022	Pesticide	Endrin	59.8	U	59.8	µg/kg		14	410,000	
SWSD022	Pesticide	Endrin aldehyde	59.8	U	59.8	µg/kg		NE	NE	
SWSD022	Pesticide	Endrin ketone	59.8	U	59.8	µg/kg		NE	NE	
SWSD022	Pesticide	gamma-BHC (Lindane)	29.9	U	29.9	µg/kg		100	23,000	
SWSD022	Pesticide	gamma-Chlordane	29.9	U	29.9	µg/kg		NE	NE	
SWSD022	Pesticide	Heptachlor	29.9	U	29.9	µg/kg		42	29,000	
SWSD022	Pesticide	Heptachlor epoxide	29.9	U	29.9	µg/kg		NE	NE	
SWSD022	Pesticide	Methoxychlor	299	U	299	µg/kg		NE	NE	
SWSD022	Pesticide	Toxaphene	1490	U	1490	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
Sample Date: 10/29/2008										
SWSD023	Radiological	Radium-226	0.975		0.463	pCi/g	0.450	NE	NE	5 ^a
SWSD023	Radiological	Radium-228	1.850		0.453	pCi/g	0.481	NE	NE	5 ^a
		Total Radium ^a	2.825			pCi/g				5 ^a
SWSD023	Radiological	Thorium-228	0.759		0.622	pCi/g	0.516	NE	NE	5
SWSD023	Radiological	Thorium-230	0.519	J	0.251	pCi/g	0.344	NE	NE	5
SWSD023	Radiological	Thorium-232	0.908		0.130	pCi/g	0.464	NE	NE	5
SWSD023	Radiological	Uranium-234	0.903		0.146	pCi/g	0.320	NE	NE	90 ^b
SWSD023	Radiological	Uranium-235	0.022		0.129	pCi/g	0.059	NE	NE	90 ^b
SWSD023	Radiological	Uranium-238	0.880		0.146	pCi/g	0.315	NE	NE	90 ^b
		Total Uranium ^b	1.805			pCi/g				90 ^b
SWSD023	Metal	Aluminum	5960		1.79	mg/kg		NE	NE	
SWSD023	Metal	Antimony	2.1		0.563	mg/kg		NE	NE	
SWSD023	Metal	Arsenic	2.5		0.536	mg/kg		13	16	
SWSD023	Metal	Barium	54.5		0.179	mg/kg		350	10,000	
SWSD023	Metal	Beryllium	0.27		0.0357	mg/kg		7	2,700	
SWSD023	Metal	Boron	9.5		1.43	mg/kg		NE	NE	
SWSD023	Metal	Cadmium	0.35	J	0.0357	mg/kg		3	60	
SWSD023	Metal	Calcium	21300		53.6	mg/kg		NE	NE	
SWSD023	Metal	Chromium	11		0.357	mg/kg		NE	NE	
SWSD023	Metal	Cobalt	3.8		0.0357	mg/kg		NE	NE	
SWSD023	Metal	Copper	72	J	0.0736	mg/kg		50	10,000	
SWSD023	Metal	Iron	8310		3.57	mg/kg		NE	NE	
SWSD023	Metal	Lead	39.8		0.179	mg/kg		63	3,900	
SWSD023	Metal	Lithium	9.5		0.715	mg/kg		NE	NE	
SWSD023	Metal	Magnesium	9260		1.79	mg/kg		NE	NE	
SWSD023	Metal	Manganese	234		0.357	mg/kg		1,600	10,000	
SWSD023	Metal	Mercury	191		6.6	µg/kg		180 ^c	5700 ^c	
SWSD023	Metal	Nickel	10.2		0.179	mg/kg		30	10,000	
SWSD023	Metal	Potassium	1460	J	28.6	mg/kg		NE	NE	
SWSD023	Metal	Selenium	0.893	U	0.893	mg/kg		4	6,800	
SWSD023	Metal	Silver	0.26	J	0.181	mg/kg		2	6,800	
SWSD023	Metal	Sodium	251		28.6	mg/kg		NE	NE	
SWSD023	Metal	Thallium	0.15	J	0.0715	mg/kg		NE	NE	
SWSD023	Metal	Vanadium	13.2		0.715	mg/kg		NE	NE	
SWSD023	Metal	Zinc	163		0.715	mg/kg		109	10,000	
SWSD023	VOC	1,1,1-Trichloroethane	1.72	U	1.72	µg/kg		680	1,000,000	
SWSD023	VOC	1,1,2,2-Tetrachloroethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	1,1,2-Trichloroethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	1,1-Dichloroethane	1.72	U	1.72	µg/kg		270	480,000	
SWSD023	VOC	1,1-Dichloroethylene	1.72	U	1.72	µg/kg		330	1,000,000	
SWSD023	VOC	1,2-Dichloroethane	1.72	U	1.72	µg/kg		20	60,000	
SWSD023	VOC	1,2-Dichloropropane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	2-Butanone	8.6	U	8.6	µg/kg		120	1,000,000	
SWSD023	VOC	2-Hexanone	8.6	U	8.6	µg/kg		NE	NE	
SWSD023	VOC	4-Methyl-2-pentanone	8.6	U	8.6	µg/kg		NE	NE	
SWSD023	VOC	Acetone	12.7		8.6	µg/kg		50	1,000,000	
SWSD023	VOC	Benzene	1.72	U	1.72	µg/kg		60	89,000	
SWSD023	VOC	Bromodichloromethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Bromoform	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Bromomethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Carbon disulfide	8.6	U	8.6	µg/kg		NE	NE	
SWSD023	VOC	Carbon tetrachloride	1.72	U	1.72	µg/kg		760	44,000	
SWSD023	VOC	Chlorobenzene	1.72	U	1.72	µg/kg		1,100	1,000,000	
SWSD023	VOC	Chloroethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Chloroform	1.72	U	1.72	µg/kg		370	700,000	
SWSD023	VOC	Chloromethane	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	cis-1,2-Dichloroethylene	11.9		1.72	µg/kg		250	1,000,000	
SWSD023	VOC	cis-1,3-Dichloropropylene	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Ethylbenzene	1.72	U	1.72	µg/kg		1,000	780,000	
SWSD023	VOC	Methylene chloride	17.2	U	17.2	µg/kg		50	1,000,000	
SWSD023	VOC	Styrene	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Tetrachloroethylene	28.9		1.72	µg/kg		1,300	300,000	
SWSD023	VOC	Toluene	1.72	U	1.72	µg/kg		700	1,000,000	
SWSD023	VOC	trans-1,2-Dichloroethylene	1.72	U	1.72	µg/kg		190	1,000,000	
SWSD023	VOC	trans-1,3-Dichloropropylene	1.72	U	1.72	µg/kg		NE	NE	
SWSD023	VOC	Trichloroethylene	14.1		1.72	µg/kg		470	400,000	
SWSD023	VOC	Vinyl chloride	1.72	U	1.72	µg/kg		20	27,000	
SWSD023	VOC	Xylenes (total)	1.72	U	1.72	µg/kg		260	1,000,000	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use - Industrial**	DOE Cleanup Criteria**
SWSD023	PAH	Acenaphthene	61.8	U	61.8	µg/kg		20,000	1,000,000	
SWSD023	PAH	Acenaphthylene	61.8	U	61.8	µg/kg		100,000	1,000,000	
SWSD023	PAH	Anthracene	57.3	J	61.8	µg/kg		100,000	1,000,000	
SWSD023	PAH	Benzo(a)anthracene	323		61.8	µg/kg		1,000	11,000	
SWSD023	PAH	Benzo(a)pyrene	351		61.8	µg/kg		1,000	1,100	
SWSD023	PAH	Benzo(b)fluoranthene	408		61.8	µg/kg		1,000	11,000	
SWSD023	PAH	Benzo(ghi)perylene	251		61.8	µg/kg		100,000	1,000,000	
SWSD023	PAH	Benzo(k)fluoranthene	3.09	U	3.09	µg/kg		800,000	110,000	
SWSD023	PAH	Chrysene	256		61.8	µg/kg		1,000	110,000	
SWSD023	PAH	Dibenzo(a,h)anthracene	6.18	U	61.8	µg/kg		330	1,100	
SWSD023	PAH	Fluoranthene	492		61.8	µg/kg		100,000	1,000,000	
SWSD023	PAH	Fluorene	61.8	U	61.8	µg/kg		30,000	1,000,000	
SWSD023	PAH	Indeno(1,2,3-cd)pyrene	6.18	U	61.8	µg/kg		500	11,000	
SWSD023	PAH	Naphthalene	61.8	U	61.8	µg/kg		12,000	1,000,000	
SWSD023	PAH	Phenanthrene	275		61.8	µg/kg		100,000	1,000,000	
SWSD023	PAH	Pyrene	444		61.8	µg/kg		100,000	1,000,000	
SWSD023	PCB	Aroclor-1016	30.9	U	10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1221	30.9	U	10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1232	30.9	U	10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1242	30.9	U	10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1248	33.6		10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1254	33.4		10.3	µg/kg		100	25,000	
SWSD023	PCB	Aroclor-1260	38.3	J	10.3	µg/kg		100	25,000	
SWSD023	Pesticide	4,4'-DDD	24.6	U	24.6	µg/kg		3.3	180,000	
SWSD023	Pesticide	4,4'-DDE	24.6	U	24.6	µg/kg		3.3	120,000	
SWSD023	Pesticide	4,4'-DDT	24.6	U	24.6	µg/kg		3.3	94,000	
SWSD023	Pesticide	Aldrin	12.3	U	12.3	µg/kg		5	1,400	
SWSD023	Pesticide	alpha-BHC	12.3	U	12.3	µg/kg		20	6,800	
SWSD023	Pesticide	alpha-Chlordane	12.3	U	12.3	µg/kg		94	47,000	
SWSD023	Pesticide	beta-BHC	12.3	U	12.3	µg/kg		36	14,000	
SWSD023	Pesticide	delta-BHC	12.3	U	12.3	µg/kg		40	1,000,000	
SWSD023	Pesticide	Dieldrin	24.6	U	24.6	µg/kg		5	2,800	
SWSD023	Pesticide	Endosulfan I	12.3	U	12.3	µg/kg		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endosulfan II	24.6	U	24.6	µg/kg		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endosulfan sulfate	24.6	U	24.6	µg/kg		2,400 ^d	920,000 ^d	
SWSD023	Pesticide	Endrin	24.6	U	24.6	µg/kg		14	410,000	
SWSD023	Pesticide	Endrin aldehyde	24.6	U	24.6	µg/kg		NE	NE	
SWSD023	Pesticide	Endrin ketone	24.6	U	24.6	µg/kg		NE	NE	
SWSD023	Pesticide	gamma-BHC (Lindane)	12.3	U	12.3	µg/kg		100	23,000	
SWSD023	Pesticide	gamma-Chlordane	12.3	U	12.3	µg/kg		NE	NE	
SWSD023	Pesticide	Heptachlor	12.3	U	12.3	µg/kg		42	29,000	
SWSD023	Pesticide	Heptachlor epoxide	12.3	U	12.3	µg/kg		NE	NE	
SWSD023	Pesticide	Methoxychlor	123	U	123	µg/kg		NE	NE	
SWSD023	Pesticide	Toxaphene	616	U	616	µg/kg		NE	NE	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
Sample Date: 10/28/2008										
SWSD024	Radiological	Radium-226	0.659		0.368	pCi/g	0.352	NE	NE	5 ^a
SWSD024	Radiological	Radium-228	1.100		0.544	pCi/g	0.433	NE	NE	5 ^a
		Total Radium ^a	1.759			pCi/g				5 ^a
SWSD024	Radiological	Thorium-228	0.884		0.349	pCi/g	0.402	NE	NE	5
SWSD024	Radiological	Thorium-230	0.918	J	0.187	pCi/g	0.379	NE	NE	5
SWSD024	Radiological	Thorium-232	1.220		0.173	pCi/g	0.450	NE	NE	5
SWSD024	Radiological	Uranium-234	3.060		0.153	pCi/g	0.727	NE	NE	90 ^b
SWSD024	Radiological	Uranium-235	0.212		0.170	pCi/g	0.176	NE	NE	90 ^b
SWSD024	Radiological	Uranium-238	3.020		0.071	pCi/g	0.719	NE	NE	90 ^b
		Total Uranium ^b	6.292			pCi/g				90 ^b
SWSD024	Metal	Aluminum	21500	J	15.3	mg/kg		NE	NE	
SWSD024	Metal	Antimony	1.5	J	0.934	mg/kg		NE	NE	
SWSD024	Metal	Arsenic	6.1	J	0.92	mg/kg		13	16	
SWSD024	Metal	Barium	129	J	0.307	mg/kg		350	10,000	
SWSD024	Metal	Beryllium	0.9	J	0.0613	mg/kg		7	2,700	
SWSD024	Metal	Boron	38.7	J	2.45	mg/kg		NE	NE	
SWSD024	Metal	Cadmium	0.92		0.0613	mg/kg		3	60	
SWSD024	Metal	Calcium	22700	J	18.4	mg/kg		NE	NE	
SWSD024	Metal	Chromium	27.4	J	0.613	mg/kg		NE	NE	
SWSD024	Metal	Cobalt	11.9	J	0.0613	mg/kg		NE	NE	
SWSD024	Metal	Copper	65.3	J	0.123	mg/kg		50	10,000	
SWSD024	Metal	Iron	29000	J	30.7	mg/kg		NE	NE	
SWSD024	Metal	Lead	32.7	J	0.307	mg/kg		63	3,900	
SWSD024	Metal	Lithium	29.3	J	1.23	mg/kg		NE	NE	
SWSD024	Metal	Magnesium	11600	J	3.07	mg/kg		NE	NE	
SWSD024	Metal	Manganese	375	J	0.613	mg/kg		1,600	10,000	
SWSD024	Metal	Mercury	153	J	11.7	µg/kg		180 ^c	5700 ^c	
SWSD024	Metal	Nickel	29.2	J	0.307	mg/kg		30	10,000	
SWSD024	Metal	Potassium	4030	J	49.1	mg/kg		NE	NE	
SWSD024	Metal	Selenium	1.53	U	1.53	mg/kg		4	6,800	
SWSD024	Metal	Silver	0.301	U	0.301	mg/kg		2	6,800	
SWSD024	Metal	Sodium	220	J	49.1	mg/kg		NE	NE	
SWSD024	Metal	Thallium	0.25	J	0.123	mg/kg		NE	NE	
SWSD024	Metal	Vanadium	43.2	J	1.23	mg/kg		NE	NE	
SWSD024	Metal	Zinc	426	J	1.23	mg/kg		109	10,000	
SWSD024	VOC	1,1,1-Trichloroethane	2.95	U	2.95	µg/kg		680	1,000,000	
SWSD024	VOC	1,1,2,2-Tetrachloroethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	1,1,2-Trichloroethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	1,1-Dichloroethane	2.95	U	2.95	µg/kg		270	480,000	
SWSD024	VOC	1,1-Dichloroethylene	2.95	U	2.95	µg/kg		330	1,000,000	
SWSD024	VOC	1,2-Dichloroethane	2.95	U	2.95	µg/kg		20	60,000	
SWSD024	VOC	1,2-Dichloropropane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	2-Butanone	14.7	U	14.7	µg/kg		120	1,000,000	
SWSD024	VOC	2-Hexanone	14.7	U	14.7	µg/kg		NE	NE	
SWSD024	VOC	4-Methyl-2-pentanone	14.7	U	14.7	µg/kg		NE	NE	
SWSD024	VOC	Acetone	14.7	U	14.7	µg/kg		50	1,000,000	
SWSD024	VOC	Benzene	2.95	U	2.95	µg/kg		60	89,000	
SWSD024	VOC	Bromodichloromethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Bromoforn	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Bromomethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Carbon disulfide	14.7	U	14.7	µg/kg		NE	NE	
SWSD024	VOC	Carbon tetrachloride	2.95	U	2.95	µg/kg		760	44,000	
SWSD024	VOC	Chlorobenzene	2.95	U	2.95	µg/kg		1,100	1,000,000	
SWSD024	VOC	Chloroethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Chloroform	2.95	U	2.95	µg/kg		370	700,000	
SWSD024	VOC	Chloromethane	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	cis-1,2-Dichloroethylene	6.18		2.95	µg/kg		250	1,000,000	
SWSD024	VOC	cis-1,3-Dichloropropylene	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Ethylbenzene	2.95	U	2.95	µg/kg		1,000	780,000	
SWSD024	VOC	Methylene chloride	29.5	U	29.5	µg/kg		50	1,000,000	
SWSD024	VOC	Styrene	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Tetrachloroethylene	16.1		2.95	µg/kg		1,300	300,000	
SWSD024	VOC	Toluene	2.95	U	2.95	µg/kg		700	1,000,000	
SWSD024	VOC	trans-1,2-Dichloroethylene	2.95	U	2.95	µg/kg		190	1,000,000	
SWSD024	VOC	trans-1,3-Dichloropropylene	2.95	U	2.95	µg/kg		NE	NE	
SWSD024	VOC	Trichloroethylene	7.07		2.95	µg/kg		470	400,000	
SWSD024	VOC	Vinyl chloride	2.95	U	2.95	µg/kg		20	27,000	
SWSD024	VOC	Xylenes (total)	2.95	U	2.95	µg/kg		260	1,000,000	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
SWSD024	PAH	Acenaphthene	51.1	U	51.1	µg/kg		20,000	1,000,000	
SWSD024	PAH	Acenaphthylene	51.1	U	51.1	µg/kg		100,000	1,000,000	
SWSD024	PAH	Anthracene	51.1	U	51.1	µg/kg		100,000	1,000,000	
SWSD024	PAH	Benzo(a)anthracene	88.8		51.1	µg/kg		1,000	11,000	
SWSD024	PAH	Benzo(a)pyrene	93.7		51.1	µg/kg		1,000	1,100	
SWSD024	PAH	Benzo(b)fluoranthene	51.1	U	51.1	µg/kg		1,000	11,000	
SWSD024	PAH	Benzo(ghi)perylene	116	J	51.1	µg/kg		100,000	1,000,000	
SWSD024	PAH	Benzo(k)fluoranthene	2.56	U	2.56	µg/kg		800,000	110,000	
SWSD024	PAH	Chrysene	51.1	U	51.1	µg/kg		1,000	110,000	
SWSD024	PAH	Dibenzo(a,h)anthracene	51.1	U	51.1	µg/kg		330	1,100	
SWSD024	PAH	Fluoranthene	104		51.1	µg/kg		100,000	1,000,000	
SWSD024	PAH	Fluorene	51.1	U	51.1	µg/kg		30,000	1,000,000	
SWSD024	PAH	Indeno(1,2,3-cd)pyrene	51.1	U	51.1	µg/kg		500	11,000	
SWSD024	PAH	Naphthalene	51.1	U	51.1	µg/kg		12,000	1,000,000	
SWSD024	PAH	Phenanthrene	60.8		51.1	µg/kg		100,000	1,000,000	
SWSD024	PAH	Pyrene	106		51.1	µg/kg		100,000	1,000,000	
SWSD024	PCB	Aroclor-1016	10.1	U	3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1221	10.1	U	3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1232	10.1	U	3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1242	10.1	U	3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1248	29.1		3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1254	22.2		3.36	µg/kg		100	25,000	
SWSD024	PCB	Aroclor-1260	12.2		3.36	µg/kg		100	25,000	
SWSD024	Pesticide	4,4'-DDD	40.9	U	40.9	µg/kg		3.3	180,000	
SWSD024	Pesticide	4,4'-DDE	40.9	U	40.9	µg/kg		3.3	120,000	
SWSD024	Pesticide	4,4'-DDT	40.9	U	40.9	µg/kg		3.3	94,000	
SWSD024	Pesticide	Aldrin	20.4	U	20.4	µg/kg		5	1,400	
SWSD024	Pesticide	alpha-BHC	20.4	U	20.4	µg/kg		20	6,800	
SWSD024	Pesticide	alpha-Chlordane	20.4	U	20.4	µg/kg		94	47,000	
SWSD024	Pesticide	beta-BHC	20.4	U	20.4	µg/kg		36	14,000	
SWSD024	Pesticide	delta-BHC	20.4	U	20.4	µg/kg		40	1,000,000	
SWSD024	Pesticide	Dieldrin	40.9	U	40.9	µg/kg		5	2,800	
SWSD024	Pesticide	Endosulfan I	20.4	U	20.4	µg/kg		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endosulfan II	40.9	U	40.9	µg/kg		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endosulfan sulfate	40.9	U	40.9	µg/kg		2,400 ^d	920,000 ^d	
SWSD024	Pesticide	Endrin	40.9	U	40.9	µg/kg		14	410,000	
SWSD024	Pesticide	Endrin aldehyde	40.9	U	40.9	µg/kg		NE	NE	
SWSD024	Pesticide	Endrin ketone	40.9	U	40.9	µg/kg		NE	NE	
SWSD024	Pesticide	gamma-BHC (Lindane)	20.4	U	20.4	µg/kg		100	23,000	
SWSD024	Pesticide	gamma-Chlordane	20.4	U	20.4	µg/kg		NE	NE	
SWSD024	Pesticide	Heptachlor	20.4	U	20.4	µg/kg		42	29,000	
SWSD024	Pesticide	Heptachlor epoxide	20.4	U	20.4	µg/kg		NE	NE	
SWSD024	Pesticide	Methoxychlor	204	U	204	µg/kg		NE	NE	
SWSD024	Pesticide	Toxaphene	1020	U	1020	µg/kg		NE	NE	

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NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 10/27/2008										
WDD1	Radiological	Radium-226	0.834		0.412	pCi/g	0.397	NE	NE	5 ^a
WDD1	Radiological	Radium-228	2.420		0.551	pCi/g	0.575	NE	NE	5 ^a
		Total Radium ^a	3.254			pCi/g				5 ^a
WDD1	Radiological	Thorium-228	1.380		0.440	pCi/g	0.546	NE	NE	5
WDD1	Radiological	Thorium-230	1.570		0.186	pCi/g	0.545	NE	NE	5
WDD1	Radiological	Thorium-232	1.230		0.167	pCi/g	0.465	NE	NE	5
WDD1	Radiological	Uranium-234	1.410		0.141	pCi/g	0.421	NE	NE	90 ^b
WDD1	Radiological	Uranium-235	0.060	U	0.081	pCi/g	0.085	NE	NE	90 ^b
WDD1	Radiological	Uranium-238	1.900		0.109	pCi/g	0.506	NE	NE	90 ^b
		Total Uranium ^b	3.310			pCi/g				90 ^b
WDD1	Metal	Aluminum	12100.00	J	12	mg/kg		NE	NE	
WDD1	Metal	Antimony	1.20	J	0.753	mg/kg		NE	NE	
WDD1	Metal	Arsenic	2.10	J	0.719	mg/kg		13	16	
WDD1	Metal	Barium	88.10	J	0.24	mg/kg		350	10,000	
WDD1	Metal	Beryllium	0.57		0.0479	mg/kg		7	2,700	
WDD1	Metal	Boron	13.80		1.92	mg/kg		NE	NE	
WDD1	Metal	Cadmium	0.19	J	0.0479	mg/kg		3	60	
WDD1	Metal	Calcium	15700.00	J	14.4	mg/kg		NE	NE	
WDD1	Metal	Chromium	19.90		0.479	mg/kg		NE	NE	
WDD1	Metal	Cobalt	7.70		0.0479	mg/kg		NE	NE	
WDD1	Metal	Copper	18.00		0.0959	mg/kg		50	10,000	
WDD1	Metal	Iron	14600.00	J	4.79	mg/kg		NE	NE	
WDD1	Metal	Lead	8.60		0.24	mg/kg		63	3,900	
WDD1	Metal	Lithium	20.80		0.959	mg/kg		NE	NE	
WDD1	Metal	Magnesium	7370.00	J	12	mg/kg		NE	NE	
WDD1	Metal	Manganese	382.00	J	0.479	mg/kg		1,600	10,000	
WDD1	Metal	Mercury	19.00		9.99	µg/kg		180 ^c	5700 ^c	
WDD1	Metal	Nickel	17.20		0.24	mg/kg		30	10,000	
WDD1	Metal	Potassium	3120.00	J	38.4	mg/kg		NE	NE	
WDD1	Metal	Selenium	1.20	U	1.2	mg/kg		4	6,800	
WDD1	Metal	Silver	0.24	U	0.243	mg/kg		2	6,800	
WDD1	Metal	Sodium	268.00		38.4	mg/kg		NE	NE	
WDD1	Metal	Thallium	0.13	J	0.0959	mg/kg		NE	NE	
WDD1	Metal	Vanadium	20.10		0.959	mg/kg		NE	NE	
WDD1	Metal	Zinc	90.70	J	0.959	mg/kg		109	10,000	
WDD1	VOC	1,1,1-Trichloroethane	2.47	U	2.47	µg/kg		680	1,000,000	
WDD1	VOC	1,1,2,2-Tetrachloroethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	1,1,2-Trichloroethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	1,1-Dichloroethane	2.47	U	2.47	µg/kg		270	480,000	
WDD1	VOC	1,1-Dichloroethylene	2.47	U	2.47	µg/kg		330	1,000,000	
WDD1	VOC	1,2-Dichloroethane	2.47	U	2.47	µg/kg		20	60,000	
WDD1	VOC	1,2-Dichloropropane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	2-Butanone	12.40	U	12.4	µg/kg		120	1,000,000	
WDD1	VOC	2-Hexanone	12.40	U	12.4	µg/kg		NE	NE	
WDD1	VOC	4-Methyl-2-pentanone	12.40	U	12.4	µg/kg		NE	NE	
WDD1	VOC	Acetone	12.40	U	12.4	µg/kg		50	1,000,000	
WDD1	VOC	Benzene	2.47	U	2.47	µg/kg		60	89,000	
WDD1	VOC	Bromodichloromethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Bromoforn	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Bromomethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Carbon disulfide	12.40	U	12.4	µg/kg		NE	NE	
WDD1	VOC	Carbon tetrachloride	2.47	U	2.47	µg/kg		760	44,000	
WDD1	VOC	Chlorobenzene	2.47	U	2.47	µg/kg		1,100	1,000,000	
WDD1	VOC	Chloroethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Chloroform	2.47	U	2.47	µg/kg		370	700,000	
WDD1	VOC	Chloromethane	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	cis-1,2-Dichloromethylene	2.47	U	2.47	µg/kg		250	1,000,000	
WDD1	VOC	cis-1,3-Dichloropropylene	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Ethylbenzene	2.47	U	2.47	µg/kg		1,000	780,000	
WDD1	VOC	Methylene chloride	24.70	U	24.7	µg/kg		50	1,000,000	
WDD1	VOC	Styrene	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Tetrachloroethylene	2.47	U	2.47	µg/kg		1,300	300,000	
WDD1	VOC	Toluene	2.47	U	2.47	µg/kg		700	1,000,000	
WDD1	VOC	trans-1,2-Dichloroethylene	2.47	U	2.47	µg/kg		190	1,000,000	
WDD1	VOC	trans-1,3-Dichloropropylene	2.47	U	2.47	µg/kg		NE	NE	
WDD1	VOC	Trichloroethylene	2.47	U	2.47	µg/kg		470	400,000	
WDD1	VOC	Vinyl chloride	2.47	U	2.47	µg/kg		20	27,000	
WDD1	VOC	Xylenes (total)	2.47	U	2.47	µg/kg		260	1,000,000	

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NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

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SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
WDD1	PAH	Acenaphthene	41.20	U	41.2	µg/kg		20,000	1,000,000	
WDD1	PAH	Acenaphthylene	41.20	U	41.2	µg/kg		100,000	1,000,000	
WDD1	PAH	Anthracene	41.20	U	41.2	µg/kg		100,000	1,000,000	
WDD1	PAH	Benzo(a)anthracene	4.12	U	4.12	µg/kg		1,000	11,000	
WDD1	PAH	Benzo(a)pyrene	20.20		4.12	µg/kg		1,000	1,100	
WDD1	PAH	Benzo(b)fluoranthene	4.12	U	4.12	µg/kg		1,000	11,000	
WDD1	PAH	Benzo(ghi)perylene	12.70		4.12	µg/kg		100,000	1,000,000	
WDD1	PAH	Benzo(k)fluoranthene	2.06	U	2.06	µg/kg		800,000	110,000	
WDD1	PAH	Chrysene	23.70		4.12	µg/kg		1,000	110,000	
WDD1	PAH	Dibenzo(a,h)anthracene	4.12	U	4.12	µg/kg		330	1,100	
WDD1	PAH	Fluoranthene	35.90		4.12	µg/kg		100,000	1,000,000	
WDD1	PAH	Fluorene	41.20	U	41.2	µg/kg		30,000	1,000,000	
WDD1	PAH	Indeno(1,2,3-cd)pyrene	4.12	U	4.12	µg/kg		500	11,000	
WDD1	PAH	Naphthalene	41.20	U	41.2	µg/kg		12,000	1,000,000	
WDD1	PAH	Phenanthrene	19.40	J	41.2	µg/kg		100,000	1,000,000	
WDD1	PAH	Pyrene	25.40		4.12	µg/kg		100,000	1,000,000	
WDD1	PCB	Aroclor-1016	8.21	U	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1221	8.21	U	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1232	8.21	U	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1242	8.21	U	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1248	8.21	U	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1254	6.80	J	2.73	µg/kg		100	25,000	
WDD1	PCB	Aroclor-1260	8.21	U	2.73	µg/kg		100	25,000	
WDD1	Pesticide	4,4'-DDD	32.90	U	32.9	µg/kg		3.3	180,000	
WDD1	Pesticide	4,4'-DDE	32.90	U	32.9	µg/kg		3.3	120,000	
WDD1	Pesticide	4,4'-DDT	32.90	U	32.9	µg/kg		3.3	94,000	
WDD1	Pesticide	Aldrin	16.50	U	16.5	µg/kg		5	1,400	
WDD1	Pesticide	alpha-BHC	16.50	U	16.5	µg/kg		20	6,800	
WDD1	Pesticide	alpha-Chlordane	16.50	U	16.5	µg/kg		94	47,000	
WDD1	Pesticide	beta-BHC	16.50	U	16.5	µg/kg		36	14,000	
WDD1	Pesticide	delta-BHC	16.50	U	16.5	µg/kg		40	1,000,000	
WDD1	Pesticide	Dieldrin	32.90	U	32.9	µg/kg		5	2,800	
WDD1	Pesticide	Endosulfan I	16.50	U	16.5	µg/kg		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endosulfan II	32.90	U	32.9	µg/kg		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endosulfan sulfate	32.90	U	32.9	µg/kg		2,400 ^d	920,000 ^d	
WDD1	Pesticide	Endrin	32.90	U	32.9	µg/kg		14	410,000	
WDD1	Pesticide	Endrin aldehyde	32.90	U	32.9	µg/kg		NE	NE	
WDD1	Pesticide	Endrin ketone	32.90	U	32.9	µg/kg		NE	NE	
WDD1	Pesticide	gamma-BHC (Lindane)	16.50	U	16.5	µg/kg		100	23,000	
WDD1	Pesticide	gamma-Chlordane	16.50	U	16.5	µg/kg		NE	NE	
WDD1	Pesticide	Heptachlor	16.50	U	16.5	µg/kg		42	29,000	
WDD1	Pesticide	Heptachlor epoxide	16.50	U	16.5	µg/kg		NE	NE	
WDD1	Pesticide	Methoxychlor	165.00	U	165	µg/kg		NE	NE	
WDD1	Pesticide	Toxaphene	823.00	U	823	µg/kg		NE	NE	

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NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOR Cleanup Criteria**
Sample Date: 10/27/2008										
WDD2	Radiological	Radium-226	0.961		0.597	pCi/g	0.515	NR	NE	5 ^a
WDD2	Radiological	Radium-228	0.834		0.460	pCi/g	0.361	NE	NE	5 ^a
		Total Radium ^a	1.795			pCi/g				5 ^a
WDD2	Radiological	Thorium-228	0.934		0.377	pCi/g	0.429	NE	NE	5
WDD2	Radiological	Thorium-230	0.797	J	0.184	pCi/g	0.357	NE	NE	5
WDD2	Radiological	Thorium-232	0.849		0.086	pCi/g	0.366	NE	NE	5
WDD2	Radiological	Uranium-234	1.140		0.105	pCi/g	0.365	NE	NE	90 ^b
WDD2	Radiological	Uranium-235	0.109	U	0.130	pCi/g	0.117	NE	NE	90 ^b
WDD2	Radiological	Uranium-238	1.110		0.136	pCi/g	0.360	NE	NE	90 ^b
		Total Uranium ^b	2.250			pCi/g				90 ^b
WDD2	Metal	Aluminum	11500.00	J	13.9	mg/kg		NE	NE	
WDD2	Metal	Antimony	1.20	J	0.859	mg/kg		NE	NE	
WDD2	Metal	Arsenic	2.70		0.835	mg/kg		13	16	
WDD2	Metal	Barium	100.00	J	0.278	mg/kg		350	10,000	
WDD2	Metal	Beryllium	0.49		0.0557	mg/kg		7	2,700	
WDD2	Metal	Boron	16.40		2.23	mg/kg		NE	NE	
WDD2	Metal	Cadmium	0.28		0.0557	mg/kg		3	60	
WDD2	Metal	Calcium	20000.00	J	16.7	mg/kg		NE	NE	
WDD2	Metal	Chromium	19.50		0.557	mg/kg		NE	NE	
WDD2	Metal	Cobalt	6.60		0.0557	mg/kg		NE	NE	
WDD2	Metal	Copper	32.70		0.111	mg/kg		50	10,000	
WDD2	Metal	Iron	17200.00	J	5.57	mg/kg		NE	NE	
WDD2	Metal	Lead	9.70		0.278	mg/kg		63	3,900	
WDD2	Metal	Lithium	19.40		1.11	mg/kg		NE	NE	
WDD2	Metal	Magnesium	5040.00	J	2.78	mg/kg		NE	NE	
WDD2	Metal	Manganese	723.00	J	2.78	mg/kg		1,600	10,000	
WDD2	Metal	Mercury	36.00		9.84	µg/kg		180 ^c	5700 ^c	
WDD2	Metal	Nickel	17.30		0.278	mg/kg		30	10,000	
WDD2	Metal	Potassium	2860.00	J	44.5	mg/kg		NE	NE	
WDD2	Metal	Selenium	1.39	U	1.39	mg/kg		4	6,800	
WDD2	Metal	Silver	0.48	J	0.277	mg/kg		2	6,800	
WDD2	Metal	Sodium	258.00		44.5	mg/kg		NE	NE	
WDD2	Metal	Thallium	0.13	J	0.111	mg/kg		NE	NE	
WDD2	Metal	Vanadium	21.20		1.11	mg/kg		NE	NE	
WDD2	Metal	Zinc	130.00	J	1.11	mg/kg		109	10,000	
WDD2	VOC	1,1,1-Trichloroethane	2.82	U	2.82	µg/kg		680	1,000,000	
WDD2	VOC	1,1,2,2-Tetrachloroethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	1,1,2-Trichloroethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	1,1-Dichloroethane	2.82	U	2.82	µg/kg		270	480,000	
WDD2	VOC	1,1-Dichloroethylene	2.82	U	2.82	µg/kg		330	1,000,000	
WDD2	VOC	1,2-Dichloroethane	2.82	U	2.82	µg/kg		20	60,000	
WDD2	VOC	1,2-Dichloropropane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	2-Butanone	14.10	U	14.1	µg/kg		120	1,000,000	
WDD2	VOC	2-Hexanone	14.10	U	14.1	µg/kg		NE	NE	
WDD2	VOC	4-Methyl-2-pentanone	14.10	U	14.1	µg/kg		NE	NE	
WDD2	VOC	Acetone	14.10	U	14.1	µg/kg		50	1,000,000	
WDD2	VOC	Benzene	2.82	U	2.82	µg/kg		60	89,000	
WDD2	VOC	Bromodichloromethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Bromoform	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Bromomethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Carbon disulfide	14.10	U	14.1	µg/kg		NE	NE	
WDD2	VOC	Carbon tetrachloride	2.82	U	2.82	µg/kg		760	44,000	
WDD2	VOC	Chlorobenzene	2.82	U	2.82	µg/kg		1,100	1,000,000	
WDD2	VOC	Chloroethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Chloroform	2.82	U	2.82	µg/kg		370	700,000	
WDD2	VOC	Chloromethane	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	cis-1,2-Dichloroethylene	2.82	U	2.82	µg/kg		250	1,000,000	
WDD2	VOC	cis-1,3-Dichloropropylene	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Ethylbenzene	2.82	U	2.82	µg/kg		1,000	780,000	
WDD2	VOC	Methylene chloride	28.20	U	2.82	µg/kg		50	1,000,000	
WDD2	VOC	Styrene	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Tetrachloroethylene	2.82	U	2.82	µg/kg		1,300	300,000	
WDD2	VOC	Toluene	2.82	U	2.82	µg/kg		700	1,000,000	
WDD2	VOC	trans-1,2-Dichloroethylene	2.82	U	2.82	µg/kg		190	1,000,000	
WDD2	VOC	trans-1,3-Dichloropropylene	2.82	U	2.82	µg/kg		NE	NE	
WDD2	VOC	Trichloroethylene	2.82	U	2.82	µg/kg		470	400,000	
WDD2	VOC	Vinyl chloride	2.82	U	2.82	µg/kg		20	27,000	
WDD2	VOC	Xylenes (total)	2.82	U	2.82	µg/kg		260	1,000,000	

Table 9

NFSS Fall 2008 Environmental Surveillance Program Findings for Sediment

20 of 23

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (+)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
WDD2	PAH	Acenaphthene	46.90	U	46.9	µg/kg		20,000	1,000,000	
WDD2	PAH	Acenaphthylene	46.90	U	46.9	µg/kg		100,000	1,000,000	
WDD2	PAH	Anthracene	46.90	U	46.9	µg/kg		100,000	1,000,000	
WDD2	PAH	Benzo(a)anthracene	150.00		4.69	µg/kg		1,000	11,000	
WDD2	PAH	Benzo(a)pyrene	109.00		4.69	µg/kg		1,000	1,100	
WDD2	PAH	Benzo(b)fluoranthene	127.00		4.69	µg/kg		1,000	11,000	
WDD2	PAH	Benzo(ghi)perylene	66.40		4.69	µg/kg		100,000	1,000,000	
WDD2	PAH	Benzo(k)fluoranthene	79.90		2.35	µg/kg		800,000	110,000	
WDD2	PAH	Chrysene	145.00		4.69	µg/kg		1,000	110,000	
WDD2	PAH	Dibenzo(a,h)anthracene	4.69	U	4.69	µg/kg		330	1,100	
WDD2	PAH	Fluoranthene	167.00		4.69	µg/kg		100,000	1,000,000	
WDD2	PAH	Fluorene	46.90	U	46.9	µg/kg		30,000	1,000,000	
WDD2	PAH	Indeno(1,2,3-cd)pyrene	4.69	U	4.69	µg/kg		500	11,000	
WDD2	PAH	Naphthalene	46.90	U	46.9	µg/kg		12,000	1,000,000	
WDD2	PAH	Phenanthrene	30.60	J	46.9	µg/kg		100,000	1,000,000	
WDD2	PAH	Pyrene	201.00		4.69	µg/kg		100,000	1,000,000	
WDD2	PCB	Aroclor-1016	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1221	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1232	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1242	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1248	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1254	9.28	U	3.09	µg/kg		100	25,000	
WDD2	PCB	Aroclor-1260	9.28	U	3.09	µg/kg		100	25,000	
WDD2	Pesticide	4,4'-DDD	37.30	U	37.3	µg/kg		3.3	180,000	
WDD2	Pesticide	4,4'-DDE	37.30	U	37.3	µg/kg		3.3	120,000	
WDD2	Pesticide	4,4'-DDT	37.30	U	37.3	µg/kg		3.3	94,000	
WDD2	Pesticide	Aldrin	18.70	U	18.7	µg/kg		5	1,400	
WDD2	Pesticide	alpha-BHC	18.70	U	18.7	µg/kg		20	6,800	
WDD2	Pesticide	alpha-Chlordane	18.70	U	18.7	µg/kg		94	47,000	
WDD2	Pesticide	beta-BHC	18.70	U	18.7	µg/kg		36	14,000	
WDD2	Pesticide	delta-BHC	18.70	U	18.7	µg/kg		40	1,000,000	
WDD2	Pesticide	Dieldrin	37.30	U	37.3	µg/kg		5	2,800	
WDD2	Pesticide	Endosulfan I	18.70	U	18.7	µg/kg		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endosulfan II	37.30	U	37.3	µg/kg		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endosulfan sulfate	37.30	U	37.3	µg/kg		2,400 ^d	920,000 ^d	
WDD2	Pesticide	Endrin	37.30	U	37.3	µg/kg		14	410,000	
WDD2	Pesticide	Endrin aldehyde	37.30	U	37.3	µg/kg		NE	NE	
WDD2	Pesticide	Endrin ketone	37.30	U	37.3	µg/kg		NE	NE	
WDD2	Pesticide	gamma-BHC (Lindane)	18.70	U	18.7	µg/kg		100	23,000	
WDD2	Pesticide	gamma-Chlordane	18.70	U	18.7	µg/kg		NE	NE	
WDD2	Pesticide	Heptachlor	18.70	U	18.7	µg/kg		42	29,000	
WDD2	Pesticide	Heptachlor epoxide	18.70	U	18.7	µg/kg		NE	NE	
WDD2	Pesticide	Methoxychlor	187.00	U	187	µg/kg		NE	NE	
WDD2	Pesticide	Toxaphene	934.00	U	934	µg/kg		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use- Industrial**	DOE Cleanup Criteria**
Sample Date: 10/28/2008										
WDD3	Radiological	Radium-226	1.680		0.418	pCi/g	0.598	NE	NE	5 ^a
WDD3	Radiological	Radium-228	1.290		0.716	pCi/g	0.535	NE	NE	5 ^a
		Total Radium ^a	2.970			pCi/g				5 ^a
WDD3	Radiological	Thorium-228	0.818		0.335	pCi/g	0.372	NE	NE	5
WDD3	Radiological	Thorium-230	1.450		0.143	pCi/g	0.480	NE	NE	5
WDD3	Radiological	Thorium-232	0.793		0.158	pCi/g	0.332	NE	NE	5
WDD3	Radiological	Uranium-234	1.000		0.143	pCi/g	0.336	NE	NE	90 ^b
WDD3	Radiological	Uranium-235	0.056	U	0.076	pCi/g	0.080	NE	NE	90 ^b
WDD3	Radiological	Uranium-238	1.330		0.119	pCi/g	0.396	NE	NE	90 ^b
		Total Uranium ^b	2.330			pCi/g				90 ^b
WDD3	Metal	Aluminum	16400	J	15.5	mg/kg		NE	NE	
WDD3	Metal	Antimony	1.3	J	0.963	mg/kg		NE	NE	
WDD3	Metal	Arsenic	3.2	J	0.932	mg/kg		13	16	
WDD3	Metal	Barium	123	J	0.311	mg/kg		350	10,000	
WDD3	Metal	Beryllium	0.66	J	0.0622	mg/kg		7	2,700	
WDD3	Metal	Boron	25.3	J	2.49	mg/kg		NE	NE	
WDD3	Metal	Cadmium	0.32	J	0.0622	mg/kg		3	60	
WDD3	Metal	Calcium	13700	J	18.6	mg/kg		NE	NE	
WDD3	Metal	Chromium	23	J	0.622	mg/kg		NE	NE	
WDD3	Metal	Cobalt	8.4	J	0.0622	mg/kg		NE	NE	
WDD3	Metal	Copper	32	J	0.124	mg/kg		50	10,000	
WDD3	Metal	Iron	21400	J	31.1	mg/kg		NE	NE	
WDD3	Metal	Lead	13.1	J	0.311	mg/kg		63	3,900	
WDD3	Metal	Lithium	24.1	J	1.24	mg/kg		NE	NE	
WDD3	Metal	Magnesium	6730	J	3.11	mg/kg		NE	NE	
WDD3	Metal	Manganese	715	J	3.11	mg/kg		1,600	10,000	
WDD3	Metal	Mercury	54.7		12.9	µg/kg		180 ^c	5700 ^c	
WDD3	Metal	Nickel	18.8	J	0.311	mg/kg		30	10,000	
WDD3	Metal	Potassium	3840	J	49.7	mg/kg		NE	NE	
WDD3	Metal	Selenium	1.55	U	1.55	mg/kg		4	6,800	
WDD3	Metal	Silver	0.311	U	0.311	mg/kg		2	6,800	
WDD3	Metal	Sodium	305	J	49.7	mg/kg		NE	NE	
WDD3	Metal	Thallium	0.18	J	0.124	mg/kg		NE	NE	
WDD3	Metal	Vanadium	30.1	J	1.24	mg/kg		NE	NE	
WDD3	Metal	Zinc	159	J	1.24	mg/kg		109	10,000	
WDD3	VOC	1,1,1-Trichloroethane	3.26	U	3.26	µg/kg		680	1,000,000	
WDD3	VOC	1,1,2,2-Tetrachloroethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	1,1,2-Trichloroethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	1,1-Dichloroethane	3.26	U	3.26	µg/kg		270	480,000	
WDD3	VOC	1,1-Dichloroethylene	3.26	U	3.26	µg/kg		330	1,000,000	
WDD3	VOC	1,2-Dichloroethane	3.26	U	3.26	µg/kg		20	60,000	
WDD3	VOC	1,2-Dichloropropane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	2-Butanone	16.3	U	16.3	µg/kg		120	1,000,000	
WDD3	VOC	2-Hexanone	16.3	U	16.3	µg/kg		NE	NE	
WDD3	VOC	4-Methyl-2-pentanone	16.3	U	16.3	µg/kg		NE	NE	
WDD3	VOC	Acetone	16.3	U	16.3	µg/kg		50	1,000,000	
WDD3	VOC	Benzene	3.26	U	3.26	µg/kg		60	89,000	
WDD3	VOC	Bromodichloromethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Bromoform	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Bromomethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Carbon disulfide	16.3	U	16.3	µg/kg		NE	NE	
WDD3	VOC	Carbon tetrachloride	3.26	U	3.26	µg/kg		760	44,000	
WDD3	VOC	Chlorobenzene	3.26	U	3.26	µg/kg		1,100	1,000,000	
WDD3	VOC	Chloroethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Chloroform	3.26	U	3.26	µg/kg		370	700,000	
WDD3	VOC	Chloromethane	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	cis-1,2-Dichloroethylene	3.78		3.26	µg/kg		250	1,000,000	
WDD3	VOC	cis-1,3-Dichloropropylene	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Ethylbenzene	3.26	U	3.26	µg/kg		1,000	780,000	
WDD3	VOC	Methylene chloride	32.6	U	32.6	µg/kg		50	1,000,000	
WDD3	VOC	Styrene	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Tetrachloroethylene	7.3		3.26	µg/kg		1,300	300,000	
WDD3	VOC	Toluene	3.26	U	3.26	µg/kg		700	1,000,000	
WDD3	VOC	trans-1,2-Dichloroethylene	3.26	U	3.26	µg/kg		190	1,000,000	
WDD3	VOC	trans-1,3-Dichloropropylene	3.26	U	3.26	µg/kg		NE	NE	
WDD3	VOC	Trichloroethylene	3.91		3.26	µg/kg		470	400,000	
WDD3	VOC	Vinyl chloride	3.26	U	3.26	µg/kg		20	27,000	
WDD3	VOC	Xylenes (total)	3.26	U	3.26	µg/kg		260	1,000,000	
WDD3	PAH	Acenaphthene	54.4	U	54.4	µg/kg		20,000	1,000,000	
WDD3	PAH	Acenaphthylene	54.4	U	54.4	µg/kg		100,000	1,000,000	
WDD3	PAH	Anthracene	257		54.4	µg/kg		100,000	1,000,000	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (±)	NY State- Unrestricted Use**	NY State- Restricted Use-Industrial**	DOE Cleanup Criteria**
WDD3	PAH	Benzo(a)anthracene	1610		27.2	µg/kg		1,000	11,000	
WDD3	PAH	Benzo(a)pyrene	2820		27.2	µg/kg		1,000	1,100	
WDD3	PAH	Benzo(b)fluoranthene	2820		27.2	µg/kg		1,000	11,000	
WDD3	PAH	Benzo(ghi)perylene	1230		27.2	µg/kg		100,000	1,000,000	
WDD3	PAH	Benzo(k)fluoranthene	1320		13.6	µg/kg		800,000	110,000	
WDD3	PAH	Chrysene	1500		27.2	µg/kg		1,000	110,000	
WDD3	PAH	Dibenzo(a,h)anthracene	195 J		5.44	µg/kg		330	1,100	
WDD3	PAH	Fluoranthene	682		5.44	µg/kg		100,000	1,000,000	
WDD3	PAH	Fluorene	54.4 U		54.4	µg/kg		30,000	1,000,000	
WDD3	PAH	Indeno(1,2,3-cd)pyrene	1380		27.2	µg/kg		500	11,000	
WDD3	PAH	Naphthalene	54.4 U		54.4	µg/kg		12,000	1,000,000	
WDD3	PAH	Phenanthrene	54.4 U		54.4	µg/kg		100,000	1,000,000	
WDD3	PAH	Pyrene	1380		27.2	µg/kg		100,000	1,000,000	
WDD3	PCB	Aroclor-1016	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1221	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1232	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1242	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1248	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1254	10.7 U		3.55	µg/kg		100	25,000	
WDD3	PCB	Aroclor-1260	10.7 U		3.55	µg/kg		100	25,000	
WDD3	Pesticide	4,4'-DDD	43.4 U		43.4	µg/kg		3.3	180,000	
WDD3	Pesticide	4,4'-DDE	43.4 U		43.4	µg/kg		3.3	120,000	
WDD3	Pesticide	4,4'-DDT	43.4 U		43.4	µg/kg		3.3	94,000	
WDD3	Pesticide	Aldrin	21.7 U		21.7	µg/kg		5	1,400	
WDD3	Pesticide	alpha-BHC	21.7 U		21.7	µg/kg		20	6,800	
WDD3	Pesticide	alpha-Chlordane	21.7 U		21.7	µg/kg		94	47,000	
WDD3	Pesticide	beta-BHC	21.7 U		21.7	µg/kg		36	14,000	
WDD3	Pesticide	delta-BHC	21.7 U		21.7	µg/kg		40	1,000,000	
WDD3	Pesticide	Dieldrin	43.4 U		43.4	µg/kg		5	2,800	
WDD3	Pesticide	Endosulfan I	21.7 U		21.7	µg/kg		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endosulfan II	43.4 U		43.4	µg/kg		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endosulfan sulfate	43.4 U		43.4	µg/kg		2,400 ^d	920,000 ^d	
WDD3	Pesticide	Endrin	43.4 U		43.4	µg/kg		14	410,000	
WDD3	Pesticide	Endrin aldehyde	43.4 U		43.4	µg/kg		NE	NE	
WDD3	Pesticide	Endrin ketone	43.4 U		43.4	µg/kg		NE	NE	
WDD3	Pesticide	gamma-BHC (Lindane)	21.7 U		21.7	µg/kg		100	23,000	
WDD3	Pesticide	gamma-Chlordane	21.7 U		21.7	µg/kg		NE	NE	
WDD3	Pesticide	Heptachlor	21.7 U		21.7	µg/kg		42	29,000	
WDD3	Pesticide	Heptachlor epoxide	21.7 U		21.7	µg/kg		NE	NE	
WDD3	Pesticide	Methoxychlor	21.7 U		21.7	µg/kg		NE	NE	
WDD3	Pesticide	Toxaphene	1080 U		1080	µg/kg		NE	NE	

SEDIMENT LOCATION*	PARAMETER*	ANALYTE	RESULTS	QUALIFIER*	Detection or Reporting Limit*	UNITS*	Radiological Uncertainty (\pm)	NY State- Unrestricted Use**	NY State- Restricted Use -Industrial**	DOE Cleanup Criteria**
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***SEDIMENT LOCATION**

SWSD009 - Site Background

SW-DUP (SWSD011) - Field Duplicate of surface water and sediment location SWSD011

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/g - picocuries per gram

mg/kg - milligrams per kilograms (ppm)

 μ g/kg - micrograms per kilogram (ppb)***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

Detection or Reporting Limit*

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC, PAH, PCB and Pesticides) - Reporting Limit (gray shading)

**** Values are provided for comparative purposes only. ARARs and media-specific cleanup goals will be evaluated independently future CERCLA and presented in decision documents that will be available for public comment.**

****US Dept of Energy:**

DOH above-background surface soil cleanup criteria, averaged over topmost 6 in. (15 cm) of soil. Because there are no standards for radioactive constituents in sediment, these soil values (without background

****New York State:**

6 NYCRR PART 375

NY State- Unrestricted Use Soil Cleanup Objectives Table 375-6.8(a)

NY State- Restricted Use Soil Cleanup Objectives Table 375-6.8(b) -Industrial

NE - Not Established

- a. Applies to the sum of Ra-226 and Ra-228 concentrations
- b. Sum of uranium isotope concentrations (pCi/g).
- c. Total Mercury
- d. Sum of endosulfan I, endosulfan II, and endosulfan sulfate

Table 10 - NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

1 of 14

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCSs** pCi/L
Sample Date: 6/12 and 6/11/2008										
BO2W20S	Radiological	Radium-226	0.246	pCi/L	U	0.398	0.251	5 ^a	5 ^a	100 ^a
BO2W20S	Radiological	Radium-228	0.227	pCi/L	U	0.978	0.568	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
BO2W20S	Radiological	Thorium-228	0.235	pCi/L	U	0.322	0.230	15 ^b	NE	400
BO2W20S	Radiological	Thorium-230	0.104	pCi/L	U	0.212	0.141	15 ^b	NE	300
BO2W20S	Radiological	Thorium-232	0.047	pCi/L	U	0.272	0.134	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
BO2W20S	Radiological	Uranium-234	5.160	pCi/L		0.092	0.518	27 ^c	NE	600 ^c
BO2W20S	Radiological	Uranium-235	0.320	pCi/L		0.043	0.143	27 ^c	NE	600 ^c
BO2W20S	Radiological	Uranium-238	4.060	pCi/L		0.068	0.459	27 ^c	NE	600 ^c
		Total Uranium ^c	9.540	pCi/L =		10.600	µg/L	27 ^c	NE	600 ^c
BO2W20S	Water Quality	Total Dissolved Solids	922	mg/L		2.38		500 ^d	500	
BO2W20S	Water Quality	Alkalinity, Total as CaCO3	443	mg/L		0.725		NE	NE	
BO2W20S	Anion	Chloride	12.700	mg/L		0.066		250 ^d	250	
BO2W20S	Anion	Fluoride	0.395	mg/L		0.033		4	1.5	
BO2W20S	Anion	Nitrate	0.000	mg/L	J	0.033		10	10	
BO2W20S	Anion	Nitrite	0.000	mg/L	J	0.033		1	1	
BO2W20S	Anion	Ortho-phosphate	-0.019	mg/L	J	0.066		NE	NE	
BO2W20S	Anion	Sulfate	357	mg/L		2		250 ^d	250	
BO2W20S	Metal	Aluminum	17.2	µg/L	J	5		50-200 ^d	NE	
BO2W20S	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
BO2W20S	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
BO2W20S	Metal	Barium	16.9	µg/L		0.5		2000	1000	
BO2W20S	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
BO2W20S	Metal	Boron	210	µg/L		40		NE	1000	
BO2W20S	Metal	Cadmium	0.12	µg/L	J	0.11		5	5	
BO2W20S	Metal	Calcium	72400	µg/L		200		NE	NE	
BO2W20S	Metal	Chromium	3.9	µg/L	J	1		100	50	
BO2W20S	Metal	Cobalt	0.84	µg/L	J	0.1		NE	NE	
BO2W20S	Metal	Copper	2.4	µg/L		0.2		1300	200	
BO2W20S	Metal	Iron	390	µg/L		10		300 ^d	300	
BO2W20S	Metal	Lead	0.5	µg/L	U	0.5		15	25	
BO2W20S	Metal	Lithium	59.2	µg/L		2		NE	NE	
BO2W20S	Metal	Magnesium	112000	µg/L		50		NE	NE	
BO2W20S	Metal	Manganese	28.1	µg/L		1		50 ^d	300	
BO2W20S	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
BO2W20S	Metal	Nickel	3.8	µg/L		0.5		NE	100	
BO2W20S	Metal	Potassium	2000	µg/L		80		NE	NE	
BO2W20S	Metal	Selenium	1	µg/L	U	1		50	10	
BO2W20S	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
BO2W20S	Metal	Sodium	58800	µg/L		800		NE	20000	
BO2W20S	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
BO2W20S	Metal	Vanadium	3	µg/L	U	3		NE	14	
BO2W20S	Metal	Zinc	4.2	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/12/2008										
A45	Radiological	Radium-226	0.250	pCi/L	U	0.404	0.255	5 ^a	5 ^a	100 ^a
A45	Radiological	Radium-228	0.217	pCi/L	U	0.429	0.260	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
A45	Radiological	Thorium-228	0.088	pCi/L	U	0.229	0.139	15 ^b	NE	400
A45	Radiological	Thorium-230	0.043	pCi/L	U	0.203	0.101	15 ^b	NE	300
A45	Radiological	Thorium-232	-0.020	pCi/L	U	0.203	0.082	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
A45	Radiological	Uranium-234	15.400	pCi/L		0.291	1.470	27 ^c	NE	600 ^c
A45	Radiological	Uranium-235	0.399	pCi/L		0.250	0.274	27 ^c	NE	600 ^c
A45	Radiological	Uranium-238	12.900	pCi/L		0.182	1.340	27 ^c	NE	600 ^c
		Total Uranium ^c	28.699	pCi/L	=	31.888	µg/L	27 ^c	NE	600 ^c
A45	Water Quality	Total Dissolved Solids	1770	mg/L		2.38		500 ^d	500	
A45	Water Quality	Alkalinity, Total as CaCO ₃	481	mg/L		1.45		NE	NE	
A45	Anion	Chloride	55.300	mg/L		0.33		250 ^d	250	
A45	Anion	Fluoride	0.177	mg/L		0.033		4	1.5	
A45	Anion	Nitrate	0.194	mg/L	J	0.033		10	10	
A45	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
A45	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
A45	Anion	Sulfate	759	mg/L		5		250 ^d	250	
A45	Metal	Aluminum	5	µg/L	U	5		50-200 ^d	NE	
A45	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
A45	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
A45	Metal	Barium	8.7	µg/L		0.5		2000	1000	
A45	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
A45	Metal	Boron	73.9	µg/L		4		NE	1000	
A45	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
A45	Metal	Calcium	257000	µg/L		200		NE	NE	
A45	Metal	Chromium	3.2	µg/L		1		100	50	
A45	Metal	Cobalt	1.9	µg/L		0.1		NE	NE	
A45	Metal	Copper	11.4	µg/L		0.2		1300	200	
A45	Metal	Iron	2200	µg/L		10		300 ^d	300	
A45	Metal	Lead	0.5	µg/L	U	0.5		15	25	
A45	Metal	Lithium	66.8	µg/L		2		NE	NE	
A45	Metal	Magnesium	140000	µg/L		50		NE	NE	
A45	Metal	Manganese	323	µg/L		1		50 ^d	300	
A45	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
A45	Metal	Nickel	20.1	µg/L		0.5		NE	100	
A45	Metal	Potassium	4090	µg/L		80		NE	NE	
A45	Metal	Selenium	1	µg/L	U	1		50	10	
A45	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
A45	Metal	Sodium	49200	µg/L		800		NE	20000	
A45	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
A45	Metal	Vanadium	3	µg/L	U	3		NE	14	
A45	Metal	Zinc	367	µg/L	J	2.6		5000 ^d	NE	

Table 10 - NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/12/2008										
A50	Radiological	Radium-226	0.422	pCi/L		0.401	0.285	5 ^a	5 ^a	100 ^a
A50	Radiological	Radium-228	0.190	pCi/L	U	0.562	0.328	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.422	pCi/L				5 ^a	5 ^a	100 ^a
A50	Radiological	Thorium-228	0.110	pCi/L	U	0.282	0.169	15 ^b	NE	400
A50	Radiological	Thorium-230	0.092	pCi/L	U	0.224	0.138	15 ^b	NE	300
A50	Radiological	Thorium-232	0.107	pCi/L	U	0.224	0.146	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
A50	Radiological	Uranium-234	5.690	pCi/L		0.056	0.530	27 ^c	NE	600 ^c
A50	Radiological	Uranium-235	0.397	pCi/L		0.041	0.156	27 ^c	NE	600 ^c
A50	Radiological	Uranium-238	5.440	pCi/L		0.056	0.518	27 ^c	NE	600 ^c
		Total Uranium ^c	11.527	pCi/L			12.808 µg/L	27 ^c	NE	600 ^c
A50	Water Quality	Total Dissolved Solids	1330	mg/L		2.38		500 ^d	500	
A50	Water Quality	Alkalinity, Total as CaCO ₃	441	mg/L		0.725		NE	NE	
A50	Anion	Chloride	19.600	mg/L		0.132		250 ^d	250	
A50	Anion	Fluoride	0.328	mg/L		0.033		4	1.5	
A50	Anion	Nitrate	0.255	mg/L	J	0.033		10	10	
A50	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
A50	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
A50	Anion	Sulfate	587	mg/L		5		250 ^d	250	
A50	Metal	Aluminum	5	µg/L	U	5		50-200 ^d	NE	
A50	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
A50	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
A50	Metal	Barium	10.5	µg/L		0.5		2000	1000	
A50	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
A50	Metal	Boron	171	µg/L		4		NE	1000	
A50	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
A50	Metal	Calcium	109000	µg/L		200		NE	NE	
A50	Metal	Chromium	5.1	µg/L	J	1		100	50	
A50	Metal	Cobalt	0.78	µg/L	J	0.1		NE	NE	
A50	Metal	Copper	3.7	µg/L		0.2		1300	200	
A50	Metal	Iron	606	µg/L		10		300 ^d	300	
A50	Metal	Lead	0.5	µg/L	U	0.5		15	25	
A50	Metal	Lithium	51.7	µg/L		2		NE	NE	
A50	Metal	Magnesium	141000	µg/L		50		NE	NE	
A50	Metal	Manganese	33	µg/L		1		50 ^d	300	
A50	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
A50	Metal	Nickel	3.5	µg/L		0.5		NE	100	
A50	Metal	Potassium	2150	µg/L		80		NE	NE	
A50	Metal	Selenium	1	µg/L	U	1		50	10	
A50	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
A50	Metal	Sodium	76600	µg/L		800		NE	20000	
A50	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
A50	Metal	Vanadium	3	µg/L	U	3		NE	14	
A50	Metal	Zinc	3.8	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs** pCi/L
Sample Date: 6/12/2008										
GW-DUP(A50)	Radiological	Radium-226	0.412	pCi/L	U	0.416	0.291	5 ^a	5 ^a	100 ^a
GW-DUP(A50)	Radiological	Radium-228	0.254	pCi/L	U	0.569	0.341	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
GW-DUP(A50)	Radiological	Thorium-228	0.075	pCi/L	U	0.181	0.109	15 ^b	NE	400
GW-DUP(A50)	Radiological	Thorium-230	0.469	pCi/L		0.122	0.195	15 ^b	NE	300
GW-DUP(A50)	Radiological	Thorium-232	-0.015	pCi/L	U	0.113	0.042	15 ^b	NE	50
		Total Thorium ^b	0.469	pCi/L				15 ^b	NE	NE
GW-DUP(A50)	Radiological	Uranium-234	7.400	pCi/L		0.107	0.669	27 ^c	NE	600 ^c
GW-DUP(A50)	Radiological	Uranium-235	0.591	pCi/L		0.084	0.211	27 ^c	NE	600 ^c
GW-DUP(A50)	Radiological	Uranium-238	6.160	pCi/L		0.079	0.610	27 ^c	NE	600 ^c
		Total Uranium ^c	14.151	pCi/L	=	15.723	µg/L	27 ^c	NE	600 ^c
GW-DUP(A50)	Water Quality	Total Dissolved Solids	1330	mg/L		2.38		500 ^d	500	
GW-DUP(A50)	Water Quality	Alkalinity, Total as CaCO3	438	mg/L		0.725		NE	NE	
GW-DUP(A50)	Anion	Chloride	19,700	mg/L		0.132		250 ^d	250	
GW-DUP(A50)	Anion	Fluoride	0.317	mg/L		0.033		4	1.5	
GW-DUP(A50)	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
GW-DUP(A50)	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
GW-DUP(A50)	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
GW-DUP(A50)	Anion	Sulfate	585	mg/L		5		250 ^d	250	
GW-DUP(A50)	Metal	Aluminum	9.5	µg/L	J	5		50-200 ^d	NE	
GW-DUP(A50)	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
GW-DUP(A50)	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
GW-DUP(A50)	Metal	Barium	10.7	µg/L		0.5		2000	1000	
GW-DUP(A50)	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
GW-DUP(A50)	Metal	Boron	173	µg/L		4		NE	1000	
GW-DUP(A50)	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
GW-DUP(A50)	Metal	Calcium	110000	µg/L		200		NE	NE	
GW-DUP(A50)	Metal	Chromium	6	µg/L	J	1		100	50	
GW-DUP(A50)	Metal	Cobalt	0.88	µg/L	J	0.1		NE	NE	
GW-DUP(A50)	Metal	Copper	4	µg/L		0.2		1300	200	
GW-DUP(A50)	Metal	Iron	629	µg/L		10		300 ^d	300	
GW-DUP(A50)	Metal	Lead	0.5	µg/L	U	0.5		15	25	
GW-DUP(A50)	Metal	Lithium	50.1	µg/L		2		NE	NE	
GW-DUP(A50)	Metal	Magnesium	138000	µg/L		50		NE	NE	
GW-DUP(A50)	Metal	Manganese	46.1	µg/L		1		50 ^d	300	
GW-DUP(A50)	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
GW-DUP(A50)	Metal	Nickel	3.7	µg/L		0.5		NE	100	
GW-DUP(A50)	Metal	Potassium	2250	µg/L		80		NE	NE	
GW-DUP(A50)	Metal	Selenium	1	µg/L	U	1		50	10	
GW-DUP(A50)	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
GW-DUP(A50)	Metal	Sodium	73200	µg/L		800		NE	20000	
GW-DUP(A50)	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
GW-DUP(A50)	Metal	Vanadium	3	µg/L	U	3		NE	14	
GW-DUP(A50)	Metal	Zinc	4.1	µg/L	J	2.6		5000 ^d	NE	

Table 10

NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs** pCi/L
Sample Date: 6/13/2008										
OW04B	Radiological	Radium-226	0.275	pCi/L	U	0.371	0.243	5 ^a	5 ^a	100 ^a
OW04B	Radiological	Radium-228	0.270	pCi/L	U	0.735	0.435	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
OW04B	Radiological	Thorium-228	0.137	pCi/L	U	0.342	0.204	15 ^b	NE	400
OW04B	Radiological	Thorium-230	1.300	pCi/L		0.202	0.383	15 ^b	NE	300
OW04B	Radiological	Thorium-232	0.084	pCi/L	U	0.242	0.140	15 ^b	NE	50
		Total Thorium ^b	1.300	pCi/L				15 ^b	NE	NE
OW04B	Radiological	Uranium-234	24.000	pCi/L		0.126	1.310	27 ^c	NE	600 ^c
OW04B	Radiological	Uranium-235	1.200	pCi/L		0.148	0.330	27 ^c	NE	600 ^c
OW04B	Radiological	Uranium-238	23.300	pCi/L		0.126	1.290	27 ^c	NE	600 ^c
		Total Uranium ^c	48.500	pCi/L	=	53.889	µg/L	27 ^c	NE	600 ^c
OW04B	Water Quality	Total Dissolved Solids	1600	mg/L		2.38		500 ^d	500000	
OW04B	Water Quality	Alkalinity, Total as CaCO ₃	302	mg/L		0.73		NE	NE	
OW04B	Anion	Chloride	123.000	mg/L		0.66		250 ^d	250	
OW04B	Anion	Fluoride	0.567	mg/L		0.033		4	1.5	
OW04B	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
OW04B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW04B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW04B	Anion	Sulfate	719	mg/L		5		250 ^d	250	
OW04B	Metal	Aluminum	5.1	µg/L	J	5.00		50-200 ^d	NE	
OW04B	Metal	Antimony	0.5	µg/L	U	0.5		6	250	
OW04B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW04B	Metal	Barium	18.1	µg/L	J	0.5		2000	1000	
OW04B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW04B	Metal	Boron	316	µg/L		40.00		NE	1000	
OW04B	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
OW04B	Metal	Calcium	201000	µg/L		200		NE	NE	
OW04B	Metal	Chromium	2.9	µg/L	J	1		100	50	
OW04B	Metal	Cobalt	0.89	µg/L	J	0.1		NE	NE	
OW04B	Metal	Copper	4.8	µg/L		0.2		1300	200	
OW04B	Metal	Iron	758	µg/L		10.00		300 ^d	300	
OW04B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW04B	Metal	Lithium	35.4	µg/L		2		NE	NE	
OW04B	Metal	Magnesium	138000	µg/L		50.00		NE	NE	
OW04B	Metal	Manganese	33.8	µg/L		1		50 ^d	300	
OW04B	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
OW04B	Metal	Nickel	5.7	µg/L		0.5		NE	100	
OW04B	Metal	Potassium	2220	µg/L		80.00		NE	NE	
OW04B	Metal	Selenium	1.9	µg/L	J	1		50	10	
OW04B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW04B	Metal	Sodium	62700	µg/L		800		NE	20000	
OW04B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW04B	Metal	Vanadium	3	µg/L	U	3		NE	14	
OW04B	Metal	Zinc	5.5	µg/L	J	2.6		5000 ^d	NE	

Table 10 - NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/16/2008										
OW06B	Radiological	Radium-226	0.079	pCi/L		0.641	0.337	5 ^a	5 ^a	100 ^a
OW06B	Radiological	Radium-228	0.327	pCi/L	U	0.415	0.272	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.079	pCi/L				5 ^a	5 ^a	100 ^a
OW06B	Radiological	Thorium-228	0.110	pCi/L	U	0.355	0.201	15 ^b	NE	400
OW06B	Radiological	Thorium-230	0.056	pCi/L	U	0.184	0.104	15 ^b	NE	300
OW06B	Radiological	Thorium-232	-0.036	pCi/L	U	0.220	0.078	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
OW06B	Radiological	Uranium-234	9.82	pCi/L		0.161	1.100	27 ^c	NE	600 ^c
OW06B	Radiological	Uranium-235	0.57	pCi/L		0.103	0.293	27 ^c	NE	600 ^c
OW06B	Radiological	Uranium-238	7.81	pCi/L		0.138	0.979	27 ^c	NE	600 ^c
		Total Uranium ^c	18.198	pCi/L	=	20.220	µg/L	27 ^c	NE	600 ^c
OW06B	Water Quality	Total Dissolved Solids	1300	mg/L		2.38		500 ^d	500	
OW06B	Water Quality	Alkalinity, Total as CaCO3	580	mg/L		0.73		NE	NE	
OW06B	Anion	Chloride	33.000	mg/L		0.66		250 ^d	250	
OW06B	Anion	Fluoride	0.277	mg/L		0.033		4	1.5	
OW06B	Anion	Nitrate	0.194	mg/L		0.033		10	10	
OW06B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW06B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW06B	Anion	Sulfate	517	mg/L		10		250 ^d	250	
OW06B	Metal	Aluminum	5	µg/L	U	5.00		50-200 ^d	NE	
OW06B	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
OW06B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW06B	Metal	Barium	10.5	µg/L		0.5		2000	1000	
OW06B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW06B	Metal	Boron	63.7	µg/L		4.00		NE	1000	
OW06B	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
OW06B	Metal	Calcium	113000	µg/L		200		NE	NE	
OW06B	Metal	Chromium	3.2	µg/L	J	1		100	50	
OW06B	Metal	Cobalt	1.4	µg/L		0.1		NE	NE	
OW06B	Metal	Copper	2.5	µg/L		0.2		1300	200	
OW06B	Metal	Iron	1000	µg/L		10.00		300 ^d	300	
OW06B	Metal	Lead	0.51	µg/L	J	0.5		15	25	
OW06B	Metal	Lithium	90.2	µg/L		2		NE	NE	
OW06B	Metal	Magnesium	174000	µg/L		50.00		NE	NE	
OW06B	Metal	Manganese	122	µg/L		1		50 ^d	300	
OW06B	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
OW06B	Metal	Nickel	14.3	µg/L		0.5		NE	100	
OW06B	Metal	Potassium	2580	µg/L		80.00		NE	NE	
OW06B	Metal	Selenium	1	µg/L	U	1		50	10	
OW06B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW06B	Metal	Sodium	63800	µg/L		800		NE	20000	
OW06B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW06B	Metal	Vanadium	3	µg/L	U	3		NE	14	
OW06B	Metal	Zinc	4.2	µg/L	J	2.6		5000 ^d	NE	

Table 10 - NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds. **	DOE DCGs** pCi/L
Sample Date: 6/10 and 6/11/2008										
OW13B	Radiological	Radium-226	0.490	pCi/L		0.375	0.286	5 ^a	5 ^a	100 ^a
OW13B	Radiological	Radium-228	0.524	pCi/L	U	0.706	0.447	5 ^a	5 ^a	100 ^a
		Total Radium ^d	0.490	pCi/L				5 ^a	5 ^a	100 ^a
OW13B	Radiological	Thorium-228	0.309	pCi/L		0.206	0.180	15 ^b	NE	400
OW13B	Radiological	Thorium-230	0.168	pCi/L		0.126	0.122	15 ^b	NE	300
OW13B	Radiological	Thorium-232	0.004	pCi/L	U	0.109	0.041	15 ^b	NE	50
		Total Thorium ^b	0.477	pCi/L				15 ^b	NE	NE
OW13B	Radiological	Uranium-234	11.600	pCi/L		0.034	0.759	27 ^c	NE	600 ^c
OW13B	Radiological	Uranium-235	0.538	pCi/L		0.042	0.182	27 ^c	NE	600 ^c
OW13B	Radiological	Uranium-238	9.200	pCi/L		0.034	0.677	27 ^c	NE	600 ^c
		Total Uranium ^c	21.338	pCi/L	**	23.709	µg/L	27 ^c	NE	600 ^c
OW13B	Water Quality	Total Dissolved Solids	2120	mg/L		2.38		500 ^d	500	
OW13B	Water Quality	Alkalinity, Total as CaCO3	502	mg/L		0.725		NE	NE	
OW13B	Anion	Chloride	33.800	mg/L		0.33		250 ^d	250	
OW13B	Anion	Fluoride	0.355	mg/L		0.033		4	1.5	
OW13B	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
OW13B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW13B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW13B	Anion	Sulfate	1050	mg/L		5		250 ^d	250	
OW13B	Metal	Aluminum	314	µg/L		5		50-200 ^d	NE	
OW13B	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
OW13B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW13B	Metal	Barium	9.6	µg/L		0.5		2000	1000	
OW13B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW13B	Metal	Boron	106	µg/L		4		NE	1000	
OW13B	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
OW13B	Metal	Calcium	164000	µg/L		200		NE	NE	
OW13B	Metal	Chromium	5.5	µg/L	J	1		100	50	
OW13B	Metal	Cobalt	0.94	µg/L	J	0.1		NE	NE	
OW13B	Metal	Copper	6	µg/L		0.2		1300	200	
OW13B	Metal	Iron	1060	µg/L		10		300 ^d	300	
OW13B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW13B	Metal	Lithium	87.5	µg/L		2		NE	NE	
OW13B	Metal	Magnesium	258000	µg/L		50		NE	NE	
OW13B	Metal	Manganese	13.3	µg/L		1		50 ^d	300	
OW13B	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
OW13B	Metal	Nickel	5.5	µg/L		0.5		NE	100	
OW13B	Metal	Potassium	2310	µg/L		80		NE	NE	
OW13B	Metal	Selenium	1	µg/L	U	1		50	10	
OW13B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW13B	Metal	Sodium	80200	µg/L		800		NE	20000	
OW13B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW13B	Metal	Vanadium	3	µg/L	U	3		NE	14	
OW13B	Metal	Zinc	6.3	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs** pCi/L
Sample Date: 6/13/2008										
OW15B	Radiological	Radium-226	0.228	pCi/L	U	0.409	0.253	5 ^a	5 ^a	100 ^a
OW15B	Radiological	Radium-228	0.811	pCi/L		0.701	0.466	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.811	pCi/L				5 ^a	5 ^a	100 ^a
OW15B	Radiological	Thorium-228	0.065	pCi/L	U	0.222	0.126	15 ^b	NE	400
OW15B	Radiological	Thorium-230	0.181	pCi/L		0.119	0.117	15 ^b	NE	300
OW15B	Radiological	Thorium-232	0.016	pCi/L	U	0.101	0.047	15 ^b	NE	50
		Total Thorium ^b	0.181	pCi/L				15 ^b	NE	NE
OW15B	Radiological	Uranium-234	4.180	pCi/L		0.107	0.503	27 ^c	NE	600 ^c
OW15B	Radiological	Uranium-235	0.219	pCi/L		0.084	0.129	27 ^c	NE	600 ^c
OW15B	Radiological	Uranium-238	3.210	pCi/L		0.117	0.442	27 ^c	NE	600 ^c
		Total Uranium ^c	7.609	pCi/L	=	8.454	µg/L	27 ^c	NE	600 ^c
OW15B	Water Quality	Total Dissolved Solids	777	mg/L		2.38		500 ^d	500	
OW15B	Water Quality	Alkalinity, Total as CaCO3	315	mg/L		0.73		NE	NE	
OW15B	Anion	Chloride	6,250	mg/L		0.066		250 ^d	250	
OW15B	Anion	Fluoride	0.564	mg/L		0.033		4	1.5	
OW15B	Anion	Nitrate	6,810	mg/L	J	0.033		10	10	
OW15B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW15B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW15B	Anion	Sulfate	294	mg/L		2		250 ^d	250	
OW15B	Metal	Aluminum	73.6	µg/L		5.00		50-200 ^d	NE	
OW15B	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
OW15B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW15B	Metal	Barium	20.8	µg/L	J	0.5		2000	1000	
OW15B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW15B	Metal	Boron	40.4	µg/L		4.00		NE	1000	
OW15B	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
OW15B	Metal	Calcium	81100	µg/L		200		NE	NE	
OW15B	Metal	Chromium	7.7	µg/L		1		100	50	
OW15B	Metal	Cobalt	0.43	µg/L	J	0.1		NE	NE	
OW15B	Metal	Copper	6.4	µg/L		0.2		1300	200	
OW15B	Metal	Iron	474	µg/L		10.00		300 ^d	300	
OW15B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW15B	Metal	Lithium	38	µg/L		2		NE	NE	
OW15B	Metal	Magnesium	87100	µg/L		50.00		NE	NE	
OW15B	Metal	Manganese	2.2	µg/L	J	1		50 ^d	300	
OW15B	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
OW15B	Metal	Nickel	4.7	µg/L		0.5		NE	100	
OW15B	Metal	Potassium	1290	µg/L		80.00		NE	NE	
OW15B	Metal	Selenium	1	µg/L	U	1		50	10	
OW15B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW15B	Metal	Sodium	36800	µg/L		800		NE	20000	
OW15B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW15B	Metal	Vanadium	3	µg/L	U	3		NE	14	
OW15B	Metal	Zinc	4.3	µg/L	J	2.6		5000 ^d	NE	

Table 10

NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/16/2008										
OW17B	Radiological	Radium-226	0.112	pCi/L		0.686	0.353	5 ^a	5 ^a	100 ^a
OW17B	Radiological	Radium-228	0.826	pCi/L		0.429	0.354	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.938	pCi/L				5 ^a	5 ^a	100 ^a
OW17B	Radiological	Thorium-228	0.119	pCi/L	U	0.289	0.174	15 ^b	NE	400
OW17B	Radiological	Thorium-230	0.053	pCi/L	U	0.138	0.087	15 ^b	NE	300
OW17B	Radiological	Thorium-232	0.021	pCi/L	U	0.138	0.063	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
OW17B	Radiological	Uranium-234	2.86	pCi/L		0.070	0.543	27 ^c	NE	600 ^c
OW17B	Radiological	Uranium-235	0.18	pCi/L		0.143	0.157	27 ^c	NE	600 ^c
OW17B	Radiological	Uranium-238	1.98	pCi/L		0.070	0.452	27 ^c	NE	600 ^c
		Total Uranium ^c	5.023	pCi/L	=	5.581	µg/L	27 ^c	NE	600 ^c
OW17B	Water Quality	Total Dissolved Solids	997	mg/L		2.38		500 ^d	500	
OW17B	Water Quality	Alkalinity, Total as CaCO3	422	mg/L		1.45		NE	NE	
OW17B	Anion	Chloride	10.900	mg/L		0.066		250 ^d	250	
OW17B	Anion	Fluoride	0.307	mg/L		0.033		4	1.5	
OW17B	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
OW17B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW17B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW17B	Anion	Sulfate	450	mg/L		10		250 ^d	250	
OW17B	Metal	Aluminum	28.3	µg/L		5.00		50-200 ^d	NE	
OW17B	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
OW17B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW17B	Metal	Barium	11.5	µg/L		0.5		2000	1000	
OW17B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW17B	Metal	Boron	111	µg/L		4.00		NE	1000	
OW17B	Metal	Cadmium	0.11	µg/L	U	0.11		5	5	
OW17B	Metal	Calcium	79500	µg/L		200		NE	NE	
OW17B	Metal	Chromium	7.9	µg/L		1		100	50	
OW17B	Metal	Cobalt	0.56	µg/L	J	0.1		NE	NE	
OW17B	Metal	Copper	8.6	µg/L		0.2		1300	200	
OW17B	Metal	Iron	395	µg/L		10.00		300 ^d	300	
OW17B	Metal	Lead	0.89	µg/L	J	0.5		15	25	
OW17B	Metal	Lithium	55.2	µg/L		2		NE	NE	
OW17B	Metal	Magnesium	124000	µg/L		50.00		NE	NE	
OW17B	Metal	Manganese	25.9	µg/L		1		50 ^d	300	
OW17B	Metal	Mercury	0.03	µg/L	U	0.03		2	0.7	
OW17B	Metal	Nickel	7.5	µg/L		0.5		NE	100	
OW17B	Metal	Potassium	1870	µg/L		80.00		NE	NE	
OW17B	Metal	Selenium	1	µg/L	U	1		50	10	
OW17B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW17B	Metal	Sodium	60400	µg/L		800		NE	20000	
OW17B	Metal	Thallium	0.4	µg/L	J	0.3		2	NE	
OW17B	Metal	Vanadium	3	µg/L	U	3		NE	14	
OW17B	Metal	Zinc	8.1	µg/L	J	2.6		500 ^d	NE	

Table 10

NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCOS** pCi/L
Sample Date: Iso-U on 6/11/2008 and Anions, Alk & TDS on 6/17/2008										
313	Radiological	Uranium-234	19.400	pCi/L		0.161	1.660	27 ^c	NE	600 ^c
313	Radiological	Uranium-235	0.827	pCi/L		0.199	0.385	27 ^c	NE	600 ^c
313	Radiological	Uranium-238	14.400	pCi/L		0.207	1.430	27 ^c	NE	600 ^c
		Total Uranium ^c	34.627	pCi/L	=	38.474	µg/L	27 ^c	NE	600 ^c
313	Water Quality	Total Dissolved Solids	4300	mg/L		2.38		500 ^d	500	
313	Water Quality	Alkalinity, Total as CaCO3	516	mg/L		0.725		NE	NE	
313	Anion	Chloride	32.700	mg/L		0.330		250 ^d	250	
313	Anion	Fluoride	0.139	mg/L		0.033		4	1.5	
313	Anion	Nitrate	0.165	mg/L	U	0.165		10	10	
313	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
313	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
313	Anion	Sulfate	2430	mg/L		20		250 ^d	250	
Sample Date: 6/18/2008										
505	Radiological	Uranium-234	15.700	pCi/L		0.538	2.330	27 ^c	NE	600 ^c
505	Radiological	Uranium-235	0.106	pCi/L	U	0.286	0.211	27 ^c	NE	600 ^c
505	Radiological	Uranium-238	11.400	pCi/L		0.538	1.980	27 ^c	NE	600 ^c
		Total Uranium ^c	27.100	pCi/L	=	30.111	µg/L	27 ^c	NE	600 ^c
505	Water Quality	Total Dissolved Solids	4160	mg/L		2.38		500 ^d	500	
505	Water Quality	Alkalinity, Total as CaCO3	841.000	mg/L		0.725		NE	NE	
505	Anion	Chloride	170.000	mg/L		6.600		250 ^d	250	
505	Anion	Fluoride	0.311	mg/L		0.033		4	1.5	
505	Anion	Nitrate	0.094	mg/L	J	0.033		10	10	
505	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
505	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
505	Anion	Sulfate	2160	mg/L		10		250 ^d	250	
Sample Date: Iso-U on 6/11/2008 and Anions, Alk & TDS on 6/17/2008										
302A	Radiological	Uranium-234	55.800	pCi/L		0.146	2.490	27 ^c	NE	600 ^c
302A	Radiological	Uranium-235	2.780	pCi/L		0.155	0.619	27 ^c	NE	600 ^c
302A	Radiological	Uranium-238	41.100	pCi/L		0.146	2.140	27 ^c	NE	600 ^c
		Total Uranium ^c	99.680	pCi/L	=	110.756	µg/L	27 ^c	NE	600 ^c
302A	Water Quality	Total Dissolved Solids	8890	mg/L		2.38		500 ^d	500	
302A	Water Quality	Alkalinity, Total as CaCO3	542	mg/L		0.725		NE	NE	
302A	Anion	Chloride	457.000	mg/L		6.600		250 ^d	250	
302A	Anion	Fluoride	0.490	mg/L	J	0.165		4	1.5	
302A	Anion	Nitrate	0.165	mg/L	U	0.165		10	10	
302A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
302A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
302A	Anion	Sulfate	4900	mg/L		50		250 ^d	250	
Sample Date: 6/18/2008										
A42	Radiological	Uranium-234	30.600	pCi/L		0.330	3.000	27 ^c	NE	600 ^c
A42	Radiological	Uranium-235	1.880	pCi/L		0.408	0.832	27 ^c	NE	600 ^c
A42	Radiological	Uranium-238	29.400	pCi/L		0.330	2.940	27 ^c	NE	600 ^c
		Total Uranium ^c	61.880	pCi/L	=	68.756	µg/L	27 ^c	NE	600 ^c
A42	Water Quality	Total Dissolved Solids	897	mg/L		2.38		500 ^d	500	
A42	Water Quality	Alkalinity, Total as CaCO3	457.000	mg/L		0.725		NE	NE	
A42	Anion	Chloride	13.000	mg/L		0.066		250 ^d	250	
A42	Anion	Fluoride	0.125	mg/L		0.033		4	1.5	
A42	Anion	Nitrate	0.088	mg/L	J	0.033		10	10	
A42	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
A42	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
A42	Anion	Sulfate	286	mg/L		2		250 ^d	250	

Table 10 - NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/17/2008										
BH49A	Radiological	Uranium-234	6.970	pCi/L		0.654	1.480	27 ^c	NE	600 ^c
BH49A	Radiological	Uranium-235	0.351	pCi/L	U	0.420	0.376	27 ^c	NE	600 ^c
BH49A	Radiological	Uranium-238	5.760	pCi/L		0.563	1.340	27 ^c	NE	600 ^c
		Total Uranium ^c	12.730	pCi/L	=	14.144	µg/L	27 ^c	NE	600 ^c
BH49A	Water Quality	Total Dissolved Solids	1140	mg/L		2.38		500 ^d	500	
BH49A	Water Quality	Alkalinity, Total as CaCO ₃	363	mg/L		0.725		NE	NE	
BH49A	Anion	Chloride	34.000	mg/L		0.330		250 ^d	250	
BH49A	Anion	Fluoride	0.282	mg/L		0.033		4	1.5	
BH49A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
BH49A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
BH49A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
BH49A	Anion	Sulfate	505	mg/L		2		250 ^d	250	
Sample Date: 6/17/2008										
OW04A	Radiological	Uranium-234	0.491	pCi/L		0.257	0.284	27 ^c	NE	600 ^c
OW04A	Radiological	Uranium-235	-0.054	pCi/L	U	0.301	0.102	27 ^c	NE	600 ^c
OW04A	Radiological	Uranium-238	0.438	pCi/L		0.282	0.276	27 ^c	NE	600 ^c
		Total Uranium ^c	0.929	pCi/L	=	1.032	µg/L	27 ^c	NE	600 ^c
OW04A	Water Quality	Total Dissolved Solids	897	mg/L		2.38		500 ^d	500	
OW04A	Water Quality	Alkalinity, Total as CaCO ₃	158.000	mg/L		0.725		NE	NE	
OW04A	Anion	Chloride	28.500	mg/L		1.320		250 ^d	250	
OW04A	Anion	Fluoride	0.233	mg/L		0.033		4	1.5	
OW04A	Anion	Nitrate	0.132	mg/L		0.033		10	10	
OW04A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
OW04A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW04A	Anion	Sulfate	480	mg/L		2		250 ^d	250	
Sample Date: 6/18/2008										
OW11B	Radiological	Uranium-234	127.000	pCi/L		0.528	6.800	27 ^c	NE	600 ^c
OW11B	Radiological	Uranium-235	6.680	pCi/L		0.589	1.740	27 ^c	NE	600 ^c
OW11B	Radiological	Uranium-238	120.000	pCi/L		0.476	6.590	27 ^c	NE	600 ^c
		Total Uranium ^c	253.680	pCi/L	=	281.867	µg/L	27 ^c	NE	600 ^c
OW11B	Water Quality	Total Dissolved Solids	1190	mg/L		2.38		500 ^d	500	
OW11B	Water Quality	Alkalinity, Total as CaCO ₃	307.000	mg/L		0.725		NE	NE	
OW11B	Anion	Chloride	15.200	mg/L		0.066		250 ^d	250	
OW11B	Anion	Fluoride	0.293	mg/L		0.033		4	1.5	
OW11B	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
OW11B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW11B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW11B	Anion	Sulfate	556	mg/L		5		250 ^d	250	
Sample Date: 6/18/2008										
OW18B	Radiological	Uranium-234	5.920	pCi/L		0.092	0.897	27 ^c	NE	600 ^c
OW18B	Radiological	Uranium-235	0.578	pCi/L		0.189	0.315	27 ^c	NE	600 ^c
OW18B	Radiological	Uranium-238	5.250	pCi/L		0.242	0.850	27 ^c	NE	600 ^c
		Total Uranium ^c	11.748	pCi/L	=	13.053	µg/L	27 ^c	NE	600 ^c
OW18B	Water Quality	Total Dissolved Solids	1830	mg/L		2.38		500 ^d	500	
OW18B	Water Quality	Alkalinity, Total as CaCO ₃	540.000	mg/L		0.725		NE	NE	
OW18B	Anion	Chloride	26.300	mg/L		0.132		250 ^d	250	
OW18B	Anion	Fluoride	0.343	mg/L		0.033		4	1.5	
OW18B	Anion	Nitrate	0.100	mg/L	U	0.033		10	10	
OW18B	Anion	Nitrite	0.100	mg/L	U	0.033		1	1	
OW18B	Anion	Ortho-phosphate	0.200	mg/L	U	0.066		NE	NE	
OW18B	Anion	Sulfate	926	mg/L		5		250 ^d	250	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 6/17/2008										
415A	Radiological	Uranium-234	9.850	pCi/L		0.500	1.780	27 ^c	NE	600 ^c
415A	Radiological	Uranium-235	0.247	pCi/L	U	0.515	0.346	27 ^c	NE	600 ^c
415A	Radiological	Uranium-238	7.050	pCi/L		0.534	1.510	27 ^c	NE	600 ^c
		Total Uranium ^c	16.900	pCi/L		18.778	µg/L	27 ^c	NE	600 ^c
415A	Water Quality	Total Dissolved Solids	2310	mg/L		2.38		500 ^d	500	
415A	Water Quality	Alkalinity, Total as CaCO3	542.000	mg/L		0.725		NE	NE	
415A	Anion	Chloride	141.000	mg/L		3.300		250 ^d	250	
415A	Anion	Fluoride	2.980	mg/L		0.033		4	1.5	
415A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
415A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
415A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
415A	Anion	Sulfate	926	mg/L		5		250 ^d	250	
415A	VOC	1,1,1-Trichloroethane	100.0	µg/L	U	100		200	5	
415A	VOC	1,1,2,2-Tetrachloroethane	100.0	µg/L	U	100		NE	5	
415A	VOC	1,1,2-Trichloroethane	100.0	µg/L	U	100		5	1	
415A	VOC	1,1-Dichloroethane	100.0	µg/L	U	100		NE	5	
415A	VOC	1,1-Dichloroethylene	100.0	µg/L	U	100		7	5	
415A	VOC	1,2-Dichloroethane	100.0	µg/L	U	100		5	0.6	
415A	VOC	1,2-Dichloropropane	100.0	µg/L	U	100		5	1	
415A	VOC	2-Butanone	500.0	µg/L	U	500		NE	NE	
415A	VOC	2-Hexanone	500.0	µg/L	U	500		NE	NE	
415A	VOC	4-Methyl-2-pentanone	500.0	µg/L	U	500		NE	NE	
415A	VOC	Acetone	201.0	µg/L	U	500		NE	NE	
415A	VOC	Benzene	100.0	µg/L	U	100		5	1	
415A	VOC	Bromodichloromethane	100.0	µg/L	U	100		NE	NE	
415A	VOC	Bromoform	100.0	µg/L	U	100		NE	NE	
415A	VOC	Bromomethane	100.0	µg/L	U	100		NE	5	
415A	VOC	Carbon disulfide	500.0	µg/L	U	500		NE	60	
415A	VOC	Carbon tetrachloride	100.0	µg/L	U	100		5	5	
415A	VOC	Chlorobenzene	100.0	µg/L	U	100		100	5	
415A	VOC	Chloroethane	100.0	µg/L	U	100		NE	5	
415A	VOC	Chloroform	100.0	µg/L	U	100		NE	7	
415A	VOC	Chloromethane	100.0	µg/L	U	100		NE	5	
415A	VOC	cis-1,2-Dichloroethylene	9650.0	µg/L		100		70	5	
415A	VOC	cis-1,3-Dichloropropylene	100.0	µg/L	U	100		NE	0.4 ^e	
415A	VOC	Ethylbenzene	100.0	µg/L	U	100		700	5	
415A	VOC	Methylene chloride	500.0	µg/L	U	500		5	5	
415A	VOC	Styrene	100.0	µg/L	U	100		100	5	
415A	VOC	Tetrachloroethylene	29800.0	µg/L		500		5	5	
415A	VOC	Toluene	100.0	µg/L	U	100		1000	5	
415A	VOC	trans-1,2-Dichloroethylene	104.0	µg/L		100		100	5	
415A	VOC	trans-1,3-Dichloropropylene	100.0	µg/L	U	100		NE	0.4 ^e	
415A	VOC	Trichloroethylene	11500.0	µg/L		500		5	5	
415A	VOC	Vinyl chloride	513.0	µg/L		100		2	2	
415A	VOC	Xylenes (total)	100.0	µg/L	U	100		10000	5 ^f	

Table 10

NFSS Spring 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs** pCi/L
Sample Date: 6/18/2008										
201A	VOC	1,1,1-Trichloroethane	1.0	µg/L	U	1		200	5	
201A	VOC	1,1,2,2-Tetrachloroethane	1.0	µg/L	U	1		NE	5	
201A	VOC	1,1,2-Trichloroethane	1.0	µg/L	U	1		5	1	
201A	VOC	1,1-Dichloroethane	1.0	µg/L	U	1		NE	5	
201A	VOC	1,1-Dichloroethylene	1.0	µg/L	U	1		7	5	
201A	VOC	1,2-Dichloroethane	1.0	µg/L	U	1		5	0.6	
201A	VOC	1,2-Dichloropropane	1.0	µg/L	U	1		5	1	
201A	VOC	2-Butanone	5.0	µg/L	U	5		NE	NE	
201A	VOC	2-Hexanone	5.0	µg/L	U	5		NE	NE	
201A	VOC	4-Methyl-2-pentanone	5.0	µg/L	U	5		NE	NE	
201A	VOC	Acetone	5.0	µg/L	U	5		NE	NE	
201A	VOC	Benzene	1.0	µg/L	U	1		5	1	
201A	VOC	Bromodichloromethane	1.0	µg/L	U	1		NE	NE	
201A	VOC	Bromoform	1.0	µg/L	U	1		NE	NE	
201A	VOC	Bromomethane	1.0	µg/L	U	1		NE	5	
201A	VOC	Carbon disulfide	5.0	µg/L	U	5		NE	60	
201A	VOC	Carbon tetrachloride	1.0	µg/L	U	1		5	5	
201A	VOC	Chlorobenzene	1.0	µg/L	U	1		100	5	
201A	VOC	Chloroethane	1.0	µg/L	U	1		NE	5	
201A	VOC	Chloroform	1.0	µg/L	U	1		NE	7	
201A	VOC	Chloromethane	1.0	µg/L	U	1		NE	5	
201A	VOC	cis-1,2-Dichloroethylene	1.0	µg/L	U	1		70	5	
201A	VOC	cis-1,3-Dichloropropylene	1.0	µg/L	U	1		NE	0.4 ^c	
201A	VOC	Ethylbenzene	1.0	µg/L	U	1		700	5	
201A	VOC	Methylene chloride	5.0	µg/L	U	5		5	5	
201A	VOC	Styrene	1.0	µg/L	U	1		100	5	
201A	VOC	Tetrachloroethylene	1.0	µg/L	U	1		5	5	
201A	VOC	Toluene	1.0	µg/L	U	1		1000	5	
201A	VOC	trans-1,2-Dichloroethylene	1.0	µg/L	U	1		100	5	
201A	VOC	trans-1,3-Dichloropropylene	1.0	µg/L	U	1		NE	0.4 ^c	
201A	VOC	Trichloroethylene	1.0	µg/L	U	1		5	5	
201A	VOC	Vinyl chloride	1.0	µg/L	U	1		2	2	
201A	VOC	Xylenes (total)	1.0	µg/L	U	1		10000	5 ^d	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
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***NFSS WELL ID**

BO2W20S - Background

GW-DUP(A50) - Field Duplicate of well location A50

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/L - picocuries per liter

µg/L - micrograms per liter (ppb)

***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

***Detection or Reporting Limit**

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC) - Reporting Limit (gray shading)

**** Groundwater at NFSS is not a drinking water source.****The above federal and state regulation concentrations are for comparative purposes only.****Federal Regulations:**

National Primary Drinking Water Regulations 40CFR141.62&63

US Dept of Energy:

USDOE derived concentration guide (USDOE Order 5400.5) for drinking water.

New York State:

New York State Standards -Water Quality Criteria (class GA) per 6 NYCRR, Part 703.

NE - Not Established

- a. Applies to the sum of Ra-226 and Ra-228
- b. "Adjusted" gross alpha MCL of 15 pCi/L, including Thorium isotopes, excluding radon and uranium
 - National Primary Drinking Water Regulations; Radionuclide; Final Rule (Federal Register -December 7, 2000)
- c. Sum of Uranium Isotopes (27 pCi/L or 30 µg/L).
- d. National Secondary Drinking Water Regulations (40CFR143.3)
- e. Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.
- f. Not a sum total for Dimethyl Benzene (Xylene), applies to 1,2-Xylene, 1,3-Xylene and 1,4-Xylene individually.

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/29/2008										
B02W20S	Radiological	Radium-226	0.366	pCi/L	U	0.545	0.361	5 ^a	5 ^a	100 ^a
B02W20S	Radiological	Radium-228	1.090	pCi/L	J	0.540	0.541	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.090	pCi/L				5 ^a	5 ^a	100 ^a
B02W20S	Radiological	Thorium-228	0.029	pCi/L	U	0.170	0.089	15 ^b	NE	400
B02W20S	Radiological	Thorium-230	0.022	pCi/L	U	0.107	0.055	15 ^b	NE	300
B02W20S	Radiological	Thorium-232	-0.022	pCi/L	U	0.127	0.038	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
B02W20S	Radiological	Uranium-233/234	4.840	pCi/L		0.087	0.907	27 ^c	NE	600 ^c
B02W20S	Radiological	Uranium-235/236	0.199	pCi/L		0.092	0.132	27 ^c	NE	600 ^c
B02W20S	Radiological	Uranium-238	3.810	pCi/L		0.045	0.750	27 ^c	NE	600 ^c
		Total Uranium ^c	8.849	pCi/L	=	9.832	µg/L	27 ^c	NE	600 ^c
B02W20S	Water Quality	Alkalinity, Total as CaCO3	423	mg/L		1.45		500 ^d	500	
B02W20S	Water Quality	Total Dissolved Solids	905	mg/L		2.38		NE	NE	
B02W20S	Anion	Chloride	12.100	mg/L		0.066		250 ^d	250	
B02W20S	Anion	Fluoride	0.441	mg/L		0.033		4	1.5	
B02W20S	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
B02W20S	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
B02W20S	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
B02W20S	Anion	Sulfate	348	mg/L		10		250 ^d	250	
B02W20S	Metal	Aluminum	5.5	µg/L	J	5.0		50-200 ^d	NE	
B02W20S	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
B02W20S	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
B02W20S	Metal	Barium	17.8	µg/L		0.5		2000	1000	
B02W20S	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
B02W20S	Metal	Boron	222.0	µg/L		20.0		NE	1000	
B02W20S	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
B02W20S	Metal	Calcium	71500.0	µg/L		100.0		NE	NE	
B02W20S	Metal	Chromium	1.5	µg/L	U	1.5		100	50	
B02W20S	Metal	Cobalt	0.5	µg/L	J	0.1		NE	NE	
B02W20S	Metal	Copper	2.4	µg/L		0.3		1300	200	
B02W20S	Metal	Iron	378.0	µg/L		10.0		300 ^d	300	
B02W20S	Metal	Lead	0.5	µg/L	U	0.5		15	25	
B02W20S	Metal	Lithium	53.3	µg/L		2.0		NE	NE	
B02W20S	Metal	Magnesium	128000.0	µg/L		26.0		NE	NE	
B02W20S	Metal	Manganese	18.1	µg/L		1.0		50 ^d	300	
B02W20S	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
B02W20S	Metal	Nickel	3.2	µg/L		0.5		NE	100	
B02W20S	Metal	Potassium	1640.0	µg/L		80.0		NE	NE	
B02W20S	Metal	Selenium	1.6	µg/L	J	1.0		50	10	
B02W20S	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
B02W20S	Metal	Sodium	59600.0	µg/L	J	400.0		NE	20000	
B02W20S	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
B02W20S	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
B02W20S	Metal	Zinc	4.7	µg/L	J	2.6		5000 ^d	NE	

Table 11

NFSS Fall 2008 Environmental Surveillance Program Findings for Groundwater

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/27/2008										
A45	Radiological	Radium-226	0.451	pCi/L		0.230	0.261	5 ^a	5 ^a	100 ^a
A45	Radiological	Radium-228	0.716	pCi/L		0.607	0.464	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.167	pCi/L				5 ^a	5 ^a	100 ^a
A45	Radiological	Thorium-228	0.128	pCi/L	U	0.165	0.131	15 ^b	NE	400
A45	Radiological	Thorium-230	0.004	pCi/L	U	0.134	0.054	15 ^b	NE	300
A45	Radiological	Thorium-232	-0.002	pCi/L	U	0.069	0.051	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
A45	Radiological	Uranium-233/234	19.400	pCi/L		0.211	3.680	27 ^c	NE	600 ^c
A45	Radiological	Uranium-235/236	1.040	pCi/L		0.157	0.520	27 ^c	NE	600 ^c
A45	Radiological	Uranium-238	13.300	pCi/L		0.211	2.670	27 ^c	NE	600 ^c
		Total Uranium ^c	33.740	pCi/L		37.489	µg/L	27 ^c	NE	600 ^c
A45	Water Quality	Alkalinity, Total as CaCO3	478	mg/L		1.45		500 ^d	500	
A45	Water Quality	Total Dissolved Solids	1760	mg/L		2.38		NE	NE	
A45	Anion	Chloride	55.100	mg/L		3.300		250 ^d	250	
A45	Anion	Fluoride	0.117	mg/L		0.033		4	1.5	
A45	Anion	Nitrate	0.091	mg/L	J	0.033		10	10	
A45	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
A45	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
A45	Anion	Sulfate	802	mg/L		5		250 ^d	250	
A45	Metal	Aluminum	5.0	µg/L	U	5.0		50-200 ^d	NE	
A45	Metal	Antimony	0.9	µg/L	U	0.9		6	3	
A45	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
A45	Metal	Barium	10.1	µg/L		0.5		2000	1000	
A45	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
A45	Metal	Boron	69.2	µg/L		4.0		NE	1000	
A45	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
A45	Metal	Calcium	247000.0	µg/L		500.0		NE	NE	
A45	Metal	Chromium	1.5	µg/L	U	1.5		100	50	
A45	Metal	Cobalt	1.5	µg/L		0.1		NE	NE	
A45	Metal	Copper	4.9	µg/L		0.3		1300	200	
A45	Metal	Iron	2450.0	µg/L		10.0		300 ^d	300	
A45	Metal	Lead	0.5	µg/L	U	0.5		15	25	
A45	Metal	Lithium	69.2	µg/L		2.0		NE	NE	
A45	Metal	Magnesium	135000.0	µg/L		130.0		NE	NE	
A45	Metal	Manganese	419.0	µg/L		1.0		50 ^d	300	
A45	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
A45	Metal	Nickel	6.3	µg/L		0.5		NE	100	
A45	Metal	Potassium	3940.0	µg/L		80.0		NE	NE	
A45	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
A45	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
A45	Metal	Sodium	49300.0	µg/L		2000.0		NE	20000	
A45	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
A45	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
A45	Metal	Zinc	8.6	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs**
Sample Date: 10/28/2008										
A50	Radiological	Radium-226	0.405	pCi/L	U	0.477	0.333	5 ^a	5 ^a	100 ^a
A50	Radiological	Radium-228	1.080	pCi/L	J	0.747	0.630	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.080	pCi/L				5 ^a	5 ^a	100 ^a
A50	Radiological	Thorium-228	0.287	pCi/L		0.201	0.188	15 ^b	NE	400
A50	Radiological	Thorium-230	-0.005	pCi/L	U	0.189	0.060	15 ^b	NE	300
A50	Radiological	Thorium-232	0.021	pCi/L	U	0.129	0.054	15 ^b	NE	50
		Total Thorium ^b	0.287	pCi/L				15 ^b	NE	NE
A50	Radiological	Uranium-233/234	6.780	pCi/L		0.279	1.280	27 ^c	NE	600 ^c
A50	Radiological	Uranium-235/236	0.670	pCi/L		0.210	0.322	27 ^c	NE	600 ^c
A50	Radiological	Uranium-238	5.730	pCi/L		0.241	1.130	27 ^c	NE	600 ^c
		Total Uranium ^c	13.180	pCi/L		14.644	µg/L	27 ^c	NE	600 ^c
A50	Water Quality	Alkalinity, Total as CaCO3	427	mg/L		1.45		500 ^d	500	
A50	Water Quality	Total Dissolved Solids	1320	mg/L		2.38		NE	NE	
A50	Anion	Chloride	21.200	mg/L		0.132		250 ^d	250	
A50	Anion	Fluoride	0.297	mg/L		0.033		4	1.5	
A50	Anion	Nitrate	0.173	mg/L		0.033		10	10	
A50	Anion	Nitrite	0.038	mg/L	J	0.033		1	1	
A50	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
A50	Anion	Sulfate	625	mg/L		5		250 ^d	250	
A50	Metal	Aluminum	5.0	µg/L	U	5.0		50-200 ^d	NE	
A50	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
A50	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
A50	Metal	Barium	12.3	µg/L		0.5		2000	1000	
A50	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
A50	Metal	Boron	199.0	µg/L		40.0		NE	1000	
A50	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
A50	Metal	Calcium	112000.0	µg/L		200.0		NE	NE	
A50	Metal	Chromium	1.5	µg/L	U	1.5		100	50	
A50	Metal	Cobalt	0.9	µg/L	J	0.1		NE	NE	
A50	Metal	Copper	3.6	µg/L		0.3		1300	200	
A50	Metal	Iron	435.0	µg/L		10.0		300 ^d	300	
A50	Metal	Lead	0.5	µg/L	U	0.5		15	25	
A50	Metal	Lithium	54.8	µg/L		2.0		NE	NE	
A50	Metal	Magnesium	141000.0	µg/L		52.0		NE	NE	
A50	Metal	Manganese	41.4	µg/L		1.0		50 ^d	300	
A50	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
A50	Metal	Nickel	3.2	µg/L		0.5		NE	100	
A50	Metal	Potassium	2190.0	µg/L		80.0		NE	NE	
A50	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
A50	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
A50	Metal	Sodium	67400.0	µg/L		800.0		NE	20000	
A50	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
A50	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
A50	Metal	Zinc	4.5	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/27/2008										
OW04B	Radiological	Radium-226	0.508	pCi/L	U	0.513	0.371	5 ^a	5 ^a	100 ^a
OW04B	Radiological	Radium-228	0.075	pCi/L	U	0.663	0.362	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
OW04B	Radiological	Thorium-228	0.174	pCi/L	U	0.221	0.177	15 ^b	NE	400
OW04B	Radiological	Thorium-230	0.020	pCi/L	U	0.180	0.074	15 ^b	NE	300
OW04B	Radiological	Thorium-232	-0.002	pCi/L	U	0.093	0.069	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b		
OW04B	Radiological	Uranium-233/234	20.700	pCi/L		0.302	3.710	27 ^c	NE	600 ^c
OW04B	Radiological	Uranium-235/236	0.789	pCi/L		0.225	0.419	27 ^c	NE	600 ^c
OW04B	Radiological	Uranium-238	18.000	pCi/L		0.328	3.290	27 ^c	NE	600 ^c
		Total Uranium ^c	39.489	pCi/L	=	43.877	µg/L	27 ^c	NE	600 ^c
OW04B	Water Quality	Alkalinity, Total as CaCO ₃	314	mg/L		1.45		500 ^d	500	
OW04B	Water Quality	Total Dissolved Solids	1560	mg/L		2.38		NE	NE	
OW04B	Anion	Chloride	114.000	mg/L		3.300		250 ^d	250	
OW04B	Anion	Fluoride	0.493	mg/L		0.033		4	1.5	
OW04B	Anion	Nitrate	0.136	mg/L		0.033		10	10	
OW04B	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
OW04B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW04B	Anion	Sulfate	714	mg/L		5		250 ^d	250	
OW04B	Metal	Aluminum	5.0	µg/L	U	5.0		50-200 ^d	NE	
OW04B	Metal	Antimony	3.0	µg/L	J	0.5		6	3	
OW04B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW04B	Metal	Barium	19.4	µg/L		0.5		2000	1000	
OW04B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW04B	Metal	Boron	362.0	µg/L		20.0		NE	1000	
OW04B	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
OW04B	Metal	Calcium	177000.0	µg/L		500.0		NE	NE	
OW04B	Metal	Chromium	2.0	µg/L	J	1.5		100	50	
OW04B	Metal	Cobalt	0.7	µg/L	J	0.1		NE	NE	
OW04B	Metal	Copper	7.0	µg/L		0.3		1300	200	
OW04B	Metal	Iron	957.0	µg/L		10.0		300 ^d	300	
OW04B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW04B	Metal	Lithium	36.9	µg/L		2.0		NE	NE	
OW04B	Metal	Magnesium	130000.0	µg/L		130.0		NE	NE	
OW04B	Metal	Manganese	27.0	µg/L		1.0		50 ^d	300	
OW04B	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
OW04B	Metal	Nickel	6.7	µg/L		0.5		NE	100	
OW04B	Metal	Potassium	2350.0	µg/L		80.0		NE	NE	
OW04B	Metal	Selenium	3.1	µg/L	J	1.0		50	10	
OW04B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW04B	Metal	Sodium	61400.0	µg/L		2000.0		NE	20000	
OW04B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW04B	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
OW04B	Metal	Zinc	6.4	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+/-)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/27/2008										
GW-DUP (OW04B)	Radiological	Radium-226	0.293	pCi/L	U	0.474	0.304	5 ^a	5 ^a	100 ^a
GW-DUP (OW04B)	Radiological	Radium-228	0.706	pCi/L		0.681	0.497	5 ^a	5 ^a	100 ^a
		Total Radium ^a	0.706	pCi/L				5 ^a		100 ^a
GW-DUP (OW04B)	Radiological	Thorium-228	0.056	pCi/L	U	0.222	0.118	15 ^b	NE	400
GW-DUP (OW04B)	Radiological	Thorium-230	-0.016	pCi/L	U	0.169	0.068	15 ^b	NE	300
GW-DUP (OW04B)	Radiological	Thorium-232	-0.010	pCi/L	U	0.145	0.066	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
GW-DUP (OW04B)	Radiological	Uranium-233/234	24.900	pCi/L		0.288	4.530	27 ^c	NE	600 ^c
GW-DUP (OW04B)	Radiological	Uranium-235/236	1.190	pCi/L		0.153	0.552	27 ^c	NE	600 ^c
GW-DUP (OW04B)	Radiological	Uranium-238	22.800	pCi/L		0.124	4.190	27 ^c	NE	600 ^c
		Total Uranium ^c	48.890	pCi/L =		54.322	µg/L	27 ^c	NE	600 ^c
GW-DUP (OW04B)	Metal	Aluminum	5.0	µg/L	U	5.0		50-200 ^d	NE	
GW-DUP (OW04B)	Metal	Antimony	2.3	µg/L	J	0.5		6	3	
GW-DUP (OW04B)	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
GW-DUP (OW04B)	Metal	Barium	19.2	µg/L		0.5		2000	1000	
GW-DUP (OW04B)	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
GW-DUP (OW04B)	Metal	Boron	357.0	µg/L		20.0		NE	1000	
GW-DUP (OW04B)	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
GW-DUP (OW04B)	Metal	Calcium	180000.0	µg/L		500.0		NE	NE	
GW-DUP (OW04B)	Metal	Chromium	2.1	µg/L	J	1.5		100	50	
GW-DUP (OW04B)	Metal	Cobalt	0.8	µg/L	J	0.1		NE	NE	
GW-DUP (OW04B)	Metal	Copper	6.8	µg/L		0.3		1300	200	
GW-DUP (OW04B)	Metal	Iron	957.0	µg/L		10.0		300 ^d	300	
GW-DUP (OW04B)	Metal	Lead	0.5	µg/L	U	0.5		15	25	
GW-DUP (OW04B)	Metal	Lithium	36.3	µg/L		2.0		NE	NE	
GW-DUP (OW04B)	Metal	Magnesium	130000.0	µg/L		130.0		NE	NE	
GW-DUP (OW04B)	Metal	Manganese	28.3	µg/L		1.0		50 ^d	300	
GW-DUP (OW04B)	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
GW-DUP (OW04B)	Metal	Nickel	6.8	µg/L		0.5		NE	100	
GW-DUP (OW04B)	Metal	Potassium	2460.0	µg/L		80.0		NE	NE	
GW-DUP (OW04B)	Metal	Selenium	2.5	µg/L	J	1.0		50	10	
GW-DUP (OW04B)	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
GW-DUP (OW04B)	Metal	Sodium	61700.0	µg/L		2000.0		NE	20000	
GW-DUP (OW04B)	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
GW-DUP (OW04B)	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
GW-DUP (OW04B)	Metal	Zinc	5.7	µg/L	J	2.6		5000 ^d	NE	

Table 11

NFSS Fall 2008 Environmental Surveillance Program Findings for Groundwater

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NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds.**	DOE DCGs** pCi/L
Sample Date: 10/28/2008										
OW06B	Radiological	Radium-226	0.443	pCi/L		0.385	0.323	5 ^a	5 ^a	100 ^a
OW06B	Radiological	Radium-228	1.020	pCi/L	J	0.519	0.499	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.463	pCi/L				5 ^a	5 ^a	100 ^a
OW06B	Radiological	Thorium-228	0.192	pCi/L	U	0.211	0.174	15 ^b	NE	400
OW06B	Radiological	Thorium-230	0.027	pCi/L	U	0.183	0.085	15 ^b	NE	300
OW06B	Radiological	Thorium-232	-0.002	pCi/L	U	0.079	0.058	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b		
OW06B	Radiological	Uranium-233/234	8.070	pCi/L		0.195	1.550	27 ^c	NE	600 ^c
OW06B	Radiological	Uranium-235/236	0.306	pCi/L		0.104	0.221	27 ^c	NE	600 ^c
OW06B	Radiological	Uranium-238	6.730	pCi/L		0.139	1.350	27 ^c	NE	600 ^c
		Total Uranium ^c	15.106	pCi/L	=	16.784	µg/L	27 ^c	NE	600 ^c
OW06B	Water Quality	Alkalinity, Total as CaCO3	560	mg/L		1.45		500 ^d	500	
OW06B	Water Quality	Total Dissolved Solids	1260.000	mg/L		2.380		NE	NE	
OW06B	Anion	Chloride	34.300	mg/L		1.320		250 ^d	250	
OW06B	Anion	Fluoride	0.272	mg/L		0.033		4	1.5	
OW06B	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
OW06B	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
OW06B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW06B	Anion	Sulfate	530	mg/L		2		250 ^d	250	
OW06B	Metal	Aluminum	5.0	µg/L	U	5.0		50-200 ^d	NE	
OW06B	Metal	Antimony	0.5	µg/L	U	0.5		6	3	
OW06B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW06B	Metal	Barium	12.7	µg/L		0.5		2000	1000	
OW06B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW06B	Metal	Boron	88.0	µg/L		4.0		NE	1000	
OW06B	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
OW06B	Metal	Calcium	115000.0	µg/L		200.0		NE	NE	
OW06B	Metal	Chromium	2.4	µg/L	J	1.5		100	50	
OW06B	Metal	Cobalt	1.6	µg/L		0.1		NE	NE	
OW06B	Metal	Copper	2.5	µg/L		0.3		1300	200	
OW06B	Metal	Iron	1320.0	µg/L		10.0		300 ^d	300	
OW06B	Metal	Lead	0.8	µg/L	J	0.5		15	25	
OW06B	Metal	Lithium	97.9	µg/L		2.0		NE	NE	
OW06B	Metal	Magnesium	166000.0	µg/L		52.0		NE	NE	
OW06B	Metal	Manganese	107.0	µg/L		1.0		50 ^d	300	
OW06B	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
OW06B	Metal	Nickel	16.6	µg/L		0.5		NE	100	
OW06B	Metal	Potassium	3160.0	µg/L		80.0		NE	NE	
OW06B	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
OW06B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW06B	Metal	Sodium	58300.0	µg/L		800.0		NE	20000	
OW06B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW06B	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
OW06B	Metal	Zinc	4.2	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/28/2008										
OW13B	Radiological	Radium-226	1.050	pCi/L		0.550	0.506	5 ^a	5 ^a	100 ^a
OW13B	Radiological	Radium-228	0.329	pCi/L		0.847	0.510	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.379	pCi/L				5 ^a	5 ^a	100 ^a
OW13B	Radiological	Thorium-228	-0.031	pCi/L	U	0.238	0.074	15 ^b	NE	400
OW13B	Radiological	Thorium-230	0.311	pCi/L		0.156	0.206	15 ^b	NE	300
OW13B	Radiological	Thorium-232	0.058	pCi/L	U	0.081	0.084	15 ^b	NE	50
		Total Thorium ^b	0.311	pCi/L				15 ^b	NE	NE
OW13B	Radiological	Uranium-233/234	12.500	pCi/L		0.150	2.130	27 ^c	NE	600 ^c
OW13B	Radiological	Uranium-235/236	0.486	pCi/L		0.159	0.274	27 ^c	NE	600 ^c
OW13B	Radiological	Uranium-238	9.880	pCi/L		0.150	1.760	27 ^c	NE	600 ^c
		Total Uranium ^c	22.866	pCi/L	**	25.407	µg/L	27 ^c	NE	600 ^c
OW13B	Water Quality	Alkalinity, Total as CaCO3	493	mg/L		1.45		500 ^d	500	
OW13B	Water Quality	Total Dissolved Solids	2060	mg/L		2.38		NE	NE	
OW13B	Anion	Chloride	34.700	mg/L		0.330		250 ^d	250	
OW13B	Anion	Fluoride	0.287	mg/L		0.033		4	1.5	
OW13B	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
OW13B	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
OW13B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW13B	Anion	Sulfate	1030	mg/L		10		250 ^d	250	
OW13B	Metal	Aluminum	81.1	µg/L	J	5.0		50-200 ^d	NE	
OW13B	Metal	Antimony	1.0	µg/L	U	1.0		6	3	
OW13B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW13B	Metal	Barium	11.0	µg/L		0.5		2000	1000	
OW13B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW13B	Metal	Boron	126.0	µg/L		4.0		NE	1000	
OW13B	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
OW13B	Metal	Calcium	167000.0	µg/L		200.0		NE	NE	
OW13B	Metal	Chromium	3.2	µg/L		1.5		100	50	
OW13B	Metal	Cobalt	1.4	µg/L		0.1		NE	NE	
OW13B	Metal	Copper	6.6	µg/L		0.3		1300	200	
OW13B	Metal	Iron	770.0	µg/L		10.0		300 ^d	300	
OW13B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW13B	Metal	Lithium	100.0	µg/L		2.0		NE	NE	
OW13B	Metal	Magnesium	241000.0	µg/L		52.0		NE	NE	
OW13B	Metal	Manganese	27.9	µg/L		1.0		50 ^d	300	
OW13B	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
OW13B	Metal	Nickel	7.8	µg/L		0.5		NE	100	
OW13B	Metal	Potassium	2430.0	µg/L		80.0		NE	NE	
OW13B	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
OW13B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW13B	Metal	Sodium	72800.0	µg/L		800.0		NE	20000	
OW13B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW13B	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
OW13B	Metal	Zinc	8.4	µg/L	J	2.6		5000 ^d	NE	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Sds. **	DOE DCCs** pCi/L
Sample Date: 10/28/2008										
OW15B	Radiological	Radium-226	0.249	pCi/L	U	0.672	0.393	5 ^a	5 ^a	100 ^a
OW15B	Radiological	Radium-228	-0.050	pCi/L	U	0.695	0.368	5 ^a	5 ^a	100 ^a
		Total Radium ^a	Non-detect	pCi/L				5 ^a	5 ^a	100 ^a
OW15B	Radiological	Thorium-228	0.034	pCi/L	U	0.170	0.084	15 ^b	NE	400
OW15B	Radiological	Thorium-230	0.011	pCi/L	U	0.149	0.060	15 ^b	NE	300
OW15B	Radiological	Thorium-232	0.048	pCi/L	U	0.128	0.081	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
OW15B	Radiological	Uranium-233/234	4.660	pCi/L		0.170	0.994	27 ^c	NE	600 ^c
OW15B	Radiological	Uranium-235/236	0.281	pCi/L		0.163	0.209	27 ^c	NE	600 ^c
OW15B	Radiological	Uranium-238	3.630	pCi/L		0.184	0.834	27 ^c	NE	600 ^c
		Total Uranium ^c	8.571	pCi/L		9.523	µg/L	27 ^c	NE	600 ^c
OW15B	Water Quality	Alkalinity, Total as CaCO3	402	mg/L		1.45		500 ^d	500	
OW15B	Water Quality	Total Dissolved Solids	1060.000	mg/L		2.380		NE	NE	
OW15B	Anion	Chloride	9.570	mg/L		0.066		250 ^d	250	
OW15B	Anion	Fluoride	0.479	mg/L		0.033		4	1.5	
OW15B	Anion	Nitrate	2.030	mg/L		0.033		10	10	
OW15B	Anion	Nitrite	0.039	mg/L	J	0.033		1	1	
OW15B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW15B	Anion	Sulfate	484	mg/L		5		250 ^d	250	
OW15B	Metal	Aluminum	20.1	µg/L		5.0		50-200 ^d	NE	
OW15B	Metal	Antimony	2.0	µg/L	J	0.5		6	3	
OW15B	Metal	Arsenic	1.6	µg/L	J	1.5		10	25	
OW15B	Metal	Barium	19.0	µg/L		0.5		2000	1000	
OW15B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW15B	Metal	Boron	74.7	µg/L		4.0		NE	1000	
OW15B	Metal	Cadmium	0.3	µg/L	J	0.1		5	5	
OW15B	Metal	Calcium	92100.0	µg/L		400.0		NE	NE	
OW15B	Metal	Chromium	6.9	µg/L		1.5		100	50	
OW15B	Metal	Cobalt	0.5	µg/L	J	0.1		NE	NE	
OW15B	Metal	Copper	7.8	µg/L		0.3		1300	200	
OW15B	Metal	Iron	515.0	µg/L		10.0		300 ^d	300	
OW15B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW15B	Metal	Lithium	58.3	µg/L		2.0		NE	NE	
OW15B	Metal	Magnesium	120000.0	µg/L		104.0		NE	NE	
OW15B	Metal	Manganese	9.1	µg/L		1.0		50 ^d	300	
OW15B	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
OW15B	Metal	Nickel	7.9	µg/L		0.5		NE	100	
OW15B	Metal	Potassium	2170.0	µg/L		80.0		NE	NE	
OW15B	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
OW15B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW15B	Metal	Sodium	62200.0	µg/L		1600.0		NE	20000	
OW15B	Metal	Thallium	0.3	µg/L	U	0.3		2	NE	
OW15B	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
OW15B	Metal	Zinc	8.2	µg/L	J	2.6		5000 ^d	NE	

Table 11

NFSS Fall 2008 Environmental Surveillance Program Findings for Groundwater

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCCS** pCi/L
Sample Date: 10/28/2008										
OW17B	Radiological	Radium-226	0.587	pCi/L		0.500	0.383	5 ^a	5 ^a	100 ^a
OW17B	Radiological	Radium-228	0.478	pCi/L		0.941	0.584	5 ^a	5 ^a	100 ^a
		Total Radium ^a	1.065	pCi/L				5 ^a	5 ^a	100 ^a
OW17B	Radiological	Thorium-228	0.014	pCi/L	U	0.175	0.071	15 ^b	NE	400
OW17B	Radiological	Thorium-230	0.033	pCi/L	U	0.088	0.066	15 ^b	NE	300
OW17B	Radiological	Thorium-232	0.031	pCi/L	U	0.088	0.065	15 ^b	NE	50
		Total Thorium ^b	Non-detect	pCi/L				15 ^b	NE	NE
OW17B	Radiological	Uranium-233/234	2.810	pCi/L		0.222	0.822	27 ^c	NE	600 ^c
OW17B	Radiological	Uranium-235/236	0.197	pCi/L	U	0.236	0.213	27 ^c	NE	600 ^c
OW17B	Radiological	Uranium-238	2.960	pCi/L		0.266	0.852	27 ^c	NE	600 ^c
		Total Uranium ^c	5.770	pCi/L	=	6.411	µg/L	27 ^c	NE	600 ^c
OW17B	Water Quality	Alkalinity, Total as CaCO3	421	mg/L		1.45		500 ^d	500	
OW17B	Water Quality	Total Dissolved Solids	910	mg/L		2.38		NE	NE	
OW17B	Anion	Chloride	9.090	mg/L		0.066		250 ^d	250	
OW17B	Anion	Fluoride	0.323	mg/L		0.033		4	1.5	
OW17B	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
OW17B	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
OW17B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW17B	Anion	Sulfate	419	mg/L		2		250 ^d	250	
OW17B	Metal	Aluminum	6.1	µg/L	J	5.0		50-200 ^d	NE	
OW17B	Metal	Antimony	1.0	µg/L	U	1.0		6	3	
OW17B	Metal	Arsenic	1.5	µg/L	U	1.5		10	25	
OW17B	Metal	Barium	8.6	µg/L		0.5		2000	1000	
OW17B	Metal	Beryllium	0.1	µg/L	U	0.1		4	11	
OW17B	Metal	Boron	100.0	µg/L		4.0		NE	1000	
OW17B	Metal	Cadmium	0.1	µg/L	U	0.1		5	5	
OW17B	Metal	Calcium	59700.0	µg/L		200.0		NE	NE	
OW17B	Metal	Chromium	1.5	µg/L	U	1.5		100	50	
OW17B	Metal	Cobalt	0.5	µg/L	J	0.1		NE	NE	
OW17B	Metal	Copper	3.4	µg/L		0.3		1300	200	
OW17B	Metal	Iron	237.0	µg/L		10.0		300 ^d	300	
OW17B	Metal	Lead	0.5	µg/L	U	0.5		15	25	
OW17B	Metal	Lithium	57.2	µg/L		2.0		NE	NE	
OW17B	Metal	Magnesium	127000.0	µg/L		52.0		NE	NE	
OW17B	Metal	Manganese	5.7	µg/L		1.0		50 ^d	300	
OW17B	Metal	Mercury	0.1	µg/L	U	0.1		2	0.7	
OW17B	Metal	Nickel	4.4	µg/L		0.5		NE	100	
OW17B	Metal	Potassium	2000.0	µg/L		80.0		NE	NE	
OW17B	Metal	Selenium	1.0	µg/L	U	1.0		50	10	
OW17B	Metal	Silver	0.2	µg/L	U	0.2		100 ^d	50	
OW17B	Metal	Sodium	58600.0	µg/L		800.0		NE	20000	
OW17B	Metal	Thallium	0.4	µg/L	J	0.3		2	NE	
OW17B	Metal	Vanadium	3.0	µg/L	U	3.0		NE	14	
OW17B	Metal	Zinc	5.7	µg/L	J	2.6		5000 ^d	NE	

Table 11 - 9

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/29/2008										
313	Radiological	Uranium-233/234	21.700	pCi/L		0.100	3.440	27 ^c	NE	600 ^c
313	Radiological	Uranium-235/236	0.553	pCi/L		0.058	0.232	27 ^c	NE	600 ^c
313	Radiological	Uranium-238	16.800	pCi/L		0.078	2.720	27 ^c	NE	600 ^c
		Total Uranium ^c	39.053	pCi/L	=	43.392	µg/L	27 ^c	NE	600 ^c
313	Water Quality	Alkalinity, Total as CaCO ₃	512	mg/L		1.45		500 ^d	500	
313	Water Quality	Total Dissolved Solids	4380.000	mg/L		2.380		NE	NE	
313	Anion	Chloride	34.900	mg/L		0.660		250 ^d	250	
313	Anion	Fluoride	0.044	mg/L	J	0.033		4	1.5	
313	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
313	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
313	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
313	Anion	Sulfate	2600	mg/L		20		250 ^d	250	
Sample Date: 10/29/2008										
505	Radiological	Uranium-233/234	15.300	pCi/L		0.386	3.320	27 ^c	NE	600 ^c
505	Radiological	Uranium-235/236	0.303	pCi/L		0.205	0.308	27 ^c	NE	600 ^c
505	Radiological	Uranium-238	9.700	pCi/L		0.357	2.310	27 ^c	NE	600 ^c
		Total Uranium ^c	25.303	pCi/L	=	28.114	µg/L	27 ^c	NE	600 ^c
505	Water Quality	Alkalinity, Total as CaCO ₃	715	mg/L		1.45		500 ^d	500	
505	Anion	Chloride	211.000	mg/L		13.200		250 ^d	250	
505	Anion	Fluoride	0.066	mg/L	J	0.033		4	1.5	
505	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
505	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
505	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
505	Anion	Sulfate	2760	mg/L		20		250 ^d	250	
Sample Date: 10/29/2008										
302A	Radiological	Uranium-233/234	55.300	pCi/L		0.270	10.100	27 ^c	NE	600 ^c
302A	Radiological	Uranium-235/236	3.580	pCi/L		0.163	0.961	27 ^c	NE	600 ^c
302A	Radiological	Uranium-238	42.500	pCi/L		0.154	7.840	27 ^c	NE	600 ^c
		Total Uranium ^c	101.380	pCi/L	=	112.644	µg/L	27 ^c	NE	600 ^c
302A	Water Quality	Alkalinity, Total as CaCO ₃	526	mg/L		1.45		500 ^d	500	
302A	Water Quality	Total Dissolved Solids	8880.000	mg/L		2.380		NE	NE	
302A	Anion	Chloride	473.000	mg/L		13.200		250 ^d	250	
302A	Anion	Fluoride	1.280	mg/L		0.330		4	1.5	
302A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
302A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
302A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
302A	Anion	Sulfate	5430	mg/L		20		250 ^d	250	
Sample Date: 10/28/2008										
A42	Radiological	Uranium-233/234	38.700	pCi/L		0.212	5.870	27 ^c	NE	600 ^c
A42	Radiological	Uranium-235/236	3.620	pCi/L		0.221	0.881	27 ^c	NE	600 ^c
A42	Radiological	Uranium-238	36.500	pCi/L		0.212	5.560	27 ^c	NE	600 ^c
		Total Uranium ^c	78.820	pCi/L	=	87.578	µg/L	27 ^c	NE	600 ^c
A42	Water Quality	Alkalinity, Total as CaCO ₃	482	mg/L		1.45		500 ^d	500	
A42	Water Quality	Total Dissolved Solids	910	mg/L		2.38		NE	NE	
A42	Anion	Chloride	13.300	mg/L		0.066		250 ^d	250	
A42	Anion	Fluoride	0.132	mg/L		0.033		4	1.5	
A42	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
A42	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
A42	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
A42	Anion	Sulfate	304	mg/L		2		250 ^d	250	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (+)	Federal Regulations MCLs**	NY State Water Quality Std.**	DOE DCCs** pCi/L
Sample Date: 10/30/2008										
BH49A	Radiological	Uranium-233/234	10.900	pCi/L		0.280	2.580	27 ^c	NE	600 ^c
BH49A	Radiological	Uranium-235/236	0.562	pCi/L		0.433	0.400	27 ^c	NE	600 ^c
BH49A	Radiological	Uranium-238	9.860	pCi/L		0.403	2.380	27 ^c	NE	600 ^c
		Total Uranium ^c	21.322	pCi/L	=	23.691	µg/L	27 ^c	NE	600 ^c
BH49A	Water Quality	Alkalinity, Total as CaCO3	375	mg/L		1.45		500 ^d	500	
BH49A	Water Quality	Total Dissolved Solids	1150.000	mg/L		2.380		NE	NE	
BH49A	Anion	Chloride	40.300	mg/L		1.320		250 ^d	250	
BH49A	Anion	Fluoride	0.276	mg/L		0.033		4	1.5	
BH49A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
BH49A	Anion	Nitrite	0.041	mg/L	J	0.033		1	1	
BH49A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
BH49A	Anion	Sulfate	520.00	mg/L		2.00		250 ^d	250	
Sample Date: 10/29/2008										
OW04A	Radiological	Uranium-233/234	1.210	pCi/L		0.084	0.352	27 ^c	NE	600 ^c
OW04A	Radiological	Uranium-235/236	0.069	pCi/L		0.062	0.080	27 ^c	NE	600 ^c
OW04A	Radiological	Uranium-238	0.806	pCi/L		0.108	0.276	27 ^c	NE	600 ^c
		Total Uranium ^c	2.085	pCi/L	=	2.317	µg/L	27 ^c	NE	600 ^c
OW04A	Water Quality	Alkalinity, Total as CaCO3	169	mg/L		1.45		500 ^d	500	
OW04A	Water Quality	Total Dissolved Solids	943.000	mg/L		2.380		NE	NE	
OW04A	Anion	Chloride	30.200	mg/L		0.660		250 ^d	250	
OW04A	Anion	Fluoride	0.269	mg/L		0.033		4	1.5	
OW04A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
OW04A	Anion	Nitrite	0.038	mg/L	J	0.033		1	1	
OW04A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW04A	Anion	Sulfate	528	mg/L		20		250 ^d	250	
Sample Date: 10/30/2008										
OW11B	Radiological	Uranium-233/234	87.600	pCi/L		0.307	17.000	27 ^c	NE	600 ^c
OW11B	Radiological	Uranium-235/236	4.270	pCi/L		0.380	1.200	27 ^c	NE	600 ^c
OW11B	Radiological	Uranium-238	84.100	pCi/L		0.307	16.300	27 ^c	NE	600 ^c
		Total Uranium ^c	175.970	pCi/L	=	195.522	µg/L	27 ^c	NE	600 ^c
OW11B	Water Quality	Alkalinity, Total as CaCO3	340	mg/L		1.45		500 ^d	500	
OW11B	Water Quality	Total Dissolved Solids	1210.000	mg/L		2.380		NE	NE	
OW11B	Anion	Chloride	16.100	mg/L		0.066		250 ^d	250	
OW11B	Anion	Fluoride	0.328	mg/L		0.033		4	1.5	
OW11B	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
OW11B	Anion	Nitrite	0.037	mg/L	J	0.033		1	1	
OW11B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW11B	Anion	Sulfate	587	mg/L		10		250 ^d	250	
Sample Date: 10/28/2008										
OW18B	Radiological	Uranium-233/234	7.350	pCi/L		0.172	1.400	27 ^c	NE	600 ^c
OW18B	Radiological	Uranium-235/236	0.247	pCi/L		0.164	0.197	27 ^c	NE	600 ^c
OW18B	Radiological	Uranium-238	5.720	pCi/L		0.080	1.160	27 ^c	NE	600 ^c
		Total Uranium ^c	13.317	pCi/L	=	14.797	µg/L	27 ^c	NE	600 ^c
OW18B	Water Quality	Alkalinity, Total as CaCO3	520	mg/L		1.45		500 ^d	500	
OW18B	Water Quality	Total Dissolved Solids	1650.000	mg/L		2.380		NE	NE	
OW18B	Anion	Chloride	19.500	mg/L		0.132		250 ^d	250	
OW18B	Anion	Fluoride	0.358	mg/L		0.033		4	1.5	
OW18B	Anion	Nitrate	0.462	mg/L		0.033		10	10	
OW18B	Anion	Nitrite	0.038	mg/L	J	0.033		1	1	
OW18B	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
OW18B	Anion	Sulfate	812	mg/L		5		250 ^d	250	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
Sample Date: 10/30/2008										
415A	Radiological	Uranium-233/234	6.810	pCi/L		0.735	2.330	27 ^c	NE	600 ^c
415A	Radiological	Uranium-235/236	0.299	pCi/L		0.270	0.354	27 ^c	NE	600 ^c
415A	Radiological	Uranium-238	5.600	pCi/L		0.830	2.020	27 ^c	NE	600 ^c
		Total Uranium ^c	12.709	pCi/L	=	14.121	µg/L	27 ^c	NE	600 ^c
415A	Water Quality	Total Dissolved Solids	2120	mg/L		2.38		500 ^d	500	
415A	Water Quality	Alkalinity, Total as CaCO3	543	mg/L		1.45		NE	NE	
415A	Anion	Chloride	134.000	mg/L		6.600		250 ^d	250	
415A	Anion	Fluoride	3.490	mg/L		0.033		4	1.5	
415A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
415A	Anion	Nitrite	0.033	mg/L	U	0.033		1	1	
415A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
415A	Anion	Sulfate	890	mg/L		10		250 ^d	250	
415A	VOC	1,1,1-Trichloroethane	200.0	µg/L	U	200.0		200	5	
415A	VOC	1,1,2,2-Tetrachloroethane	200.0	µg/L	U	200.0		NE	5	
415A	VOC	1,1,2-Trichloroethane	200.0	µg/L	U	200.0		5	1	
415A	VOC	1,1-Dichloroethane	200.0	µg/L	U	200.0		NE	5	
415A	VOC	1,1-Dichloroethylene	200.0	µg/L	U	200.0		7	5	
415A	VOC	1,2-Dichloroethane	200.0	µg/L	U	200.0		5	0.6	
415A	VOC	1,2-Dichloropropane	200.0	µg/L	U	200.0		5	1	
415A	VOC	2-Butanone	1000.0	µg/L	U	1000.0		NE	NE	
415A	VOC	2-Hexanone	1000.0	µg/L	U	1000.0		NE	NE	
415A	VOC	4-Methyl-2-pentanone	1000.0	µg/L	U	1000.0		NE	NE	
415A	VOC	Acetone	1000.0	µg/L	U	300.0		NE	NE	
415A	VOC	Benzene	200.0	µg/L	U	200.0		5	1	
415A	VOC	Bromodichloromethane	200.0	µg/L	U	200.0		NE	NE	
415A	VOC	Bromoform	200.0	µg/L	U	200.0		NE	NE	
415A	VOC	Bromomethane	200.0	µg/L	U	200.0		NE	5	
415A	VOC	Carbon disulfide	1000.0	µg/L	U	1000.0		NE	60	
415A	VOC	Carbon tetrachloride	200.0	µg/L	U	200.0		5	5	
415A	VOC	Chlorobenzene	200.0	µg/L	U	200.0		100	5	
415A	VOC	Chloroethane	200.0	µg/L	U	200.0		NE	5	
415A	VOC	Chloroform	200.0	µg/L	U	200.0		NE	7	
415A	VOC	Chloromethane	200.0	µg/L	U	200.0		NE	5	
415A	VOC	cis-1,2-Dichloroethylene	11200.0	µg/L		200.0		70	5	
415A	VOC	cis-1,3-Dichloropropylene	200.0	µg/L	U	200.0		NE	0.4 ^c	
415A	VOC	Ethylbenzene	200.0	µg/L	U	200.0		700	5	
415A	VOC	Methylene chloride	2000.0	µg/L	U	2000.0		5	5	
415A	VOC	Styrene	200.0	µg/L	U	200.0		100	5	
415A	VOC	Tetrachloroethylene	22800.0	µg/L	J	500.0		5	5	
415A	VOC	Toluene	200.0	µg/L	U	200.0		1000	5	
415A	VOC	trans-1,2-Dichloroethylene	139.0	µg/L	J	200.0		100	5	
415A	VOC	trans-1,3-Dichloropropylene	200.0	µg/L	U	200.0		NE	0.4 ^c	
415A	VOC	Trichloroethylene	10200.0	µg/L		200.0		5	5	
415A	VOC	Vinyl chloride	763.0	µg/L		200.0		2	2	
415A	VOC	Xylenes (total)	200.0	µg/L	U	200.0		10000	5 ^f	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds. **	DOE DCGs** pCi/L
Sample Date: 10/30/2008										
201A	Water Quality	Total Dissolved Solids	1290	mg/L		2.38		500 ^d	500	
201A	Water Quality	Alkalinity, Total as CaCO3	467	mg/L		1.45		NE	NE	
201A	Anion	Chloride	6.920	mg/L		0.066		250 ^d	250	
201A	Anion	Fluoride	0.236	mg/L		0.033		4	1.5	
201A	Anion	Nitrate	0.033	mg/L	U	0.033		10	10	
201A	Anion	Nitrite	0.036	mg/L	J	0.033		1	1	
201A	Anion	Ortho-phosphate	0.066	mg/L	U	0.066		NE	NE	
201A	Anion	Sulfate	574	mg/L		10		250 ^d	250	
201A	VOC	1,1,1-Trichloroethane	1.0	µg/L	U	1.0		200	5	
201A	VOC	1,1,2,2-Tetrachloroethane	1.0	µg/L	U	1.0		NE	5	
201A	VOC	1,1,2-Trichloroethane	1.0	µg/L	U	1.0		5	1	
201A	VOC	1,1-Dichloroethane	1.0	µg/L	U	1.0		NE	5	
201A	VOC	1,1-Dichloroethylene	1.0	µg/L	U	1.0		7	5	
201A	VOC	1,2-Dichloroethane	1.0	µg/L	U	1.0		5	0.6	
201A	VOC	1,2-Dichloropropane	1.0	µg/L	U	1.0		5	1	
201A	VOC	2-Butanone	5.0	µg/L	U	5.0		NE	NE	
201A	VOC	2-Hexanone	5.0	µg/L	U	5.0		NE	NE	
201A	VOC	4-Methyl-2-pentanone	5.0	µg/L	U	5.0		NE	NE	
201A	VOC	Acetone	5.0	µg/L	U	5.0		NE	NE	
201A	VOC	Benzene	1.0	µg/L	U	1.0		5	1	
201A	VOC	Bromodichloromethane	1.0	µg/L	U	1.0		NE	NE	
201A	VOC	Bromoform	1.0	µg/L	U	1.0		NE	NE	
201A	VOC	Bromomethane	1.0	µg/L	U	1.0		NE	5	
201A	VOC	Carbon disulfide	5.0	µg/L	U	5.0		NE	60	
201A	VOC	Carbon tetrachloride	1.0	µg/L	U	1.0		5	5	
201A	VOC	Chlorobenzene	1.0	µg/L	U	1.0		100	5	
201A	VOC	Chloroethane	1.0	µg/L	U	1.0		NE	5	
201A	VOC	Chloroform	1.0	µg/L	U	1.0		NE	7	
201A	VOC	Chloromethane	1.0	µg/L	U	1.0		NE	5	
201A	VOC	cis-1,2-Dichloroethylene	1.0	µg/L	U	1.0		70	5	
201A	VOC	cis-1,3-Dichloropropylene	1.0	µg/L	U	1.0		NE	0.4 ^e	
201A	VOC	Ethylbenzene	1.0	µg/L	U	1.0		700	5	
201A	VOC	Methylene chloride	10.0	µg/L	U	10.0		5	5	
201A	VOC	Styrene	1.0	µg/L	U	1.0		100	5	
201A	VOC	Tetrachloroethylene	2.0	µg/L	U	2.0		5	5	
201A	VOC	Toluene	1.0	µg/L	U	1.0		1000	5	
201A	VOC	trans-1,2-Dichloroethylene	1.0	µg/L	U	1.0		100	5	
201A	VOC	trans-1,3-Dichloropropylene	1.0	µg/L	U	1.0		NE	0.4 ^e	
201A	VOC	Trichloroethylene	1.0	µg/L	U	1.0		5	5	
201A	VOC	Vinyl chloride	1.0	µg/L	U	1.0		2	2	
201A	VOC	Xylenes (total)	1.0	µg/L	U	1.0		10000	5 ^f	

NFSS WELL ID*	PARAMETER*	ANALYTE	RESULT	UNITS*	QUALIFIER*	Detection or Reporting Limit*	Radiological Uncertainty (±)	Federal Regulations MCLs**	NY State Water Quality Stds.**	DOE DCGs** pCi/L
---------------	------------	---------	--------	--------	------------	-------------------------------	------------------------------	----------------------------	--------------------------------	------------------

***NFSS WELL ID**

BO2W20S - Background

GW-DUP(OW04B) - Field Duplicate of well location OW04B

***PARAMETER**

VOC - Volatile Organic Compound

PAH - Polycyclic Aromatic Hydrocarbon

PCB - Polychlorinated Biphenyl

***UNITS**

pCi/L - picocuries per liter

µg/L - micrograms per liter (ppb)

mg/L - milligrams per liter (ppm)

***QUALIFIER**

Validated Qualifier: J - indicates an estimated value.

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

***Detection or Reporting Limit**

Radiological - Minimum Detectable Activity (MDA)

Inorganic (Metal) - Method Detection Limit

Organic (VOC) - Reporting Limit (gray shading)

**** Groundwater at NFSS is not a drinking water source.****The above federal and state regulation concentrations are for comparative purposes only.****Federal Regulations:**

National Primary Drinking Water Regulations 40CFR141.62&63

US Dept of Energy:

USDOE derived concentration guide (USDOE Order 5400.5) for drinking water.

New York State:

New York State Standards -Water Quality Criteria (class GA) per 6 NYCRR, Part 703.

NE - Not Established

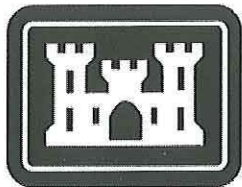
- a. Applies to the sum of Ra-226 and Ra-228
- b. "Adjusted" gross alpha MCL of 15 pCi/l, including Thorium isotopes, excluding radon and uranium
-National Primary Drinking Water Regulations; Radionuclide; Final Rule (Federal Register -December 7, 2000)
- c. Sum of Uranium Isotopes (27 pCi/L or 30 µg/L).
- d. National Secondary Drinking Water Regulations (40CFR143.3)
- e. Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.
- f. Not a sum total for Dimethyl Benzene (Xylene) , applies to 1,2-Xylene, 1,3-Xylene and 1,4-Xylene individually.

FUSRAP NIAGARA FALLS STORAGE SITE

2008

FIGURES

ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

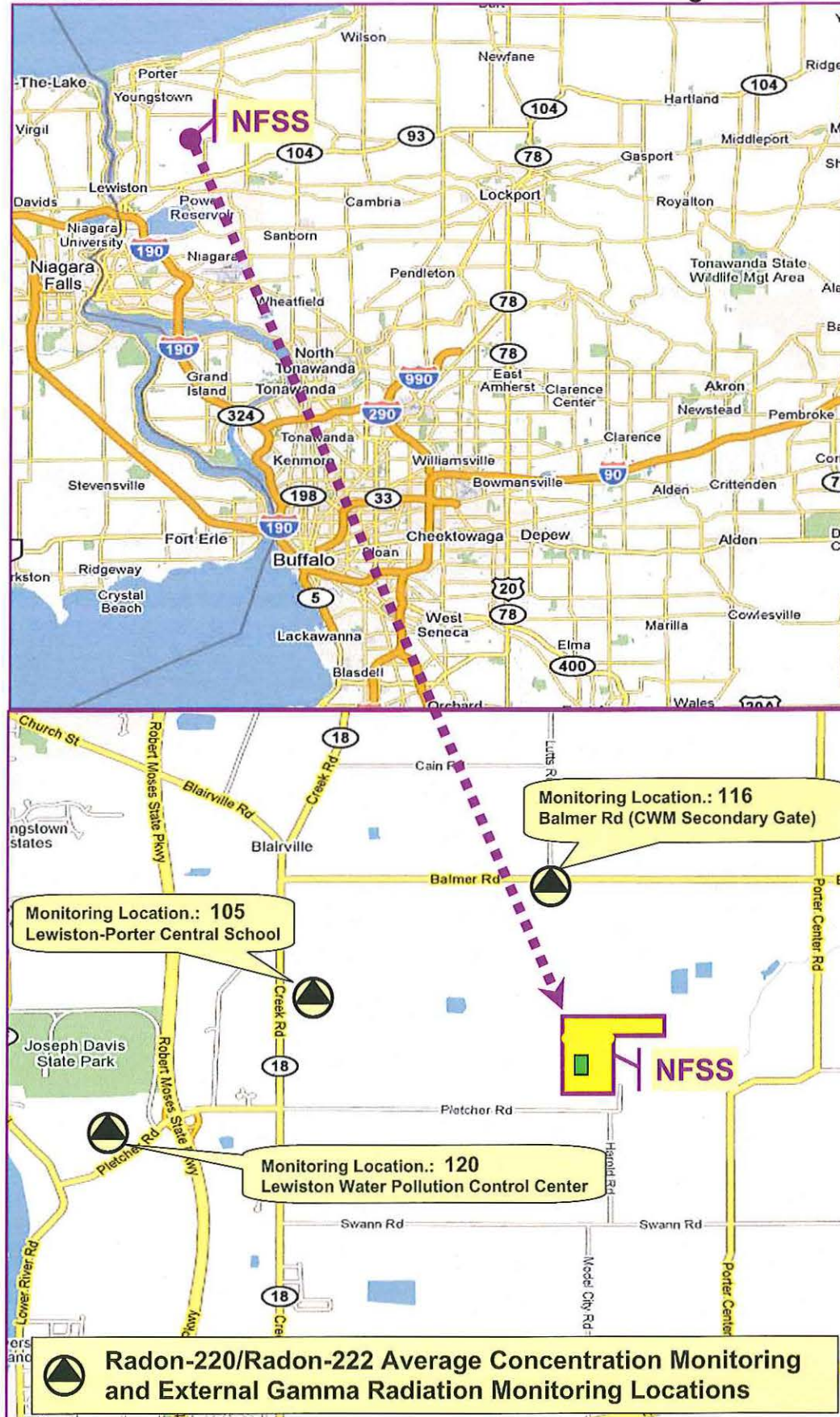


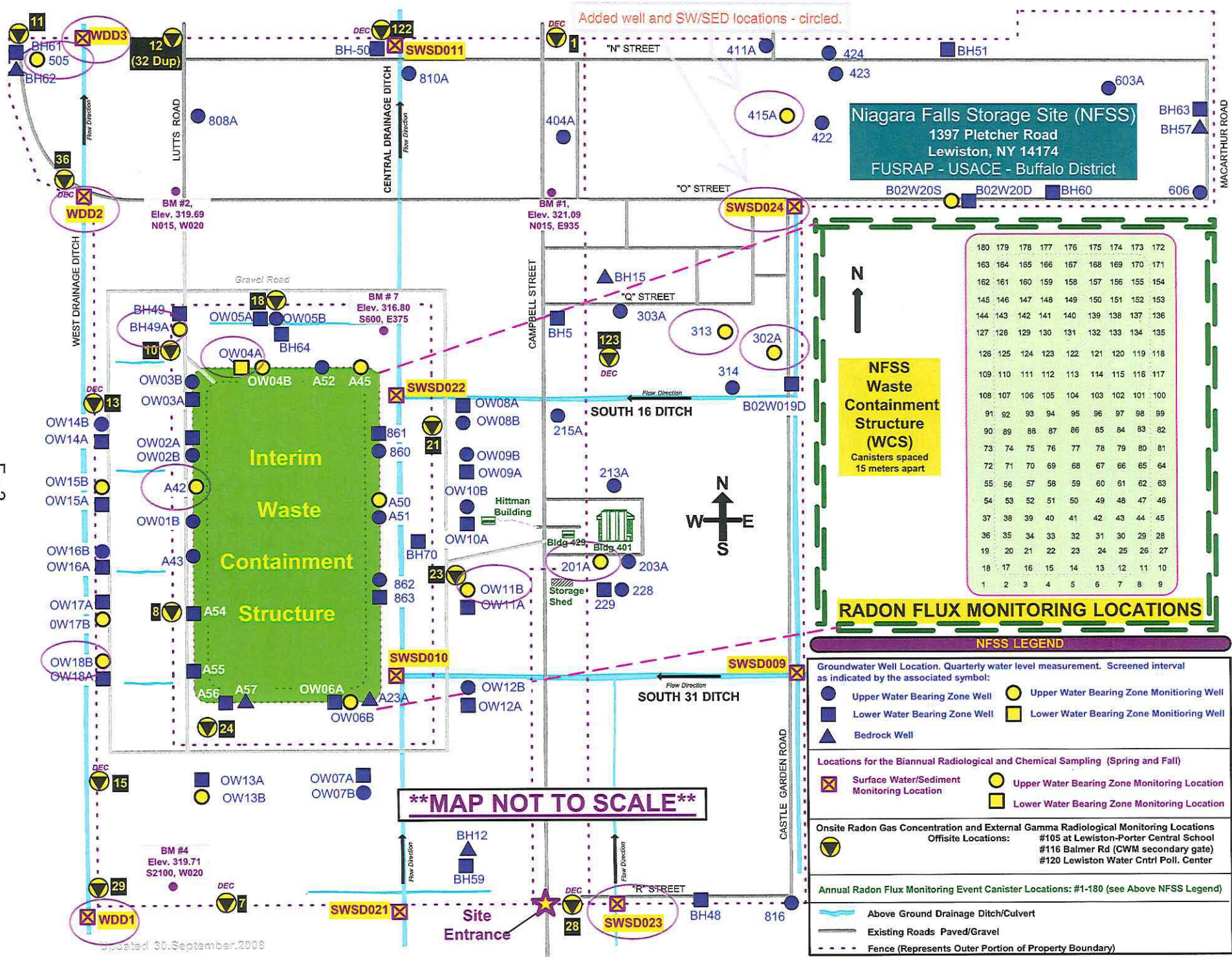
**US Army Corps
of Engineers ®**

Buffalo District

NFSS SITE LOCATION

Figure 1





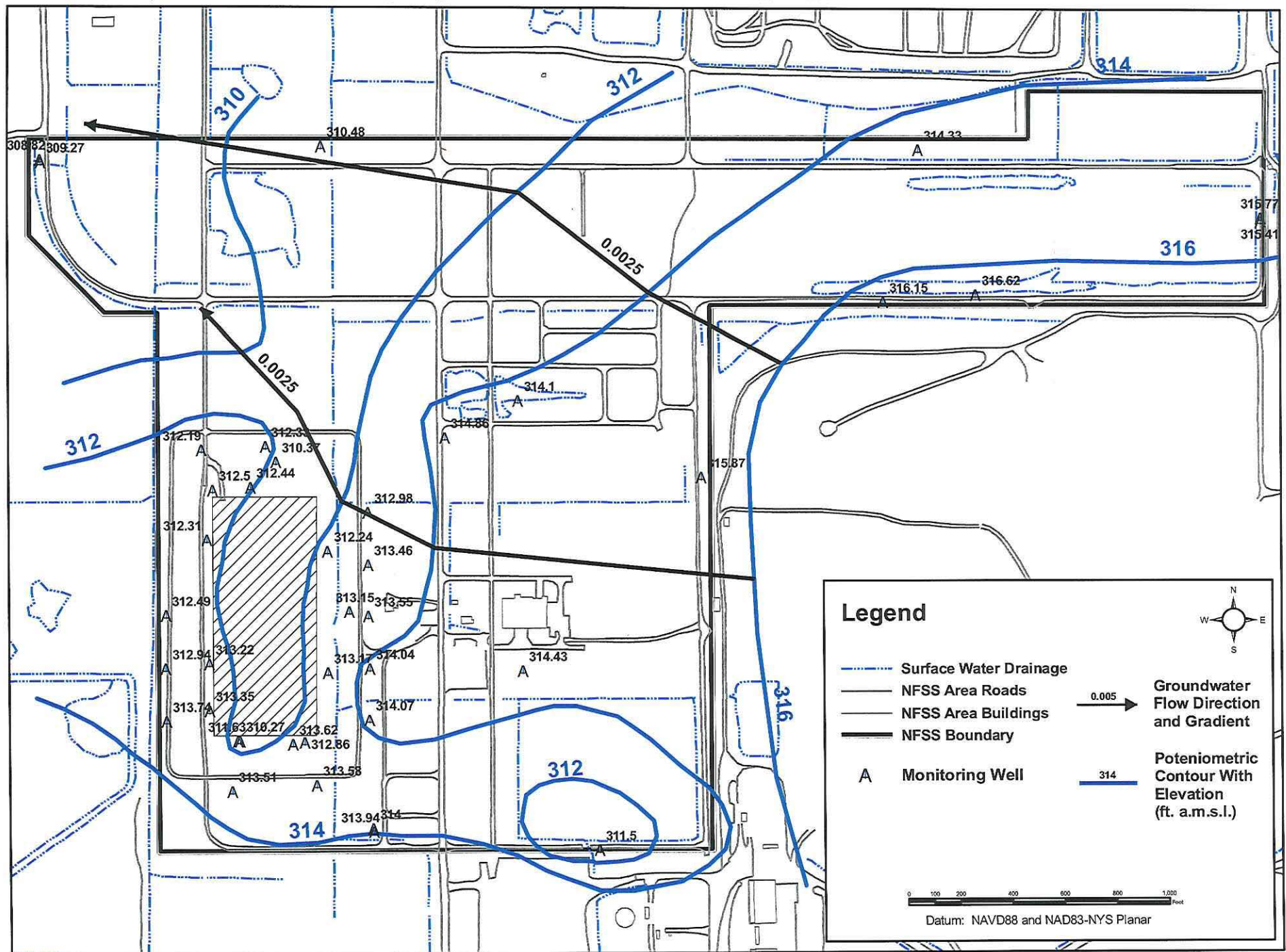


Figure 3
Seasonal High Potentiometric Surface Map (August 25, 2008)
Lower Groundwater System

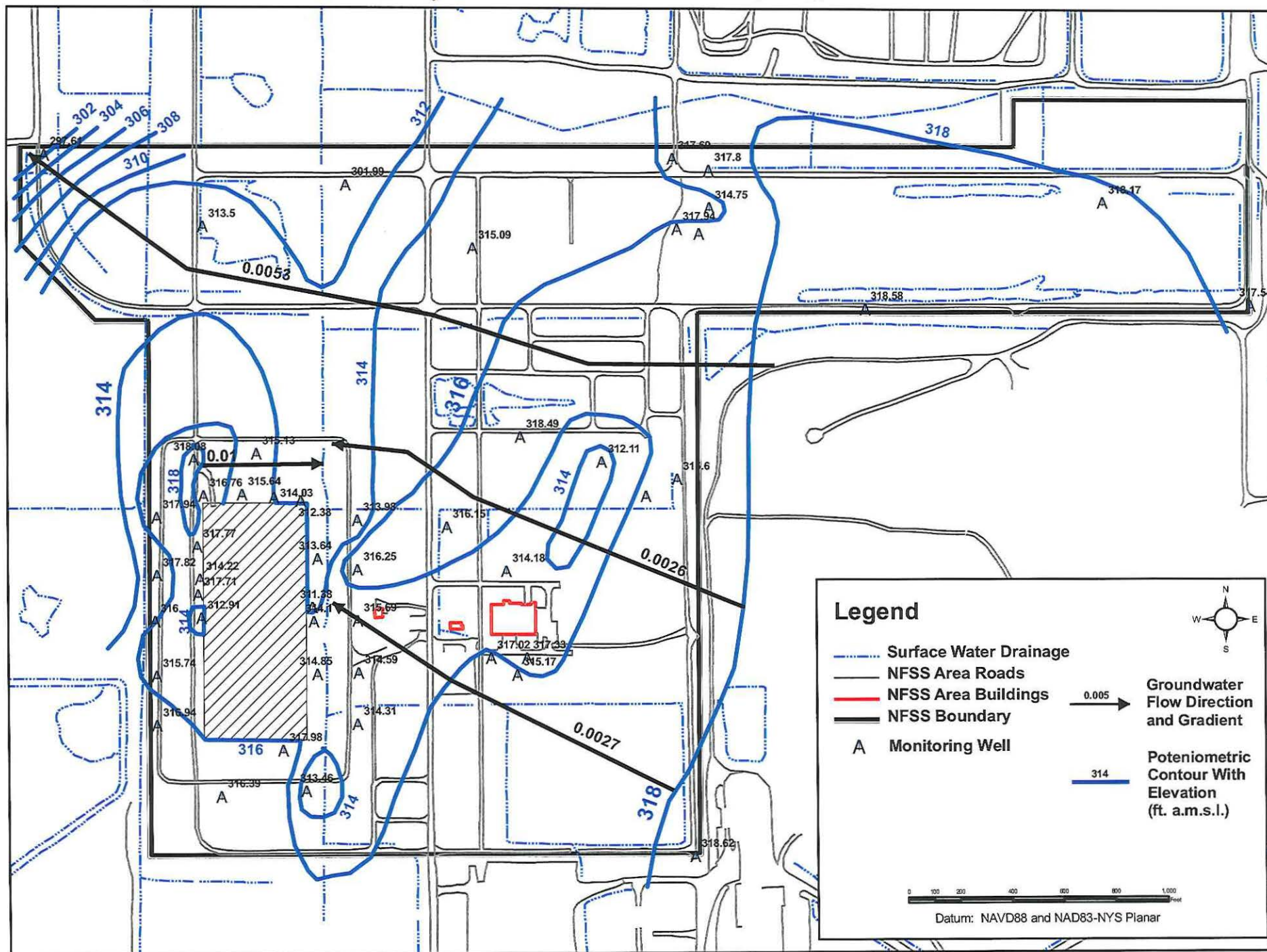
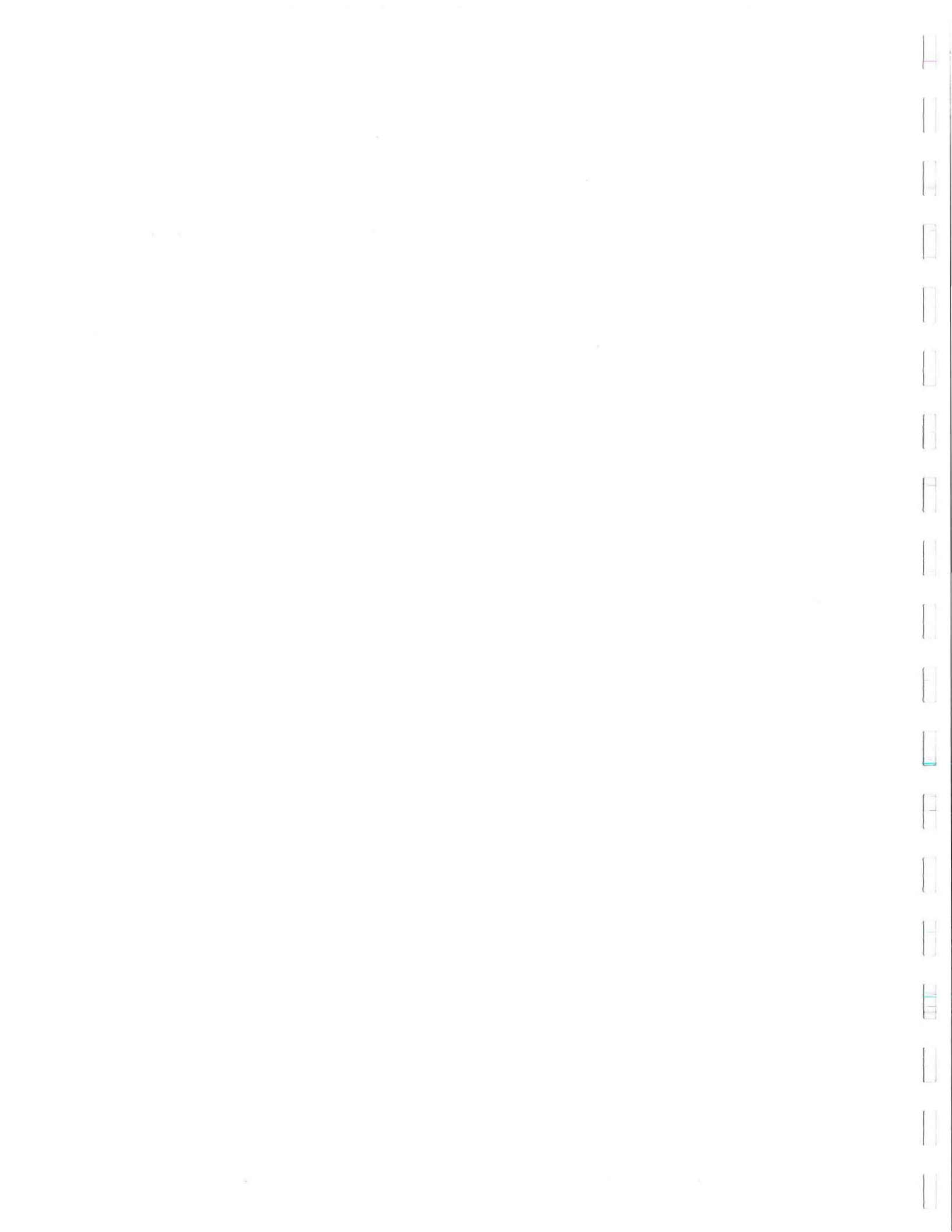


Figure 4
Seasonal High Potentiometric Surface Map (February 19, 2008)
Upper Groundwater System



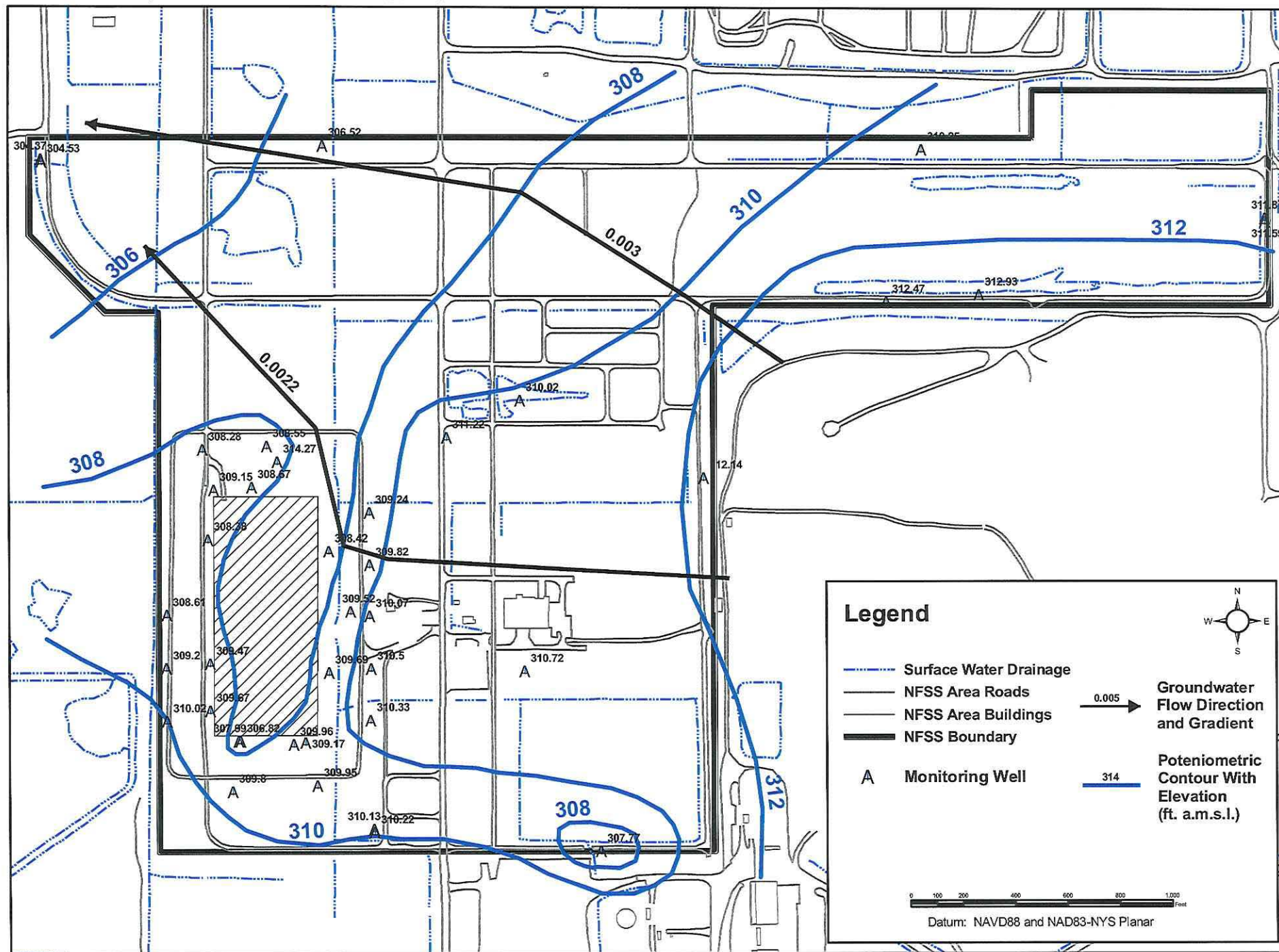
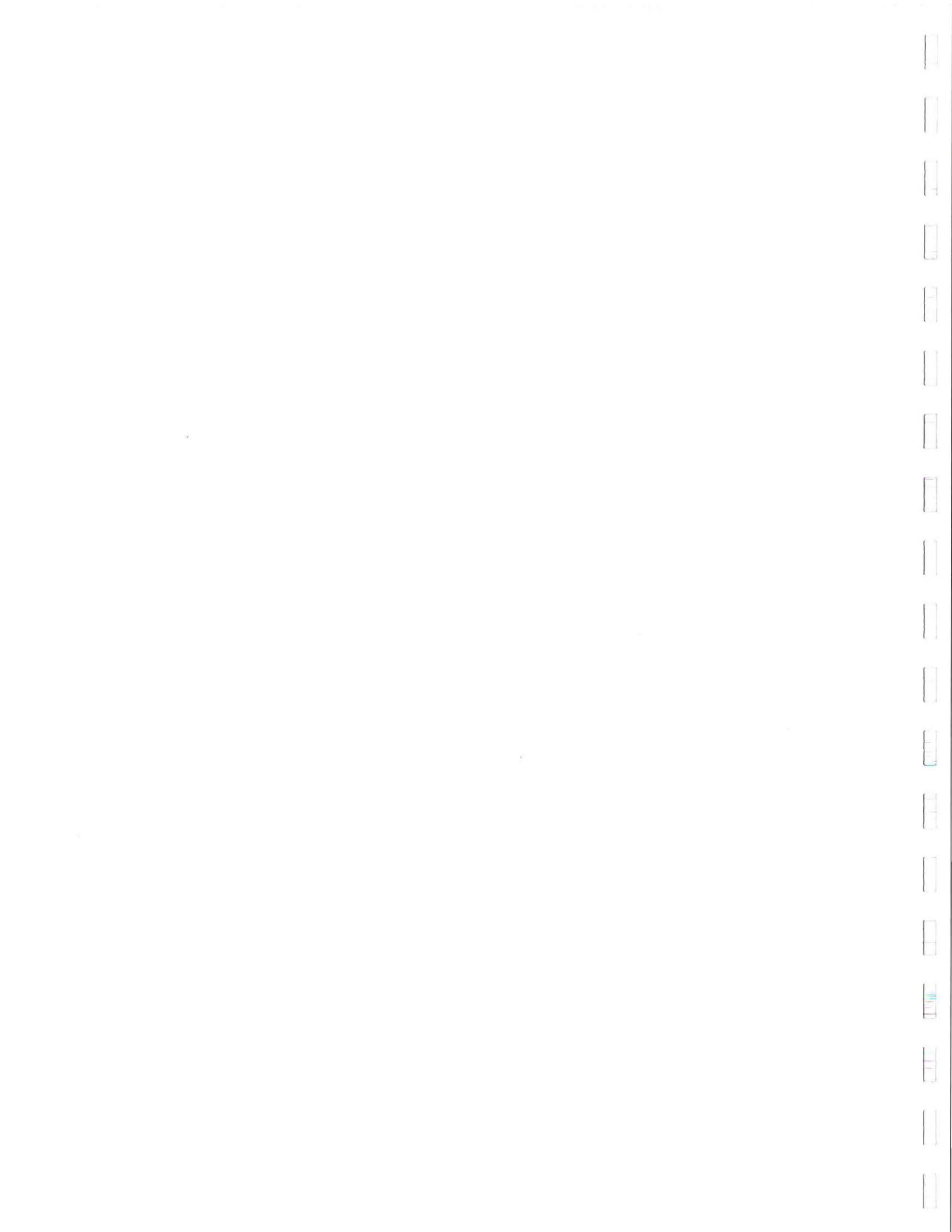


Figure 5
Seasonal Low Potentiometric Surface Map (February 19, 2008)
Lower Groundwater System



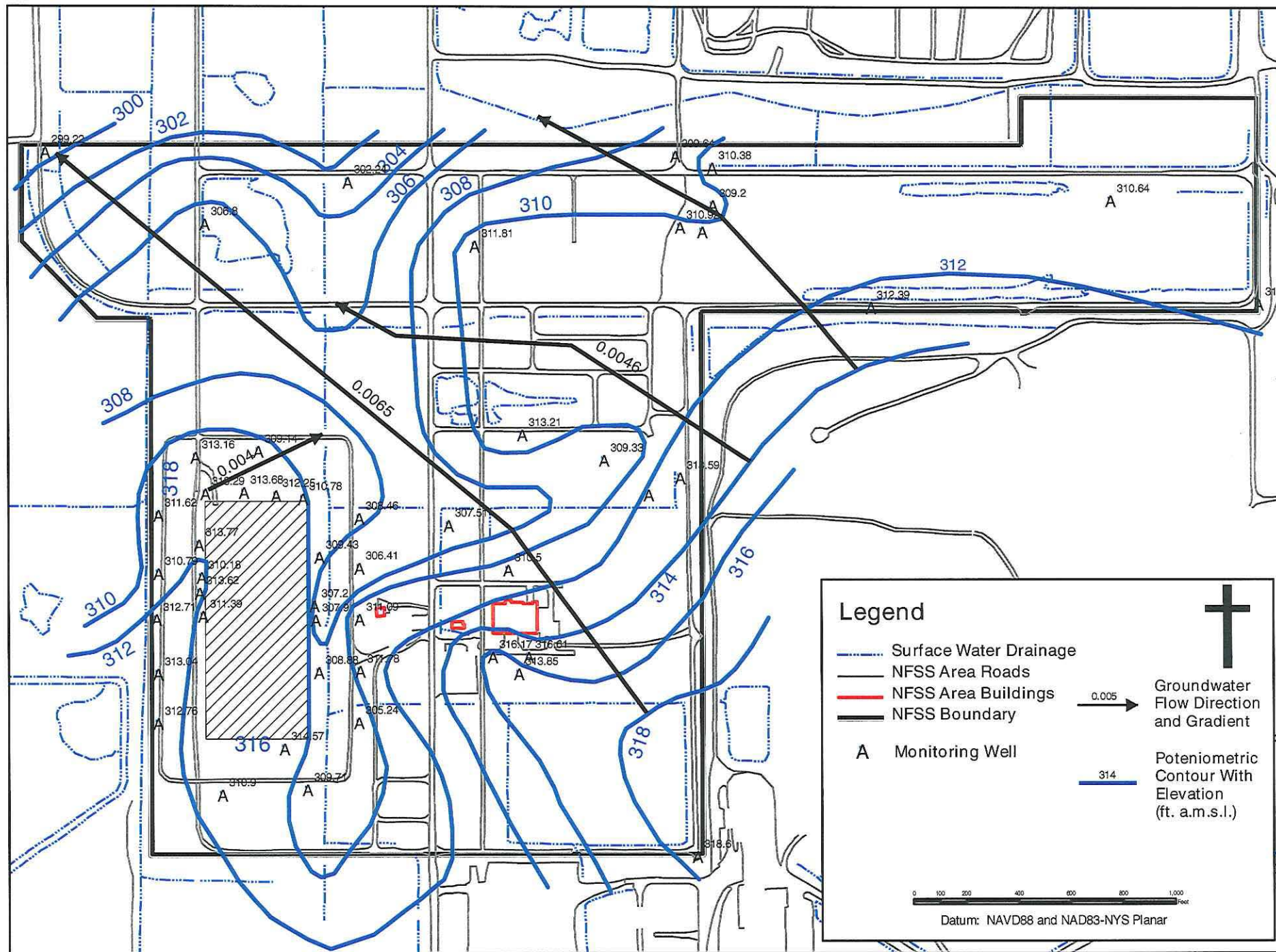


Figure 6
Seasonal Low Potentiometric Surface Map (October 21, 2008)
Upper Groundwater System

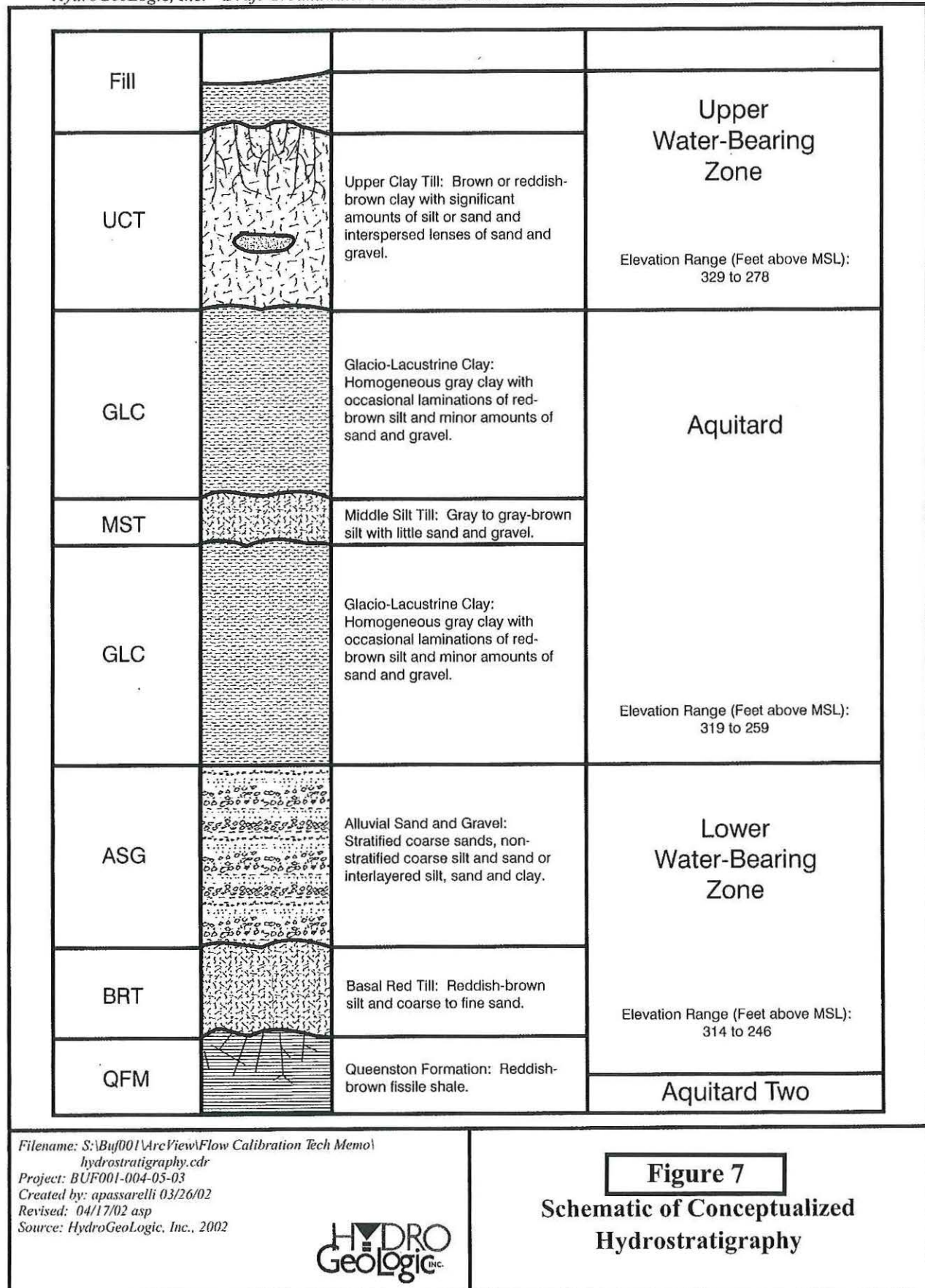
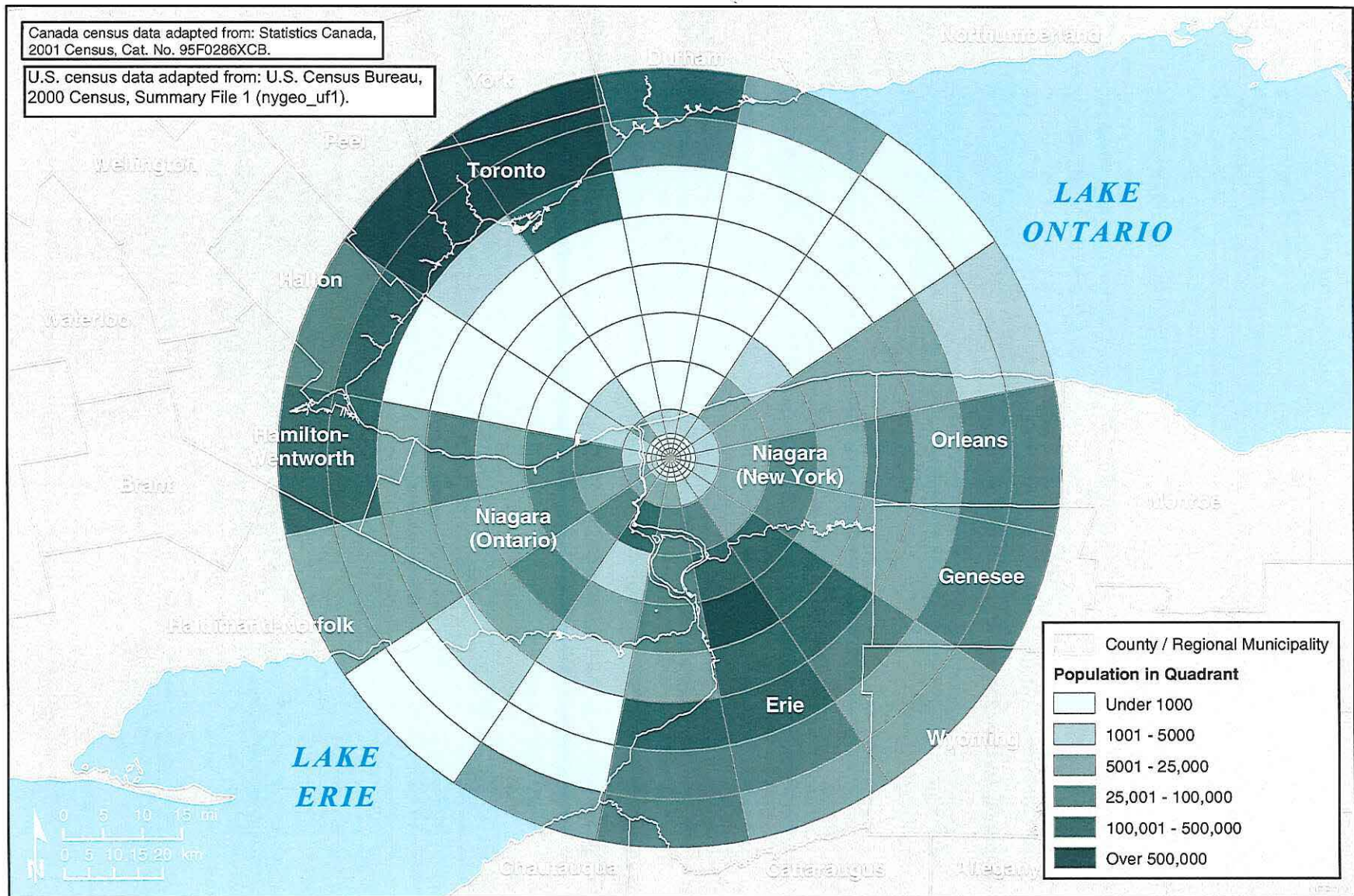


Figure 8: Census Data

F-8



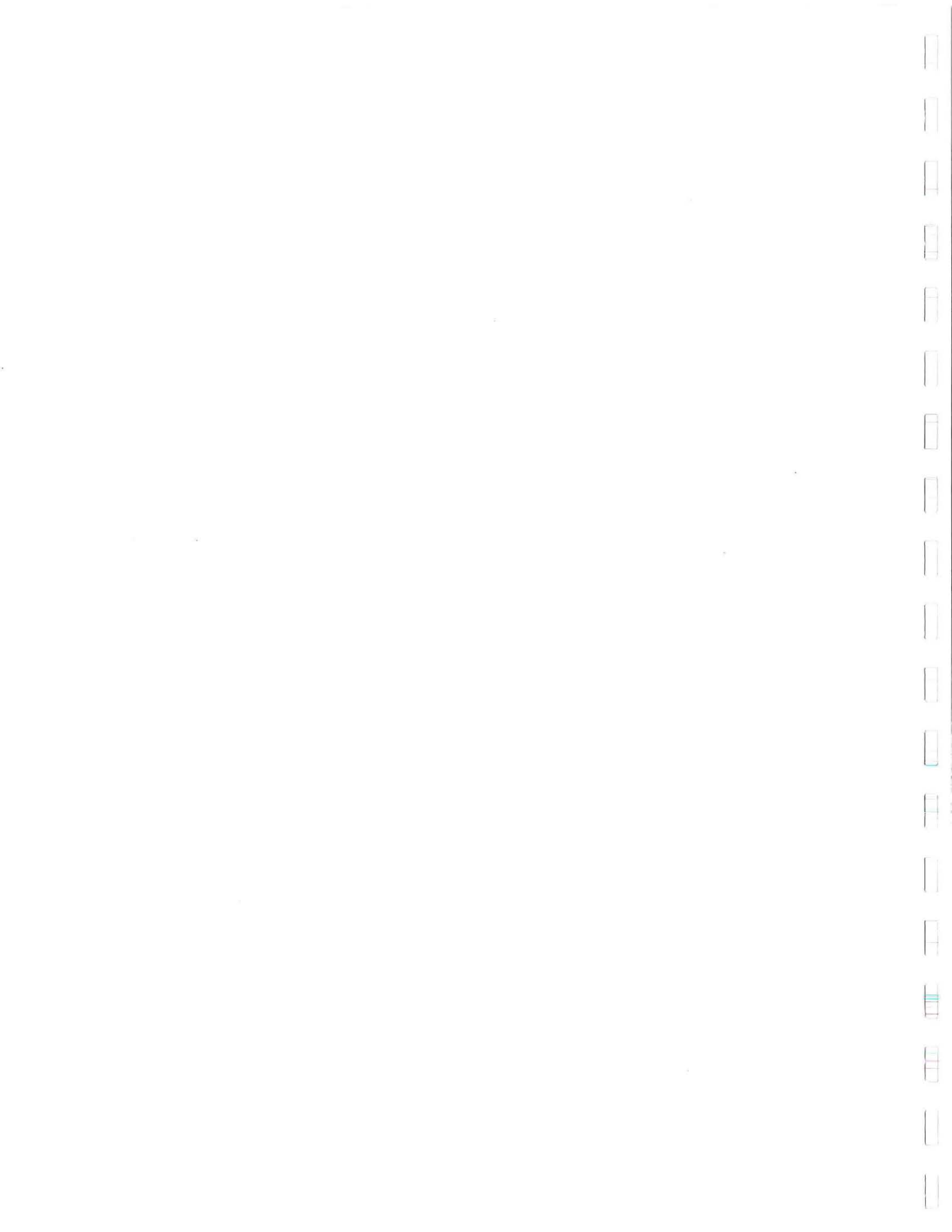
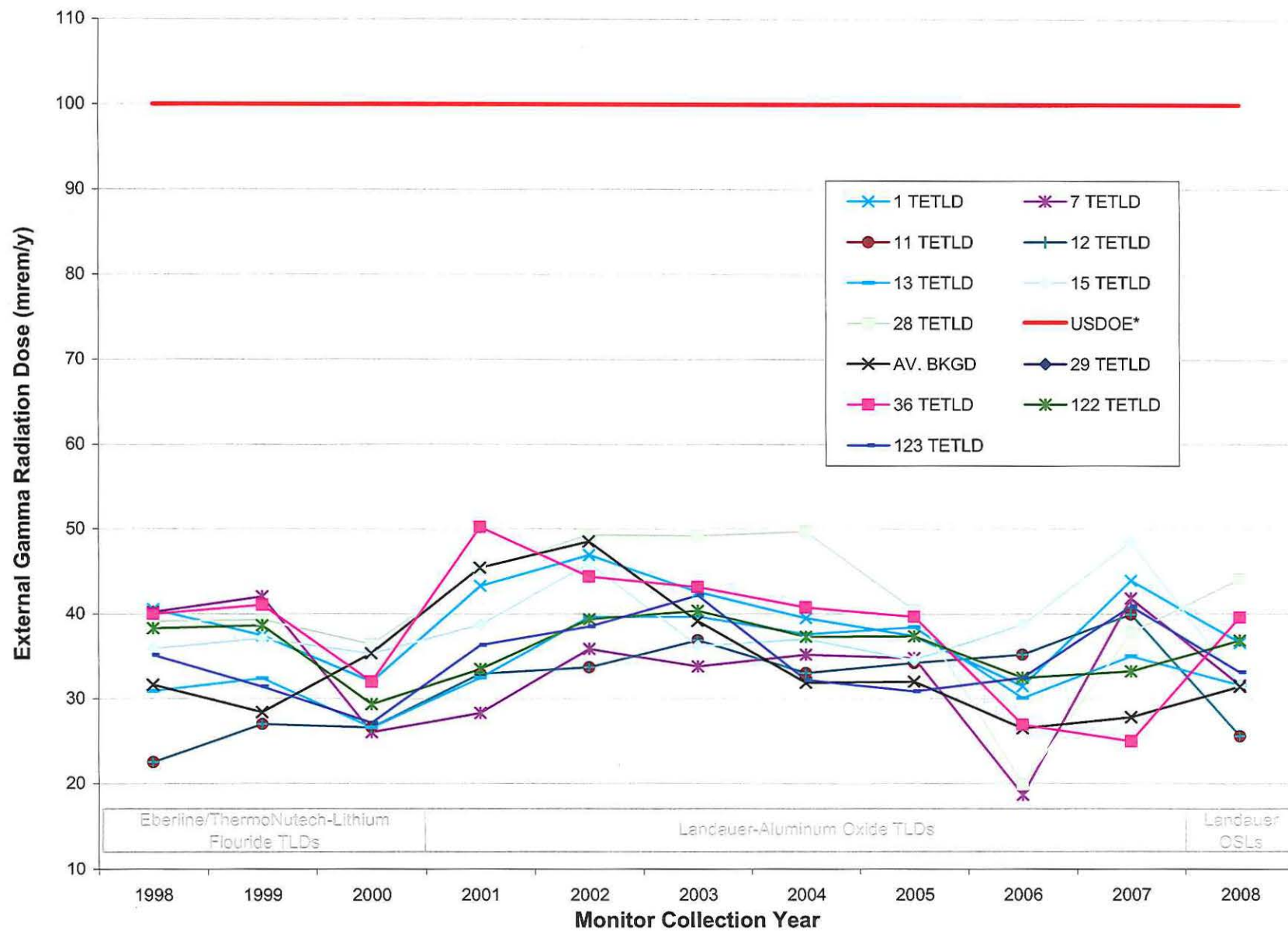


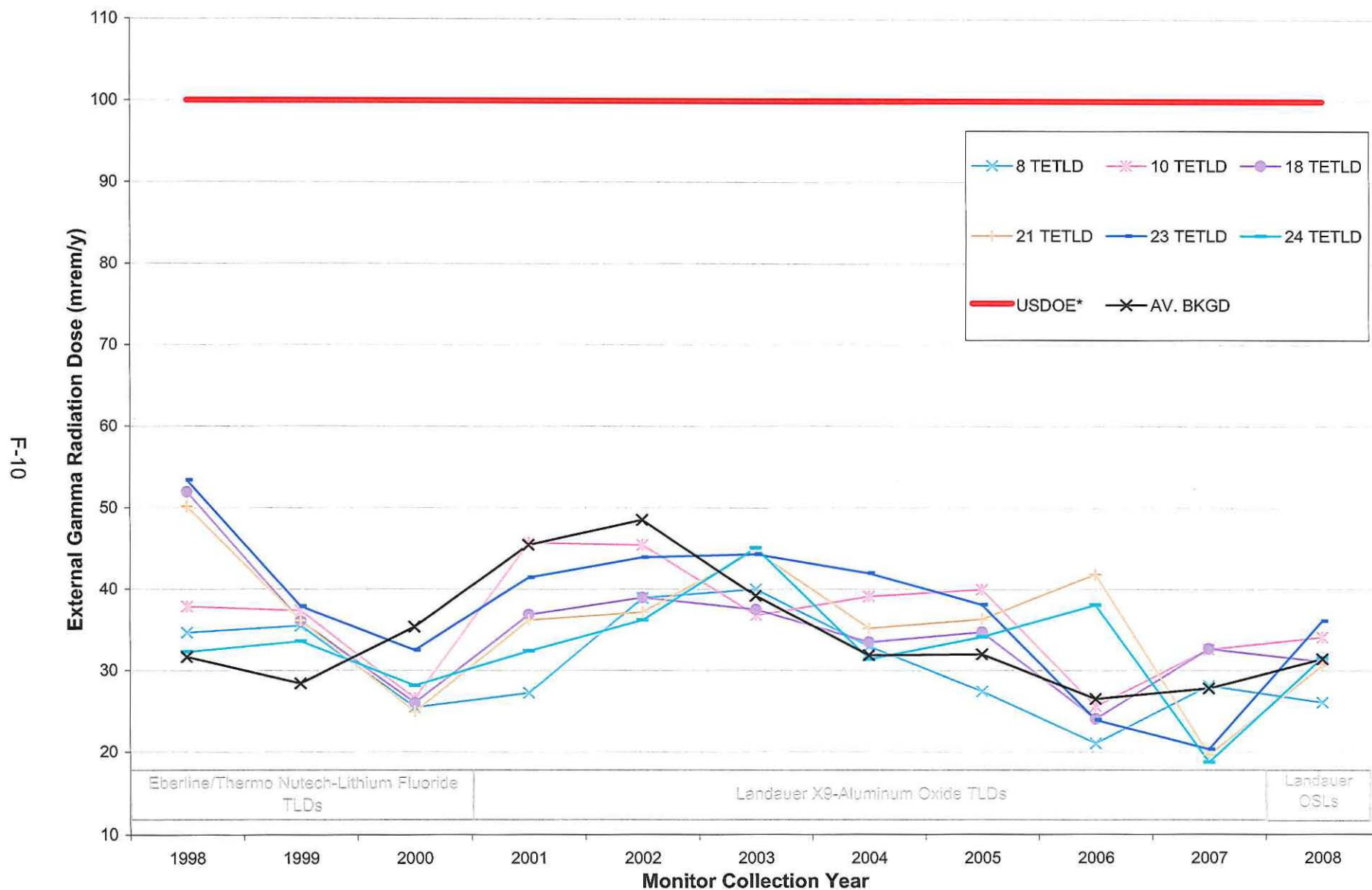
FIGURE 9: EXTERNAL GAMMA RADIATION DOSE RATES AT NFSS PERIMETER



*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background.



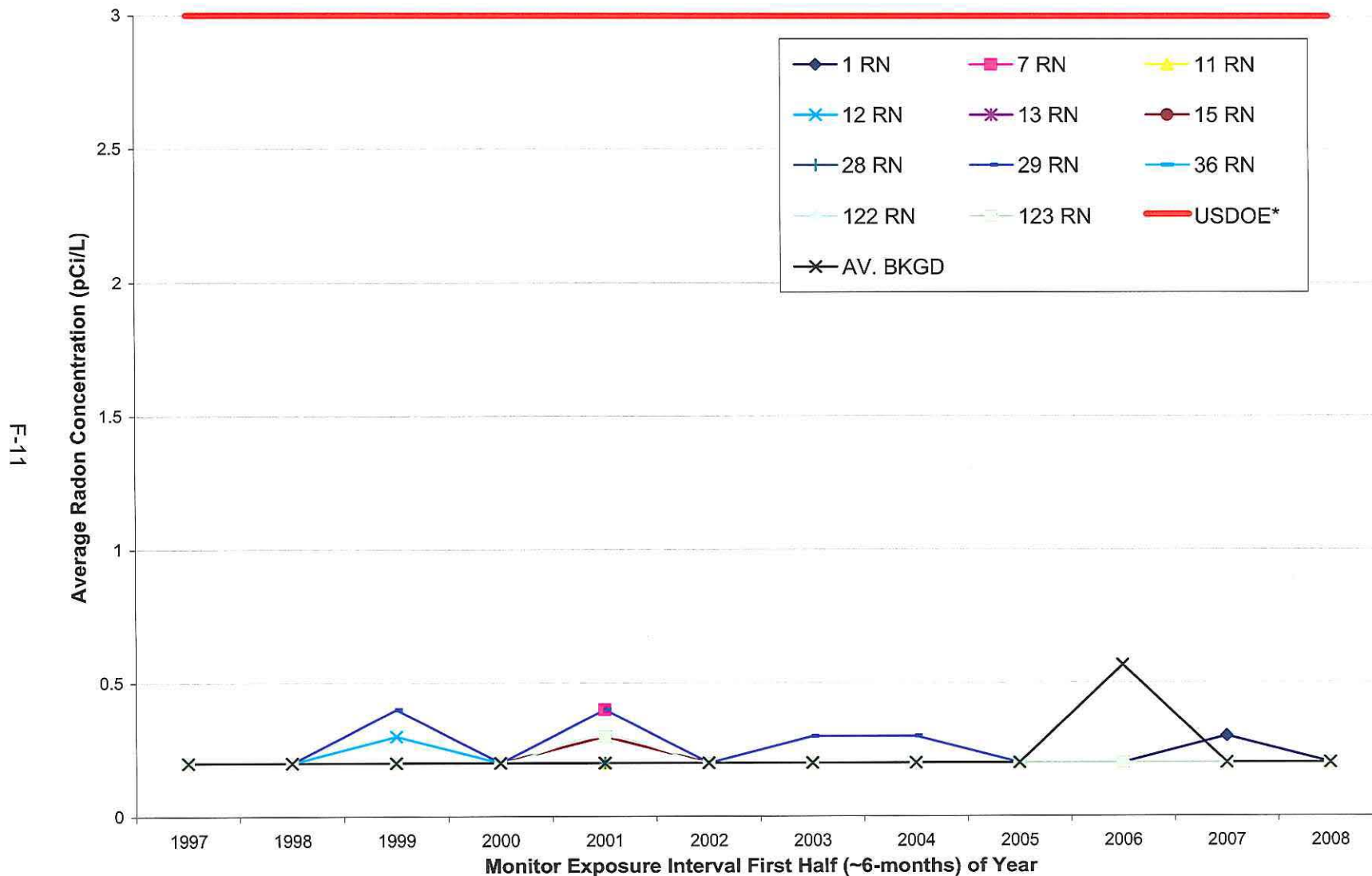
FIGURE 10: EXTERNAL GAMMA RADIATION DOSE RATES AT IWCS PERIMETER



*The United States Department of Energy (USDOE) limit for external gamma radiation is 100 mrem/year above background.



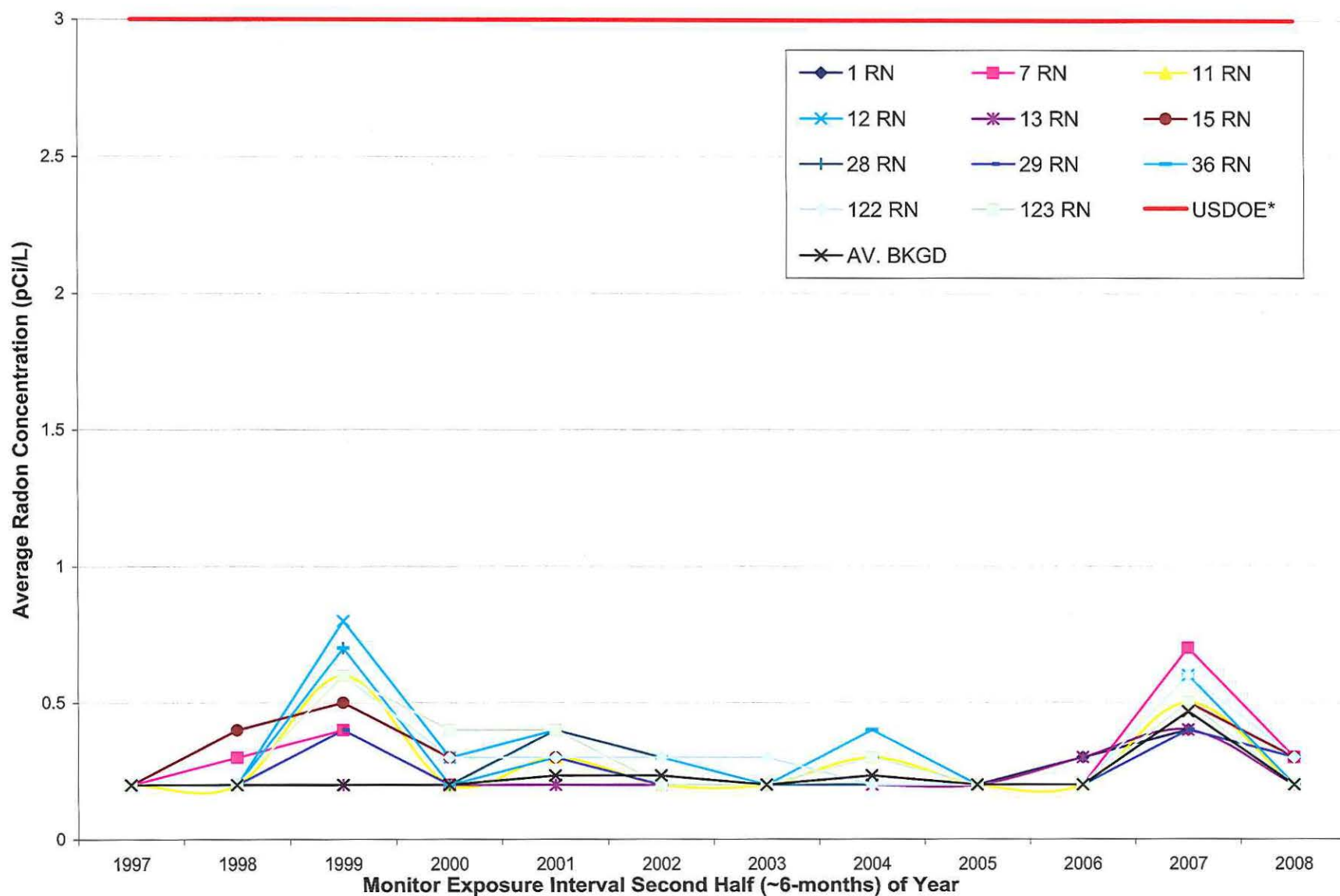
FIGURE 11: RADON GAS CONCENTRATION AT NFSS PERIMETER (JAN-JULY INTERVAL)



*The United States Department of Energy (USDOE) off-site limit for radon gas is 3.0 pCi/L above background.

Note: Above values contain detects and non-detects (decision limit is 0.2 pCi/L).

FIGURE 12: RADON GAS CONCENTRATION AT NFSS PERIMETER (JUL-JAN INTERVAL)



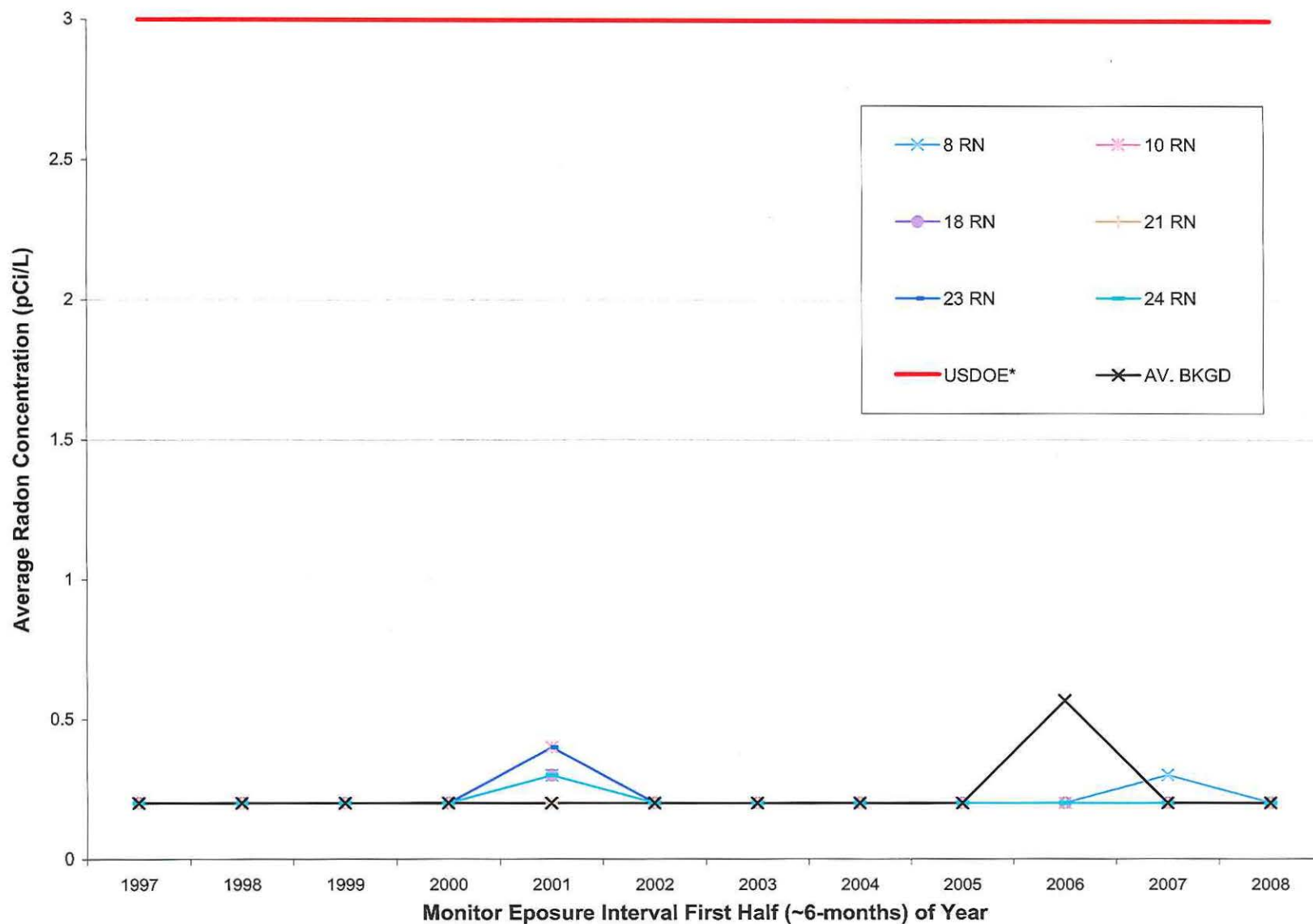
*The United States Department of Energy (USDOE) off-site limit for radon gas is 3.0 pCi/L above background.

** Monitors 1, 10 and 24 RN were found in the snow (on the ground) for an unspecified amount of time. Therefore, those results for this exposure period were eliminated from the trend graph above.

Note: Above values contain detects and non-detects (detection limit is 0.2 pCi/L).



FIGURE 13: RADON GAS CONCENTRATION AT IWCS PERIMETER (JAN-JULY INTERVAL)

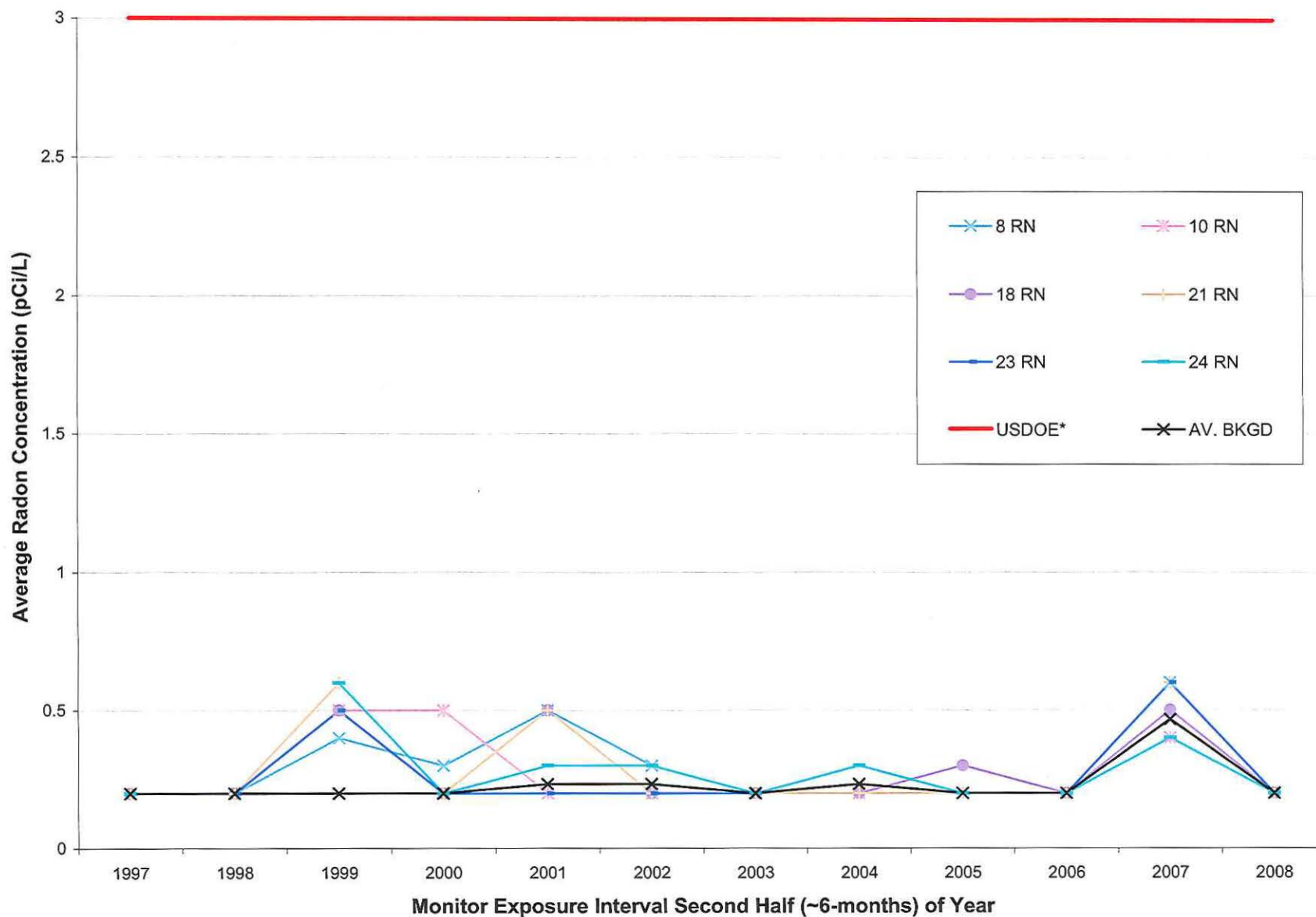


*The United States Department of Energy (USDOE) off-site limit for radon gas is 3.0 pCi/L above background.

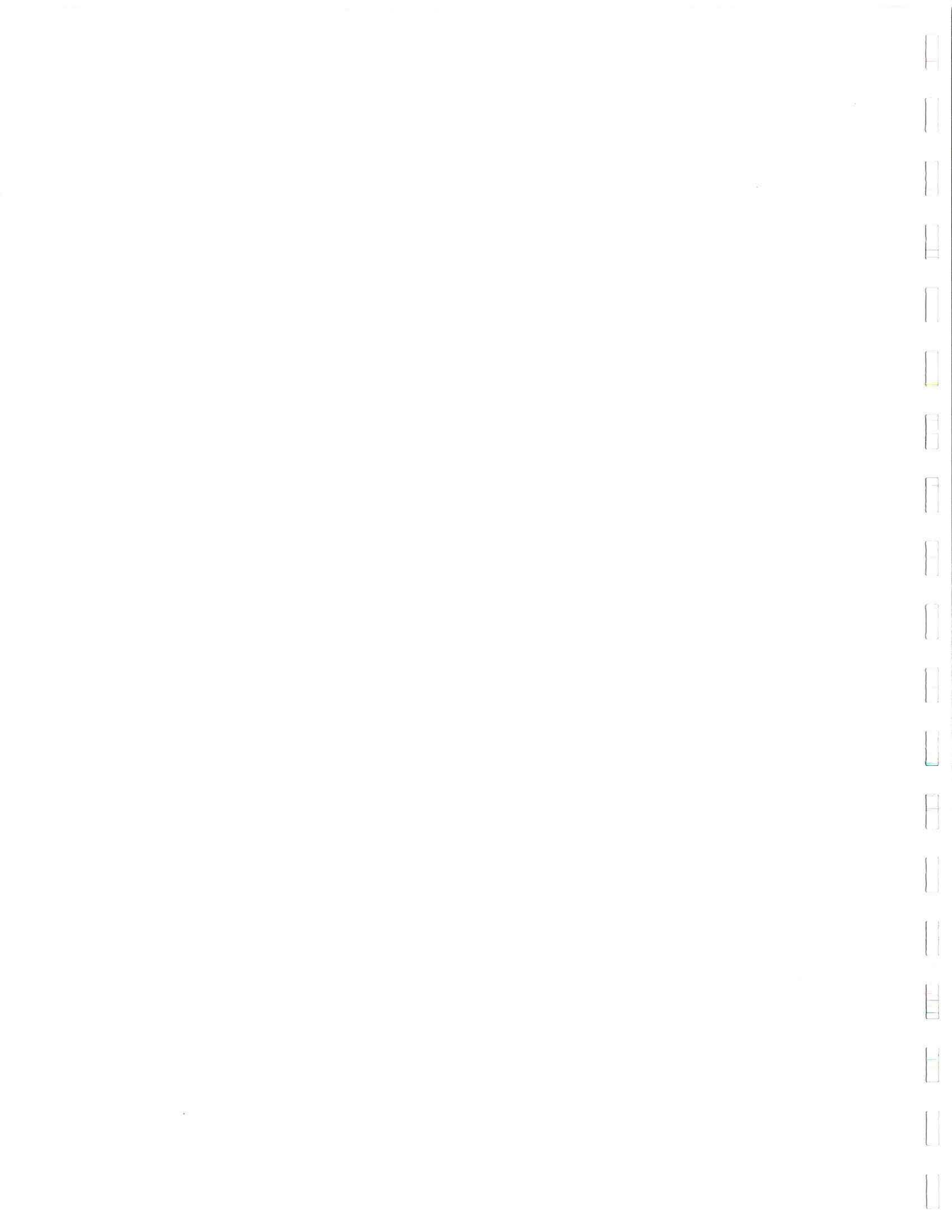
Note: Above values contain detects and non-detects (detection limit is 0.2 pCi/L).

FIGURE 14: RADON GAS CONCENTRATION AT IWCS PERIMETER (JULY-JAN INTERVAL)

F-14

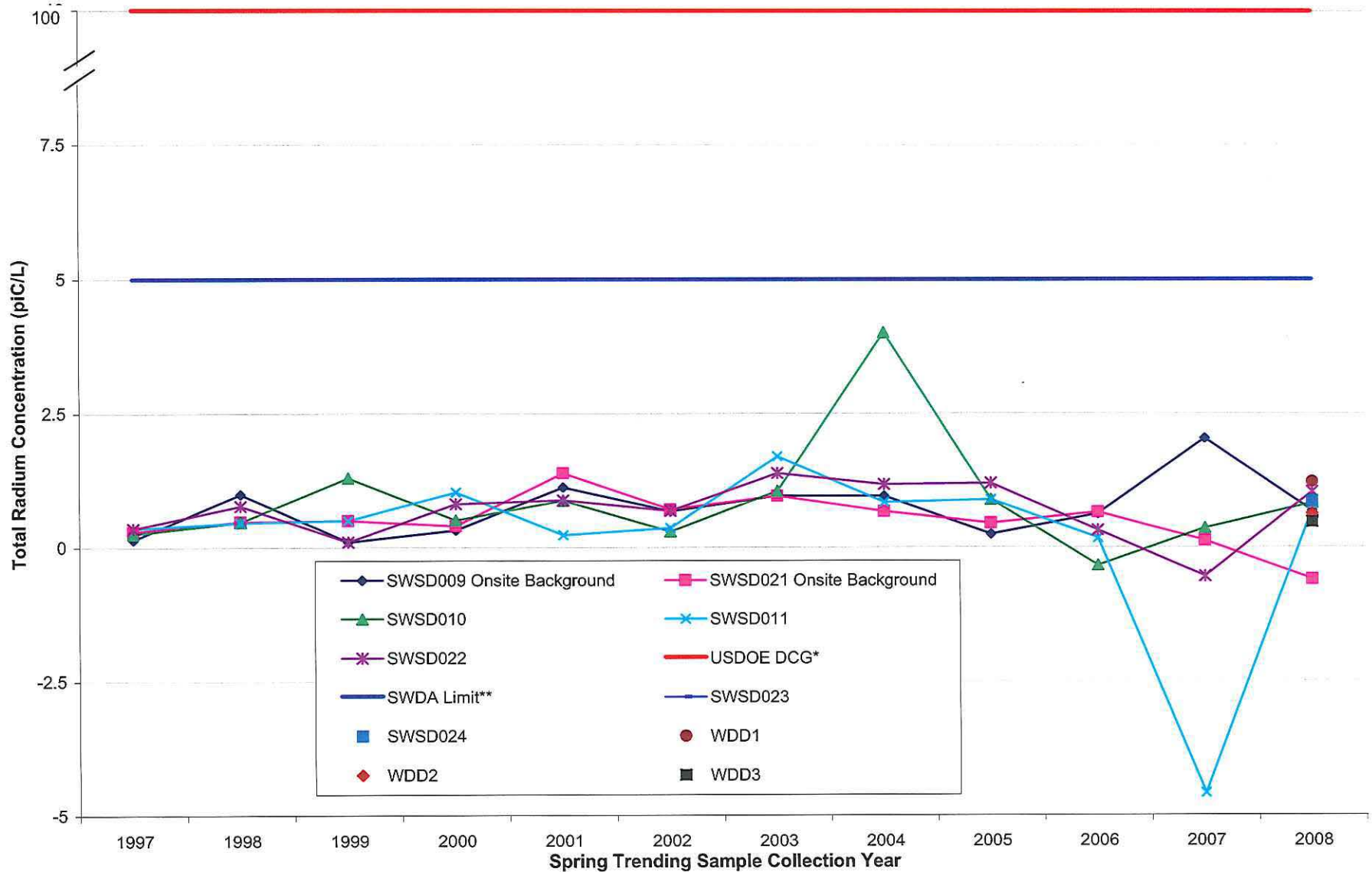


*The United States Department of Energy (USDOE) off-site limit for radon gas is 3.0 pCi/L above background.
 Note: Above vlaues contain detects and non-deteects (dection limit is 0.2 pCi/L).



**FIGURE 15: TOTAL RADIUM (RADIUM-226 AND RADIUM-228) CONCENTRATION IN SURFACE WATER
Spring Sample Collection**

F-15



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Total Radium is 100 pCi/L.

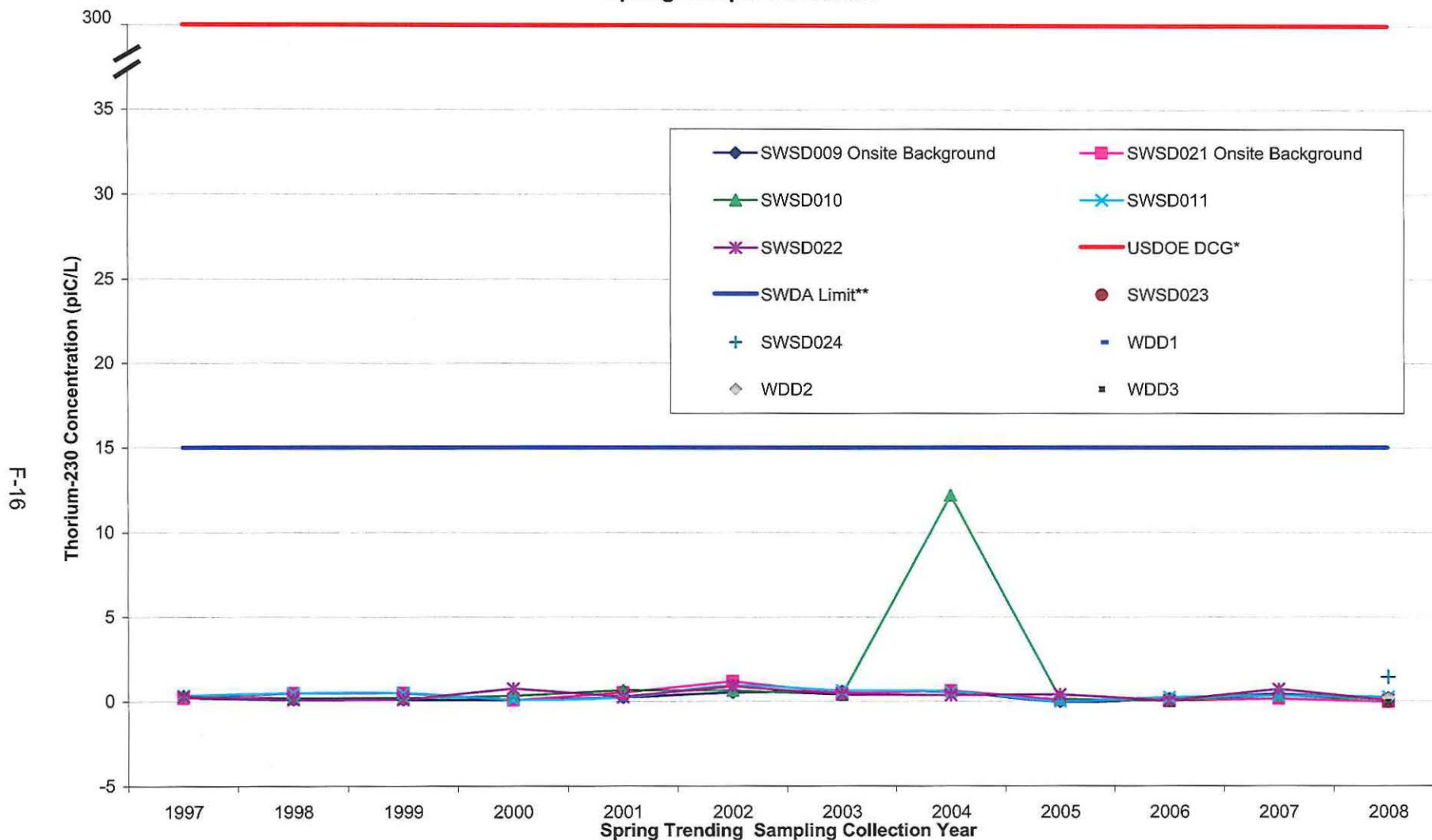
**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Radium is 5 pCi/L. Surface water at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: 2004 findings for sample SWSD010 was attributed to excess turbidity of the sample.

Note 2: Above combined radium values include both detect and non-detect values.

Note 3: New sampling locations are represented by a single symbol.

**FIGURE 16: THORIUM-230 CONCENTRATION IN SURFACE WATER
Spring Sample Collection**



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Thorium-230 is 300 pCi/L.

**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Thorium-230 is 15 pCi/L. Surface water at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

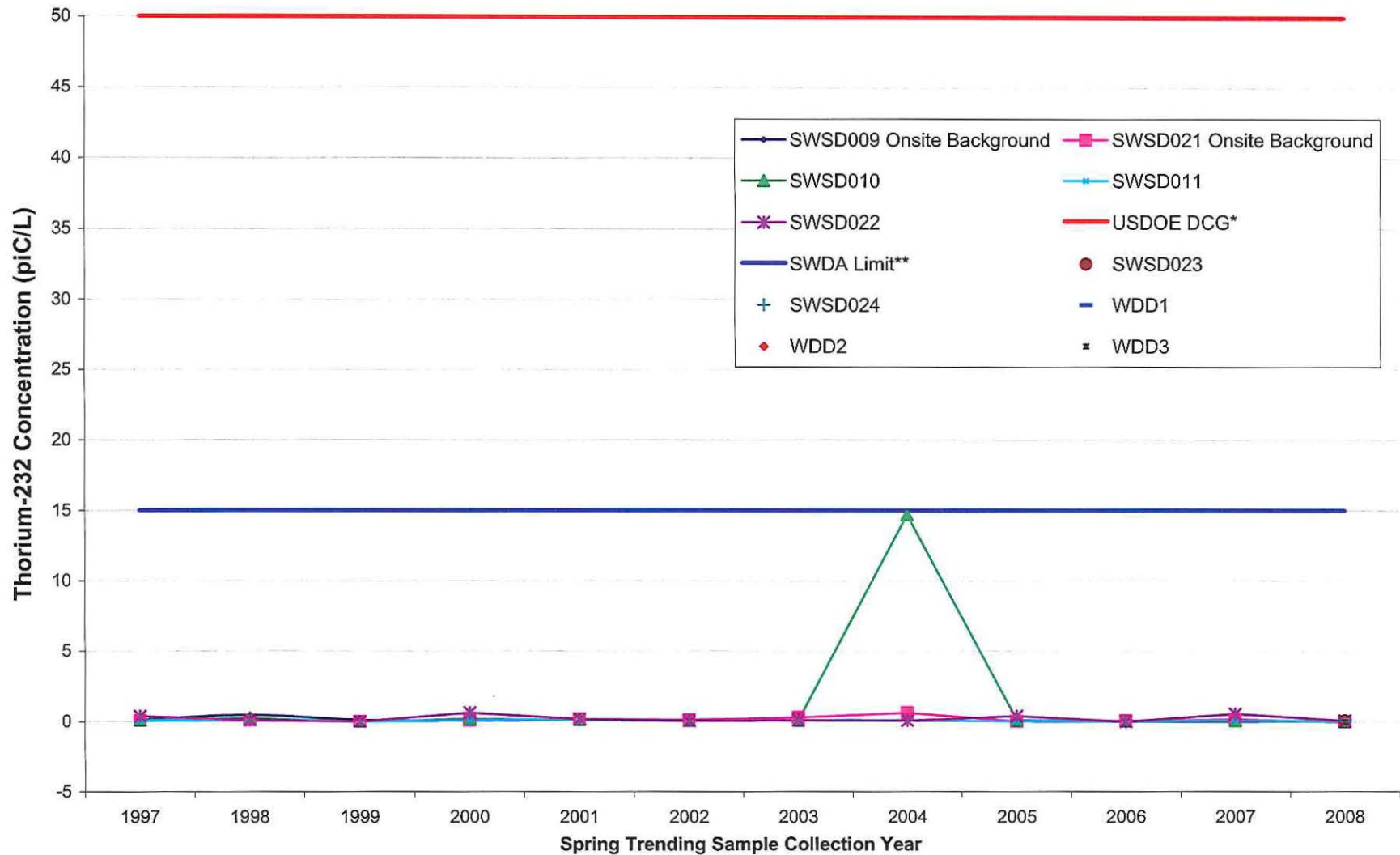
Note 2: 2004 findings for sample SWSD010 was attributed to excess turbidity of the sample.

Note 3: Above thorium-230 values contain detect and non-detect results.

Note 4: New sampling locations are represented by a single symbol.



FIGURE 17: THORIUM-232 CONCENTRATION IN SURFACE WATER
Spring Sample Collection



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Thorium-232 is 50 pCi/L.

**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Thorium-232 is 15 pCi/L. Surface water at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

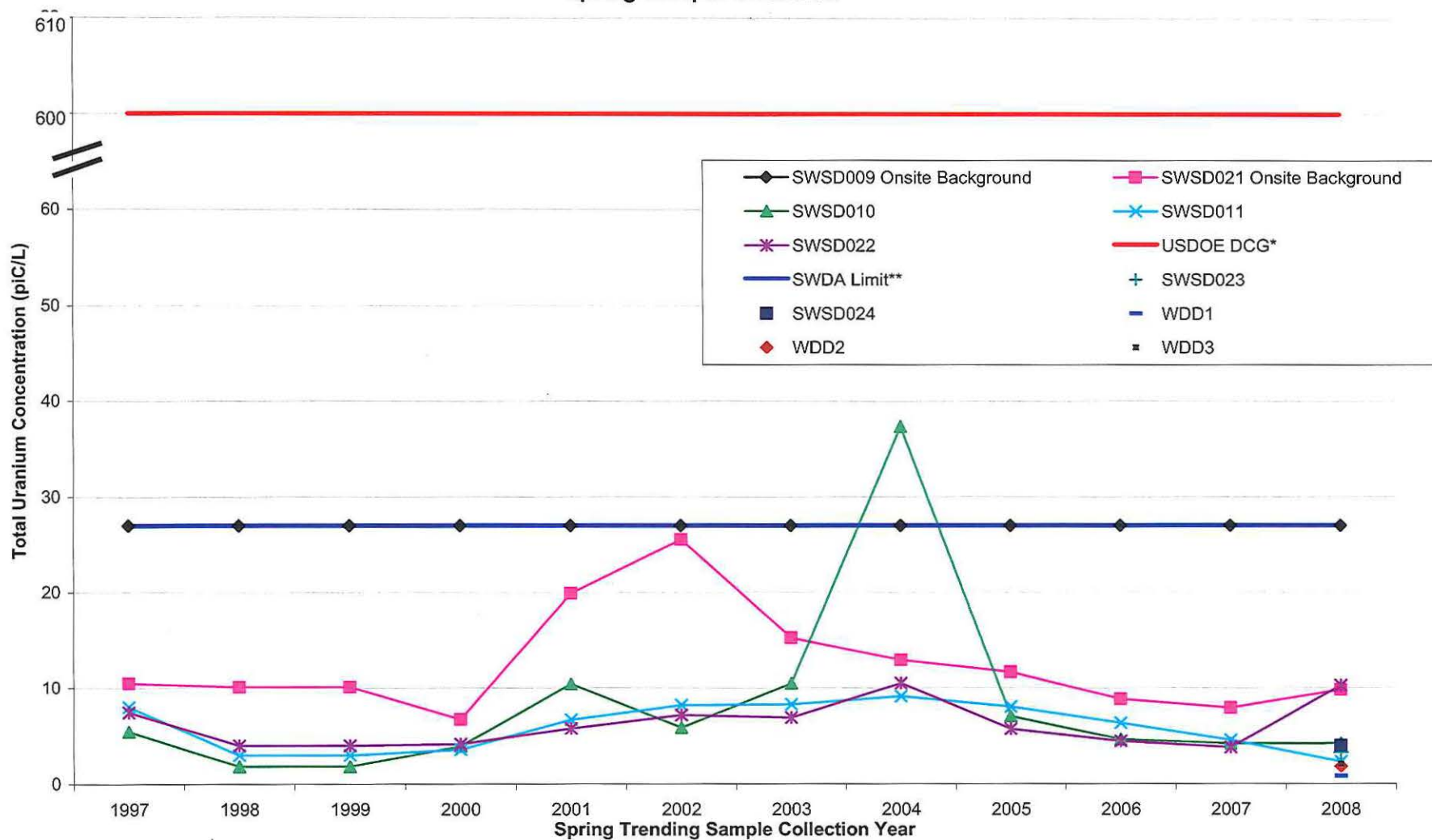
Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

Note 2: 2004 findings for sample SWSD010 was attributed to excess turbidity of the sample.

Note 3: Above thorium-232 values contain detect and non-detect results.

Note 4: New sampling locations are represented by a single symbol.

FIGURE 18: TOTAL URANIUM CONCENTRATION IN SURFACE WATER
Spring Sample Collection



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Total Uranium is 600 pCi/L over background.

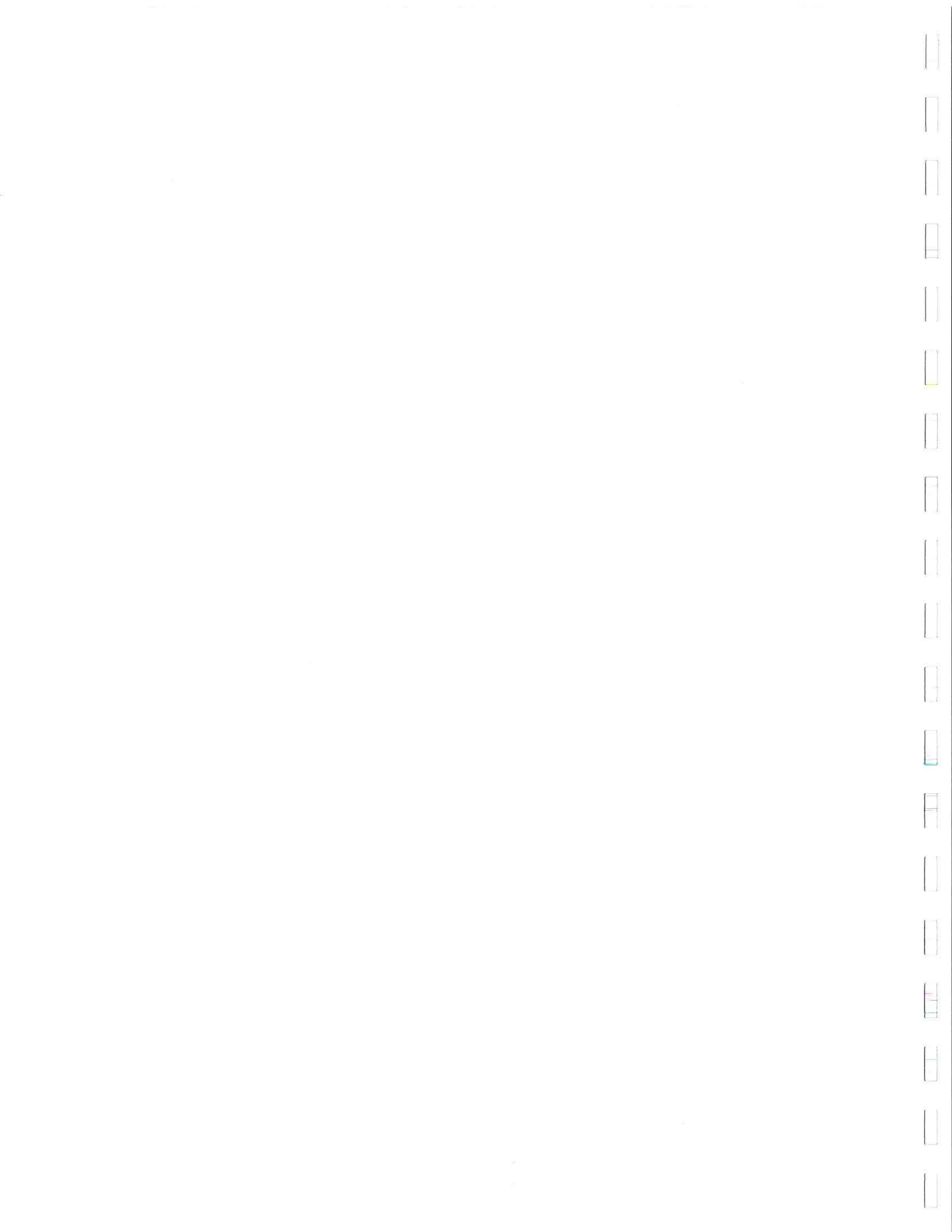
**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Uranium is 27 pCi/L. Surface water at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

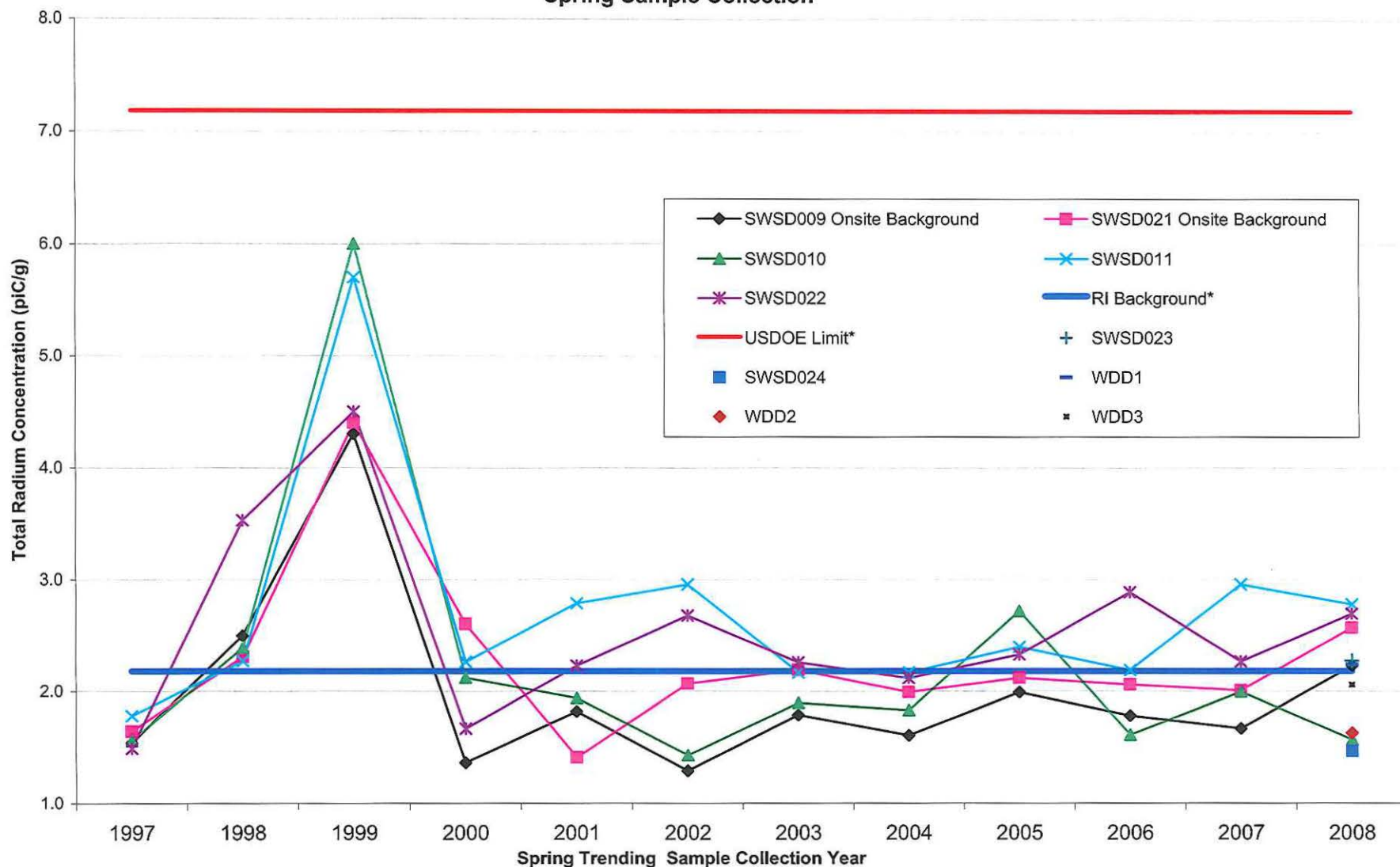
Note 2: 2004 findings for sample SWSD010 was attributed to excess turbidity of the sample.

Note 3: Note: Above combined total uranium (sum of isotopic uranium) values include both detect and non-detect values.

Note 4: New sampling locations are represented by a single symbol.



**FIGURE 19: TOTAL RADIUM (RADIUM-226 AND RADIUM-228) CONCENTRATION IN SEDIMENT
Spring Sample Collection**



*The United States Department of Energy (USDOE) surface soil cleanup criterion for total radium is 5 pCi/g above background. Above Background value of 7.18 pCi/g is obtained when 5 pCi/g is added to the NFSS surface soil RI background value of 2.18 pCi/g taken from the NFSS Remedial Investigation Report (December, 2007).

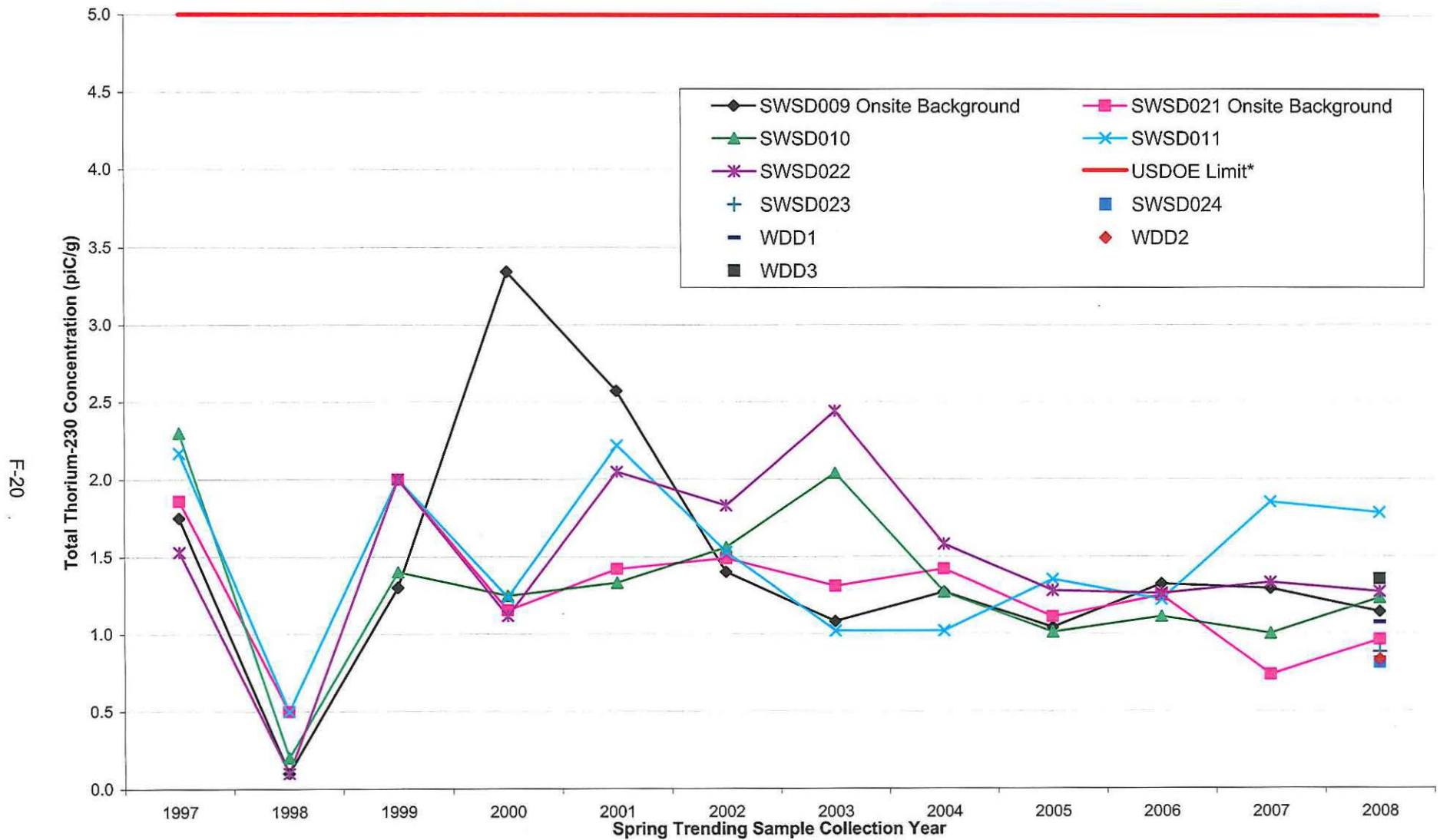
Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

Note 2: Above combined radium values include both detect and non-detect values.

Note 3: New sampling locations are represented by a single symbol.



FIGURE 20: THORIUM-230 CONCENTRATION IN SEDIMENT
Spring Sample Collection



*The United States Department of Energy (USDOE) surface soil cleanup criterion for total thorium is 5 pCi/g above background.

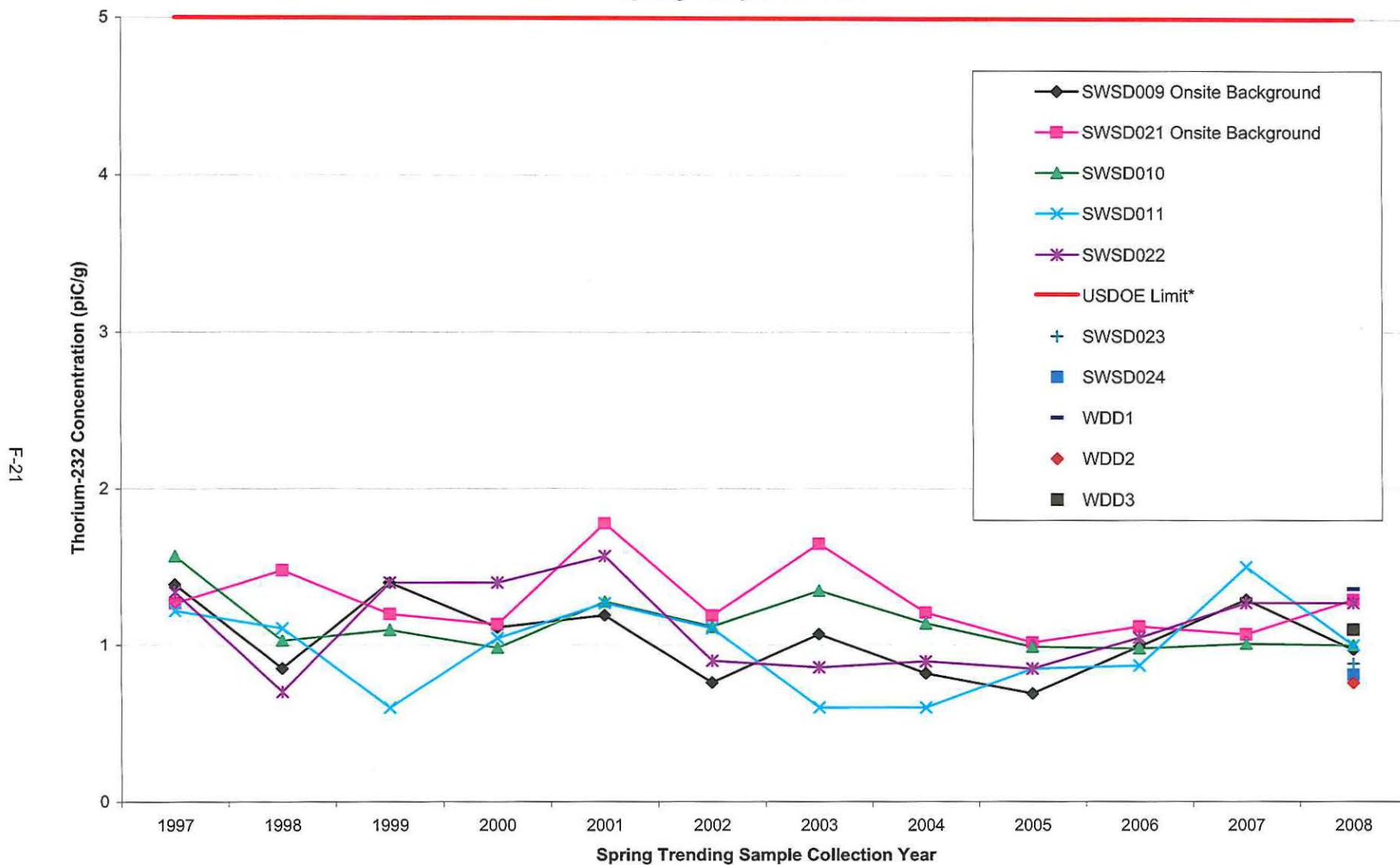
Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

Note 2: Above values include both detect and non-detect values.

Note 3: New sampling locations are represented by a single symbol.



FIGURE 21: THORIUM-232 CONCENTRATION IN SEDIMENT
- Spring Sample Collection



*The United States Department of Energy (USDOE) surface soil cleanup criterion for total thorium is 5 pCi/g above background.

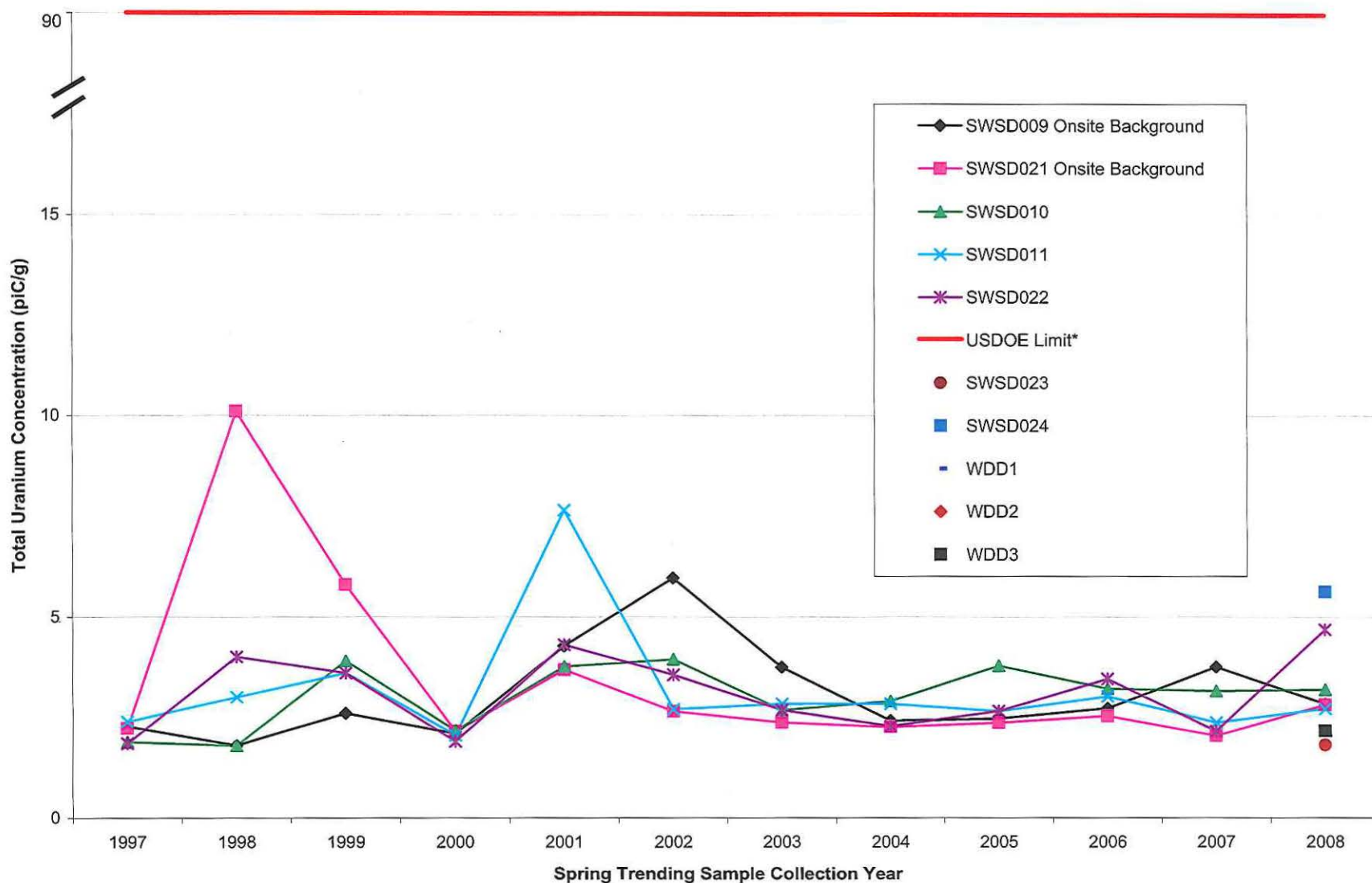
Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

Note 2: Above values include both detect and non-detect values

Note 3: New sampling locations are represented by a single symbol.



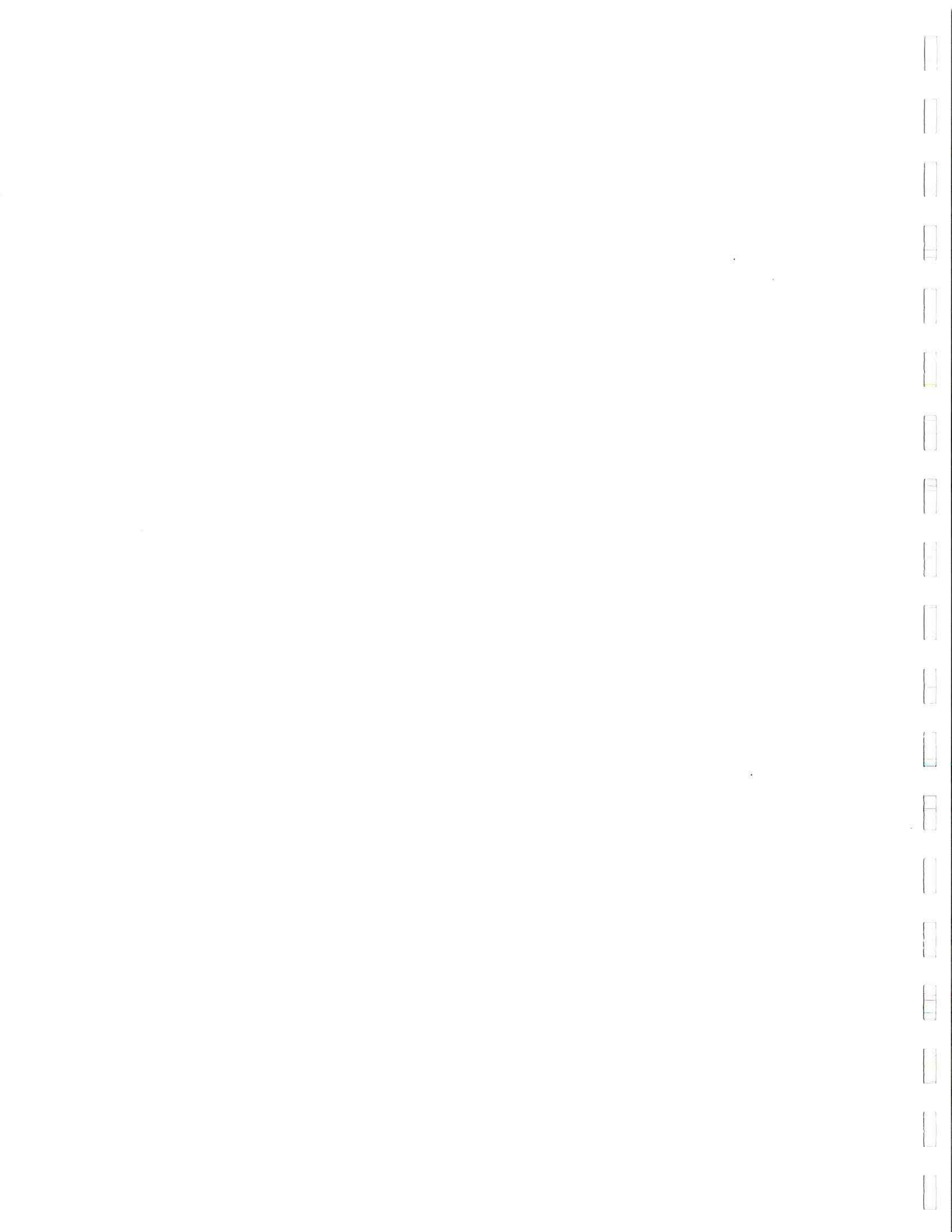
FIGURE 22: TOTAL URANIUM CONCENTRATION IN SEDIMENT
Spring Sample Collection



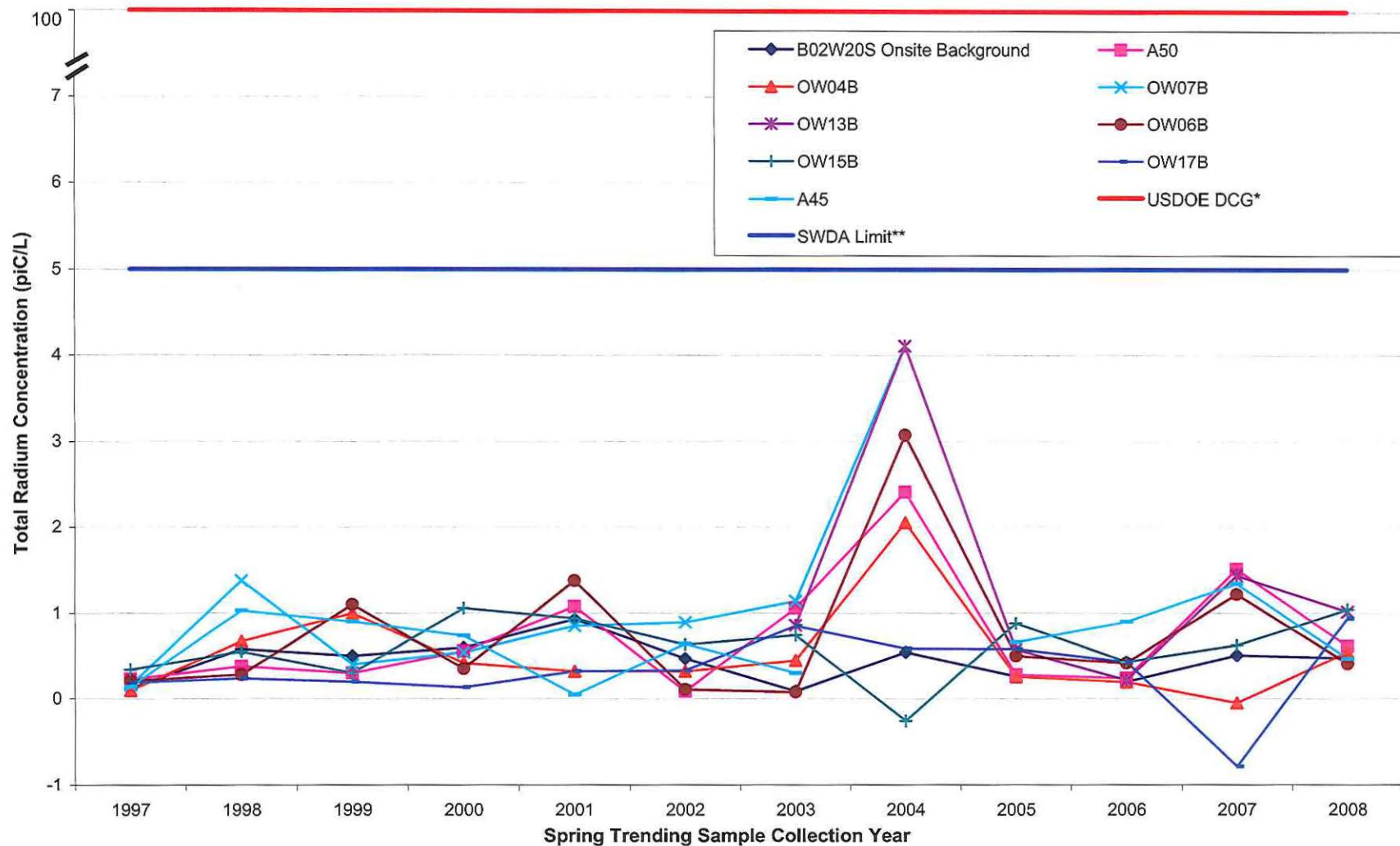
*The United States Department of Energy (USDOE) surface soil cleanup criterion for total uranium is 90 pCi/g above background.

Note 1: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

Note 2: New sampling locations are represented by a single symbol.



**FIGURE 23: TOTAL RADIUM (RADIUM-226 AND RADIUM-228) CONCENTRATION IN GROUNDWATER AT NFSS
Spring Sample Collection**



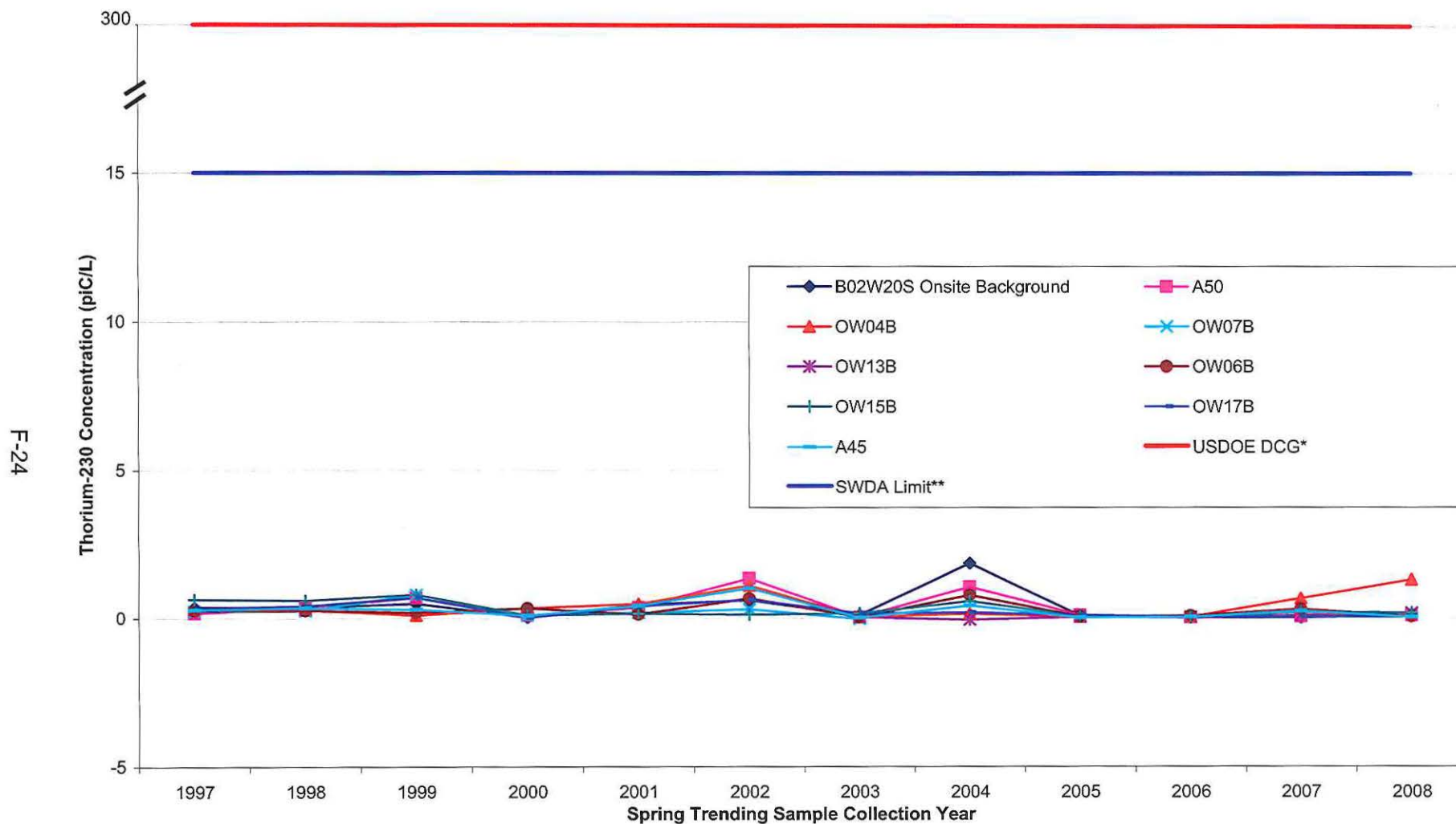
* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for combined Radium-226 & 228 is 100 pCi/L.

**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Total Radium is 5 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: Above combined radium values include both detect and non-detect values.

Note 2: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

FIGURE 24: THORIUM-230 CONCENTRATION IN GROUNDWATER AT NFSS
Spring Sample Collection



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Thorium-230 is 300 pCi/L.

**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Thorium-230 is 15 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: Above values contain detect and non-detect results.

Note 2: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

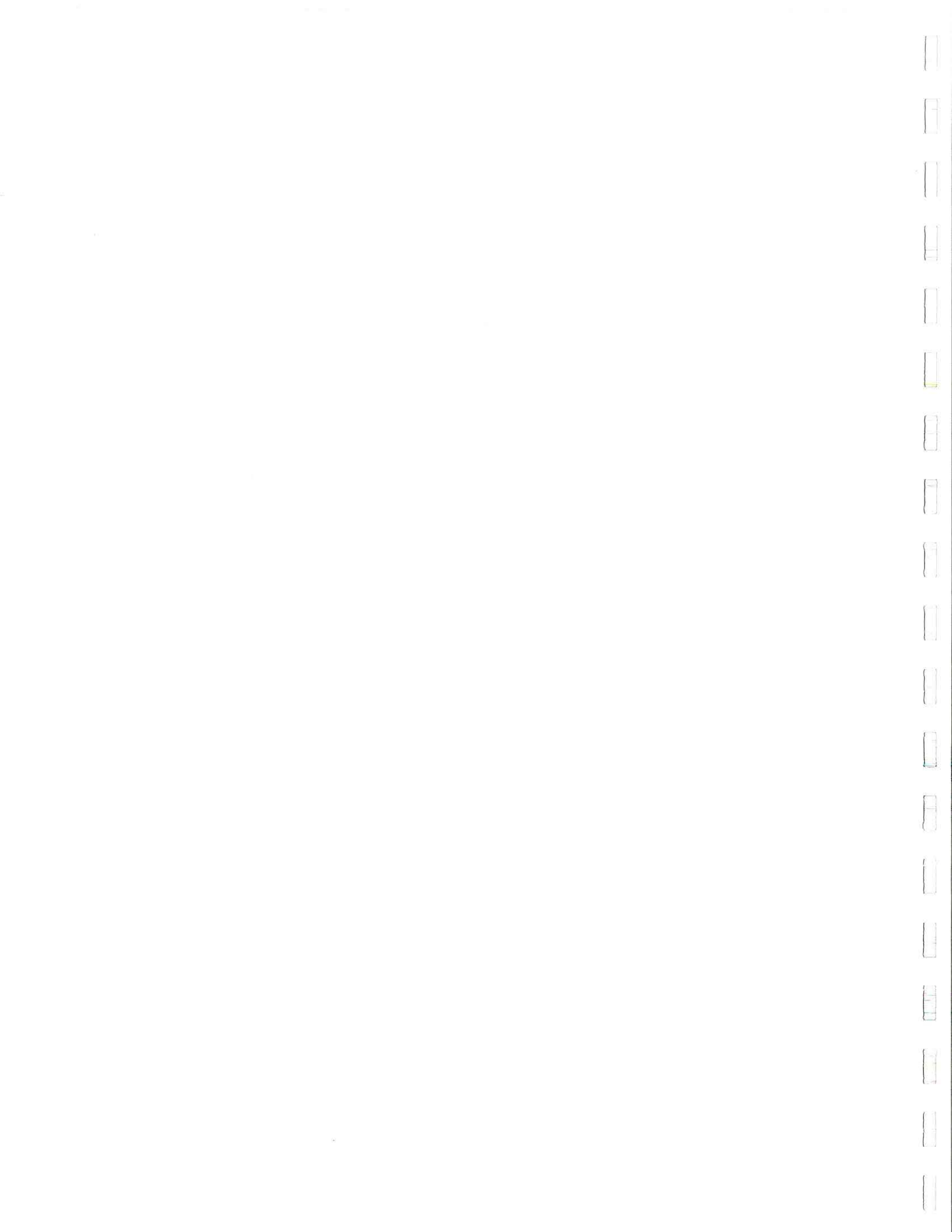
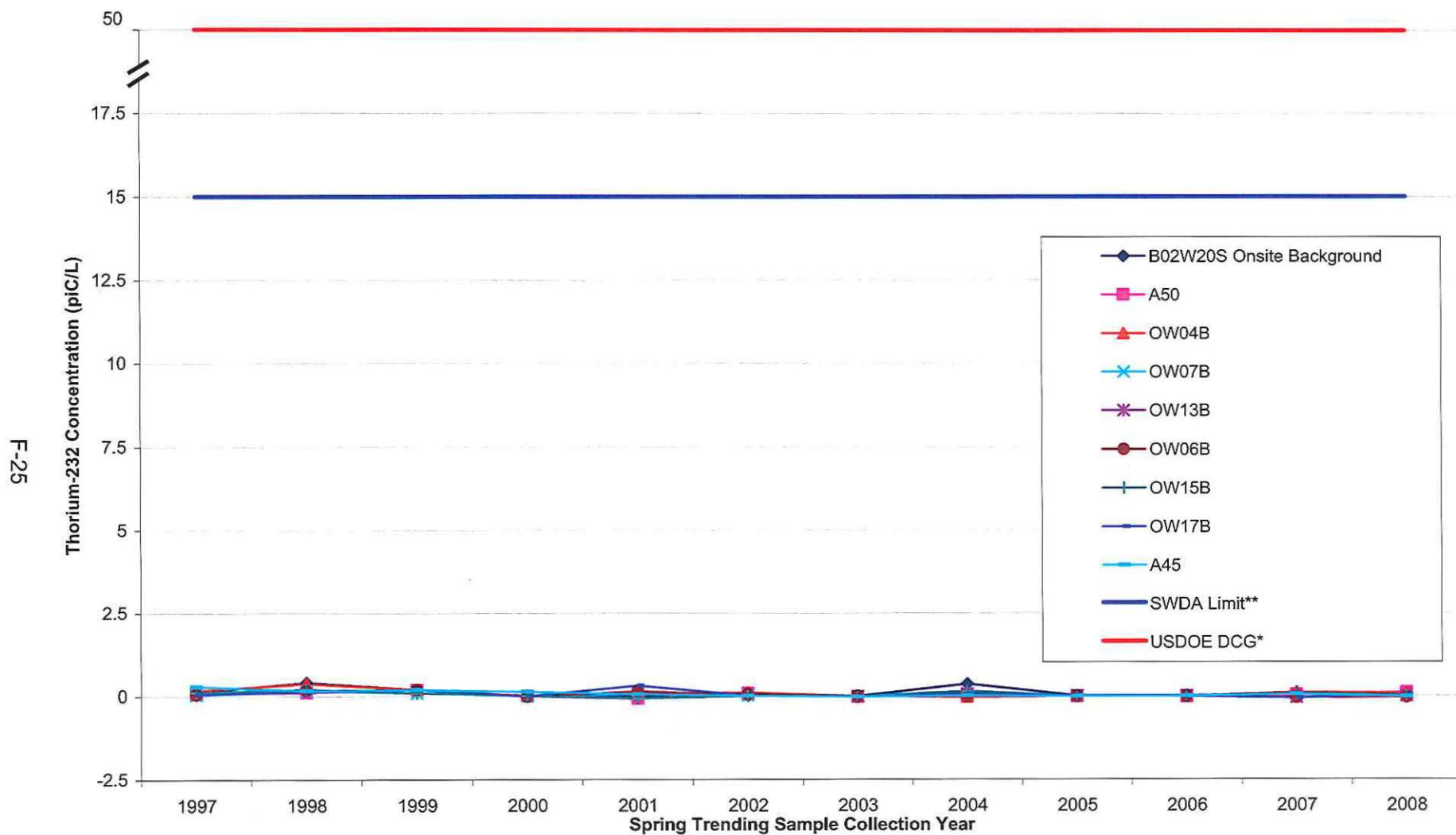


FIGURE 25: THORIUM-232 CONCENTRATION IN GROUNDWATER AT NFSS
Spring Sample Collection



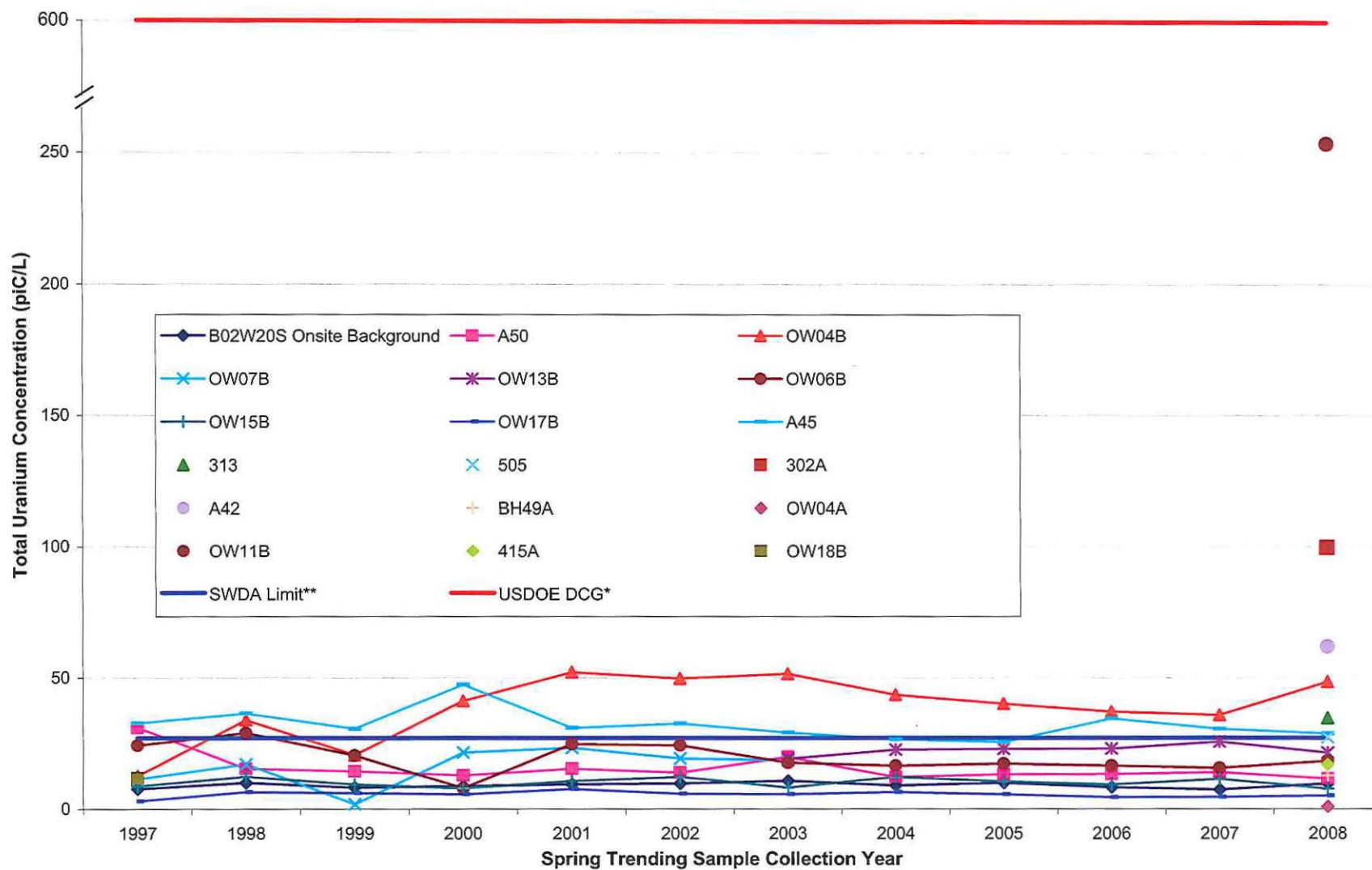
* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Thorium-232 is 50 pCi/L.

**The Safe Drinking Water Act Maximum Containment Level (SDWA MCL) for Thorium-232 is 15 pCi/L. Groundwater at NFSS is not a drinking water source. The above concentrations are for comparative purposes only.

Note 1: Above values contain detect and non-detect results.

Note 2: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

FIGURE 26: TOTAL URANIUM CONCENTRATION IN GROUNDWATER AT NFSS - Spring Sample Collection



* The United States Department of Energy Derived Concentration Guide (USDOE DCG) for Total Uranium is 600 pCi/L.

**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: It should be noted that the above trending data is taken from the spring (April-June) sampling events at NFSS.

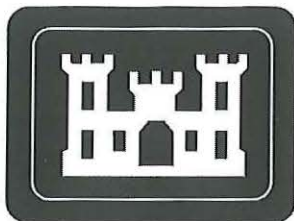
Note 2: New sampling locations are represented by a single symbol.

**APPENDIX B: NFSS CY2008 ENVIRONMENTAL
SURVEILLANCE TECHNICAL MEMORANDUM**

**CY2008 CALCULATION OF EXTERNAL
GAMMA RADIATION DOSE RATES FOR
NIAGARA FALLS STORAGE SITE (NFSS)**

LEWISTON, NEW YORK

August 2009



**U.S. Army Corps of Engineers
Buffalo District Office
Formerly Utilized Sites Remedial Action Program**

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 A), during calendar year 2008 (CY2008). 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 A). OSLs replaced Thermoluminescent dosimeters (TLDs) in the environmental program beginning this year, 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.

Eleven locations around the perimeter of the site and six locations around the IWCS were monitored in CY2008 (see Figure 2, Appendix A). In addition to these locations, there were three background locations (Figure 1, Appendix A). 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 CY2008 all OSLs were present.

OSL monitoring data for CY2008 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 calculation 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 2008 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, and 122	1.23
East Perimeter	1,28,123	6.52
South Perimeter	7, 28, and 29	7.02
West Perimeter	11,13,15,29,36,8,10	1.03

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 A, Figure 2. Net dose rates (corrected for background) for these OSLs are summed and divided by the total number of observations (14 for CY2008). This average value represents the annual dose at the site perimeter ($D_1 = 1.03$ mrem for CY2008). 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 OSLs

L = 1,383 feet half the length of the western line source

D_1 = 1.03 mrem average annual dose at the OSL monitoring locations

D_2 = 0.005 mrem resident annual dose at 500 feet from the OSL

The hypothetical dose to the nearest resident is $5.0 \text{ E-}03$ (or 0.005) mrem for calendar year 2008.

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 A. 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 CY2008). This average represents the annual dose at the site perimeter ($D_1 = 6.52$ mrem for CY2008).

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

$D_1 = 6.52$ mrem average annual dose at the OSL monitoring locations

$D_2 = 0.002$ mrem off-site worker annual dose at 1,020 feet from the OSL location

Using the equation above and a correction factor for off-site worker occupancy of 2000/8760 hours the hypothetical dose to the nearest off-site worker is $3.0 \text{ E-}03$ (or 0.003) mrem for calendar year 2008.

5.0 REFERENCES

Bechtel National, Inc. (BNI), 1997. "1996 Public External Gamma Dose," 14501-158-CV-031, Rev. 0, Oak Ridge, TN.

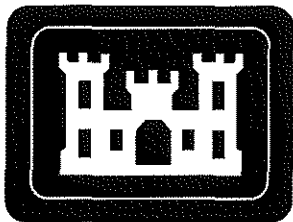
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APPENDIX C: NFSS CY2008 ENVIRONMENTAL SURVEILLANCE TECHNICAL MEMORANDUM

FUSRAP CY2008 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

JUNE 2009



**U.S. Army Corps of Engineers
Buffalo District Office
Formerly Utilized Sites Remedial Action Program**

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Attachment B: Source Term Calculations and Annual Air Releases
Attachment C: CAP88-PC Reports – Individual
Attachment D: CAP88-PC Reports – Population
Attachment E: National Climatic Data Center, Niagara Falls, New York

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 from USDOE 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, 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 m³) 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. Subpart Q limits radon-222 emission to 20 pCi/m²/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 2008 year 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
<i>in situ</i> 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 CY2008, 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. The complete "Annual Climatological Data" report from NOAA was not available for this year. At the time of the writing this report data is missing for the month of September. Therefore the Northeast Regional Climate Center at Cornell University provided annual data for average temperature and total precipitation for Niagara Falls Airport. 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. CY2008 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 MBI, 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 CY2008 meteorological data were entered into CAP88-PC (see Attachment E):

Average temperature	8.7 °C (47.7 °F) NFIA,
Precipitation,	92.6 cm (31.45 inches) ML, and
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 six of the "Dose and Risk Equivalent Summaries" document for individual modeling (Attachment C) are:

Resident	1.6 E-03 mrem, SSW @ 914 m,
Off-site worker	6.7 E-03 mrem, SE @ 533 m
School	6.6 E-04 mrem, W @ 2499 m and
Farm	1.3 E-03 mrem, S @ 1105 m.

The hypothetical doses to the nearest off-site worker and school corrected for 2,000 hr of exposure per year are:

Off-site worker	1.5 E-03 mrem and
School	1.5 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:	4.7 E-02 person-rem
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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 CY2008 are presented in Table 4; measurement locations are shown in Appendix A, Figure 2.

Measured results for 2008 ranged from non-detect to 0.23490 pCi/m²/s, with an average (of detects and non-detects) result of 0.05368 pCi/m²/s. As in previous years, these results are well below the 20 pCi/m²/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

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Figure 1 is a line graph showing the percentage of total energy expenditure (TEE) for different activities over a 24-hour period. The Y-axis is 'Percentage of TEE' (0-100) and the X-axis is 'Time of Day' (0-24). The activities and their approximate percentages are:

| Time of Day | Sleeping | Resting | Sedentary | Light | Moderate | Vigorous |
|-------------|----------|---------|-----------|-------|----------|----------|
| 0           | 30       | 10      | 5         | 5     | 5        | 5        |
| 4           | 35       | 10      | 5         | 5     | 5        | 5        |
| 8           | 30       | 10      | 5         | 5     | 5        | 5        |
| 12          | 25       | 10      | 5         | 5     | 5        | 5        |
| 16          | 20       | 10      | 5         | 5     | 5        | 10       |
| 20          | 25       | 10      | 5         | 5     | 5        | 10       |
| 24          | 30       | 10      | 5         | 5     | 5        | 5        |

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**Figure 1**

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## A.1 ANNUAL WIND EROSION

In 2008, 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<sup>2</sup> of vegetation covered soil.

$$A = 780,000 \text{ m}^2$$

The calculation assumes that 90% of this area is covered by grass or vegetation (V).

$$V = 0.90$$

For CY 2008 there is assumed to have been weekly grass cutting for half the year, occurring May through October and an April spring thaw. The number of estimated disturbances (N) is therefore:

$$N = 27$$

The threshold velocity (U<sub>t</sub>) for overburden (USEPA 1995 Table 13.2.5-2) is:

$$U_t = 1.02 \text{ m/s}$$

Anemometer height adjustment is not necessary.

$$Z_r = \text{reference anemometer height} = 10 \text{ m}$$

$$Z_a = \text{actual anemometer height} = 10 \text{ m}$$

The roughness height for overburden is 0.3 cm (USEPA 1995 Table 13.2.5-2).

$$Z_o = 0.3 \text{ cm}$$

The corrected wind speed (U<sub>rN</sub>) for each period (N) between disturbances (USEPA 1995 Equation 5) is:

$$U_{rN} = U_{aN} [\ln(Z_r / Z_o) / \ln(Z_a / Z_o)], \text{ therefore } U_{rN} = U_{aN}$$

The equivalent friction velocity (U<sub>N</sub>) 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<sup>a</sup>) from Local Climatological Data reports from NOAA for Niagara Falls International Airport (NFIA) in mph for the period between each disturbance are:

|                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| U <sub>a1</sub> = 41  | U <sub>a2</sub> = 37  | U <sub>a3</sub> = 28  | U <sub>a4</sub> = 31  | U <sub>a5</sub> = 29  | U <sub>a6</sub> = 33  |
| U <sub>a7</sub> = 30  | U <sub>a8</sub> = 39  | U <sub>a9</sub> = 23  | U <sub>a10</sub> = 29 | U <sub>a11</sub> = 30 | U <sub>a12</sub> = 33 |
| U <sub>a13</sub> = 22 | U <sub>a14</sub> = 24 | U <sub>a15</sub> = 28 | U <sub>a16</sub> = 23 | U <sub>a17</sub> = 29 | U <sub>a18</sub> = 18 |
| U <sub>a19</sub> = 23 | U <sub>a20</sub> = 28 | U <sub>a21</sub> = 45 | U <sub>a22</sub> = 16 | U <sub>a23</sub> = 23 | U <sub>a24</sub> = 26 |
| U <sub>a25</sub> = 29 | U <sub>a26</sub> = 29 | U <sub>a27</sub> = 46 |                       |                       |                       |

<sup>a</sup>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 <sub>1</sub> = 1.26 E+00  | U <sub>2</sub> = 1.14 E+00  | U <sub>3</sub> = 8.62 E-01  | U <sub>4</sub> = 9.55 E-01  | U <sub>5</sub> = 8.93 E-01  | U <sub>6</sub> = 1.02 E+00  |
| U <sub>7</sub> = 9.42 E-01  | U <sub>8</sub> = 1.20 E+00  | U <sub>9</sub> = 7.08 E-01  | U <sub>10</sub> = 8.93 E-01 | U <sub>11</sub> = 9.24 E-01 | U <sub>12</sub> = 1.02 E+00 |
| U <sub>13</sub> = 6.78 E-01 | U <sub>14</sub> = 7.39 E-01 | U <sub>15</sub> = 8.62 E-01 | U <sub>16</sub> = 7.08 E-01 | U <sub>17</sub> = 8.93 E-01 | U <sub>18</sub> = 5.54 E-01 |
| U <sub>19</sub> = 7.08 E-01 | U <sub>20</sub> = 8.62 E-01 | U <sub>21</sub> = 1.39 E+00 | U <sub>22</sub> = 4.93 E-01 | U <sub>23</sub> = 7.08 E-01 | U <sub>24</sub> = 8.01 E-01 |
| U <sub>25</sub> = 8.93 E-01 | U <sub>26</sub> = 8.93 E-01 | U <sub>27</sub> = 1.42 E+00 |                             |                             |                             |

The erosion potential (P<sub>N</sub>) for a dry exposed surface (USEPA 1985 Figure 4-2) is:

$$P_N = 58 (U^* - U_i)^2 + 25(U^* - U_i) = 45.47 \text{ g/m}^2$$

The erosion potentials (P<sub>N</sub>) for each period between disturbances in CY 2008 are all less than or equal to the threshold friction velocity except for U<sub>1</sub>, U<sub>2</sub>, U<sub>8</sub>, U<sub>21</sub>, and U<sub>27</sub>.

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:

$$P = k \sum P_N = 22.7 \text{ g/m}^2$$

Thorntwaite's Precipitation Evaporation Index (PE), used as a measure of average soil moisture, is:

$$PE = 110$$

The corrected emission factor (PM<sub>10</sub>) for 10 μ particles (USEPA 1985 Equation 4-1) is:

$$PM_{10} = P(1-V) / (PE/50)^2 = 0.47 \text{ g/m}^2/\text{yr}$$

The annual wind erosion emission (E) is calculated to be:

$$E = A (PM_{10}) = 366,388 \text{ g soil}$$

## A.2 REFERENCES

EPA 2004. *Methods for Estimating Fugitive Air Emissions of Radionuclides from Diffuse Sources at USDOE Facilities*, Final Report, September 3, 2004.

EPA 1995. *AP 42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition, 1995.

M. J. Changery, *National Wind Data Index Final Report*, HCO/T1041-01 UC-60, National Climatic Center, Asheville, NC, December 1978.

EPA 1985. *Rapid Assessment of Exposure to Particulate Emissions from Surface Contaminated Sites*, EPA/600/8-85/002, Office of Health and Environmental Assessment, Washington, DC (February).

EPA 1985. *AP 42 Compilation of Air Pollution Emission Factors*, Third Edition (including supplements 1-7), August 1977.

**ATTACHMENT B**

**SOURCE TERM DEVELOPMENT AND 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 2008 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 ( $\approx$ 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 ( $\approx$ 100%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                          |
| Tl-206 (0.00013%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                          |
| *Pb-206 (stable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                          |
| <p>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.</p> <p>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.</p> |                  |                          |

**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 <sup>a</sup> (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                        |

<sup>a</sup> 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 2008**

| 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 | 3.38E-05 | Th-232          | 0.89  | 3.26E-07 | U-235           | 8.97  | 3.29E-06 |
| Th-234                                          | 92.38 | 3.38E-05 | Ra-228          | 0.89  | 3.26E-07 | Th-231          | 8.97  | 3.29E-06 |
| Pa-234m                                         | 92.38 | 3.38E-05 | Ac-228          | 0.89  | 3.26E-07 | Pa-231          | 8.97  | 3.29E-06 |
| Pa-234                                          | 92.38 | 4.40E-08 | Th-228          | 1.08  | 3.96E-07 | Ac-227          | 8.97  | 3.29E-06 |
| U-234                                           | 87.4  | 3.20E-05 | Ra-224          | 1.08  | 3.96E-07 | Th-227          | 8.97  | 3.24E-06 |
| Th-230                                          | 22.74 | 8.33E-06 | Rn-220          | 1.08  | 0.00E-00 | Fr-223          | 8.97  | 4.54E-08 |
| Ra-226                                          | 26.09 | 9.56E-06 | Po-216          | 1.08  | 3.96E-07 | Ra-223          | 8.97  | 3.29E-06 |
| Rn-222                                          | 26.09 | 0.00E-00 | Pb-212          | 1.08  | 3.96E-07 | Rn-219          | 8.97  | 0.00E-00 |
| Po-218                                          | 26.09 | 9.56E-06 | Bi-212          | 1.08  | 3.96E-07 | Po-215          | 8.97  | 3.29E-06 |
| Pb-214                                          | 26.09 | 9.56E-06 | Po-212          | 1.08  | 2.54E-07 | Pb-211          | 8.97  | 3.29E-06 |
| At-218                                          | 26.09 | 1.91E-09 | Tl-208          | 1.08  | 1.42E-07 | At-215          | 8.97  | 7.56E-12 |
| Bi-214                                          | 26.09 | 9.56E-06 | Pb-208 (stable) | 1.08  | 0.00E-00 | Bi-211          | 8.97  | 3.29E-06 |
| Po-214                                          | 26.09 | 9.56E-06 |                 |       |          | Po-211          | 8.97  | 8.97E-09 |
| Tl-210                                          | 26.09 | 2.01E-09 |                 |       |          | Tl-207          | 8.97  | 3.28E-06 |
| Pb-210                                          | 26.09 | 9.56E-06 |                 |       |          | Pb-207 (stable) | 8.97  | 0.00E-00 |
| Bi-210                                          | 26.09 | 9.56E-06 |                 |       |          |                 |       |          |
| Po-210                                          | 26.09 | 9.56E-06 |                 |       |          |                 |       |          |
| Tl-206                                          | 26.09 | 1.24E-11 |                 |       |          |                 |       |          |
| Pb-206 (stable)                                 | 26.09 | 0.00E-00 |                 |       |          |                 |       |          |

## B.2 REFERENCES

Shlcien, 1992. *The Health Physics and Radiological Health Handbook*, Scinta, Inc., Silver Spring, MD.



**ATTACHMENT C**

**CAPP88-PC REPORTS – INDIVIDUAL**

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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  
May 13, 2009 04:25 pm

Facility: Niagara Falls Storage Site  
Address: 1397 Pletcher Road  
City: Lewiston  
State: NY                      Zip: 14174

Source Category: Area Source  
Source Type: Area  
Emission Year: 2008

Comments: NFSS Tech Memo 2008  
Individual Dose

Dataset Name: NFSS 2008 Ind  
Dataset Date: 5/13/2009 3:54:00 PM  
Wind File: . C:\Program Files\CAP88-  
PC30\WindLib\IAG0905.WND



May 13, 2009 04:25 pm

SUMMARY  
Page 1

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway        | Selected<br>Individual<br>(mrem/y) |
|----------------|------------------------------------|
| INGESTION      | 2.55E-04                           |
| INHALATION     | 8.46E-03                           |
| AIR IMMERSION  | 3.09E-08                           |
| GROUND SURFACE | 1.01E-05                           |
| INTERNAL       | 8.71E-03                           |
| EXTERNAL       | 1.02E-05                           |
| TOTAL          | 8.73E-03                           |

## NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected<br>Individual<br>(mrem/y) |
|---------|------------------------------------|
| U-238   | 8.01E-04                           |
| Th-234  | 2.75E-06                           |
| Pa-234m | 1.68E-06                           |
| Pa-234  | 2.62E-10                           |
| U-234   | 9.21E-04                           |
| Th-230  | 9.62E-04                           |
| Ra-226  | 3.38E-04                           |
| Rn-222  | 6.06E-15                           |
| Po-218  | 3.68E-11                           |
| Pb-214  | 1.96E-06                           |
| Bi-214  | 7.27E-06                           |
| Po-214  | 3.38E-10                           |
| Pb-210  | 1.61E-04                           |
| Bi-210  | 7.44E-06                           |
| Po-210  | 2.80E-04                           |
| At-218  | 0.00E+00                           |
| Th-232  | 6.56E-05                           |
| Ra-228  | 6.98E-06                           |
| Ac-228  | 3.20E-08                           |
| Th-228  | 1.28E-04                           |
| Ra-224  | 9.59E-06                           |
| Rn-220  | 2.31E-13                           |
| Po-216  | 2.88E-12                           |
| Pb-212  | 5.75E-07                           |
| Bi-212  | 1.39E-07                           |
| Po-212  | 0.00E+00                           |
| Tl-208  | 7.65E-10                           |
| U-235   | 8.43E-05                           |
| Th-231  | 3.26E-08                           |
| Pa-231  | 2.52E-03                           |
| Ac-227  | 1.96E-03                           |
| Th-227  | 2.73E-04                           |
| Ra-223  | 2.02E-04                           |
| Rn-219  | 2.75E-10                           |
| Po-215  | 2.51E-10                           |
| Pb-211  | 4.37E-07                           |
| Bi-211  | 6.57E-08                           |
| Tl-207  | 8.26E-08                           |
| Po-211  | 1.04E-13                           |
| Fr-223  | 3.84E-09                           |
| TOTAL   | 8.73E-03                           |

CANCER RISK SUMMARY

| Cancer   | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk |
|----------|------------------------------------------------------------|
| Esophagu | 4.87E-12                                                   |
| Stomach  | 1.19E-11                                                   |
| Colon    | 4.06E-11                                                   |
| Liver    | 1.74E-10                                                   |
| LUNG     | 3.38E-09                                                   |
| Bone     | 1.18E-10                                                   |
| Skin     | 5.44E-13                                                   |
| Breast   | 6.93E-12                                                   |
| Ovary    | 2.07E-11                                                   |
| Bladder  | 1.15E-11                                                   |
| Kidneys  | 2.15E-11                                                   |
| Thyroid  | 9.57E-13                                                   |
| Leukemia | 2.25E-11                                                   |
| Residual | 4.80E-11                                                   |
| Total    | 3.86E-09                                                   |
| TOTAL    | 7.72E-09                                                   |

PATHWAY RISK SUMMARY

| Pathway        | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk |
|----------------|------------------------------------------------------------|
| INGESTION      | 7.80E-11                                                   |
| INHALATION     | 3.78E-09                                                   |
| AIR IMMERSION  | 1.65E-14                                                   |
| GROUND SURFACE | 4.63E-12                                                   |
| INTERNAL       | 3.85E-09                                                   |
| EXTERNAL       | 4.65E-12                                                   |
| TOTAL          | 3.86E-09                                                   |

## NUCLIDE RISK SUMMARY

| Nuclide | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk |
|---------|------------------------------------------------------------|
| U-238   | 6.59E-10                                                   |
| Th-234  | 2.79E-12                                                   |
| Pa-234m | 2.69E-13                                                   |
| Pa-234  | 1.67E-16                                                   |
| U-234   | 7.59E-10                                                   |
| Th-230  | 4.91E-10                                                   |
| Ra-226  | 2.51E-10                                                   |
| Rn-222  | 3.29E-21                                                   |
| Po-218  | 2.02E-17                                                   |
| Pb-214  | 1.19E-12                                                   |
| Bi-214  | 3.84E-12                                                   |
| Po-214  | 1.85E-16                                                   |
| Pb-210  | 7.81E-11                                                   |
| Bi-210  | 6.41E-12                                                   |
| Po-210  | 2.24E-10                                                   |
| At-218  | 0.00E+00                                                   |
| Th-232  | 2.91E-11                                                   |
| Ra-228  | 3.33E-12                                                   |
| Ac-228  | 2.04E-14                                                   |
| Th-228  | 1.09E-10                                                   |
| Ra-224  | 8.25E-12                                                   |
| Rn-220  | 1.26E-19                                                   |
| Po-216  | 1.58E-18                                                   |
| Pb-212  | 4.88E-13                                                   |
| Bi-212  | 8.21E-14                                                   |
| Po-212  | 0.00E+00                                                   |
| Tl-208  | 4.22E-16                                                   |
| U-235   | 6.93E-11                                                   |
| Th-231  | 1.93E-14                                                   |
| Pa-231  | 2.38E-10                                                   |
| Ac-227  | 5.15E-10                                                   |
| Th-227  | 2.37E-10                                                   |
| Ra-223  | 1.73E-10                                                   |
| Rn-219  | 1.49E-16                                                   |
| Po-215  | 1.38E-16                                                   |
| Pb-211  | 3.01E-13                                                   |
| Bi-211  | 3.60E-14                                                   |
| Tl-207  | 1.06E-14                                                   |
| Po-211  | 5.71E-20                                                   |
| Fr-223  | 3.25E-15                                                   |
| TOTAL   | 3.86E-09                                                   |

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)  
(All Radionuclides and Pathways)

| Distance (m) |         |         |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Direction    | 533     | 783     | 914     | 1105    | 1250    | 1486    | 2499    |
| N            | 6.3E-03 | 2.6E-03 | 2.0E-03 | 1.5E-03 | 1.3E-03 | 1.0E-03 | 5.7E-04 |
| NNW          | 5.0E-03 | 2.0E-03 | 1.5E-03 | 1.0E-03 | 8.4E-04 | 6.2E-04 | 3.1E-04 |
| NW           | 5.0E-03 | 1.8E-03 | 1.4E-03 | 1.0E-03 | 8.6E-04 | 6.9E-04 | 4.0E-04 |
| WNW          | 5.3E-03 | 2.7E-03 | 2.0E-03 | 1.4E-03 | 1.2E-03 | 9.1E-04 | 4.6E-04 |
| W            | 5.9E-03 | 2.9E-03 | 2.3E-03 | 1.7E-03 | 1.5E-03 | 1.2E-03 | 6.6E-04 |
| WSW          | 5.8E-03 | 2.9E-03 | 2.1E-03 | 1.5E-03 | 1.3E-03 | 9.5E-04 | 4.7E-04 |
| SW           | 5.4E-03 | 2.1E-03 | 1.6E-03 | 1.2E-03 | 1.0E-03 | 8.3E-04 | 4.7E-04 |
| SSW          | 4.8E-03 | 2.2E-03 | 1.6E-03 | 1.2E-03 | 9.5E-04 | 7.2E-04 | 3.7E-04 |
| S            | 5.2E-03 | 2.2E-03 | 1.7E-03 | 1.3E-03 | 1.1E-03 | 8.6E-04 | 4.9E-04 |
| SSE          | 5.9E-03 | 2.8E-03 | 2.1E-03 | 1.5E-03 | 1.2E-03 | 9.2E-04 | 4.5E-04 |
| SE           | 6.7E-03 | 3.0E-03 | 2.3E-03 | 1.7E-03 | 1.4E-03 | 1.1E-03 | 6.1E-04 |
| ESE          | 7.3E-03 | 3.5E-03 | 2.6E-03 | 1.9E-03 | 1.5E-03 | 1.2E-03 | 5.7E-04 |
| E            | 8.3E-03 | 3.5E-03 | 2.7E-03 | 2.0E-03 | 1.6E-03 | 1.3E-03 | 6.5E-04 |
| ENE          | 8.7E-03 | 4.2E-03 | 3.1E-03 | 2.2E-03 | 1.8E-03 | 1.3E-03 | 6.2E-04 |
| NE           | 8.7E-03 | 4.1E-03 | 3.2E-03 | 2.3E-03 | 2.0E-03 | 1.6E-03 | 8.3E-04 |
| NNE          | 7.7E-03 | 3.9E-03 | 2.9E-03 | 2.1E-03 | 1.7E-03 | 1.3E-03 | 6.1E-04 |

| Distance (m) |         |
|--------------|---------|
| Direction    | 2629    |
| N            | 5.4E-04 |
| NNW          | 3.0E-04 |
| NW           | 3.8E-04 |
| WNW          | 4.4E-04 |
| W            | 6.3E-04 |
| WSW          | 4.4E-04 |
| SW           | 4.5E-04 |
| SSW          | 3.6E-04 |
| S            | 4.6E-04 |
| SSE          | 4.3E-04 |
| SE           | 5.7E-04 |
| ESE          | 5.4E-04 |
| E            | 6.1E-04 |
| ENE          | 5.9E-04 |
| NE           | 7.8E-04 |
| NNE          | 5.7E-04 |

INDIVIDUAL LIFETIME RISK (deaths)  
(All Radionuclides and Pathways)

---

| Distance (m) |         |         |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Direction    | 533     | 783     | 914     | 1105    | 1250    | 1486    | 2499    |
| N            | 2.8E-09 | 1.1E-09 | 8.6E-10 | 6.4E-10 | 5.4E-10 | 4.3E-10 | 2.3E-10 |
| NNW          | 2.2E-09 | 8.8E-10 | 6.3E-10 | 4.4E-10 | 3.5E-10 | 2.5E-10 | 1.1E-10 |
| NW           | 2.2E-09 | 7.6E-10 | 5.8E-10 | 4.3E-10 | 3.6E-10 | 2.8E-10 | 1.5E-10 |
| WNW          | 2.4E-09 | 1.2E-09 | 8.7E-10 | 6.2E-10 | 5.0E-10 | 3.8E-10 | 1.8E-10 |
| W            | 2.6E-09 | 1.3E-09 | 9.8E-10 | 7.4E-10 | 6.3E-10 | 5.0E-10 | 2.7E-10 |
| WSW          | 2.6E-09 | 1.3E-09 | 9.3E-10 | 6.6E-10 | 5.3E-10 | 4.0E-10 | 1.8E-10 |
| SW           | 2.4E-09 | 9.3E-10 | 7.0E-10 | 5.2E-10 | 4.4E-10 | 3.4E-10 | 1.8E-10 |
| SSW          | 2.1E-09 | 9.5E-10 | 6.9E-10 | 4.9E-10 | 4.0E-10 | 3.0E-10 | 1.4E-10 |
| S            | 2.3E-09 | 9.4E-10 | 7.2E-10 | 5.3E-10 | 4.5E-10 | 3.6E-10 | 1.9E-10 |
| SSE          | 2.6E-09 | 1.2E-09 | 8.9E-10 | 6.3E-10 | 5.1E-10 | 3.8E-10 | 1.8E-10 |
| SE           | 3.0E-09 | 1.3E-09 | 1.0E-09 | 7.3E-10 | 6.1E-10 | 4.8E-10 | 2.4E-10 |
| ESE          | 3.2E-09 | 1.5E-09 | 1.1E-09 | 8.1E-10 | 6.6E-10 | 4.9E-10 | 2.3E-10 |
| E            | 3.7E-09 | 1.6E-09 | 1.2E-09 | 8.4E-10 | 7.0E-10 | 5.4E-10 | 2.6E-10 |
| ENE          | 3.9E-09 | 1.8E-09 | 1.4E-09 | 9.5E-10 | 7.7E-10 | 5.7E-10 | 2.5E-10 |
| NE           | 3.8E-09 | 1.8E-09 | 1.4E-09 | 1.0E-09 | 8.5E-10 | 6.7E-10 | 3.4E-10 |
| NNE          | 3.4E-09 | 1.7E-09 | 1.3E-09 | 9.0E-10 | 7.3E-10 | 5.5E-10 | 2.4E-10 |

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| Distance (m) |         |
|--------------|---------|
| Direction    | 2629    |
| N            | 2.1E-10 |
| NNW          | 1.1E-10 |
| NW           | 1.4E-10 |
| WNW          | 1.7E-10 |
| W            | 2.5E-10 |
| WSW          | 1.7E-10 |
| SW           | 1.7E-10 |
| SSW          | 1.3E-10 |
| S            | 1.8E-10 |
| SSE          | 1.7E-10 |
| SE           | 2.3E-10 |
| ESE          | 2.1E-10 |
| E            | 2.5E-10 |
| ENE          | 2.3E-10 |
| NE           | 3.2E-10 |
| NNE          | 2.3E-10 |

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**ATTACHMENT D**

**CAP88-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  
May 13, 2009 05:53 pm

Facility: Niagara Falls Storage Site  
Address: 1397 Pletcher Road  
City: Lewiston  
State: NY                      Zip: 14174

Source Category: Area Source  
Source Type: Area  
Emission Year: 2008

Comments: Tech Memo 2008  
Cap88V3

Dataset Name: NFSS 2008 Pop  
Dataset Date: 5/13/2009 5:31:00 PM  
Wind File: . C:\Program Files\CAP88-  
PC30\WindLib\IAG0905.WND  
Population File: C:\Program Files\CAP88-  
PC30\PopLib\NFSS2003.POP

May 13, 2009 05:53 pm

SUMMARY  
Page 1

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway        | Selected<br>Individual<br>(mrem/y) | Collective<br>Population<br>(person-rem/y) |
|----------------|------------------------------------|--------------------------------------------|
| INGESTION      | 3.80E-05                           | 1.64E-03                                   |
| INHALATION     | 3.37E-02                           | 4.54E-02                                   |
| AIR IMMERSION  | 1.23E-07                           | 1.67E-07                                   |
| GROUND SURFACE | 3.81E-05                           | 9.24E-05                                   |
| INTERNAL       | 3.38E-02                           | 4.70E-02                                   |
| EXTERNAL       | 3.83E-05                           | 9.26E-05                                   |
| TOTAL          | 3.38E-02                           | 4.71E-02                                   |

## NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected<br>Individual<br>(mrem/y) | Collective<br>Population<br>(person-rem/y) |
|----------|------------------------------------|--------------------------------------------|
| U-238    | 3.13E-03                           | 4.32E-03                                   |
| Th-234   | 8.94E-06                           | 1.55E-05                                   |
| Pa-234m  | 6.31E-06                           | 1.53E-05                                   |
| Pa-234   | 1.04E-09                           | 1.40E-09                                   |
| U-234    | 3.60E-03                           | 4.97E-03                                   |
| Th-230   | 3.77E-03                           | 5.17E-03                                   |
| Ra-226   | 1.08E-03                           | 1.92E-03                                   |
| Rn-222   | 2.38E-14                           | 5.21E-14                                   |
| Po-218   | 1.39E-10                           | 3.36E-10                                   |
| Pb-214   | 7.60E-06                           | 1.44E-05                                   |
| Bi-214   | 2.76E-05                           | 6.21E-05                                   |
| Po-214   | 1.27E-09                           | 3.08E-09                                   |
| Pb-210   | 3.53E-04                           | 9.45E-04                                   |
| Bi-210   | 2.94E-05                           | 4.06E-05                                   |
| Po-210   | 1.01E-03                           | 1.51E-03                                   |
| At-218   | 0.00E+00                           | 0.00E+00                                   |
| Th-232   | 2.61E-04                           | 3.52E-04                                   |
| Ra-228   | 2.78E-05                           | 3.75E-05                                   |
| Ac-228   | 1.27E-07                           | 1.72E-07                                   |
| Th-228   | 5.08E-04                           | 6.86E-04                                   |
| Ra-224   | 3.81E-05                           | 5.16E-05                                   |
| Rn-220   | 9.07E-13                           | 1.98E-12                                   |
| Po-216   | 1.09E-11                           | 2.63E-11                                   |
| Pb-212   | 2.29E-06                           | 3.18E-06                                   |
| Bi-212   | 5.47E-07                           | 8.99E-07                                   |
| Po-212   | 0.00E+00                           | 0.00E+00                                   |
| Tl-208   | 3.05E-09                           | 4.11E-09                                   |
| U-235    | 3.30E-04                           | 4.56E-04                                   |
| Th-231   | 1.25E-07                           | 2.63E-07                                   |
| Pa-231   | 9.95E-03                           | 1.35E-02                                   |
| Ac-227   | 7.76E-03                           | 1.05E-02                                   |
| Th-227   | 1.09E-03                           | 1.47E-03                                   |
| Ra-223   | 7.93E-04                           | 1.09E-03                                   |
| Rn-219   | 1.08E-09                           | 2.36E-09                                   |
| Po-215   | 9.45E-10                           | 2.29E-09                                   |
| Pb-211   | 1.71E-06                           | 2.88E-06                                   |
| Bi-211   | 2.48E-07                           | 5.99E-07                                   |
| Tl-207   | 3.11E-07                           | 7.54E-07                                   |
| Po-211   | 4.15E-13                           | 5.59E-13                                   |
| Fr-223   | 1.53E-08                           | 2.06E-08                                   |
| TOTAL    | 3.38E-02                           | 4.71E-02                                   |

## CANCER RISK SUMMARY

| Cancer   | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk | Total Collective<br>Population Fatal<br>Cancer Risk<br>(Deaths/y) |
|----------|------------------------------------------------------------|-------------------------------------------------------------------|
| Esophagu | 1.70E-11                                                   | 3.52E-10                                                          |
| Stomach  | 3.80E-11                                                   | 8.76E-10                                                          |
| Colon    | 9.81E-11                                                   | 3.11E-09                                                          |
| Liver    | 6.48E-10                                                   | 1.23E-08                                                          |
| LUNG     | 1.34E-08                                                   | 2.35E-07                                                          |
| Bone     | 4.29E-10                                                   | 8.41E-09                                                          |
| Skin     | 1.90E-12                                                   | 4.93E-11                                                          |
| Breast   | 2.23E-11                                                   | 5.21E-10                                                          |
| Ovary    | 7.90E-11                                                   | 1.46E-09                                                          |
| Bladder  | 4.04E-11                                                   | 8.31E-10                                                          |
| Kidneys  | 5.85E-11                                                   | 1.58E-09                                                          |
| Thyroid  | 3.09E-12                                                   | 7.04E-11                                                          |
| Leukemia | 7.66E-11                                                   | 1.64E-09                                                          |
| Residual | 1.34E-10                                                   | 3.64E-09                                                          |
| Total    | 1.51E-08                                                   | 2.70E-07                                                          |

## PATHWAY RISK SUMMARY

| Pathway        | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk | Total Collective<br>Population Fatal<br>Cancer Risk<br>(Deaths/y) |
|----------------|------------------------------------------------------------|-------------------------------------------------------------------|
| INGESTION      | 1.14E-11                                                   | 6.57E-09                                                          |
| INHALATION     | 1.50E-08                                                   | 2.63E-07                                                          |
| AIR IMMERSION  | 6.58E-14                                                   | 1.15E-12                                                          |
| GROUND SURFACE | 1.74E-11                                                   | 5.47E-10                                                          |
| INTERNAL       | 1.51E-08                                                   | 2.69E-07                                                          |
| EXTERNAL       | 1.75E-11                                                   | 5.49E-10                                                          |
| TOTAL          | 1.51E-08                                                   | 2.70E-07                                                          |

## NUCLIDE RISK SUMMARY

| Nuclide | Selected Individual<br>Total Lifetime<br>Fatal Cancer Risk | Total Collective<br>Population Fatal<br>Cancer Risk<br>(Deaths/y) |
|---------|------------------------------------------------------------|-------------------------------------------------------------------|
| U-238   | 2.60E-09                                                   | 4.59E-08                                                          |
| Th-234  | 8.13E-12                                                   | 2.02E-10                                                          |
| Pa-234m | 1.01E-12                                                   | 3.17E-11                                                          |
| Pa-234  | 6.65E-16                                                   | 1.16E-14                                                          |
| U-234   | 3.00E-09                                                   | 5.29E-08                                                          |
| Th-230  | 1.95E-09                                                   | 3.41E-08                                                          |
| Ra-226  | 9.10E-10                                                   | 1.79E-08                                                          |
| Rn-222  | 1.29E-20                                                   | 3.66E-19                                                          |
| Po-218  | 7.61E-17                                                   | 2.39E-15                                                          |
| Pb-214  | 4.62E-12                                                   | 1.09E-10                                                          |
| Bi-214  | 1.46E-11                                                   | 4.26E-10                                                          |
| Po-214  | 6.98E-16                                                   | 2.19E-14                                                          |
| Pb-210  | 2.15E-10                                                   | 5.78E-09                                                          |
| Bi-210  | 2.51E-11                                                   | 4.48E-10                                                          |
| Po-210  | 8.55E-10                                                   | 1.56E-08                                                          |
| At-218  | 0.00E+00                                                   | 0.00E+00                                                          |
| Th-232  | 1.16E-10                                                   | 2.02E-09                                                          |
| Ra-228  | 1.33E-11                                                   | 2.32E-10                                                          |
| Ac-228  | 8.12E-14                                                   | 1.42E-12                                                          |
| Th-228  | 4.36E-10                                                   | 7.61E-09                                                          |
| Ra-224  | 3.28E-11                                                   | 5.74E-10                                                          |
| Rn-220  | 4.95E-19                                                   | 1.40E-17                                                          |
| Po-216  | 5.95E-18                                                   | 1.86E-16                                                          |
| Pb-212  | 1.94E-12                                                   | 3.46E-11                                                          |
| Bi-212  | 3.23E-13                                                   | 6.58E-12                                                          |
| Po-212  | 0.00E+00                                                   | 0.00E+00                                                          |
| Tl-208  | 1.68E-15                                                   | 2.94E-14                                                          |
| U-235   | 2.74E-10                                                   | 4.84E-09                                                          |
| Th-231  | 7.46E-14                                                   | 1.86E-12                                                          |
| Pa-231  | 9.40E-10                                                   | 1.65E-08                                                          |
| Ac-227  | 2.04E-09                                                   | 3.58E-08                                                          |
| Th-227  | 9.44E-10                                                   | 1.65E-08                                                          |
| Ra-223  | 6.84E-10                                                   | 1.21E-08                                                          |
| Rn-219  | 5.84E-16                                                   | 1.65E-14                                                          |
| Po-215  | 5.18E-16                                                   | 1.62E-14                                                          |
| Pb-211  | 1.19E-12                                                   | 2.32E-11                                                          |
| Bi-211  | 1.36E-13                                                   | 4.25E-12                                                          |
| Tl-207  | 3.98E-14                                                   | 1.25E-12                                                          |
| Po-211  | 2.28E-19                                                   | 3.97E-18                                                          |
| Fr-223  | 1.29E-14                                                   | 2.26E-13                                                          |
| TOTAL   | 1.51E-08                                                   | 2.70E-07                                                          |

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)  
(All Radionuclides and Pathways)

| Distance (m) |         |         |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Direction    | 250     | 750     | 1500    | 2500    | 3500    | 4500    | 7500    |
| N            | 3.4E-02 | 2.6E-03 | 8.1E-04 | 3.7E-04 | 2.2E-04 | 1.5E-04 | 6.6E-05 |
| NNW          | 3.4E-02 | 2.0E-03 | 4.2E-04 | 1.1E-04 | 6.6E-05 | 4.5E-05 | 2.0E-05 |
| NW           | 3.4E-02 | 1.7E-03 | 4.9E-04 | 2.1E-04 | 1.2E-04 | 8.0E-05 | 3.6E-05 |
| WNW          | 3.4E-02 | 2.7E-03 | 7.0E-04 | 2.7E-04 | 1.5E-04 | 1.0E-04 | 4.6E-05 |
| W            | 3.4E-02 | 2.9E-03 | 9.7E-04 | 4.7E-04 | 2.7E-04 | 1.8E-04 | 8.2E-05 |
| WSW          | 3.4E-02 | 3.0E-03 | 7.4E-04 | 2.7E-04 | 1.6E-04 | 1.1E-04 | 4.8E-05 |
| SW           | 3.3E-02 | 2.1E-03 | 6.3E-04 | 2.7E-04 | 1.6E-04 | 1.1E-04 | 4.8E-05 |
| SSW          | 3.4E-02 | 2.2E-03 | 5.2E-04 | 1.8E-04 | 1.0E-04 | 7.0E-05 | 3.1E-05 |
| S            | 3.4E-02 | 2.1E-03 | 6.5E-04 | 2.9E-04 | 1.7E-04 | 1.1E-04 | 5.1E-05 |
| SSE          | 3.4E-02 | 2.8E-03 | 7.1E-04 | 2.6E-04 | 1.5E-04 | 1.0E-04 | 4.6E-05 |
| SE           | 3.4E-02 | 3.0E-03 | 9.2E-04 | 4.1E-04 | 2.4E-04 | 1.6E-04 | 7.3E-05 |
| ESE          | 3.4E-02 | 3.6E-03 | 9.6E-04 | 3.8E-04 | 2.2E-04 | 1.5E-04 | 6.7E-05 |
| E            | 3.4E-02 | 3.6E-03 | 1.1E-03 | 4.5E-04 | 2.6E-04 | 1.8E-04 | 8.1E-05 |
| ENE          | 3.4E-02 | 4.3E-03 | 1.1E-03 | 4.3E-04 | 2.5E-04 | 1.7E-04 | 7.7E-05 |
| NE           | 3.4E-02 | 4.2E-03 | 1.4E-03 | 6.3E-04 | 3.7E-04 | 2.5E-04 | 1.1E-04 |
| NNE          | 3.4E-02 | 4.1E-03 | 1.1E-03 | 4.1E-04 | 2.4E-04 | 1.6E-04 | 7.4E-05 |

| 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 | 2.2E-06 | 1.7E-06 |
| NNW          | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.0E-06 | 7.6E-07 | 6.2E-07 |
| NW           | 1.3E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.6E-06 | 1.1E-06 | 8.9E-07 |
| WNW          | 1.7E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.0E-06 | 1.3E-06 | 1.0E-06 |
| W            | 3.0E-05 | 1.3E-05 | 8.0E-06 | 5.3E-06 | 3.6E-06 | 2.4E-06 | 1.8E-06 |
| WSW          | 1.8E-05 | 7.9E-06 | 4.9E-06 | 3.3E-06 | 2.3E-06 | 1.6E-06 | 1.2E-06 |
| SW           | 1.7E-05 | 7.9E-06 | 4.8E-06 | 3.3E-06 | 2.3E-06 | 1.6E-06 | 0.0E+00 |
| SSW          | 1.1E-05 | 5.1E-06 | 3.1E-06 | 2.1E-06 | 0.0E+00 | 1.1E-06 | 8.8E-07 |
| S            | 1.9E-05 | 8.3E-06 | 5.1E-06 | 3.4E-06 | 2.4E-06 | 1.7E-06 | 1.3E-06 |
| SSE          | 1.6E-05 | 7.5E-06 | 4.6E-06 | 3.1E-06 | 2.2E-06 | 1.5E-06 | 1.2E-06 |
| SE           | 2.6E-05 | 1.2E-05 | 7.2E-06 | 4.8E-06 | 3.4E-06 | 2.4E-06 | 1.8E-06 |
| ESE          | 2.4E-05 | 1.1E-05 | 6.7E-06 | 4.5E-06 | 3.2E-06 | 2.2E-06 | 1.8E-06 |
| E            | 2.9E-05 | 1.3E-05 | 8.2E-06 | 5.5E-06 | 3.8E-06 | 2.7E-06 | 2.1E-06 |
| ENE          | 2.8E-05 | 1.3E-05 | 7.9E-06 | 5.4E-06 | 3.8E-06 | 2.7E-06 | 2.1E-06 |
| NE           | 4.1E-05 | 1.9E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| NNE          | 2.7E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.0E-06 |

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)  
(All Radionuclides and Pathways)

| Distance (m) |         |         |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Direction    | 250     | 750     | 1500    | 2500    | 3500    | 4500    | 7500    |
| N            | 3.0E-04 | 7.3E-05 | 7.7E-05 | 5.0E-05 | 4.0E-05 | 3.4E-05 | 9.0E-05 |
| NNW          | 3.0E-04 | 5.7E-05 | 4.2E-05 | 1.5E-05 | 1.2E-05 | 1.0E-05 | 3.1E-05 |
| NW           | 3.0E-04 | 4.8E-05 | 5.4E-05 | 3.1E-05 | 2.2E-05 | 2.1E-05 | 3.0E-04 |
| WNW          | 3.0E-04 | 7.7E-05 | 7.8E-05 | 4.9E-05 | 3.7E-05 | 5.9E-05 | 1.7E-04 |
| W            | 3.0E-04 | 8.2E-05 | 1.1E-04 | 8.7E-05 | 4.3E-04 | 6.1E-05 | 9.3E-05 |
| WSW          | 3.0E-04 | 8.3E-05 | 8.2E-05 | 5.1E-05 | 2.4E-04 | 2.1E-04 | 3.2E-04 |
| SW           | 3.0E-04 | 5.9E-05 | 6.9E-05 | 5.1E-05 | 5.1E-05 | 2.3E-04 | 5.9E-04 |
| SSW          | 3.0E-04 | 6.1E-05 | 5.8E-05 | 3.3E-05 | 3.0E-05 | 1.1E-04 | 3.5E-04 |
| S            | 3.0E-04 | 6.0E-05 | 7.2E-05 | 5.4E-05 | 3.8E-05 | 3.4E-05 | 5.3E-04 |
| SSE          | 3.0E-04 | 7.9E-05 | 7.8E-05 | 4.8E-05 | 3.3E-05 | 2.9E-05 | 2.1E-04 |
| SE           | 3.0E-04 | 8.5E-05 | 1.0E-04 | 7.7E-05 | 5.7E-05 | 4.6E-05 | 2.3E-04 |
| ESE          | 3.0E-04 | 1.0E-04 | 1.1E-04 | 7.0E-05 | 5.6E-05 | 4.8E-05 | 1.7E-04 |
| E            | 3.0E-04 | 1.0E-04 | 1.2E-04 | 8.4E-05 | 6.8E-05 | 5.9E-05 | 1.9E-04 |
| ENE          | 3.0E-04 | 1.2E-04 | 1.2E-04 | 7.7E-05 | 4.9E-05 | 3.5E-05 | 2.4E-04 |
| NE           | 3.0E-04 | 1.2E-04 | 1.5E-04 | 7.8E-05 | 4.2E-05 | 3.6E-05 | 3.0E-04 |
| NNE          | 3.0E-04 | 1.1E-04 | 1.0E-04 | 5.5E-05 | 4.3E-05 | 3.4E-05 | 1.1E-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 | 1.6E-04 | 4.8E-04 |
| NNW          | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.2E-04 | 8.1E-04 | 4.4E-04 |
| NW           | 1.3E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 7.9E-06 | 9.1E-04 | 4.7E-04 |
| WNW          | 5.8E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.0E-09 | 3.4E-04 | 9.2E-05 |
| W            | 7.8E-04 | 8.5E-04 | 7.5E-05 | 1.5E-04 | 7.4E-05 | 4.0E-04 | 4.6E-04 |
| WSW          | 2.6E-04 | 3.7E-04 | 3.9E-05 | 2.2E-05 | 1.2E-05 | 1.5E-05 | 7.1E-06 |
| SW           | 1.2E-03 | 4.4E-05 | 2.8E-04 | 4.5E-05 | 4.3E-06 | 1.1E-06 | 0.0E+00 |
| SSW          | 1.3E-03 | 1.2E-05 | 2.4E-05 | 9.3E-06 | 0.0E+00 | 1.5E-07 | 1.3E-05 |
| S            | 1.7E-03 | 4.5E-04 | 4.8E-04 | 2.0E-05 | 2.5E-04 | 1.0E-04 | 4.8E-05 |
| SSE          | 1.3E-03 | 3.5E-03 | 4.1E-03 | 1.5E-03 | 3.5E-04 | 6.7E-05 | 3.0E-05 |
| SE           | 4.7E-04 | 1.4E-03 | 1.3E-03 | 5.2E-04 | 1.6E-04 | 5.6E-05 | 4.1E-05 |
| ESE          | 2.7E-04 | 8.9E-04 | 1.0E-04 | 1.1E-04 | 7.1E-05 | 1.5E-04 | 5.7E-05 |
| E            | 2.8E-04 | 7.0E-04 | 1.3E-04 | 2.1E-04 | 5.9E-05 | 1.0E-04 | 8.2E-05 |
| ENE          | 1.6E-04 | 2.8E-04 | 7.5E-05 | 3.6E-05 | 2.2E-05 | 8.9E-06 | 4.1E-06 |
| NE           | 3.4E-04 | 2.2E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| NNE          | 1.4E-05 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 4.3E-05 |



INDIVIDUAL LIFETIME RISK (deaths)  
(All Radionuclides and Pathways)

| Direction | Distance (m) |         |         |         |         |         |         |
|-----------|--------------|---------|---------|---------|---------|---------|---------|
|           | 250          | 750     | 1500    | 2500    | 3500    | 4500    | 7500    |
| N         | 1.5E-08      | 1.2E-09 | 3.6E-10 | 1.7E-10 | 9.6E-11 | 6.5E-11 | 2.9E-11 |
| NNW       | 1.5E-08      | 9.0E-10 | 1.9E-10 | 5.1E-11 | 2.9E-11 | 2.0E-11 | 9.0E-12 |
| NW        | 1.5E-08      | 7.7E-10 | 2.2E-10 | 9.2E-11 | 5.3E-11 | 3.6E-11 | 1.6E-11 |
| WNW       | 1.5E-08      | 1.2E-09 | 3.1E-10 | 1.2E-10 | 6.8E-11 | 4.6E-11 | 2.1E-11 |
| W         | 1.5E-08      | 1.3E-09 | 4.3E-10 | 2.1E-10 | 1.2E-10 | 8.2E-11 | 3.7E-11 |
| WSW       | 1.5E-08      | 1.3E-09 | 3.3E-10 | 1.2E-10 | 7.1E-11 | 4.8E-11 | 2.2E-11 |
| SW        | 1.5E-08      | 9.4E-10 | 2.8E-10 | 1.2E-10 | 7.1E-11 | 4.8E-11 | 2.2E-11 |
| SSW       | 1.5E-08      | 9.7E-10 | 2.3E-10 | 8.0E-11 | 4.6E-11 | 3.1E-11 | 1.4E-11 |
| S         | 1.5E-08      | 9.5E-10 | 2.9E-10 | 1.3E-10 | 7.5E-11 | 5.1E-11 | 2.3E-11 |
| SSE       | 1.5E-08      | 1.3E-09 | 3.1E-10 | 1.2E-10 | 6.7E-11 | 4.5E-11 | 2.0E-11 |
| SE        | 1.5E-08      | 1.4E-09 | 4.1E-10 | 1.8E-10 | 1.1E-10 | 7.2E-11 | 3.2E-11 |
| ESE       | 1.5E-08      | 1.6E-09 | 4.3E-10 | 1.7E-10 | 9.7E-11 | 6.6E-11 | 3.0E-11 |
| E         | 1.5E-08      | 1.6E-09 | 4.7E-10 | 2.0E-10 | 1.2E-10 | 8.0E-11 | 3.6E-11 |
| ENE       | 1.5E-08      | 1.9E-09 | 5.0E-10 | 1.9E-10 | 1.1E-10 | 7.5E-11 | 3.4E-11 |
| NE        | 1.5E-08      | 1.9E-09 | 6.0E-10 | 2.8E-10 | 1.6E-10 | 1.1E-10 | 5.0E-11 |
| NNE       | 1.5E-08      | 1.8E-09 | 4.8E-10 | 1.8E-10 | 1.1E-10 | 7.3E-11 | 3.3E-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 | 9.3E-13 | 7.3E-13 |
| NNW       | 0.0E+00      | 0.0E+00 | 0.0E+00 | 0.0E+00 | 4.4E-13 | 3.1E-13 | 2.5E-13 |
| NW        | 5.7E-12      | 0.0E+00 | 0.0E+00 | 0.0E+00 | 6.9E-13 | 4.8E-13 | 3.7E-13 |
| WNW       | 7.4E-12      | 0.0E+00 | 0.0E+00 | 0.0E+00 | 8.6E-13 | 5.7E-13 | 4.4E-13 |
| W         | 1.3E-11      | 5.9E-12 | 3.5E-12 | 2.3E-12 | 1.6E-12 | 1.0E-12 | 8.0E-13 |
| WSW       | 7.8E-12      | 3.5E-12 | 2.1E-12 | 1.4E-12 | 9.9E-13 | 6.8E-13 | 5.3E-13 |
| SW        | 7.8E-12      | 3.5E-12 | 2.1E-12 | 1.4E-12 | 9.8E-13 | 6.8E-13 | 0.0E+00 |
| SSW       | 5.0E-12      | 2.3E-12 | 1.4E-12 | 9.3E-13 | 0.0E+00 | 4.6E-13 | 3.7E-13 |
| S         | 8.2E-12      | 3.7E-12 | 2.2E-12 | 1.5E-12 | 1.0E-12 | 7.1E-13 | 5.6E-13 |
| SSE       | 7.3E-12      | 3.3E-12 | 2.0E-12 | 1.4E-12 | 9.5E-13 | 6.7E-13 | 5.2E-13 |
| SE        | 1.2E-11      | 5.2E-12 | 3.2E-12 | 2.1E-12 | 1.5E-12 | 1.0E-12 | 8.0E-13 |
| ESE       | 1.1E-11      | 4.9E-12 | 3.0E-12 | 2.0E-12 | 1.4E-12 | 9.7E-13 | 7.6E-13 |
| E         | 1.3E-11      | 5.9E-12 | 3.6E-12 | 2.4E-12 | 1.7E-12 | 1.2E-12 | 9.2E-13 |
| ENE       | 1.2E-11      | 5.7E-12 | 3.5E-12 | 2.4E-12 | 1.7E-12 | 1.2E-12 | 9.3E-13 |
| NE        | 1.8E-11      | 8.4E-12 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| NNE       | 1.2E-11      | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 8.8E-13 |

COLLECTIVE FATAL CANCER RATE (deaths/y)  
(All Radionuclides and Pathways)

| Distance (m) |         |         |         |         |         |         |         |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Direction    | 250     | 750     | 1500    | 2500    | 3500    | 4500    | 7500    |
| N            | 1.8E-09 | 4.2E-10 | 4.5E-10 | 2.9E-10 | 2.3E-10 | 2.0E-10 | 5.2E-10 |
| NNW          | 1.8E-09 | 3.3E-10 | 2.4E-10 | 8.9E-11 | 7.2E-11 | 5.8E-11 | 1.8E-10 |
| NW           | 1.7E-09 | 2.8E-10 | 3.1E-10 | 1.8E-10 | 1.3E-10 | 1.2E-10 | 1.7E-09 |
| WNW          | 1.7E-09 | 4.4E-10 | 4.5E-10 | 2.8E-10 | 2.1E-10 | 3.4E-10 | 1.0E-09 |
| W            | 1.7E-09 | 4.8E-10 | 6.3E-10 | 5.0E-10 | 2.5E-09 | 3.5E-10 | 5.4E-10 |
| WSW          | 1.7E-09 | 4.8E-10 | 4.8E-10 | 2.9E-10 | 1.4E-09 | 1.2E-09 | 1.9E-09 |
| SW           | 1.7E-09 | 3.4E-10 | 4.0E-10 | 2.9E-10 | 2.9E-10 | 1.3E-09 | 3.4E-09 |
| SSW          | 1.7E-09 | 3.5E-10 | 3.3E-10 | 1.9E-10 | 1.7E-10 | 6.2E-10 | 2.0E-09 |
| S            | 1.7E-09 | 3.5E-10 | 4.2E-10 | 3.1E-10 | 2.2E-10 | 1.9E-10 | 3.1E-09 |
| SSE          | 1.8E-09 | 4.6E-10 | 4.5E-10 | 2.8E-10 | 1.9E-10 | 1.7E-10 | 1.2E-09 |
| SE           | 1.8E-09 | 4.9E-10 | 5.9E-10 | 4.4E-10 | 3.3E-10 | 2.6E-10 | 1.3E-09 |
| ESE          | 1.8E-09 | 5.8E-10 | 6.1E-10 | 4.0E-10 | 3.2E-10 | 2.8E-10 | 9.7E-10 |
| E            | 1.7E-09 | 5.9E-10 | 6.8E-10 | 4.9E-10 | 3.9E-10 | 3.4E-10 | 1.1E-09 |
| ENE          | 1.8E-09 | 7.0E-10 | 7.2E-10 | 4.4E-10 | 2.8E-10 | 2.0E-10 | 1.4E-09 |
| NE           | 1.8E-09 | 6.8E-10 | 8.5E-10 | 4.5E-10 | 2.4E-10 | 2.1E-10 | 1.8E-09 |
| NNE          | 1.8E-09 | 6.6E-10 | 6.0E-10 | 3.2E-10 | 2.5E-10 | 1.9E-10 | 6.4E-10 |

| 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 | 9.3E-10 | 2.7E-09 |
| NNW          | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.2E-09 | 4.3E-09 | 2.3E-09 |
| NW           | 7.4E-11 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 4.4E-11 | 5.0E-09 | 2.6E-09 |
| WNW          | 3.3E-10 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 1.1E-14 | 1.9E-09 | 5.0E-10 |
| W            | 4.5E-09 | 4.9E-09 | 4.3E-10 | 8.4E-10 | 4.2E-10 | 2.2E-09 | 2.6E-09 |
| WSW          | 1.5E-09 | 2.1E-09 | 2.2E-10 | 1.3E-10 | 7.0E-11 | 8.6E-11 | 3.9E-11 |
| SW           | 7.1E-09 | 2.5E-10 | 1.6E-09 | 2.6E-10 | 2.4E-11 | 6.0E-12 | 0.0E+00 |
| SSW          | 7.5E-09 | 6.7E-11 | 1.4E-10 | 5.2E-11 | 0.0E+00 | 8.4E-13 | 7.0E-11 |
| S            | 9.6E-09 | 2.6E-09 | 2.8E-09 | 1.1E-10 | 1.4E-09 | 5.7E-10 | 2.7E-10 |
| SSE          | 7.4E-09 | 2.0E-08 | 2.3E-08 | 8.3E-09 | 2.0E-09 | 3.7E-10 | 1.7E-10 |
| SE           | 2.7E-09 | 8.1E-09 | 7.7E-09 | 3.0E-09 | 8.9E-10 | 3.2E-10 | 2.3E-10 |
| ESE          | 1.6E-09 | 5.1E-09 | 6.0E-10 | 6.3E-10 | 4.0E-10 | 8.6E-10 | 3.2E-10 |
| E            | 1.6E-09 | 4.0E-09 | 7.4E-10 | 1.2E-09 | 3.3E-10 | 5.8E-10 | 4.6E-10 |
| ENE          | 9.2E-10 | 1.6E-09 | 4.3E-10 | 2.1E-10 | 1.2E-10 | 5.1E-11 | 2.3E-11 |
| NE           | 2.0E-09 | 1.3E-10 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| NNE          | 8.1E-11 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 0.0E+00 | 2.4E-10 |



**ATTACHMENT E**

**NATIONAL CLIMATIC DATA CENTER, NIAGARA FALLS, NEW YORK**



# ANNUAL CLIMATOLOGICAL SUMMARY (2008)

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Station: **305840/99999, NIAGARA FALLS INTL AP, New York**

Elev. 1702 ft. above sea level

Lat. Unknown, Lon. 785°7 '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 |  |  |
| 2008<br>Month | Mean<br>Max.      | Mean<br>Min. | Mean | Depart.<br>from<br>Normal | Heating<br>Degree<br>Days | Cooling<br>Degree<br>Days | Highest | High<br>Date | Lowest | Low<br>Date | Number of Days |             |             |            | Total                  | Depart.<br>from<br>Normal | Greatest Observed |      | Snow, Sleet   |              |             | Number of Days |      |      |  |  |
|               |                   |              |      |                           |                           |                           |         |              |        |             | Max<br>≥90°    | Max<br>≤32° | Min<br>≤32° | Min<br>≤0° |                        |                           | Day               | Date | Total<br>Fall | Max<br>Depth | Max<br>Date | ≥.10           | ≥.50 | ≥1.0 |  |  |
| 1             | 35.8              | 23.0         | 29.4 | 5.2                       | 1098                      | 0                         | 63      | 8            | 3      | 3           | 0              | 12          | 25          | 0          | 1.52                   | -1.03                     | 0.27              | 11   | 13.2          | 3            | 27          | 6              | 0    | 0    |  |  |
| 2             | 31.9              | 17.4         | 24.7 | -0.6                      | 1162                      | 0                         | 50      | 17           | -1     | 29          | 0              | 14          | 28          | 1          | 3.59                   | 1.27                      | 0.96              | 6    | 20.7          | 4            | 13          | 8              | 2    | 0    |  |  |
| 3             | 37.7              | 23.0         | 30.4 | -3.4                      | 1064                      | 0                         | 60      | 3            | 7      | 11          | 0              | 8           | 29          | 0          | 3.44                   | 0.81                      | 0.76              | 8    | 26.6          | 14           | 9           | 10             | 2    | 0    |  |  |
| 4             | 61.0              | 37.8         | 49.4 | 4.3                       | 459                       | 1                         | 85      | 19           | 23     | 3           | 0              | 0           | 9           | 0          | 1.27                   | -1.19                     | 0.81              | 11   | 0.0T          | 0T           | 1           | 2              | 1    | 0    |  |  |
| 5             | 63.2              | 41.9         | 52.6 | -4.5                      | 376                       | 0                         | 76      | 27           | 28     | 1           | 0              | 0           | 2           | 0          | 2.50                   | -0.44                     | 0.67              | 31   | 0.0           | 0            |             | 8              | 2    | 0    |  |  |
| 6             | 77.1              | 58.9         | 68.0 | 2.2                       | 37                        | 137                       | 90      | 10           | 49     | 19          | 1              | 0           | 0           | 0          | 3.54                   | 0.28                      | 0.71              | 17   | 0.0           | 0            |             | 11             | 1    | 0    |  |  |
| 7             | 80.6              | 61.1         | 70.9 | -0.5                      | 5                         | 197                       | 89      | 13           | 50     | 4           | 0              | 0           | 0           | 0          | 4.35                   | 1.66                      | 0.63              | 10   | 0.0           | 0            |             | 12             | 4    | 0    |  |  |
| 8             | 77.0              | 56.6         | 66.8 | -2.8                      | 32                        | 95                        | 88      | 23           | 48     | 20          | 0              | 0           | 0           | 0          | 3.32                   | 0.29                      | 0.61              | 6    | 0.0           | 0            |             | 10             | 1    | 0    |  |  |
| 9             | 73.1              | 52.0         | 62.6 | 0.9                       | 119                       | 54                        | 86      | 15           | 43     | 23          | 0              | 0           | 0           | 0          | 2.86                   | -0.66                     | 0.85              | 14   | 0.0           | 0            |             | 6              | 2    | 0    |  |  |
| 10            | 58.4              | 38.1         | 48.3 | -1.8                      | 512                       | 0                         | 76      | 13           | 27     | 30          | 0              | 0           | 6           | 0          | 3.25                   | 0.58                      | 0.73              | 16   | 0.0T          | 0T           | 29          | 11             | 1    | 0    |  |  |
| 11            | 46.2              | 32.2         | 39.2 | -0.7                      | 769                       | 0                         | 71      | 8            | 17     | 23          | 0              | 4           | 12          | 0          | 2.23                   | -0.75                     | 0.73              | 16   | 9.6           | 5            | 20          | 7              | 1    | 0    |  |  |
| 12            | 37.6              | 22.5         | 30.1 | 0.4                       | 1076                      | 0                         | 62      | 29           | 6      | 21          | 0              | 15          | 29          | 0          | 4.58                   | 1.70                      | 0.91              | 10   | 35.2          | 14           | 22          | 13             | 3    | 0    |  |  |
| Annual        | 56.6              | 38.7         | 47.7 | -0.1                      | 6709                      | 484                       | 90      | Jun          | -1     | Feb         | 1              | 53          | 140         | 1          | 36.45                  | 2.52                      | 0.96              | Feb  | 105.3         | 14           | Dec         | 104            | 20   |      |  |  |

## 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 Mon Jun 22 10:04:32 EDT 2009 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>



# QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 01/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

Elevation(Ground): 585 ft. above sea level

| Date | Temperature<br>(Fahrenheit) |      |      |                       |                               |                    | Degree Days<br>Base 65 Degrees |         | Sun                               |               | Significant Weather | Snow/Ice on<br>Ground(In) |                | Precipitation<br>(In) |                | Pressure(Inches of Hg) |                      | Wind: Speed=mph<br>Dir=tens of degrees |            |               |                  |     |       | Date |     |
|------|-----------------------------|------|------|-----------------------|-------------------------------|--------------------|--------------------------------|---------|-----------------------------------|---------------|---------------------|---------------------------|----------------|-----------------------|----------------|------------------------|----------------------|----------------------------------------|------------|---------------|------------------|-----|-------|------|-----|
|      | Max.                        | Min. | Avg. | Dep<br>From<br>Normal | Avg.<br>Dew pt.               | Avg<br>Wet<br>Bulb | Heating                        | Cooling | Sunrise<br>LST                    | Sunset<br>LST |                     | 1200<br>UTC               | 1800<br>UTC    | 2400<br>LST           | 2400<br>LST    | Avg.<br>Station        | Avg.<br>Sea<br>Level | Resultant<br>Speed                     | Res<br>Dir | Avg.<br>Speed | max              |     | max   |      |     |
|      |                             |      |      |                       |                               |                    |                                |         |                                   |               |                     | Depth                     | Water<br>Equiv | Snow<br>Fall          | Water<br>Equiv |                        |                      |                                        |            |               | Speed            | Dir | Speed |      | 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   | 35                          | 24   | 30   | M                     | 27                            | 29                 | 35                             | 0       | -                                 | -             | SN FZFG BR HZ       | 1                         | M              | 2.1                   | 0.19           | 29.09                  | 29.77                | 4.9                                    | 35         | 12.8          | 26               | 360 | 23    | 350  | 01  |
| 02   | 40s                         | 14   | M    | M                     | 8                             | 15                 | M                              | M       | -                                 | -             | SN                  | 2                         | M              | T                     | T              | 29.55                  | 30.32                | 14.2                                   | 33         | 14.7          | 28               | 360 | 22    | 340  | 02  |
| 03   | 25                          | 3*   | 14   | M                     | 10                            | 14                 | 51                             | 0       | -                                 | -             | SN BR HZ            | 2                         | M              | 0.5                   | 0.01           | 29.95                  | 30.65                | 4.7                                    | 22         | 7.5           | 37               | 210 | 29    | 220  | 03  |
| 04   | 33                          | 24   | 29   | M                     | 19                            | 25                 | 36                             | 0       | -                                 | -             |                     | M                         | M              | M                     | 0.00           | 29.70                  | 30.39                | 17.3                                   | 22         | 17.3          | 41               | 220 | 33    | 220  | 04  |
| 05   | 39                          | 29   | 34   | M                     | 27                            | 32                 | 31                             | 0       | -                                 | -             | RA SN BR            | 1                         | M              | T                     | 0.02           | 29.50                  | 30.16                | 11.3                                   | 20         | 11.5          | 25               | 210 | 20    | 200  | 05  |
| 06   | 49                          | 38   | 44   | M                     | 42                            | 42                 | 21                             | 0       | -                                 | -             | RA DZ BR            | T                         | M              | 0.0                   | 0.05           | 29.40                  | 30.06                | 8.7                                    | 19         | 8.8           | 22               | 180 | 16    | 180  | 06  |
| 07   | 61                          | 17s  | M    | M                     | 51                            | 53                 | M                              | M       | -                                 | -             | RA DZ BR            | 0                         | M              | 0.0                   | 0.01           | 29.35                  | 30.00                | 15.0                                   | 20         | 15.2          | 29               | 210 | 23    | 210  | 07  |
| 08   | 63*                         | 51   | 57*  | M                     | 50                            | 54                 | 8                              | 0       | -                                 | -             | RA                  | 0                         | M              | 0.0                   | 0.05           | 29.23                  | 29.83                | 15.7                                   | 20         | 15.9          | 37               | 200 | 29    | 200  | 08  |
| 09   | 58                          | 34   | 46   | M                     | 36                            | 40                 | 19                             | 0       | -                                 | -             | RA BR               | M                         | M              | M                     | 0.21           | 29.10                  | 29.80                | 19.8                                   | 23         | 21.1          | 56               | 230 | 47    | 220  | 09  |
| 10   | 41                          | 28   | 35   | M                     | 30                            | 33                 | 30                             | 0       | -                                 | -             | RA BR HZ            | 0                         | M              | 0.0                   | 0.03           | 29.42                  | 30.06                | 4.2                                    | 10         | 7.6           | 22               | 090 | 17    | 090  | 10  |
| 11   | 47                          | 35   | 41   | M                     | 35                            | 38                 | 24                             | 0       | -                                 | -             | RA BR               | 0                         | M              | 0.0s                  | 0.27           | 28.90                  | 29.59                | 15.3                                   | 22         | 19.3          | 48               | 230 | 38    | 230  | 11  |
| 12   | 40                          | 29   | 35   | M                     | 30                            | 34                 | 30                             | 0       | -                                 | -             | RA BR HZ            | M                         | M              | M                     | T              | 29.40                  | 30.06                | 9.4                                    | 24         | 9.6           | 29               | 240 | 23    | 270  | 12  |
| 13   | 39                          | 25   | 32   | M                     | 28                            | 31                 | 33                             | 0       | -                                 | -             | RA SN BR            | 0                         | M              | T                     | T              | 29.41                  | 30.06                | 7.7                                    | 10         | 7.9           | 20               | 130 | 17    | 140  | 13  |
| 14   | 38                          | 30   | 34   | M                     | 31                            | 32                 | 31                             | 0       | -                                 | -             | RA SN BR HZ         | 0                         | M              | 0.5                   | 0.12           | 29.18                  | 29.85                | 9.7                                    | 23         | 10.8          | 22               | 240 | 18    | 240  | 14  |
| 15   | 32                          | 28   | 30   | M                     | 26                            | 28                 | 35                             | 0       | -                                 | -             | SN BR               | T                         | M              | 0.5                   | 0.04           | 29.23                  | 29.94                | 7.4                                    | 28         | 9.5           | 18               | 260 | 15    | 260  | 15  |
| 16   | 31                          | 22   | 27   | M                     | 22                            | 26                 | 38                             | 0       | -                                 | -             | SN                  | T                         | M              | T                     | T              | 29.60                  | 30.30                | 5.6                                    | 24         | 7.6           | 18               | 280 | 15    | 280  | 16  |
| 17   | 37                          | 24   | 31   | M                     | 25                            | 29                 | 34                             | 0       | -                                 | -             | RA SN BR            | 0                         | M              | T                     | 0.01           | 29.42                  | 30.05                | 8.3                                    | 16         | 9.2           | 28               | 180 | 22    | 180  | 17  |
| 18   | 37                          | 24   | 31   | M                     | 19                            | 25                 | 34                             | 0       | -                                 | -             | RA SN BR            | M                         | M              | M                     | 0.11           | 29.22                  | 29.92                | 20.1                                   | 24         | 20.7          | 44               | 240 | 35    | 230  | 18  |
| 19   | 29                          | 11   | 20   | M                     | 12                            | 19                 | 45                             | 0       | -                                 | -             | SN BR               | M                         | M              | M                     | T              | 29.32                  | 30.03                | 14.6                                   | 26         | 15.4          | 35               | 260 | 30    | 270  | 19  |
| 20   | 16                          | 7    | 12*  | M                     | 0                             | 9                  | 53                             | 0       | -                                 | -             |                     | M                         | M              | M                     | 0.00           | 29.56                  | 30.27                | 19.5                                   | 25         | 19.7          | 35               | 260 | 28    | 250  | 20  |
| 21   | 21                          | 9    | 15   | M                     | 4                             | 13                 | 50                             | 0       | -                                 | -             | SN BR               | M                         | M              | M                     | T              | 29.87                  | 30.59                | 13.3                                   | 24         | 14.3          | 29               | 260 | 23    | 250  | 21  |
| 22   | 33                          | 10   | 22   | M                     | 17                            | 21                 | 43                             | 0       | -                                 | -             | SN BR BLSN          | M                         | M              | M                     | 0.01           | 29.27                  | 30.00                | 11.9                                   | 23         | 15.3          | 44               | 280 | 36    | 280  | 22  |
| 23   | 20                          | 16   | 18   | M                     | 8                             | 16                 | 47                             | 0       | -                                 | -             | SN HZ               | M                         | M              | M                     | T              | 29.35                  | 30.04                | 14.7                                   | 25         | 14.9          | 31               | 270 | 24    | 260  | 23  |
| 24   | 21                          | 14   | 18   | M                     | 11                            | 16                 | 47                             | 0       | -                                 | -             | SN FZFG BR          | M                         | M              | M                     | 0.02           | 29.41                  | 30.14                | 6.8                                    | 26         | 8.4           | 22               | 260 | 17    | 250  | 24  |
| 25   | 23                          | 11   | 17   | M                     | 9                             | 16                 | 48                             | 0       | -                                 | -             |                     | M                         | M              | M                     | 0.00           | 29.65                  | 30.35                | 18.3                                   | 24         | 18.5          | 39               | 220 | 32    | 220  | 25  |
| 26   | 25                          | 15   | 20   | M                     | 15                            | 19                 | 45                             | 0       | -                                 | -             | SN BR               | M                         | M              | M                     | 0.02           | 29.48                  | 30.20                | 3.8                                    | 19         | 5.9           | 16               | 240 | 14    | 240  | 26  |
| 27   | 33                          | 20   | 27   | M                     | 22                            | 25                 | 38                             | 0       | -                                 | -             | SN BR               | M                         | M              | M                     | T              | 29.43                  | 30.13                | 0.5                                    | 17         | 1.6           | 12               | 190 | 10    | 190  | 27  |
| 28   | 35                          | 27   | 31   | M                     | 24                            | 28                 | 34                             | 0       | -                                 | -             | SN BR HZ            | 1                         | M              | T                     | T              | 29.46                  | 30.10                | 5.0                                    | 17         | 5.8           | 16               | 160 | 14    | 170  | 28  |
| 29   | 47                          | 35   | 41   | M                     | 35                            | 39                 | 24                             | 0       | -                                 | -             | RA BR               | T                         | M              | 0.0                   | 0.02           | 28.95                  | 29.54                | 11.7                                   | 18         | 12.4          | 28               | 190 | 22    | 190  | 29  |
| 30   | 51                          | 15   | 33   | M                     | 16                            | 21                 | 32                             | 0       | -                                 | -             | RA SN BR UP BLSN    | T                         | M              | 1.3                   | 0.12           | 28.92                  | 29.70                | 28.7                                   | 24         | 30.2          | 64               | 220 | 52    | 230  | 30  |
| 31   | 26                          | 12   | 19   | M                     | 9                             | 16                 | 46                             | 0       | -                                 | -             |                     | T                         | M              | 0.0                   | 0.00           | 29.81                  | 30.53                | 2.8                                    | 23         | 8.9           | 32               | 260 | 28    | 260  | 31  |
|      | 36.3                        | 22.0 | 29.2 |                       | 22.5                          | 27.0               | 35.9                           | 0.0     | <---Monthly Averages   Totals---> |               |                     | M                         | 13.2s          | 1.52s                 |                | 29.39                  | 30.07                | 8.9                                    | 23         | 12.8          | <Monthly Average |     |       |      |     |
|      | M                           | M    | M    |                       | <---Departure From Normal---> |                    |                                |         |                                   |               |                     | M                         |                |                       |                |                        |                      |                                        |            |               |                  |     |       |      |     |

|                                                                                                                                                        |  |  |  |                                                                                                                                      |  |                                                            |  |                                                                                                        |  |                                                                                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| Degree Days      Monthly      Season to Date<br><br>Total Departure    Total Departure<br><br>Heating: 1042    M      M      M<br>Cooling:    0      M |  |  |  | Greatest 24-hr Precipitation: 0.27    Date: 10-11<br>Greatest 24-hr Snowfall: 0.2    Date: 01<br>Greatest Snow Depth: 3s    Date: 27 |  |                                                            |  | Sea Level Pressure    Date    Time (LST)<br>Maximum 30.78    03    1043<br>Minimum 29.00    30    0312 |  |                                                                                       |  |
|                                                                                                                                                        |  |  |  | Number of Days with ----->                                                                                                           |  | Max Temp >=90: 0<br>Max Temp <=32: 11<br>Thunderstorms : 0 |  | Min Temp <=32: 26<br>Min Temp <=0 : 0<br>Heavy Fog : 0                                                 |  | Precipitation >=.01 inch: 21s<br>Precipitation >=.10 inch:<br>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: 02/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

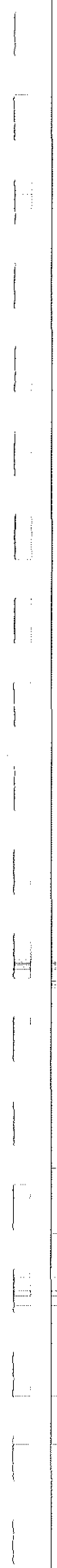
Elevation(Ground): 585 ft. above sea level

| 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               | 1800 UTC    | 2400 LST           | 2400 LST    | Avg. Station           | Avg. Sea Level | Resultant Speed                     | Res Dir | Avg. Speed | max 5-second     | max 2-minute |       |      |     |
|      |                          |      |      |                 |                                   |              |                             |         |                                       |            |                       | Depth                  | Water Equiv | Snow Fall          | Water Equiv |                        |                |                                     |         |            | Speed            | Dir          | Speed |      | 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   | M                        | M    | M    | M               | 27                                | 29           | M                           | M       | -                                     | -          | FZRA SN PL BR         | M                      | M           | M                  | M           | M                      | 29.98          | 7.0                                 | 07      | M          | M                | M            | M     | M    | 01  |
| 02   | M                        | M    | M    | M               | 29                                | 30           | M                           | M       | -                                     | -          | FZRA FZDZ SN BR       | M                      | M           | M                  | M           | M                      | 30.12          | 9.0                                 | 24      | M          | M                | M            | M     | M    | 02  |
| 03   | M                        | M    | M    | M               | 27                                | 30           | M                           | M       | -                                     | -          | SN BR HZ              | M                      | M           | M                  | M           | M                      | 30.24          | 2.8                                 | 26      | M          | M                | M            | M     | M    | 03  |
| 04   | M                        | M    | M    | M               | 30                                | 32           | M                           | M       | -                                     | -          | RA BR HZ VCTS         | M                      | M           | M                  | M           | M                      | 30.13          | 8.0                                 | 08      | M          | M                | M            | M     | M    | 04  |
| 05   | M                        | M    | M    | M               | 37                                | 38           | M                           | M       | -                                     | -          | RA DZ FG+ FG BR UP    | M                      | M           | M                  | M           | M                      | 29.84          | 2.8                                 | 29      | M          | M                | M            | M     | M    | 05  |
| 06   | 33                       | 29s  | M    | M               | 29                                | 30           | M                           | M       | -                                     | -          | FZRA FZDZ SN PL BR UP | T                      | M           | 0.1                | 0.96        | 29.02                  | 29.65          | 16.3                                | 05      | 16.1       | 35               | 070          | 30    | 070  | 06  |
| 07   | 33                       | 21   | 27   | M               | 21                                | 24           | 38                          | 0       | -                                     | -          | SN FZFG BR            | 1                      | M           | 1.1                | 0.02        | 29.10                  | 29.84          | 4.0                                 | 28      | 8.9        | 30               | 360          | 23    | 010  | 07  |
| 08   | 31                       | 25   | 28   | M               | 25                                | 28           | 37                          | 0       | -                                     | -          | SN BR                 | 1                      | M           | 0.4                | 0.04        | 29.29                  | 29.98          | 3.3                                 | 21      | 4.4        | 16               | 220          | 13    | 220  | 08  |
| 09   | 37                       | 30   | 34   | M               | 29                                | 32           | 31                          | 0       | -                                     | -          | RA SN BR HZ           | 1                      | M           | 0.3                | 0.07        | 29.16                  | 29.80          | 9.8                                 | 19      | 12.2       | 36               | 220          | 29    | 230  | 09  |
| 10   | 32                       | 2    | 17   | M               | 5                                 | 13           | 48                          | 0       | -                                     | -          | SN FZFG BR BLSN       | 1                      | M           | 1.1                | 0.04        | 29.13                  | 29.87          | 23.5                                | 25      | 24.1       | 47               | 280          | 41    | 280  | 10  |
| 11   | 16                       | 2    | 9    | M               | 0                                 | 7            | 56                          | 0       | -                                     | -          |                       | 1                      | M           | 0.0                | 0.00        | 29.62                  | 30.37          | 15.9                                | 24      | 16.0       | 36               | 260          | 29    | 250  | 11  |
| 12   | 25                       | 7    | 16   | M               | 10                                | 14           | 49                          | 0       | -                                     | -          | FZRA SN BR BLSN       | 1                      | M           | 2.2                | 0.16        | 29.57                  | 30.20          | 8.9                                 | 09      | 9.6        | 24               | 080          | 21    | 090  | 12  |
| 13   | 33                       | 11   | 22   | M               | 19                                | 22           | 43                          | 0       | -                                     | -          | SN BR                 | 4                      | M           | 1.0                | 0.07        | 29.12                  | 29.83          | 8.2                                 | 26      | 10.5       | 24               | 230          | 20    | 230  | 13  |
| 14   | 32                       | 17   | 25   | M               | 18                                | 23           | 40                          | 0       | -                                     | -          |                       | 3                      | M           | 0.0                | 0.00        | 29.38                  | 30.06          | 13.5                                | 21      | 14.2       | 30               | 210          | 25    | 220  | 14  |
| 15   | 34                       | 18   | 26   | M               | 16                                | 22           | 39                          | 0       | -                                     | -          | SN BR                 | 3                      | M           | 0.2s               | T           | 29.42                  | 30.16          | 14.2                                | 27      | 16.2       | 38               | 230          | 31    | 230  | 15  |
| 16   | 24                       | 9    | 17   | M               | 10                                | 16           | 48                          | 0       | -                                     | -          |                       | 3                      | M           | T                  | T           | 29.64                  | 30.32          | 7.0                                 | 22      | 8.2        | 23               | 240          | 18    | 220  | 16  |
| 17   | 50*                      | 12   | 31   | M               | 28                                | 32           | 34                          | 0       | -                                     | -          | RA FZRA BR            | 2                      | M           | 0.0                | 0.26        | 29.12                  | 29.72          | 10.8                                | 17      | 11.9       | 39               | 180          | 31    | 170  | 17  |
| 18   | 48                       | 28   | 38*  | M               | 29                                | 33           | 27                          | 0       | -                                     | -          | RA SN BR HZ           | M                      | M           | M                  | 0.17        | 28.84                  | 29.54          | 22.6                                | 23      | 23.1       | 55               | 240          | 40    | 230  | 18  |
| 19   | 28                       | 19   | 24   | M               | 12                                | 19           | 41                          | 0       | -                                     | -          | SN                    | T                      | M           | 0.3s               | T           | 29.14                  | 29.86          | 18.7                                | 24      | 18.8       | 39               | 240          | 32    | 240  | 19  |
| 20   | 22                       | 13   | 18   | M               | 7                                 | 15           | 47                          | 0       | -                                     | -          | SN                    | T                      | M           | 0.1s               | T           | 29.41                  | 30.15          | 12.5                                | 26      | 13.2       | 29               | 240          | 23    | 250  | 20  |
| 21   | 23                       | 11   | 17   | M               | 8                                 | 16           | 48                          | 0       | -                                     | -          | SN BR                 | T                      | M           | T                  | T           | 29.69                  | 30.38          | 6.0                                 | 24      | 9.1        | 22               | 240          | 18    | 260  | 21  |
| 22   | 31                       | 20   | 26   | M               | 19                                | 23           | 39                          | 0       | -                                     | -          | SN BR                 | 1                      | M           | 1.4                | 0.06        | 29.35                  | 30.02          | 4.4                                 | 05      | 5.8        | 16               | 010          | 13    | 020  | 22  |
| 23   | 29                       | 17   | 23   | M               | 18                                | 22           | 42                          | 0       | -                                     | -          | SN                    | T                      | M           | T                  | T           | 29.38                  | 30.09          | 2.4                                 | 29      | 6.8        | 16               | 230          | 14    | 230  | 23  |
| 24   | 33                       | 16   | 25   | M               | 18                                | 22           | 40                          | 0       | -                                     | -          | BR                    | M                      | M           | M                  | 0.00        | 29.46                  | 30.13          | 11.4                                | 22      | 11.7       | 29               | 230          | 22    | 220  | 24  |
| 25   | 34                       | 21   | 28   | M               | 23                                | 26           | 37                          | 0       | -                                     | -          | BR HZ                 | T                      | M           | 0.0                | 0.00        | 29.29                  | 29.96          | 11.5                                | 22      | 11.9       | 29               | 230          | 23    | 230  | 25  |
| 26   | 32                       | 26   | 29   | M               | 27                                | 29           | 36                          | 0       | -                                     | -          | SN FZFG BR            | 1                      | M           | 3.4                | 0.24        | 29.00                  | 29.64          | 7.0                                 | 02      | 9.8        | 28               | 020          | 23    | 360  | 26  |
| 27   | 26                       | 9    | 18   | M               | 7                                 | 12           | 47                          | 0       | -                                     | -          | SN BR                 | 3                      | M           | 0.1                | 0.01        | 29.10                  | 29.83          | 13.4                                | 31      | 14.3       | 28               | 330          | 22    | 340  | 27  |
| 28   | 14                       | 1    | 8*   | M               | 2                                 | 7            | 57                          | 0       | -                                     | -          | SN BR                 | 3                      | M           | 0.7                | 0.01        | 29.49                  | 30.25          | 6.6                                 | 28      | 8.0        | 20               | 250          | 17    | 250  | 28  |
| 29   | 34                       | -1*  | 17   | M               | 14                                | 18           | 48                          | 0       | -                                     | -          | SN BR                 | M                      | M           | M                  | 0.05        | 29.39                  | 30.18          | 8.5                                 | 15      | 10.0       | 29               | 180          | 23    | 210  | 29  |
|      | 31.7                     | 17.4 | 24.6 |                 | 18.8                              | 22.9         | M                           | M       | <-----Monthly Averages   Totals-----> |            |                       | M                      | 20.7s       | 3.59s              |             | 29.32                  | 29.99          | 5.2                                 | 24      | M          | <Monthly Average |              |       |      |     |
|      | M                        | M    | M    |                 | <-----Departure From Normal-----> |              |                             |         |                                       |            |                       | M                      |             |                    |             |                        |                |                                     |         |            |                  |              |       |      |     |

|             |  |  |  |                 |                 |                                                 |  |  |  |                                    |  |  |  |
|-------------|--|--|--|-----------------|-----------------|-------------------------------------------------|--|--|--|------------------------------------|--|--|--|
| Degree Days |  |  |  | Monthly         | Season to Date  | Greatest 24-hr Precipitation: 0.96s Date: 05-06 |  |  |  | Sea Level Pressure Date Time (LST) |  |  |  |
|             |  |  |  | Total Departure | Total Departure | Greatest 24-hr Snowfall: 0.5 Date: 01           |  |  |  | Maximum 30.48 21 1035              |  |  |  |
| Heating: M  |  |  |  | M               | M               | Greatest Snow Depth: 4s Date: 13                |  |  |  | Minimum 29.25 18 0144              |  |  |  |
| Cooling: M  |  |  |  | M               | M               | Number of Days with ----->                      |  |  |  | Max Temp >=90: 0                   |  |  |  |
|             |  |  |  |                 |                 | Max Temp <=32: 14s                              |  |  |  | Min Temp <=32: 28s                 |  |  |  |
|             |  |  |  |                 |                 | Thunderstorms : 0                               |  |  |  | Min Temp <=0 : 1                   |  |  |  |
|             |  |  |  |                 |                 |                                                 |  |  |  | Heavy Fog : 1                      |  |  |  |
|             |  |  |  |                 |                 |                                                 |  |  |  | Precipitation >=.01 inch: 17s      |  |  |  |
|             |  |  |  |                 |                 |                                                 |  |  |  | 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: 03/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

Elevation(Ground): 585 ft. above sea level

| Date | Temperature<br>(Fahrenheit) |      |      |                       |                 |                    | Degree Days<br>Base 65 Degrees |         | Sun            |               | Significant Weather            | Snow/Ice on<br>Ground(In) |                | Precipitation<br>(In) | Pressure(Inches of Hg) |                 | Wind: Speed=mph<br>Dir=tens of degrees |                    |            |               |          |          | Date |     |    |
|------|-----------------------------|------|------|-----------------------|-----------------|--------------------|--------------------------------|---------|----------------|---------------|--------------------------------|---------------------------|----------------|-----------------------|------------------------|-----------------|----------------------------------------|--------------------|------------|---------------|----------|----------|------|-----|----|
|      | Max.                        | Min. | Avg. | Dep<br>From<br>Normal | Avg.<br>Dew pt. | Avg<br>Wet<br>Bulb | Heating                        | Cooling | Sunrise<br>LST | Sunset<br>LST |                                | 1200<br>UTC               | 1800<br>UTC    | 2400<br>LST           | 2400<br>LST            | Avg.<br>Station | Avg.<br>Sea<br>Level                   | Resultant<br>Speed | Res<br>Dir | Avg.<br>Speed | max      |          |      |     |    |
|      |                             |      |      |                       |                 |                    |                                |         |                |               |                                | Depth                     | Water<br>Equiv | Snow<br>Fall          | Water<br>Equiv         |                 |                                        |                    |            |               | 5-second | 2-minute |      |     |    |
| 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   | 34                          | 25   | 30   | M                     | 22              | 27                 | 35                             | 0       | -              | -             | SN BR                          | M                         | M              | M                     | T                      | 29.33           | 30.03                                  | 15.5               | 26         | 16.5          | 33       | 240      | 26   | 260 | 01 |
| 02   | 34                          | 22   | 28   | M                     | 19              | 26                 | 37                             | 0       | -              | -             | RA HZ                          | M                         | M              | M                     | 0.00                   | 29.60           | 30.27                                  | 1.7                | 13         | 5.4           | 13       | 090      | 12   | 090 | 02 |
| 03   | 60*                         | 33   | 47   | M                     | 35              | 42                 | 18                             | 0       | -              | -             | RA BR                          | M                         | M              | M                     | 0.13                   | 29.18           | 29.84                                  | 12.7               | 21         | 15.4          | 35       | 210      | 28   | 210 | 03 |
| 04   | 34                          | 25   | 30   | M                     | 23              | 26                 | 35                             | 0       | -              | -             | FZRA FZDZ SN BR UP BLSN        | M                         | M              | M                     | 0.28                   | 29.28           | 29.97                                  | 10.4               | 03         | 14.6          | 41       | 050      | 33   | 050 | 04 |
| 05   | 32                          | 23   | 28   | M                     | 22              | 25                 | 37                             | 0       | -              | -             | FZRA SN FZFG BR                | M                         | M              | M                     | 0.47                   | 29.01           | 29.78                                  | 5.8                | 27         | 14.8          | 37       | 050      | 31   | 050 | 05 |
| 06   | 37                          | 26   | 32   | M                     | 26              | 30                 | 33                             | 0       | -              | -             | SN BR                          | M                         | M              | M                     | T                      | 29.47           | 30.15                                  | 13.4               | 21         | 13.6          | 30       | 240      | 24   | 230 | 06 |
| 07   | 32                          | 26   | 29   | M                     | 27              | 29                 | 36                             | 0       | -              | -             | SN FG+ FZFG BR BLSN            | M                         | M              | M                     | 0.19                   | 29.48           | 30.15                                  | 8.6                | 36         | 10.0          | 25       | 360      | 20   | 360 | 07 |
| 08   | 39                          | 24   | 32   | M                     | 22              | 25                 | 33                             | 0       | -              | -             | FZRA SN FG+ FZFG BR UP HZ BLSN | M                         | M              | M                     | 0.32                   | 29.01           | 29.71                                  | 14.6               | 36         | 18.4          | 33       | 320      | 30   | 330 | 08 |
| 09   | 35                          | 15   | 25   | M                     | 10              | 22                 | 40                             | 0       | -              | -             | SN UP HZ                       | 14                        | M              | 1.0                   | 0.05                   | 29.46           | 30.21                                  | 16.2               | 25         | 16.5          | 32       | 240      | 28   | 250 | 09 |
| 10   | 37                          | 11   | 24   | M                     | 15              | 23                 | 41                             | 0       | -              | -             | HZ                             | 12                        | M              | 0.0                   | 0.00                   | 29.68           | 30.36                                  | 3.4                | 24         | 4.1           | 13       | 230      | 10   | 220 | 10 |
| 11   | 42s                         | 7*   | M    | M                     | 20              | 24                 | M                              | M       | -              | -             | SN FG+ FZFG BR HZ              | 10                        | M              | T                     | T                      | 29.41           | 30.05                                  | 10.4               | 22         | 10.7          | 32       | 210      | 28   | 210 | 11 |
| 12   | 33                          | 13   | 23*  | M                     | 21              | 26                 | 42                             | 0       | -              | -             | SN BR                          | 11                        | M              | 1.1                   | 0.07                   | 29.18           | 29.88                                  | 10.1               | 29         | 12.1          | 28       | 240      | 23   | 230 | 12 |
| 13   | 44                          | 13   | 29   | M                     | 22              | 27                 | 36                             | 0       | -              | -             | SN BR HZ                       | 8                         | M              | T                     | T                      | 29.18           | 29.84                                  | 4.3                | 18         | 10.2          | 35       | 230      | 28   | 230 | 13 |
| 14   | 47                          | 27   | 37   | M                     | 32              | 35                 | 28                             | 0       | -              | -             | FG+ FZFG BR HZ                 | 5                         | M              | 0.0                   | T                      | 29.10           | 29.76                                  | 1.6                | 18         | 3.1           | 10       | 200      | 9    | 260 | 14 |
| 15   | 40                          | 30   | 35   | M                     | 31              | 33                 | 30                             | 0       | -              | -             | DZ FG+ FG BR HZ                | 3                         | M              | 0.0                   | T                      | 29.13           | 29.82                                  | 4.0                | 26         | 6.8           | 14       | 340      | 13   | 220 | 15 |
| 16   | 34                          | 24   | 29   | M                     | 22              | 27                 | 36                             | 0       | -              | -             | SN BR                          | 2                         | M              | 0.3                   | 0.03                   | 29.51           | 30.25                                  | 11.4               | 32         | 11.7          | 24       | 320      | 20   | 320 | 16 |
| 17   | 35                          | 16   | 26   | M                     | 16              | 23                 | 39                             | 0       | -              | -             |                                | 2                         | M              | 0.0                   | 0.00                   | 29.91           | 30.60                                  | 6.4                | 05         | 7.8           | 15       | 080      | 13   | 050 | 17 |
| 18   | 41                          | 28   | 35   | M                     | 30              | 34                 | 30                             | 0       | -              | -             | RA DZ BR                       | 2                         | M              | 0.0                   | 0.07                   | 29.49           | 30.10                                  | 7.2                | 14         | 8.4           | 18       | 170      | 15   | 170 | 18 |
| 19   | 41                          | 32   | 37   | M                     | 36              | 36                 | 28                             | 0       | -              | -             | RA DZ SN FG+ BR                | T                         | M              | 1.5                   | 0.53                   | 29.00           | 29.64                                  | 4.9                | 31         | 7.9           | 20       | 350      | 15   | 300 | 19 |
| 20   | 35                          | 28   | 32   | M                     | 24              | 29                 | 33                             | 0       | -              | -             | SN                             | 1                         | M              | T                     | T                      | 29.21           | 29.94                                  | 20.3               | 29         | 20.5          | 39       | 290      | 35   | 280 | 20 |
| 21   | 32                          | 25   | 29   | M                     | 16              | 24                 | 36                             | 0       | -              | -             |                                | 1                         | M              | 0.0                   | 0.00                   | 29.55           | 30.24                                  | 10.6               | 29         | 11.8          | 32       | 320      | 29   | 320 | 21 |
| 22   | 31                          | 20   | 26   | M                     | 10              | 21                 | 39                             | 0       | -              | -             |                                | T                         | M              | 0.0                   | 0.00                   | 29.46           | 30.15                                  | 7.5                | 33         | 8.8           | 18       | 300      | 16   | 300 | 22 |
| 23   | 32                          | 16   | 24   | M                     | 13              | 22                 | 41                             | 0       | -              | -             |                                | T                         | M              | 0.0                   | 0.00                   | 29.57           | 30.27                                  | 4.3                | 30         | 6.3           | 17       | 330      | 14   | 330 | 23 |
| 24   | 32                          | 22   | 27   | M                     | 17              | 23                 | 38                             | 0       | -              | -             | SN BR                          | T                         | M              | 0.2s                  | T                      | 29.64           | 30.34                                  | 4.0                | 29         | 7.8           | 16       | 220      | 14   | 230 | 24 |
| 25   | 40                          | 19   | 30   | M                     | 24              | 28                 | 35                             | 0       | -              | -             | RA SN BR                       | T                         | M              | 0.3                   | 0.30                   | 29.43           | 30.06                                  | 14.9               | 20         | 15.2          | 38       | 190      | 31   | 200 | 25 |
| 26   | 42                          | 30   | 36   | M                     | 28              | 33                 | 29                             | 0       | -              | -             | BR                             | T                         | M              | 0.0                   | 0.00                   | 29.34           | 30.03                                  | 11.2               | 24         | 12.7          | 23       | 250      | 20   | 280 | 26 |
| 27   | 44                          | 29   | 37   | M                     | 30              | 33                 | 28                             | 0       | -              | -             | RA SN BR                       | M                         | M              | M                     | 0.16                   | 29.35           | 30.03                                  | 0.9                | 27         | 5.9           | 14       | 030      | 12   | 030 | 27 |
| 28   | 36                          | 27   | 32   | M                     | 24              | 29                 | 33                             | 0       | -              | -             | SN FZFG BR                     | M                         | M              | M                     | 0.13                   | 29.35           | 30.09                                  | 8.4                | 35         | 9.8           | 21       | 320      | 17   | 320 | 28 |
| 29   | 33                          | 18   | 26   | M                     | 15              | 24                 | 39                             | 0       | -              | -             |                                | M                         | M              | M                     | 0.00                   | 29.85           | 30.54                                  | 2.6                | 02         | 5.8           | 15       | 020      | 13   | 020 | 29 |
| 30   | 46                          | 20   | 33   | M                     | 18              | 29                 | 32                             | 0       | -              | -             | RA                             | M                         | M              | M                     | T                      | 29.81           | 30.51                                  | 9.7                | 10         | 11.0          | 25       | 090      | 21   | 090 | 30 |
| 31   | 54                          | 39   | 47*  | M                     | 41              | 44                 | 18                             | 0       | -              | -             | RA BR                          | T                         | M              | 0.0                   | 0.24                   | 29.49           | 30.11                                  | 10.5               | 18         | 10.6          | 30       | 180      | 25   | 190 | 31 |

|      |      |      |  |  |                                   |      |      |     |                                       |  |  |   |  |   |       |       |       |       |     |    |      |                  |  |
|------|------|------|--|--|-----------------------------------|------|------|-----|---------------------------------------|--|--|---|--|---|-------|-------|-------|-------|-----|----|------|------------------|--|
| 38.3 | 23.0 | 30.7 |  |  | 22.9                              | 28.4 | 33.8 | 0.0 | <-----Monthly Averages   Totals-----> |  |  |   |  | M | 26.6s | 3.44s | 29.41 | 30.08 | 3.7 | 27 | 10.8 | <Monthly Average |  |
| M    | M    | M    |  |  | <-----Departure From Normal-----> |      |      |     |                                       |  |  | M |  |   |       |       |       |       |     |    |      |                  |  |

|                                                                                                                                                        |  |  |  |                                                 |  |                   |  |                                          |  |                               |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-------------------------------------------------|--|-------------------|--|------------------------------------------|--|-------------------------------|--|
| Degree Days      Monthly      Season to Date<br><br>Total Departure    Total Departure<br><br>Heating: 1015    M      M      M<br>Cooling:    0      M |  |  |  | Greatest 24-hr Precipitation: 0.76s    Date: 08 |  |                   |  | Sea Level Pressure    Date    Time (LST) |  |                               |  |
|                                                                                                                                                        |  |  |  | Greatest 24-hr Snowfall: 1.3    Date: 08        |  |                   |  | Maximum 30.72    17    0950              |  |                               |  |
|                                                                                                                                                        |  |  |  | Greatest Snow Depth: 14s    Date: 09            |  |                   |  | Minimum 29.42    08    1622              |  |                               |  |
|                                                                                                                                                        |  |  |  |                                                 |  |                   |  |                                          |  |                               |  |
|                                                                                                                                                        |  |  |  | Number of Days with ----->                      |  | Max Temp >=90: 0  |  | Min Temp <=32: 29                        |  | Precipitation >=.01 inch: 15s |  |
|                                                                                                                                                        |  |  |  |                                                 |  | Max Temp <=32: 6  |  | Min Temp <=0 : 0                         |  | Precipitation >=.10 inch:     |  |
|                                                                                                                                                        |  |  |  |                                                 |  | Thunderstorms : 0 |  | Heavy Fog : 6                            |  | 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: 04/2008

Station Location: **NIAGARA FALLS INTL AIRPORT (04724)**

**NIAGARA FALLS , NY**

Lat. 43.107 Lon. -78.945

Elevation(Ground): 585 ft. above sea level

| Date | Temperature<br>(Fahrenheit) |      |      |                       |                 |                    | Degree Days<br>Base 65 Degrees |         | Sun                                   |               | Significant Weather | Snow/Ice on<br>Ground(In) |                | Precipitation<br>(In) |                | Pressure(Inches of Hg) |                      | Wind: Speed=mph<br>Dir=tens of degrees |            |               |                  |          |     | Date |    |
|------|-----------------------------|------|------|-----------------------|-----------------|--------------------|--------------------------------|---------|---------------------------------------|---------------|---------------------|---------------------------|----------------|-----------------------|----------------|------------------------|----------------------|----------------------------------------|------------|---------------|------------------|----------|-----|------|----|
|      | Max.                        | Min. | Avg. | Dep<br>From<br>Normal | Avg.<br>Dew pt. | Avg<br>Wet<br>Bulb | Heating                        | Cooling | Sunrise<br>LST                        | Sunset<br>LST |                     | 1200<br>UTC               | 1800<br>UTC    | 2400<br>LST           | 2400<br>LST    | Avg.<br>Station        | Avg.<br>Sea<br>Level | Resultant<br>Speed                     | Res<br>Dir | Avg.<br>Speed | max              |          | max |      |    |
|      |                             |      |      |                       |                 |                    |                                |         |                                       |               |                     | Depth                     | Water<br>Equiv | Snow<br>Fall          | Water<br>Equiv |                        |                      |                                        |            |               | 5-second         | 2-minute |     |      |    |
| 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   | 59                          | 32   | 46   | M                     | 40              | 44                 | 19                             | 0       | -                                     | -             | RA SN BR            | M                         | M              | M                     | 0.05           | 29.12                  | 29.79                | 19.8                                   | 23         | 23.4          | 52               | 230      | 41  | 230  | 01 |
| 02   | 40                          | 26   | 33*  | M                     | 18              | 27                 | 32                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.79                  | 30.47                | 9.5                                    | 28         | 11.9          | 29               | 310      | 23  | 290  | 02 |
| 03   | 55                          | 23*  | 39   | M                     | 23              | 33                 | 26                             | 0       | -                                     | -             | BR                  | M                         | M              | M                     | 0.00           | 29.63                  | 30.29                | 2.2                                    | 12         | 5.6           | 17               | 170      | 14  | 170  | 03 |
| 04   | 45                          | 35   | 40   | M                     | 37              | 38                 | 25                             | 0       | -                                     | -             | RA DZ BR            | M                         | M              | M                     | 0.24           | 29.15                  | 29.82                | 5.5                                    | 04         | 6.6           | 18               | 020      | 15  | 020  | 04 |
| 05   | 51                          | 32   | 42   | M                     | 34              | 38                 | 23                             | 0       | -                                     | -             | BR                  | M                         | M              | M                     | 0.00           | 29.41                  | 30.08                | 4.6                                    | 21         | 6.0           | 17               | 200      | 13  | 240  | 05 |
| 06   | 61                          | 32   | 47   | M                     | 34              | 41                 | 18                             | 0       | -                                     | -             | BR                  | M                         | M              | M                     | 0.00           | 29.50                  | 30.16                | 10.1                                   | 08         | 10.6          | 26               | 090      | 21  | 060  | 06 |
| 07   | 66                          | 38   | 52   | M                     | 40              | 47                 | 13                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.44                  | 30.08                | 7.3                                    | 15         | 8.6           | 23               | 150      | 20  | 140  | 07 |
| 08   | 67                          | 41   | 54   | M                     | 43              | 48                 | 11                             | 0       | -                                     | -             | BR HZ               | M                         | M              | M                     | 0.00           | 29.49                  | 30.14                | 3.1                                    | 16         | 8.0           | 21               | 200      | 17  | 200  | 08 |
| 09   | 59                          | 40   | 50   | M                     | 42              | 47                 | 15                             | 0       | -                                     | -             | RA                  | M                         | M              | M                     | 0.05           | 29.37                  | 30.03                | 11.4                                   | 21         | 13.9          | 36               | 230      | 29  | 220  | 09 |
| 10   | 51                          | 32   | 42   | M                     | 32              | 38                 | 23                             | 0       | -                                     | -             | RA                  | M                         | M              | M                     | T              | 29.57                  | 30.22                | 4.4                                    | 03         | 7.2           | 17               | 050      | 15  | 050  | 10 |
| 11   | 63                          | 38   | 51   | M                     | 42              | 44                 | 14                             | 0       | -                                     | -             | RA BR               | M                         | M              | M                     | 0.81           | 29.05                  | 29.74                | 10.0                                   | 07         | 11.7          | 31               | 090      | 25  | 090  | 11 |
| 12   | 48                          | 38   | 43   | M                     | 39              | 41                 | 22                             | 0       | -                                     | -             | RA BR               | M                         | M              | M                     | 0.05           | 28.97                  | 29.62                | 12.6                                   | 22         | 13.7          | 29               | 240      | 23  | 230  | 12 |
| 13   | 43                          | 34   | 39   | M                     | 29              | 34                 | 26                             | 0       | -                                     | -             | RA SN BR            | 0                         | M              | T                     | 0.05           | 29.21                  | 29.91                | 10.2                                   | 36         | 11.5          | 22               | 350      | 20  | 030  | 13 |
| 14   | 49                          | 35   | 42   | M                     | 25              | 35                 | 23                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.47                  | 30.14                | 7.6                                    | 34         | 8.7           | 25               | 030      | 17  | 010  | 14 |
| 15   | 51                          | 28   | 40   | M                     | 24              | 34                 | 25                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.59                  | 30.25                | 6.9                                    | 21         | 8.0           | 23               | 220      | 18  | 220  | 15 |
| 16   | 64                          | 35   | 50   | M                     | 24              | 39                 | 15                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.52                  | 30.17                | 8.7                                    | 20         | 9.2           | 26               | 210      | 21  | 200  | 16 |
| 17   | 72                          | 43   | 58   | M                     | 32              | 46                 | 7                              | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.42                  | 30.06                | 8.1                                    | 21         | 8.6           | 21               | 200      | 18  | 190  | 17 |
| 18   | 76                          | 43   | 60   | M                     | 42              | 51                 | 5                              | 0       | -                                     | -             | HZ                  | M                         | M              | M                     | 0.07s          | 29.37                  | 30.01                | 3.1                                    | 22         | 3.8           | 20               | 210      | 14  | 260  | 18 |
| 19   | 85*                         | 47   | 66*  | M                     | 46              | 55                 | 0                              | 1       | -                                     | -             | HZ                  | M                         | M              | M                     | 0.00           | 29.23                  | 29.85                | 6.8                                    | 06         | 8.0           | 24               | 040      | 21  | 050  | 19 |
| 20   | 75                          | 49   | 62   | M                     | 47              | 54                 | 3                              | 0       | -                                     | -             | BR HZ               | M                         | M              | M                     | 0.00           | 29.33                  | 29.96                | 6.6                                    | 14         | 8.5           | 24               | 160      | 21  | 150  | 20 |
| 21   | 75                          | 51   | 63   | M                     | 51              | 56                 | 2                              | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.53                  | 30.17                | 4.4                                    | 06         | 6.7           | 22               | 110      | 16  | 030  | 21 |
| 22   | 74                          | 49   | 62   | M                     | 46              | 54                 | 3                              | 0       | -                                     | -             | HZ                  | M                         | M              | M                     | 0.00           | 29.52                  | 30.15                | 2.0                                    | 11         | 5.8           | 20               | 010      | 18  | 010  | 22 |
| 23   | 72                          | 45   | 59   | M                     | 45              | 53                 | 6                              | 0       | -                                     | -             | RA HZ               | M                         | M              | M                     | 0.01           | 29.50                  | 30.14                | 4.6                                    | 23         | 8.1           | 21               | 340      | 18  | 330  | 23 |
| 24   | 69                          | 36   | 53   | M                     | 30              | 45                 | 12                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.62                  | 30.27                | 4.8                                    | 06         | 6.3           | 20               | 040      | 17  | 040  | 24 |
| 25   | 74                          | 46   | 60   | M                     | 39              | 50                 | 5                              | 0       | -                                     | -             | RA                  | M                         | M              | M                     | T              | 29.37                  | 30.00                | 4.0                                    | 14         | 5.4           | 15               | 200      | 14  | 210  | 25 |
| 26   | 77                          | 48   | 63   | M                     | 48              | 54                 | 2                              | 0       | -                                     | -             | TS                  | M                         | M              | M                     | 0.01           | 29.27                  | 29.91                | 12.7                                   | 21         | 14.0          | 36               | 230      | 28  | 230  | 26 |
| 27   | 63                          | 43   | 53   | M                     | 35              | 45                 | 12                             | 0       | -                                     | -             |                     | M                         | M              | M                     | 0.00           | 29.44                  | 30.09                | 7.4                                    | 22         | 8.9           | 24               | 200      | 21  | 190  | 27 |
| 28   | 51                          | 38   | 45   | M                     | 38              | 41                 | 20                             | 0       | -                                     | -             | RA DZ BR            | M                         | M              | M                     | 0.55           | 29.21                  | 29.86                | 11.2                                   | 32         | 12.0          | 26               | 330      | 21  | 340  | 28 |
| 29   | 48                          | 31   | 40   | M                     | 29              | 35                 | 25                             | 0       | -                                     | -             | RA                  | 0                         | M              | 0.0                   | T              | 29.29                  | 29.97                | 7.1                                    | 30         | 8.6           | 20               | 230      | 17  | 300  | 29 |
| 30   | 49                          | 27   | 38   | M                     | 22              | 33                 | 27                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.43                  | 30.11                | 7.0                                    | 22         | 8.2           | 23               | 200      | 20  | 240  | 30 |
|      | 61.1                        | 37.8 | 49.5 |                       | 35.9            | 43.3               | 15.3                           | 0.0     | <-----Monthly Averages   Totals-----> |               |                     | M                         | 0.0            | 1.82s                 |                | 29.39                  | 30.04                | 2.1                                    | 21         | 9.3           | <Monthly Average |          |     |      |    |
|      | M                           | M    | M    |                       |                 |                    |                                |         | <-----Departure From Normal----->     |               |                     | M                         |                |                       |                |                        |                      |                                        |            |               |                  |          |     |      |    |

|                                                                                                                                                 |  |                  |  |                                                |  |               |  |                                          |  |                  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|--|------------------------------------------------|--|---------------|--|------------------------------------------|--|------------------|--|
| Degree Days      Monthly      Season to Date<br><br>Total Departure    Total Departure<br><br>Heating: 459    M    M    M<br>Cooling:    1    M |  |                  |  | Greatest 24-hr Precipitation: 0.81    Date: 11 |  |               |  | Sea Level Pressure    Date    Time (LST) |  |                  |  |
|                                                                                                                                                 |  |                  |  | Greatest 24-hr Snowfall: M    Date: M          |  |               |  | Maximum 30.54    02    1233              |  |                  |  |
|                                                                                                                                                 |  |                  |  | Greatest Snow Depth: M    Date: M              |  |               |  | Minimum 29.45    11    2341              |  |                  |  |
|                                                                                                                                                 |  |                  |  | Number of Days with ----->                     |  |               |  | Max Temp >=90: 0                         |  | Min Temp <=32: 9 |  |
| Max Temp <=32: 0                                                                                                                                |  | Min Temp <=0 : 0 |  |                                                |  |               |  | Precipitation >=.10 inch:                |  |                  |  |
|                                                                                                                                                 |  |                  |  | Thunderstorms : 1                              |  | Heavy Fog : 0 |  | Snowfall >=1.0 inch : M                  |  |                  |  |
| * EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.                                                                                     |  |                  |  |                                                |  |               |  | Data Version:<br>VER2                    |  |                  |  |



# QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 05/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

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                            | 1800 UTC    | 2400 LST           | 2400 LST               | Avg. Station | Avg. Sea Level                      | Resultant Speed | Res Dir | Avg. Speed | max 5-second     |     | max 2-minute |     |      |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | Depth                               | Water Equiv | Snow Fall          | Water Equiv            |              |                                     |                 |         |            | Speed            | Dir | Speed        | Dir |      |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | 13                                  | 14          | 15                 | 16                     |              |                                     |                 |         |            | 17               | 18  | 19           | 20  |      | 21 | 22 | 23 | 24 | 25 | 26 |  |  |  |  |
| 01   | 60                       | 29*  | 45   | M               | 31           | 40           | 20                          | 0       | -           | -          | RA BR               | 0                                   | M           | 0.0                | 0.06                   | 29.41        | 30.04                               | 6.5             | 08      | 7.2        | 21               | 090 | 18           | 070 | 01   |    |    |    |    |    |    |  |  |  |  |
| 02   | 61                       | 48   | 55   | M               | 52           | 54           | 10                          | 0       | -           | -          | RA BR HZ            | 0                                   | M           | 0.0                | 0.21                   | 29.23        | 29.86                               | 6.3             | 08      | 7.3        | 20               | 090 | 16           | 090 | 02   |    |    |    |    |    |    |  |  |  |  |
| 03   | 71                       | 49   | 60   | M               | 55           | 57           | 5                           | 0       | -           | -          | RA BR SQ            | 0                                   | M           | 0.0                | 0.49                   | 29.13        | 29.75                               | 7.5             | 18      | 10.2       | 49s              | 260 | 37           | 270 | 03   |    |    |    |    |    |    |  |  |  |  |
| 04   | 55                       | 40   | 48   | M               | 39           | 44           | 17                          | 0       | -           | -          | RA                  | M                                   | M           | M                  | 0.03                   | 29.35        | 30.02                               | 12.6            | 23      | 13.8       | 26               | 200 | 23           | 200 | 04   |    |    |    |    |    |    |  |  |  |  |
| 05   | 67                       | 33   | 50   | M               | 36           | 45           | 15                          | 0       | -           | -          |                     | M                                   | M           | M                  | 0.00                   | 29.40        | 30.05                               | 8.8             | 20      | 9.2        | 26               | 220 | 22           | 210 | 05   |    |    |    |    |    |    |  |  |  |  |
| 06   | 63                       | 40   | 52   | M               | 34           | 44           | 13                          | 0       | -           | -          | RA                  | M                                   | M           | M                  | T                      | 29.39        | 30.03                               | 2.9             | 36      | 4.9        | 21               | 330 | 18           | 320 | 06   |    |    |    |    |    |    |  |  |  |  |
| 07   | 74                       | 45   | 60   | M               | 48           | 53           | 5                           | 0       | -           | -          | RA BR               | M                                   | M           | M                  | 0.34                   | 29.10        | 29.75                               | 7.7             | 20      | 10.4       | 29               | 220 | 23           | 220 | 07   |    |    |    |    |    |    |  |  |  |  |
| 08   | 57                       | 41   | 49   | M               | 41           | 46           | 16                          | 0       | -           | -          | BR                  | 0                                   | M           | 0.0                | 0.00                   | 29.13        | 29.80                               | 7.4             | 30      | 8.9        | 22               | 310 | 20           | 310 | 08   |    |    |    |    |    |    |  |  |  |  |
| 09   | 60                       | 41   | 51   | M               | 38           | 45           | 14                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.16        | 29.80                               | 9.8             | 05      | 10.4       | 23               | 060 | 20           | 040 | 09   |    |    |    |    |    |    |  |  |  |  |
| 10   | 66                       | 45   | 56   | M               | 36           | 46           | 9                           | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.22        | 29.87                               | 5.0             | 34      | 7.3        | 23               | 360 | 16           | 350 | 10   |    |    |    |    |    |    |  |  |  |  |
| 11   | 67                       | 41   | 54   | M               | 40           | 47           | 11                          | 0       | -           | -          | RA BR               | 0                                   | M           | 0.0                | 0.18                   | 29.04        | 29.65                               | 8.9             | 12      | 9.9        | 36               | 130 | 28           | 110 | 11   |    |    |    |    |    |    |  |  |  |  |
| 12   | 60                       | 46   | 53   | M               | 41           | 47           | 12                          | 0       | -           | -          | RA BR               | 0                                   | M           | 0.0                | 0.02                   | 29.15        | 29.84                               | 1.3             | 04      | 5.5        | 28               | 170 | 20           | 160 | 12   |    |    |    |    |    |    |  |  |  |  |
| 13   | 71                       | 42   | 57   | M               | 44           | 50           | 8                           | 0       | -           | -          | BR                  | 0                                   | M           | 0.0                | 0.00                   | 29.45        | 30.10                               | 2.0             | 25      | 5.2        | 15               | 320 | 12           | 290 | 13   |    |    |    |    |    |    |  |  |  |  |
| 14   | 68                       | 44   | 56   | M               | 48           | 52           | 9                           | 0       | -           | -          | RA BR               | 0                                   | M           | 0.0                | 0.11                   | 29.30        | 29.92                               | 9.3             | 20      | 9.6        | 26               | 210 | 23           | 210 | 14   |    |    |    |    |    |    |  |  |  |  |
| 15   | 62                       | 43   | 53   | M               | 41           | 48           | 12                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.37        | 30.02                               | 5.8             | 33      | 7.0        | 25               | 010 | 20           | 310 | 15   |    |    |    |    |    |    |  |  |  |  |
| 16   | 63                       | 46   | 55   | M               | 40           | 47           | 10                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.18        | 29.80                               | 1.9             | 32      | 6.5        | 17               | 230 | 14           | 210 | 16   |    |    |    |    |    |    |  |  |  |  |
| 17   | 66                       | 46   | 56   | M               | 42           | 48           | 9                           | 0       | -           | -          | RA                  | 0                                   | M           | 0.0                | 0.08                   | 28.87        | 29.49                               | 12.5            | 23      | 15.0       | 38               | 230 | 31           | 220 | 17   |    |    |    |    |    |    |  |  |  |  |
| 18   | 52                       | 40   | 46   | M               | 40           | 44           | 19                          | 0       | -           | -          | RA BR               | 0                                   | M           | 0.0                | 0.12                   | 28.79        | 29.42                               | 9.4             | 25      | 12.0       | 33               | 290 | 29           | 290 | 18   |    |    |    |    |    |    |  |  |  |  |
| 19   | 52                       | 38   | 45   | M               | 35           | 40           | 20                          | 0       | -           | -          | RA                  | 0                                   | M           | 0.0                | 0.03                   | 28.92        | 29.57                               | 14.9            | 25      | 15.5       | 36               | 260 | 25           | 250 | 19   |    |    |    |    |    |    |  |  |  |  |
| 20   | 63                       | 39   | 51   | M               | 37           | 45           | 14                          | 0       | -           | -          | RA                  | 0                                   | M           | 0.0                | T                      | 28.89        | 29.51                               | 7.4             | 25      | 10.5       | 25               | 310 | 22           | 300 | 20   |    |    |    |    |    |    |  |  |  |  |
| 21   | 49                       | 40   | 45*  | M               | 36           | 41           | 20                          | 0       | -           | -          | RA                  | 0                                   | M           | 0.0                | 0.10                   | 28.87        | 29.52                               | 12.0            | 25      | 12.8       | 24               | 230 | 20           | 250 | 21   |    |    |    |    |    |    |  |  |  |  |
| 22   | 59                       | 42   | 51   | M               | 40           | 45           | 14                          | 0       | -           | -          | RA                  | 0                                   | M           | 0.0                | 0.04                   | 29.05        | 29.74                               | 13.4            | 28      | 14.1       | 28               | 320 | 22           | 290 | 22   |    |    |    |    |    |    |  |  |  |  |
| 23   | 63                       | 41   | 52   | M               | 42           | 47           | 13                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.36        | 30.02                               | 7.8             | 29      | 9.4        | 21               | 310 | 16           | 300 | 23   |    |    |    |    |    |    |  |  |  |  |
| 24   | 64                       | 46   | 55   | M               | 40           | 48           | 10                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.46        | 30.11                               | 7.3             | 31      | 8.9        | 23               | 310 | 18           | 300 | 24   |    |    |    |    |    |    |  |  |  |  |
| 25   | 72                       | 41   | 57   | M               | 42           | 50           | 8                           | 0       | -           | -          | FG BR               | 0                                   | M           | 0.0                | 0.00                   | 29.44        | 30.06                               | 6.4             | 21      | 7.0        | 20               | 250 | 17           | 180 | 25   |    |    |    |    |    |    |  |  |  |  |
| 26   | 76*                      | 51   | 64   | M               | 53           | 59           | 1                           | 0       | -           | -          | TSRA                | 0                                   | M           | 0.0                | T                      | 29.15        | 29.76                               | 13.1            | 22      | 14.0       | 35               | 220 | 29           | 220 | 26   |    |    |    |    |    |    |  |  |  |  |
| 27   | 68                       | 41   | 55   | M               | 41           | 47           | 10                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.02                   | 29.34        | 30.03                               | 11.8            | 32      | 12.3       | 24               | 320 | 20           | 320 | 27   |    |    |    |    |    |    |  |  |  |  |
| 28   | 62                       | 37   | 50   | M               | 33           | 42           | 15                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.67        | 30.32                               | 4.7             | 29      | 8.7        | 18               | 310 | 15           | 210 | 28   |    |    |    |    |    |    |  |  |  |  |
| 29   | 68                       | 42   | 55   | M               | 40           | 48           | 10                          | 0       | -           | -          |                     | 0                                   | M           | 0.0                | 0.00                   | 29.52        | 30.16                               | 10.8            | 21      | 11.1       | 25               | 220 | 21           | 200 | 29   |    |    |    |    |    |    |  |  |  |  |
| 30   | 72                       | 45   | 59   | M               | 41           | 51           | 6                           | 0       | -           | -          | TSRA RA BR VCTS     | 0                                   | M           | 0.0                | T                      | 29.38        | 29.97                               | 6.5             | 18      | 6.9        | 24               | 190 | 18           | 190 | 30   |    |    |    |    |    |    |  |  |  |  |
| 31   | 73                       | 56   | 65*  | M               | 60           | 62           | 0                           | 0       | -           | -          | TSRA RA BR HZ       | 0                                   | M           | 0.0                | 0.93                   | 29.02        | 29.65                               | 12.3            | 22      | 13.4       | 41               | 220 | 33           | 220 | 31   |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | -----Monthly Averages   Totals----- |             |                    |                        |              |                                     |                 |         |            |                  |     |              |     |      |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | M                                   | M           | 2.77s              |                        | 29.22        | 29.86                               | 4.3             | 24      | 9.8        | <Monthly Average |     |              |     |      |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | -----Departure From Normal-----     |             |                    |                        |              |                                     |                 |         |            |                  |     |              |     |      |    |    |    |    |    |    |  |  |  |  |
|      |                          |      |      |                 |              |              |                             |         |             |            |                     | M                                   |             |                    |                        |              |                                     |                 |         |            |                  |     |              |     |      |    |    |    |    |    |    |  |  |  |  |

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 355 M M M

Cooling: 0 M

Greatest 24-hr Precipitation: 0.93 Date: 31

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.40 28 1036

Minimum 29.33 18 1428

Number of Days with -----> Max Temp >=90: 0  
Max Temp <=32: 0  
Thunderstorms : 3

Min Temp <=32: 1  
Min Temp <=0 : 0  
Heavy Fog : 0

Precipitation >= .01 inch: 15  
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: 08/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

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                              | 1800 UTC    | 2400 LST           | 2400 LST    | Avg. Station           | Avg. Sea Level | Resultant Speed                     | Res Dir | Avg. Speed | max 5-second |     | max 2-minute |                  |     |  |
|                |                          |      |      |                 |              |              |                             |         |             |            |                     | Depth                                 | Water Equiv | Snow Fall          | Water Equiv |                        |                |                                     |         |            | Speed        | Dir | Speed        |                  | 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             | 81                       | 61   | 71   | M               | 63           | 66           | 0                           | 6       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.12                  | 29.74          | 6.0                                 | 25      | 7.4        | 20           | 290 | 16           | 280              | 01  |  |
| 02             | 78                       | 64   | 71   | M               | 61           | 65           | 0                           | 6       | -           | -          | RA BR VCTS          | 0                                     | M           | 0.0                | 0.16        | 29.13                  | 29.77          | 5.0                                 | 30      | 6.2        | 35           | 340 | 28           | 340              | 02  |  |
| 03             | 78                       | 61   | 70   | M               | 58           | 63           | 0                           | 5       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.30                  | 29.94          | 8.5                                 | 32      | 8.7        | 18           | 320 | 16           | 320              | 03  |  |
| 04             | 81                       | 56   | 69   | M               | 60           | 64           | 0                           | 4       | -           | -          | BR                  | 0                                     | M           | 0.0                | 0.00        | 29.36                  | 29.98          | 3.8                                 | 24      | 5.3        | 17           | 200 | 15           | 190              | 04  |  |
| 05             | 83                       | 65   | 74   | M               | 67           | 69           | 0                           | 9       | -           | -          | TSRA RA BR          | 0                                     | M           | T                  | 0.61        | 29.27                  | 29.87          | 2.8                                 | 19      | 4.5        | 28           | 230 | 22           | 220              | 05  |  |
| 06             | 81                       | 65   | 73   | M               | 62           | 66           | 0                           | 8       | -           | -          | BR                  | 0                                     | M           | 0.0                | 0.00        | 29.23                  | 29.85          | 8.9                                 | 28      | 9.3        | 21           | 290 | 17           | 290              | 06  |  |
| 07             | 75                       | 59   | 67   | M               | 58           | 61           | 0                           | 2       | -           | -          | TS TSRA RA          | 0                                     | M           | 0.0                | 0.28        | 29.18                  | 29.79          | 5.9                                 | 25      | 7.3        | 22           | 290 | 18           | 290              | 07  |  |
| 08             | 73                       | 58   | 66   | M               | 57           | 60           | 0                           | 1       | -           | -          | RA BR               | 0                                     | M           | 0.0                | 0.16        | 29.16                  | 29.80          | 12.0                                | 31      | 12.6       | 26           | 300 | 23           | 300              | 08  |  |
| 09             | 74                       | 55   | 65   | M               | 56           | 59           | 0                           | 0       | -           | -          | TSRA RA             | 0                                     | M           | 0.0                | 0.13        | 29.21                  | 29.83          | 5.0                                 | 22      | 8.1        | 29           | 280 | 23           | 290              | 09  |  |
| 10             | 66                       | 53   | 60   | M               | 54           | 56           | 5                           | 0       | -           | -          | TSRA RA BR          | 0                                     | M           | 0.0                | 0.46        | 29.18                  | 29.81          | 3.2                                 | 20      | 6.3        | 17           | 220 | 15           | 220              | 10  |  |
| 11             | 73                       | 52   | 63   | M               | 57           | 59           | 2                           | 0       | -           | -          | RA BR               | 0                                     | M           | 0.0                | 0.24        | 29.25                  | 29.88          | 5.4                                 | 34      | 6.8        | 18           | 310 | 16           | 310              | 11  |  |
| 12             | 75                       | 54   | 65   | M               | 57           | 61           | 0                           | 0       | -           | -          | BR                  | 0                                     | M           | 0.0                | 0.01s       | 29.23                  | 29.86          | 5.7                                 | 28      | 6.8        | 18           | 300 | 15           | 230              | 12  |  |
| 13             | 76                       | 57   | 67   | M               | 58           | 61           | 0                           | 2       | -           | -          | TSRA BR             | 0                                     | M           | 0.0                | 0.16        | 29.18                  | 29.80          | 1.8                                 | 30      | 4.5        | 18           | 340 | 16           | 340              | 13  |  |
| 14             | 76                       | 52   | 64   | M               | 57           | 61           | 1                           | 0       | -           | -          | RA BR VCTS          | 0                                     | M           | 0.0                | 0.02        | 29.22                  | 29.87          | 3.5                                 | 34      | 5.7        | 24           | 300 | 21           | 300              | 14  |  |
| 15             | 75                       | 53   | 64   | M               | 55           | 59           | 1                           | 0       | -           | -          | TS                  | 0                                     | M           | 0.0                | 0.05        | 29.38                  | 30.02          | 4.6                                 | 29      | 6.6        | 23           | 300 | 20           | 300              | 15  |  |
| 16             | 79                       | 56   | 68   | M               | 56           | 60           | 0                           | 3       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.39                  | 30.00          | 8.3                                 | 26      | 9.1        | 21           | 280 | 17           | 250              | 16  |  |
| 17             | 80                       | 63   | 72   | M               | 62           | 65           | 0                           | 7       | -           | -          | BR                  | 0                                     | M           | 0.0                | 0.00        | 29.31                  | 29.93          | 11.0                                | 22      | 11.3       | 26           | 220 | 22           | 220              | 17  |  |
| 18             | 81                       | 66   | 74   | M               | 65           | 68           | 0                           | 9       | -           | -          | TSRA RA BR VCTS     | 0                                     | M           | 0.0                | 0.14        | 29.26                  | 29.87          | 13.9                                | 22      | 15.3       | 37           | 220 | 29           | 220              | 18  |  |
| 19             | 67                       | 52   | 60*  | M               | 52           | 56           | 5                           | 0       | -           | -          |                     | 0                                     | M           | 0.0                | 0.09        | 29.44                  | 30.11          | 6.9                                 | 02      | 7.6        | 24           | 020 | 21           | 020              | 19  |  |
| 20             | 74                       | 48*  | 61   | M               | 51           | 55           | 4                           | 0       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.59                  | 30.24          | 2.9                                 | 05      | 3.7        | 17           | 020 | 14           | 030              | 20  |  |
| 21             | 84                       | 50   | 67   | M               | 56           | 60           | 0                           | 2       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.58                  | 30.22          | 2.1                                 | 07      | 3.1        | 13           | 040 | 10           | 040              | 21  |  |
| 22             | 88*                      | 59   | 74   | M               | 63           | 67           | 0                           | 9       | -           | -          | HZ                  | 0                                     | M           | 0.0                | 0.00        | 29.58                  | 30.21          | 3.0                                 | 16      | 3.6        | 14           | 150 | 10           | 170              | 22  |  |
| 23             | 83                       | 65   | 74*  | M               | 61           | 66           | 0                           | 9       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.51                  | 30.12          | 8.7                                 | 19      | 9.0        | 21           | 210 | 18           | 210              | 23  |  |
| 24             | 82                       | 63   | 73   | M               | 64           | 67           | 0                           | 8       | -           | -          | TS TSRA BR          | 0                                     | M           | 0.0                | 0.13        | 29.31                  | 29.93          | 6.3                                 | 21      | 9.0        | 21           | 190 | 16           | 350              | 24  |  |
| 25             | 68                       | 54   | 61   | M               | 52           | 56           | 4                           | 0       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.39                  | 30.04          | 6.1                                 | 33      | 7.0        | 21           | 340 | 18           | 350              | 25  |  |
| 26             | 74                       | 50   | 62   | M               | 46           | 54           | 3                           | 0       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.49                  | 30.13          | 6.0                                 | 06      | 6.8        | 20           | 040 | 16           | 050              | 26  |  |
| 27             | 76                       | 49   | 63   | M               | 52           | 57           | 2                           | 0       | -           | -          |                     | 0                                     | M           | 0.0                | 0.00        | 29.44                  | 30.06          | 6.3                                 | 07      | 6.7        | 14           | 040 | 13           | 030              | 27  |  |
| 28             | 70                       | 58   | 64   | M               | 57           | 59           | 1                           | 0       | -           | -          | RA                  | 0                                     | M           | 0.0                | 0.10        | 29.34                  | 29.97          | 6.9                                 | 13      | 7.8        | 26           | 170 | 23           | 170              | 28  |  |
| 29             | 77                       | 62   | 70   | M               | 64           | 66           | 0                           | 5       | -           | -          | RA DZ BR HZ         | 0                                     | M           | 0.0                | 0.12        | 29.28                  | 29.91          | 5.8                                 | 19      | 6.2        | 17           | 200 | 15           | 210              | 29  |  |
| 30             | 79                       | 62   | 71   | M               | 58           | 63           | 0                           | 6       | -           | -          | BR HZ               | M                                     | M           | M                  | 0.00        | 29.41                  | 30.05          | 4.4                                 | 30      | 6.7        | 14           | 310 | 12           | 350              | 30  |  |
| 31             | 80                       | 54   | 67   | M               | 57           | 62           | 0                           | 2       | -           | -          | BR                  | 0                                     | M           | 0.0                | 0.00        | 29.57                  | 30.21          | 1.7                                 | 34      | 3.2        | 13           | 330 | 12           | 320              | 31  |  |
| 77.0 57.3 67.2 |                          |      |      |                 |              |              |                             |         |             |            |                     | <-----Monthly Averages   Totals-----> |             |                    |             | M                      | M              | 2.88s                               | 29.33   | 29.96      | 2.4          | 26  | 7.2          | <Monthly Average |     |  |
| M M M          |                          |      |      |                 |              |              |                             |         |             |            |                     | <-----Departure From Normal----->     |             |                    |             | M                      | M              |                                     |         |            |              |     |              |                  |     |  |

|                                    |  |  |  |                                             |  |  |  |                                    |  |  |  |
|------------------------------------|--|--|--|---------------------------------------------|--|--|--|------------------------------------|--|--|--|
| Degree Days Monthly Season to Date |  |  |  | Greatest 24-hr Precipitation: 0.61 Date: 05 |  |  |  | Sea Level Pressure Date Time (LST) |  |  |  |
| Total Departure Total Departure    |  |  |  | Greatest 24-hr Snowfall: M Date: M          |  |  |  | Maximum 30.29 20 1030              |  |  |  |
| Heating: 28 M M M                  |  |  |  | Greatest Snow Depth: M Date: M              |  |  |  | Minimum 29.70 02 0419              |  |  |  |
| Cooling: 103 M                     |  |  |  | Number of Days with ----->                  |  |  |  | Min Temp <=32: 0                   |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Max Temp >=90: 0                   |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Max Temp <=32: 0                   |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Precipitation >=.01 inch: 17s      |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Min Temp <=0 : 0                   |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Thunderstorms : 10                 |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Heavy Fog : 0                      |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Precipitation >=.10 inch: 0        |  |  |  |
|                                    |  |  |  |                                             |  |  |  | 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: 09/2008

Station Location: **NIAGARA FALLS INTL AIRPORT (04724)**

**NIAGARA FALLS , NY**

Lat. 43.107 Lon. -78.945

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               | 1800 UTC    | 2400 LST           | 2400 LST    | Avg. Station           | Avg. Sea Level | Resultant Speed                     | Res Dir | Avg. Speed | max 5-second     |     | max 2-minute |      |     |
|      |                          |      |      |                 |              |              |                                   |         |                                       |            |                     | Depth                  | Water Equiv | Snow Fall          | Water Equiv |                        |                |                                     |         |            | Speed            | Dir | Speed        |      | 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   | 83                       | 55   | 69   | M               | 56           | 61           | 0                                 | 4       | -                                     | -          | BR                  | M                      | M           | M                  | 0.00        | 29.59                  | 30.21          | 2.2                                 | 06      | 3.6        | 15               | 360 | 13           | 010  | 01  |
| 02   | 84                       | 53   | 69   | M               | 56           | 61           | 0                                 | 4       | -                                     | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.49                  | 30.11          | 1.2                                 | 01      | 1.9        | 12               | 330 | 10           | 330  | 02  |
| 03   | 85                       | 56   | 71   | M               | 60           | 64           | 0                                 | 6       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.12        | 29.34                  | 29.95          | 3.0                                 | 23      | 4.6        | 21               | 320 | 14           | 210  | 03  |
| 04   | 81                       | 65   | 73   | M               | 65           | 67           | 0                                 | 8       | -                                     | -          | BR                  | 0                      | M           | 0.0                | 0.01        | 29.33                  | 29.93          | 2.6                                 | 05      | 5.7        | 15               | 090 | 13           | 090  | 04  |
| 05   | 83                       | 64   | 74   | M               | 63           | 67           | 0                                 | 9       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.34        | 29.21                  | 29.84          | 11.1                                | 21      | 14.3       | 35               | 240 | 28           | 240  | 05  |
| 06   | 68                       | 52   | 60   | M               | 58           | 59           | 5                                 | 0       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.09        | 29.28                  | 29.92          | 4.8                                 | 34      | 5.4        | 15               | 340 | 13           | 340  | 06  |
| 07   | 65                       | 50   | 58   | M               | 55           | 57           | 7                                 | 0       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.24        | 29.36                  | 30.02          | 4.3                                 | 23      | 5.7        | 18               | 200 | 16           | 200  | 07  |
| 08   | 73                       | 55   | 64   | M               | 56           | 60           | 1                                 | 0       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | T           | 29.44                  | 30.08          | 6.4                                 | 21      | 8.6        | 25               | 210 | 21           | 210  | 08  |
| 09   | 67                       | 51   | 59   | M               | 52           | 56           | 6                                 | 0       | -                                     | -          | RA BR VCTS          | 0                      | M           | 0.0                | 0.32        | 29.36                  | 30.02          | 6.2                                 | 31      | 7.7        | 30               | 330 | 25           | 330  | 09  |
| 10   | 68                       | 45   | 57   | M               | 44           | 50           | 8                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.64                  | 30.30          | 4.7                                 | 05      | 5.2        | 18               | 050 | 14           | 030  | 10  |
| 11   | 74                       | 44   | 59   | M               | 50           | 54           | 6                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.62                  | 30.23          | 2.4                                 | 10      | 4.2        | 13               | 170 | 10           | 180  | 11  |
| 12   | 72                       | 64   | 68   | M               | 66           | 67           | 0                                 | 3       | -                                     | -          | TSRA RA BR          | 0                      | M           | 0.0                | 0.67        | 29.34                  | 29.95          | 8.3                                 | 21      | 9.1        | 20               | 230 | 16           | 220  | 12  |
| 13   | 74                       | 65   | 70   | M               | 68           | 68           | 0                                 | 5       | -                                     | -          | RA FG+ BR HZ        | 0                      | M           | 0.0                | 0.74        | 29.26                  | 29.85          | 4.9                                 | 18      | 5.9        | 20               | 220 | 15           | 220  | 13  |
| 14   | 86*                      | 65   | 76*  | M               | 68           | 72           | 0                                 | 11      | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.16        | 28.92                  | 29.50          | 15.9                                | 21      | 17.6       | 59               | 230 | 45           | 220  | 14  |
| 15   | 67                       | 55   | 61   | M               | 53           | 56           | 4                                 | 0       | -                                     | -          | RA BR               | 0                      | M           | 0.0                | 0.06        | 29.23                  | 29.92          | 10.0                                | 30      | 11.6       | 40               | 260 | 31           | 260  | 15  |
| 16   | 64                       | 47   | 56   | M               | 47           | 51           | 9                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.53                  | 30.18          | 3.0                                 | 26      | 4.6        | 18               | 320 | 14           | 320  | 16  |
| 17   | 73                       | 48   | 61   | M               | 54           | 57           | 4                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.50                  | 30.14          | 7.6                                 | 22      | 9.7        | 28               | 220 | 22           | 220  | 17  |
| 18   | 68                       | 47   | 58   | M               | 48           | 53           | 7                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.66                  | 30.32          | 5.7                                 | 04      | 6.7        | 20               | 060 | 14           | 010  | 18  |
| 19   | 71                       | 43   | 57   | M               | 47           | 52           | 8                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.70                  | 30.34          | 3.2                                 | 16      | 5.7        | 15               | 210 | 12           | 190  | 19  |
| 20   | 74                       | 58   | 66   | M               | 56           | 60           | 0                                 | 1       | -                                     | -          | BR HZ               | 0                      | M           | 0.0                | 0.00        | 29.55                  | 30.18          | 9.7                                 | 20      | 9.8        | 21               | 200 | 16           | 220  | 20  |
| 21   | 63                       | 47   | 55   | M               | 55           | 56           | 10                                | 0       | -                                     | -          | DZ BR               | 0                      | M           | 0.0                | 0.01        | 29.63                  | 30.29          | 4.2                                 | 03      | 5.6        | 17               | 020 | 15           | 020  | 21  |
| 22   | 68                       | 43   | 56   | M               | 46           | 50           | 9                                 | 0       | -                                     | -          | FG BR               | 0                      | M           | 0.0                | 0.00        | 29.80                  | 30.46          | 5.9                                 | 06      | 6.4        | 22               | 050 | 15           | 020  | 22  |
| 23   | 73                       | 43*  | 58   | M               | 45           | 51           | 7                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.83                  | 30.48          | 4.5                                 | 08      | 5.0        | 16               | 090 | 13           | 100  | 23  |
| 24   | 77                       | 46   | 62   | M               | 51           | 56           | 3                                 | 0       | -                                     | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.75                  | 30.39          | 1.1                                 | 13      | 3.5        | 12               | 220 | 9            | 200  | 24  |
| 25   | 78                       | 49   | 64   | M               | 54           | 57           | 1                                 | 0       | -                                     | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.72                  | 30.36          | 2.6                                 | 08      | 4.6        | 15               | 040 | 13           | 020  | 25  |
| 26   | 71                       | 45   | 58   | M               | 51           | 55           | 7                                 | 0       | -                                     | -          | RA DZ               | 0                      | M           | 0.0                | 0.03        | 29.62                  | 30.24          | 8.3                                 | 06      | 8.7        | 20               | 050 | 17           | 050  | 26  |
| 27   | 73                       | 60   | 67   | M               | 61           | 62           | 0                                 | 2       | -                                     | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.39                  | 30.02          | 4.7                                 | 06      | 5.8        | 13               | 090 | 10           | 320  | 27  |
| 28   | 68                       | 59   | 64   | M               | 59           | 61           | 1                                 | 0       | -                                     | -          | DZ FG BR            | 0                      | M           | 0.0                | 0.03        | 29.38                  | 30.02          | 8.5                                 | 36      | 8.8        | 16               | 350 | 14           | 360  | 28  |
| 29   | 59                       | 51   | 55*  | M               | 53           | 54           | 10                                | 0       | -                                     | -          | DZ BR               | 0                      | M           | 0.0                | 0.01        | 29.42                  | 30.05          | 4.5                                 | 04      | 5.1        | 14               | 020 | 13           | 360  | 29  |
| 30   | 65                       | 52   | 59   | M               | 54           | 56           | 6                                 | 0       | -                                     | -          | TS TSRA RA BR       | 0                      | M           | 0.0                | 0.15        | 29.14                  | 29.75          | 3.4                                 | 21      | 8.5        | 28               | 180 | 23           | 290  | 30  |
|      | 72.5                     | 52.6 | 62.6 |                 | 55.0         | 58.3         | 4.0                               | 1.8     | <-----Monthly Averages   Totals-----> |            |                     | M                      | 0.0         | 2.98s              |             | 29.47                  | 30.11          | 0.7                                 | 21      | 7.0        | <Monthly Average |     |              |      |     |
|      | M                        | M    | M    |                 |              |              | <-----Departure From Normal-----> |         |                                       |            |                     | M                      |             |                    |             |                        |                |                                     |         |            |                  |     |              |      |     |

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 119 M M M

Cooling: 53 M

Greatest 24-hr Precipitation: 0.74 Date: 13

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.53 23 1027

Minimum 29.18 14 2001

Number of Days with ----->

Max Temp >=90: 0

Max Temp <=32: 0s

Thunderstorms : 3

Min Temp <=32: 0

Min Temp <=0 : 0

Heavy Fog : 1

Precipitation >=.01 inch: 15

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Data Version:

VER2

\* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.



# QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 10/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

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               | 1800 UTC    | 2400 LST           | 2400 LST    | Avg. Station           | Avg. Sea Level | Resultant Speed                     | Res Dir | Avg. Speed | max 5-second     |     | max 2-minute |      |     |
|                                     |                          |      |      |                 |              |              |                             |         |             |            |                     | Depth                  | Water Equiv | Snow Fall          | Water Equiv |                        |                |                                     |         |            | Speed            | Dir | Speed        |      | 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                                  | 62                       | 48   | 55   | M               | 49           | 51           | 10                          | 0       | -           | -          | TSRA RA BR          | 0                      | M           | 0.0                | 0.42        | 29.03                  | 29.67          | 6.4                                 | 28      | 8.1        | 28               | 240 | 22           | 250  | 01  |
| 02                                  | 57                       | 45   | 51   | M               | 43           | 46           | 14                          | 0       | -           | -          | RA                  | 0                      | M           | 0.0                | 0.27        | 29.06                  | 29.70          | 11.9                                | 27      | 12.3       | 35               | 290 | 26           | 290  | 02  |
| 03                                  | 56                       | 42   | 49   | M               | 37           | 43           | 16                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | T           | 29.25                  | 29.95          | 11.7                                | 27      | 12.1       | 25               | 280 | 22           | 280  | 03  |
| 04                                  | 57                       | 37   | 47   | M               | 41           | 45           | 18                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.54                  | 30.22          | 3.2                                 | 28      | 3.7        | 17               | 280 | 12           | 310  | 04  |
| 05                                  | 59                       | 41   | 50   | M               | 41           | 47           | 15                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.65                  | 30.31          | 2.5                                 | 25      | 4.3        | 15               | 190 | 13           | 190  | 05  |
| 06                                  | 57                       | 36   | 47   | M               | 39           | 44           | 18                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.75                  | 30.42          | 5.8                                 | 02      | 6.5        | 18               | 020 | 16           | 010  | 06  |
| 07                                  | 62                       | 32   | 47   | M               | 37           | 42           | 18                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.72                  | 30.35          | 4.9                                 | 07      | 5.5        | 16               | 090 | 14           | 100  | 07  |
| 08                                  | 64                       | 41   | 53   | M               | 50           | 52           | 12                          | 0       | -           | -          | RA DZ BR            | 0                      | M           | 0.0                | 0.18        | 29.31                  | 29.91          | 7.8                                 | 18      | 9.8        | 35               | 220 | 25           | 230  | 08  |
| 09                                  | 66                       | 49   | 58   | M               | 51           | 55           | 7                           | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.27                  | 29.94          | 14.5                                | 23      | 15.0       | 36               | 230 | 29           | 230  | 09  |
| 10                                  | 66                       | 40   | 53   | M               | 43           | 48           | 12                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.57                  | 30.25          | 3.3                                 | 22      | 4.4        | 14               | 220 | 10           | 210  | 10  |
| 11                                  | 71                       | 41   | 56   | M               | 45           | 50           | 9                           | 0       | -           | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.78                  | 30.44          | 3.2                                 | 06      | 3.6        | 12               | 050 | 9            | 020  | 11  |
| 12                                  | 76*                      | 44   | 60   | M               | 47           | 52           | 5                           | 0       | -           | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.80                  | 30.44          | 2.0                                 | 19      | 2.5        | 12               | 230 | 9            | 230  | 12  |
| 13                                  | 75                       | 46   | 61*  | M               | 51           | 55           | 4                           | 0       | -           | -          | BR                  | 0                      | M           | 0.0                | 0.00        | 29.70                  | 30.32          | 5.6                                 | 20      | 5.7        | 16               | 190 | 15           | 190  | 13  |
| 14                                  | 72                       | 44   | 58   | M               | 50           | 55           | 7                           | 0       | -           | -          | RA                  | 0                      | M           | 0.0                | 0.01        | 29.50                  | 30.14          | 7.0                                 | 25      | 10.6       | 28               | 210 | 23           | 220  | 14  |
| 15                                  | 67                       | 38   | 53   | M               | 45           | 49           | 12                          | 0       | -           | -          | RA BR               | 0                      | M           | 0.0                | 0.25        | 29.46                  | 30.08          | 3.8                                 | 19      | 4.4        | 16               | 200 | 14           | 200  | 15  |
| 16                                  | 62                       | 49   | 56   | M               | 46           | 50           | 9                           | 0       | -           | -          | RA BR               | 0                      | M           | 0.0                | 0.48        | 29.37                  | 30.05          | 10.5                                | 32      | 11.7       | 25               | 340 | 21           | 340  | 16  |
| 17                                  | 52                       | 34   | 43   | M               | 34           | 40           | 22                          | 0       | -           | -          |                     | M                      | M           | M                  | 0.00        | 29.59                  | 30.25          | 6.4                                 | 01      | 6.6        | 18               | 360 | 15           | 360  | 17  |
| 18                                  | 54                       | 32   | 43   | M               | 31           | 38           | 22                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.65                  | 30.34          | 3.8                                 | 05      | 4.2        | 21               | 020 | 18           | 020  | 18  |
| 19                                  | 56                       | 29   | 43   | M               | 32           | 37           | 22                          | 0       | -           | -          | FG+ FZFG            | 0                      | M           | 0.0                | 0.00        | 29.74                  | 30.40          | 0.7                                 | 13      | 1.7        | 10               | 170 | 9            | 150  | 19  |
| 20                                  | 63                       | 36   | 50   | M               | 41           | 46           | 15                          | 0       | -           | -          | RA BR               | 0                      | M           | 0.0                | 0.10        | 29.52                  | 30.15          | 7.7                                 | 22      | 8.7        | 31               | 220 | 21           | 240  | 20  |
| 21                                  | 51                       | 35   | 43   | M               | 36           | 40           | 22                          | 0       | -           | -          | RA SN BR            | 0                      | M           | T                  | 0.41        | 29.40                  | 30.09          | 15.8                                | 31      | 17.5       | 36               | 300 | 29           | 310  | 21  |
| 22                                  | 39                       | 35   | 37   | M               | 31           | 35           | 28                          | 0       | -           | -          | RA SN BR            | 0                      | M           | T                  | T           | 29.80                  | 30.51          | 6.6                                 | 36      | 8.4        | 20               | 340 | 15           | 340  | 22  |
| 23                                  | 52                       | 36   | 44   | M               | 34           | 39           | 21                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.94                  | 30.59          | 6.3                                 | 09      | 7.4        | 20               | 110 | 16           | 110  | 23  |
| 24                                  | 53                       | 32   | 43   | M               | 36           | 41           | 22                          | 0       | -           | -          | RA                  | 0                      | M           | 0.0                | 0.08        | 29.62                  | 30.25          | 8.4                                 | 15      | 9.2        | 31               | 180 | 24           | 180  | 24  |
| 25                                  | 58                       | 46   | 52   | M               | 45           | 48           | 13                          | 0       | -           | -          | RA BR               | 0                      | M           | 0.0                | 0.42        | 29.22                  | 29.84          | 10.1                                | 22      | 12.3       | 32               | 230 | 26           | 230  | 25  |
| 26                                  | 57                       | 43   | 50   | M               | 41           | 46           | 15                          | 0       | -           | -          | TSRA RA             | M                      | M           | M                  | 0.13        | 29.07                  | 29.71          | 14.9                                | 22      | 16.6       | 52               | 260 | 46           | 270  | 26  |
| 27                                  | 47                       | 38   | 43   | M               | 38           | 41           | 22                          | 0       | -           | -          | RA BR               | 0                      | M           | 0.0                | 0.30        | 29.25                  | 29.93          | 9.1                                 | 23      | 12.3       | 33               | 210 | 28           | 220  | 27  |
| 28                                  | 43                       | 35   | 39   | M               | 31           | 36           | 26                          | 0       | -           | -          | RA SN               | 0                      | M           | T                  | 0.01        | 29.26                  | 29.89          | 18.8                                | 31      | 19.9       | 41               | 300 | 32           | 310  | 28  |
| 29                                  | 39                       | 35   | 37*  | M               | 24           | 32           | 28                          | 0       | -           | -          |                     | 0                      | M           | T                  | 0.01        | 29.20                  | 29.91          | 16.7                                | 29      | 17.0       | 32               | 310 | 26           | 300  | 29  |
| 30                                  | 49                       | 26*  | 38   | M               | 29           | 35           | 27                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.68                  | 30.38          | 10.1                                | 23      | 10.7       | 25               | 210 | 20           | 220  | 30  |
| 31                                  | 61                       | 45   | 53   | M               | 40           | 47           | 12                          | 0       | -           | -          |                     | 0                      | M           | 0.0                | 0.00        | 29.65                  | 30.29          | 16.1                                | 22      | 16.5       | 36               | 220 | 29           | 220  | 31  |
| -----Monthly Averages   Totals----- |                          |      |      |                 |              |              |                             |         |             |            |                     | M                      | Ts          | 3.07s              |             | 29.49                  | 30.15          | 4.3                                 | 26      | 9.3        | <Monthly Average |     |              |      |     |
| <-----Departure From Normal----->   |                          |      |      |                 |              |              |                             |         |             |            |                     |                        |             |                    |             |                        |                |                                     |         |            |                  |     |              |      |     |

|              |  |  |  |                 |                 |                                                 |  |  |  |                                    |  |  |  |
|--------------|--|--|--|-----------------|-----------------|-------------------------------------------------|--|--|--|------------------------------------|--|--|--|
| Degree Days  |  |  |  | Monthly         | Season to Date  | Greatest 24-hr Precipitation: 0.73s Date: 15-16 |  |  |  | Sea Level Pressure Date Time (LST) |  |  |  |
|              |  |  |  | Total Departure | Total Departure | Greatest 24-hr Snowfall: M Date: M              |  |  |  | Maximum 30.68 23 0936              |  |  |  |
| Heating: 503 |  |  |  | M               | M               | Greatest Snow Depth: M Date: M                  |  |  |  | Minimum 29.62 26 1527              |  |  |  |
| Cooling: 0   |  |  |  | M               |                 | Number of Days with -----                       |  |  |  | Max Temp >=90: 0                   |  |  |  |
|              |  |  |  |                 |                 |                                                 |  |  |  | Max Temp <=32: 0                   |  |  |  |
|              |  |  |  |                 |                 |                                                 |  |  |  | Min Temp <=0 : 0                   |  |  |  |
|              |  |  |  |                 |                 |                                                 |  |  |  | Precipitation >=0.01 inch: 14      |  |  |  |
|              |  |  |  |                 |                 |                                                 |  |  |  | Precipitation >=1.0 inch : M       |  |  |  |
|              |  |  |  |                 |                 |                                                 |  |  |  | Heavy Fog : 1                      |  |  |  |

\* 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: 11/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

Elevation(Ground): 585 ft. above sea level

| Date | Temperature<br>(Fahrenheit) |      |      |                       |                                   |                    | Degree Days<br>Base 65 Degrees |         | Sun                                   |               | Significant Weather | Snow/Ice on<br>Ground(In) |                | Precipitation<br>(In) |                | Pressure(inches of Hg) |                      | Wind: Speed=mph<br>Dir=tens of degrees |            |               |                  |     |       | Date |     |
|------|-----------------------------|------|------|-----------------------|-----------------------------------|--------------------|--------------------------------|---------|---------------------------------------|---------------|---------------------|---------------------------|----------------|-----------------------|----------------|------------------------|----------------------|----------------------------------------|------------|---------------|------------------|-----|-------|------|-----|
|      | Max.                        | Min. | Avg. | Dep<br>From<br>Normal | Avg.<br>Dew pt.                   | Avg<br>Wet<br>Bulb | Heating                        | Cooling | Sunrise<br>LST                        | Sunset<br>LST |                     | 1200<br>UTC               | 1800<br>UTC    | 2400<br>LST           | 2400<br>LST    | Avg.<br>Station        | Avg.<br>Sea<br>Level | Resultant<br>Speed                     | Res<br>Dir | Avg.<br>Speed | max              |     | max   |      |     |
|      |                             |      |      |                       |                                   |                    |                                |         |                                       |               |                     | Depth                     | Water<br>Equiv | Snow<br>Fall          | Water<br>Equiv |                        |                      |                                        |            |               | Speed            | Dir | Speed |      | 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   | 48                          | 30   | 39   | M                     | 35                                | 39                 | 26                             | 0       | -                                     | -             | BR                  | 0                         | M              | 0.0                   | 0.00           | 29.67                  | 30.36                | 5.5                                    | 03         | 5.8           | 21               | 040 | 18    | 040  | 01  |
| 02   | 49                          | 27   | 38   | M                     | 28                                | 34                 | 27                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.78                  | 30.44                | 6.0                                    | 08         | 6.9           | 24               | 090 | 18    | 090  | 02  |
| 03   | 62                          | 43   | 53   | M                     | 45                                | 49                 | 12                             | 0       | -                                     | -             | RA BR               | 0                         | M              | 0.0                   | 0.07           | 29.62                  | 30.28                | 8.1                                    | 19         | 8.8           | 22               | 210 | 18    | 220  | 03  |
| 04   | 69                          | 44   | 57   | M                     | 46                                | 51                 | 8                              | 0       | -                                     | -             | BR HZ               | 0                         | M              | 0.0                   | 0.01           | 29.59                  | 30.23                | 6.4                                    | 19         | 6.7           | 18               | 220 | 16    | 220  | 04  |
| 05   | 67                          | 41   | 54   | M                     | 46                                | 49                 | 11                             | 0       | -                                     | -             | BR HZ               | 0                         | M              | 0.0                   | 0.00           | 29.51                  | 30.15                | 3.7                                    | 20         | 4.0           | 15               | 210 | 13    | 220  | 05  |
| 06   | 65                          | 36   | 51   | M                     | 44                                | 47                 | 14                             | 0       | -                                     | -             | BR HZ               | 0                         | M              | 0.0                   | 0.00           | 29.44                  | 30.08                | 3.5                                    | 03         | 3.7           | 13               | 010 | 12    | 060  | 06  |
| 07   | 71*                         | 42   | 57*  | M                     | 48                                | 51                 | 8                              | 0       | -                                     | -             | RA BR HZ            | 0                         | M              | 0.0                   | T              | 29.21                  | 29.82                | 1.2                                    | 13         | 4.2           | 15               | 120 | 12    | 230  | 07  |
| 08   | 59                          | 40   | 50   | M                     | 39                                | 43                 | 15                             | 0       | -                                     | -             | RA BR               | 0                         | M              | 0.0                   | 0.25           | 28.99                  | 29.63                | 11.7                                   | 23         | 12.5          | 28               | 220 | 23    | 230  | 08  |
| 09   | 46                          | 35   | 41   | M                     | 34                                | 38                 | 24                             | 0       | -                                     | -             | RA SN               | 0                         | M              | T                     | 0.13           | 29.05                  | 29.74                | 11.3                                   | 24         | 12.3          | 24               | 260 | 21    | 260  | 09  |
| 10   | 41                          | 33   | 37   | M                     | 25                                | 32                 | 28                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.33                  | 30.04                | 16.7                                   | 25         | 17.0          | 35               | 240 | 26    | 250  | 10  |
| 11   | 42                          | 33   | 38   | M                     | 29                                | 35                 | 27                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.62                  | 30.32                | 9.6                                    | 27         | 9.7           | 23               | 270 | 21    | 270  | 11  |
| 12   | 49                          | 36   | 43   | M                     | 32                                | 38                 | 22                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.63                  | 30.28                | 3.9                                    | 09         | 4.8           | 14               | 100 | 10    | 090  | 12  |
| 13   | 53                          | 42   | 48   | M                     | 45                                | 47                 | 17                             | 0       | -                                     | -             | RA DZ BR            | 0                         | M              | 0.0                   | 0.12           | 29.26                  | 29.88                | 10.0                                   | 18         | 11.5          | 33               | 230 | 23    | 220  | 13  |
| 14   | 63                          | 46   | 55   | M                     | 47                                | 51                 | 10                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.11                  | 29.75                | 10.3                                   | 19         | 11.2          | 30               | 210 | 25    | 190  | 14  |
| 15   | 53                          | 35   | 44   | M                     | 45                                | 46                 | 21                             | 0       | -                                     | -             | RA DZ SN BR         | 0                         | M              | T                     | 0.66           | 28.85                  | 29.47                | 4.0                                    | 31         | 8.0           | 32               | 280 | 25    | 280  | 15  |
| 16   | 38                          | 32   | 35   | M                     | 30                                | 33                 | 30                             | 0       | -                                     | -             | RA SN BR            | 0                         | M              | T                     | 0.13           | 29.00                  | 29.71                | 17.0                                   | 26         | 17.2          | 37               | 260 | 30    | 260  | 16  |
| 17   | 38                          | 26   | 32   | M                     | 23                                | 29                 | 33                             | 0       | -                                     | -             | SN BR               | T                         | M              | 0.2                   | 0.04           | 29.33                  | 30.03                | 10.2                                   | 28         | 11.6          | 23               | 290 | 18    | 290  | 17  |
| 18   | 32                          | 24   | 28   | M                     | 18                                | 25                 | 37                             | 0       | -                                     | -             | SN                  | T                         | M              | 0.4                   | 0.04           | 29.57                  | 30.28                | 7.7                                    | 34         | 8.6           | 22               | 350 | 18    | 010  | 18  |
| 19   | 31                          | 17   | 24   | M                     | 21                                | 25                 | 41                             | 0       | -                                     | -             | SN BR               | T                         | M              | 2.3                   | 0.11           | 29.51                  | 30.16                | 1.9                                    | 19         | 5.0           | 13               | 210 | 12    | 210  | 19  |
| 20   | 33                          | 25   | 29   | M                     | 24                                | 28                 | 36                             | 0       | -                                     | -             | SN BR               | 5                         | M              | 3.2                   | 0.12           | 29.23                  | 29.93                | 2.8                                    | 35         | 7.3           | 16               | 010 | 14    | 010  | 20  |
| 21   | 27                          | 19   | 23   | M                     | 15                                | 21                 | 42                             | 0       | -                                     | -             | SN                  | 3                         | M              | 0.5                   | 0.02           | 29.49                  | 30.23                | 7.8                                    | 32         | 9.7           | 24               | 290 | 21    | 300  | 21  |
| 22   | 27                          | 17*  | 22*  | M                     | 16                                | 21                 | 43                             | 0       | -                                     | -             | SN BR               | 2                         | M              | 1.2                   | 0.04           | 29.75                  | 30.46                | 4.8                                    | 27         | 5.0           | 15               | 300 | 13    | 280  | 22  |
| 23   | 34                          | 18   | 26   | M                     | 19                                | 25                 | 39                             | 0       | -                                     | -             | BR                  | 2                         | M              | T                     | T              | 29.68                  | 30.36                | 4.7                                    | 23         | 5.3           | 21               | 210 | 17    | 220  | 23  |
| 24   | 40                          | 28   | 34   | M                     | 26                                | 32                 | 31                             | 0       | -                                     | -             | RA DZ SN BR         | T                         | M              | T                     | 0.15           | 29.31                  | 29.93                | 9.3                                    | 15         | 9.9           | 23               | 170 | 18    | 170  | 24  |
| 25   | 40                          | 33   | 37   | M                     | 32                                | 35                 | 28                             | 0       | -                                     | -             | RA SN BR            | 0                         | M              | T                     | 0.14           | 29.02                  | 29.69                | 7.8                                    | 21         | 8.7           | 25               | 220 | 22    | 230  | 25  |
| 26   | 35                          | 33   | 34   | M                     | 30                                | 33                 | 31                             | 0       | -                                     | -             | RA SN BR            | T                         | M              | 1.4                   | 0.12           | 29.13                  | 29.83                | 16.2                                   | 25         | 16.4          | 33               | 260 | 26    | 250  | 26  |
| 27   | 37                          | 33   | 35   | M                     | 27                                | 32                 | 30                             | 0       | -                                     | -             |                     | T                         | M              | 0.0                   | 0.00           | 29.24                  | 29.89                | 10.0                                   | 24         | 11.0          | 23               | 250 | 17    | 250  | 27  |
| 28   | 43                          | 33   | 38   | M                     | 30                                | 34                 | 27                             | 0       | -                                     | -             | RA SN BR HZ         | 0                         | M              | T                     | 0.04           | 29.07                  | 29.75                | 15.1                                   | 25         | 15.7          | 31               | 250 | 26    | 250  | 28  |
| 29   | 42                          | 26   | 34   | M                     | 26                                | 31                 | 31                             | 0       | -                                     | -             |                     | 0                         | M              | 0.0                   | 0.00           | 29.23                  | 29.91                | 7.2                                    | 24         | 8.4           | 21               | 240 | 17    | 250  | 29  |
| 30   | 34                          | 24   | 29   | M                     | 27                                | 29                 | 36                             | 0       | -                                     | -             | RA SN BR UP         | 0                         | M              | T                     | 0.20           | 29.00                  | 29.60                | 10.3                                   | 08         | 10.5          | 24               | 090 | 18    | 090  | 30  |
|      | 45.6                        | 31.7 | 38.7 |                       | 31.7                              | 36.1               | 26.2                           | 0.0     | <-----Monthly Averages   Totals-----> |               |                     | M                         | 9.4            | 2.39s                 |                | 29.34                  | 30.01                | 4.4                                    | 24         | 9.2           | <Monthly Average |     |       |      |     |
|      | M                           | M    | M    |                       | <-----Departure From Normal-----> |                    |                                |         |                                       |               |                     | M                         |                |                       |                |                        |                      |                                        |            |               |                  |     |       |      |     |

|                                                                                                                                              |  |                  |  |                                                |  |                           |  |                                          |  |                               |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|------------------|--|------------------------------------------------|--|---------------------------|--|------------------------------------------|--|-------------------------------|--|
| Degree Days      Monthly      Season to Date<br><br>Total Departure    Total Departure<br><br>Heating: 785    M    M    M<br>Cooling: 0    M |  |                  |  | Greatest 24-hr Precipitation: 0.66    Date: 15 |  |                           |  | Sea Level Pressure    Date    Time (LST) |  |                               |  |
|                                                                                                                                              |  |                  |  | Greatest 24-hr Snowfall: 0.3    Date: 20       |  |                           |  | Maximum 30.54    02    1032              |  |                               |  |
|                                                                                                                                              |  |                  |  | Greatest Snow Depth: 5s    Date: 20            |  |                           |  | Minimum 29.26    30    2359              |  |                               |  |
|                                                                                                                                              |  |                  |  | Number of Days with ----->                     |  | Max Temp >=90: 0          |  | Min Temp <=32: 13                        |  | Precipitation >=.01 inch: 17s |  |
| Max Temp <=32: 4                                                                                                                             |  | Min Temp <=0 : 0 |  |                                                |  | Precipitation >=.10 inch: |  |                                          |  |                               |  |
| Thunderstorms : 0                                                                                                                            |  | Heavy Fog : 0    |  |                                                |  | 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: 12/2008

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.107 Lon. -78.945

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                              | 1800 UTC    | 2400 LST           | 2400 LST    | Avg. Station           | Avg. Sea Level | Resultant Speed                     | Res Dir | Avg. Speed | max   |     | max   |                  |     |  |  |  |  |
|                |                          |      |      |                 |              |              |                             |         |             |            |                     | Depth                                 | Water Equiv | Snow Fall          | Water Equiv |                        |                |                                     |         |            | Speed | Dir | Speed |                  | 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             | 42                       | 32   | 37   | M               | 32           | 36           | 28                          | 0       | -           | -          | RA SN BR            | 0                                     | M           | T                  | 0.21        | 28.67                  | 29.36          | 17.4                                | 21      | 19.1       | 45    | 230 | 33    | 220              | 01  |  |  |  |  |
| 02             | 34                       | 31   | 33   | M               | 23           | 29           | 32                          | 0       | -           | -          | SN BR UP            | 0                                     | M           | 0.1                | 0.01        | 29.26                  | 29.99          | 16.9                                | 24      | 17.7       | 32    | 260 | 26    | 250              | 02  |  |  |  |  |
| 03             | 45                       | 30   | 38   | M               | 26           | 33           | 27                          | 0       | -           | -          | RA                  | T                                     | M           | 0.0                | T           | 29.36                  | 30.02          | 16.5                                | 20      | 16.6       | 32    | 210 | 25    | 200              | 03  |  |  |  |  |
| 04             | 46                       | 25   | 36   | M               | 26           | 31           | 29                          | 0       | -           | -          | RA DZ BR            | 0                                     | M           | T                  | 0.04        | 29.34                  | 30.06          | 16.0                                | 25      | 16.7       | 33    | 280 | 29    | 280              | 04  |  |  |  |  |
| 05             | 28                       | 19   | 24   | M               | 13           | 20           | 41                          | 0       | -           | -          | SN BR               | 0                                     | M           | 1.7                | 0.03        | 29.55                  | 30.23          | 10.4                                | 25      | 11.5       | 26    | 270 | 22    | 270              | 05  |  |  |  |  |
| 06             | 31                       | 22   | 27   | M               | 19           | 24           | 38                          | 0       | -           | -          | SN FZFG BR          | 2                                     | M           | 1.2                | 0.04        | 29.26                  | 29.88          | 15.3                                | 19      | 15.7       | 29    | 220 | 23    | 200              | 06  |  |  |  |  |
| 07             | 30                       | 10   | 20   | M               | 10           | 16           | 45                          | 0       | -           | -          | UP BLSN             | 2                                     | M           | 1.0                | 0.03        | 29.25                  | 30.00          | 17.7                                | 28      | 18.9       | 39    | 300 | 33    | 290              | 07  |  |  |  |  |
| 08             | 27                       | 13   | 20   | M               | 11           | 18           | 45                          | 0       | -           | -          | SN BR UP            | 2                                     | M           | 0.1s               | T           | 29.60                  | 30.30          | 5.4                                 | 13      | 7.9        | 15    | 170 | 13    | 160              | 08  |  |  |  |  |
| 09             | 47                       | 26   | 37   | M               | 34           | 36           | 28                          | 0       | -           | -          | RA FZRA SN BR       | 1                                     | M           | 0.5                | 0.60        | 29.30                  | 29.94          | 7.9                                 | 18      | 9.7        | 29    | 220 | 22    | 220              | 09  |  |  |  |  |
| 10             | 47                       | 23   | 35   | M               | 26           | 29           | 30                          | 0       | -           | -          | RA SN BR            | M                                     | M           | M                  | 0.44        | 29.36                  | 30.07          | 9.0                                 | 33      | 9.6        | 22    | 330 | 17    | 330              | 10  |  |  |  |  |
| 11             | 30                       | 22   | 26   | M               | 22           | 25           | 39                          | 0       | -           | -          |                     | 1                                     | M           | 0.0                | 0.00        | 29.39                  | 30.04          | 2.3                                 | 04      | 3.0        | 12    | 010 | 9     | 340              | 11  |  |  |  |  |
| 12             | 31                       | 13   | 22   | M               | 21           | 25           | 43                          | 0       | -           | -          | FZRA SN BR          | 1                                     | M           | 0.8                | 0.02        | 29.20                  | 29.92          | 10.2                                | 30      | 11.1       | 22    | 330 | 18    | 330              | 12  |  |  |  |  |
| 13             | 33                       | 10   | 22   | M               | 15           | 22           | 43                          | 0       | -           | -          |                     | 1                                     | M           | T                  | T           | 29.57                  | 30.27          | 10.0                                | 20      | 11.0       | 29    | 200 | 24    | 210              | 13  |  |  |  |  |
| 14             | 47                       | 33   | 40   | M               | 28           | 35           | 25                          | 0       | -           | -          | RA BR               | 1                                     | M           | 0.0                | 0.05        | 29.47                  | 30.11          | 14.9                                | 19      | 15.3       | 38    | 210 | 31    | 220              | 14  |  |  |  |  |
| 15             | 54                       | 23   | 39   | M               | 33           | 38           | 26                          | 0       | -           | -          | RA BR               | 0                                     | M           | 0.0                | 0.22        | 29.38                  | 30.09          | 19.5                                | 22      | 21.6       | 46    | 230 | 38    | 220              | 15  |  |  |  |  |
| 16             | 25                       | 18   | 22   | M               | 12           | 19           | 43                          | 0       | -           | -          | SN BR               | 0                                     | M           | 1.6                | 0.08        | 29.84                  | 30.52          | 2.2                                 | 30      | 8.3        | 23    | 270 | 20    | 280              | 16  |  |  |  |  |
| 17             | 32                       | 24   | 28   | M               | 24           | 27           | 37                          | 0       | -           | -          | SN FZFG BR UP       | 5                                     | M           | 4.2                | 0.26        | 29.41                  | 30.11          | 7.3                                 | 24      | 12.5       | 25    | 260 | 21    | 270              | 17  |  |  |  |  |
| 18             | 29                       | 21   | 25   | M               | 19           | 24           | 40                          | 0       | -           | -          | HZ                  | 4                                     | M           | 0.0                | 0.00        | 29.64                  | 30.34          | 8.2                                 | 28      | 8.5        | 24    | 270 | 21    | 270              | 18  |  |  |  |  |
| 19             | 26                       | 15   | 21   | M               | 17           | 20           | 44                          | 0       | -           | -          | SN FG+ FZFG BR BLSN | 3                                     | M           | 8.5                | 0.51        | 29.41                  | 30.07          | 13.8                                | 05      | 15.3       | 40    | 030 | 33    | 060              | 19  |  |  |  |  |
| 20             | 17                       | 6*   | 12*  | M               | 8            | 12           | 53                          | 0       | -           | -          | SN BR               | 12                                    | M           | 2.1                | 0.06        | 29.49                  | 30.17          | 7.1                                 | 06      | 8.1        | 23    | 090 | 18    | 090              | 20  |  |  |  |  |
| 21             | 30                       | 9    | 20   | M               | 13           | 17           | 45                          | 0       | -           | -          | SN BR BLSN          | 13                                    | M           | 5.0                | 0.17        | 28.98                  | 29.65          | 16.7                                | 24      | 23.3       | 46    | 240 | 37    | 230              | 21  |  |  |  |  |
| 22             | 19                       | 10   | 15   | M               | 8            | 13           | 50                          | 0       | -           | -          | SN BR HZ BLSN       | 14                                    | M           | 0.6                | 0.01        | 29.36                  | 30.15          | 18.7                                | 25      | 19.3       | 43    | 240 | 36    | 230              | 22  |  |  |  |  |
| 23             | 34                       | 16   | 25   | M               | 13           | 19           | 40                          | 0       | -           | -          | SN BR               | 11                                    | M           | 1.2                | 0.04        | 29.76                  | 30.42          | 10.1                                | 20      | 12.6       | 28    | 170 | 22    | 200              | 23  |  |  |  |  |
| 24             | 48                       | 32   | 40   | M               | 36           | 38           | 25                          | 0       | -           | -          | RA DZ SN BR UP      | 11                                    | M           | 0.8                | 0.41        | 29.20                  | 29.85          | 16.7                                | 21      | 18.1       | 45    | 220 | 37    | 240              | 24  |  |  |  |  |
| 25             | 36                       | 26   | 31   | M               | 22           | 27           | 34                          | 0       | -           | -          | SN UP               | 4                                     | M           | 0.2                | 0.03        | 29.59                  | 30.34          | 13.9                                | 25      | 14.3       | 41    | 240 | 35    | 230              | 25  |  |  |  |  |
| 26             | 41                       | 25   | 33   | M               | 23           | 29           | 32                          | 0       | -           | -          | RA DZ BR            | 3                                     | M           | 0.0                | T           | 29.69                  | 30.34          | 5.7                                 | 14      | 6.9        | 18    | 190 | 16    | 190              | 26  |  |  |  |  |
| 27             | 60                       | 41   | 51*  | M               | 48           | 50           | 14                          | 0       | -           | -          | RA DZ FG BR         | 1                                     | M           | 0.0                | 0.95        | 29.34                  | 29.96          | 13.0                                | 19      | 13.1       | 32    | 190 | 24    | 190              | 27  |  |  |  |  |
| 28             | 62*                      | 34   | 48   | M               | 34           | 39           | 17                          | 0       | -           | -          | RA                  | T                                     | M           | 0.0                | 0.02        | 29.13                  | 29.83          | 22.7                                | 23      | 24.0       | 66    | 230 | 51    | 230              | 28  |  |  |  |  |
| 29             | 43                       | 30   | 37   | M               | 25           | 32           | 28                          | 0       | -           | -          | RA SN UP            | 0                                     | M           | T                  | T           | 29.26                  | 29.91          | 15.2                                | 23      | 17.4       | 45    | 280 | 38    | 260              | 29  |  |  |  |  |
| 30             | 35                       | 25   | 30   | M               | 18           | 25           | 35                          | 0       | -           | -          | SN BR               | 0                                     | M           | 0.4                | 0.02        | 29.28                  | 29.95          | 13.0                                | 26      | 15.2       | 52    | 290 | 41    | 290              | 30  |  |  |  |  |
| 31             | 26                       | 10   | 18   | M               | 11           | 17           | 47                          | 0       | -           | -          | SN BR BLSN          | 5                                     | M           | 5.7                | 0.10        | 29.26                  | 30.01          | 14.8                                | 34      | 18.4       | 33    | 300 | 28    | 310              | 31  |  |  |  |  |
| 36.6 21.7 29.2 |                          |      |      |                 |              |              |                             |         |             |            |                     | <-----Monthly Averages   Totals-----> |             |                    |             | M                      | 36.6           | 4.35s                               | 29.38   | 30.06      | 8.3   | 23  | 14.2  | <Monthly Average |     |  |  |  |  |
| M M M          |                          |      |      |                 |              |              |                             |         |             |            |                     | <-----Departure From Normal----->     |             |                    |             | M                      |                |                                     |         |            |       |     |       |                  |     |  |  |  |  |

|                                    |  |  |  |                                             |  |  |  |                                                   |  |  |  |
|------------------------------------|--|--|--|---------------------------------------------|--|--|--|---------------------------------------------------|--|--|--|
| Degree Days Monthly Season to Date |  |  |  | Greatest 24-hr Precipitation: 0.95 Date: 27 |  |  |  | Sea Level Pressure Date Time (LST)                |  |  |  |
| Total Departure Total Departure    |  |  |  | Greatest 24-hr Snowfall: 0.9 Date: 19       |  |  |  | Maximum 30.66 16 1013                             |  |  |  |
| Heating: 1103 M M M                |  |  |  | Greatest Snow Depth: 14s Date: 22           |  |  |  | Minimum 29.19 01 0455                             |  |  |  |
| Cooling: 0 M                       |  |  |  | Number of Days with -----                   |  |  |  | Min Temp <=32: 28                                 |  |  |  |
|                                    |  |  |  | Max Temp <=32: 14                           |  |  |  | Min Temp <=0 : 0                                  |  |  |  |
|                                    |  |  |  | Thunderstorms : 0                           |  |  |  | Heavy Fog : 1                                     |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Precipitation >=.01 inch: 24                      |  |  |  |
|                                    |  |  |  |                                             |  |  |  | Precipitation >=.10 inch: Snowfall >=1.0 inch : M |  |  |  |

\* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version:  
VER2

