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June 28, 2013

Mr. Thomas Festa
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Division of Environmental Remediation
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Re: Former Philips Display Components Facility, Seneca Falls, New York
Corrective Measures Study

Dear Mr. Festa:

The enclosed report completes the Corrective Measures Study (CMS) of the former Philips Display Components facility. The selected corrective measures (i.e., targeted soil and groundwater remediation, sub-slab depressurization, environmental covenants, institutional controls, and a site management plan) meet Resource Conservation and Recovery Act (RCRA) objectives and further secure the continued beneficial site reuse.

The CMS confirmed that residual soil contamination is restricted to three areas (approximately 0.17 acres) and should be cleaned to industrial soil cleanup objectives. This cleanup objective is supported by the current and future site use as warehousing and distribution; selecting a different cleanup objective would not materially benefit the management of the remaining contaminants in soil, soil vapor or groundwater after corrective measures are implemented.

Residual volatile organic compounds (VOCs) in groundwater are contained in the till and the till's low permeability make completely remediating groundwater infeasible. Environmental covenants, institutional controls, and a Site Management Plan will be used to restrict groundwater use, control contact with groundwater containing VOCs, and monitor groundwater quality.

Further delineation will be conducted prior to the project design phase to refine the lateral and vertical extent of VOC concentrations in soil. The ease of technology implementation based on obstructions with buried utilities and buildings will also be evaluated. The delineation work will take approximately 1 year. Ongoing operation and optimization of the existing interim corrective measures (sub-slab depressurization systems) will continue as building uses and associated indoor air flow change.

Please call me at (908) 559-3691 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Pam M. Cox", written over a light blue circular stamp.

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Corrective Measures Study Report

Former Philips Display Components Facility
Seneca Falls, New York

Facility EPA ID # NYD002246015

June 2013



**Contains Confidential
Business Information**

**Corrective Measures Study
Report**

Former Philips Display
Components Facility

Seneca Falls, New York

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Acronyms

AOC	area(s) of concern
bgs	below ground surface
BTEX	benzene, toluene, ethyl benzene and xylene
CAO	corrective action objective
cis-1,2-DCE	cis-1,2-dichloroethene
CMS	corrective measures study
COPC	chemical of potential concern
DNAPL	dense non-aqueous phase liquid
EI	Environmental Indicator
ERH	electrical resistance heating
HO	Historical Outfall
HVAC	heating, ventilation, and air-conditioning
ICM	Interim Corrective Measure
IDA	Industrial Development Agency
ISTR	<i>in situ</i> thermal remediation
ITO	Interceptor Trench Outfall
LEL	Lowest Effect Level
mg/kg	milligrams per kilogram
MNA	monitored natural attenuation
MPE	multi-phase extraction
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operations and maintenance
PCE	tetrachloroethene
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
SCO	Soil Cleanup Objective
SEL	Severe Effects Level
SGV	Standards and Guidance Values
SMP	Site Management Plan
SSD	sub-slab depressurization
SWMU	Solid Waste Management Unit
TAGM	Technical and Administrative Guidance Memorandum
TAL	target analyte list
TCE	trichloroethene
TCH	thermal conductive heating

TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
VC	vinyl chloride
VOC	volatile organic compound
WWTP	Wastewater Treatment Plant

Executive Summary

GTE Operations Support Incorporated has developed an approach to implement Resource Conservation and Recovery Act (RCRA) corrective measures at the former Philips Display Components Facility in Seneca Falls, New York (site). Based on data from more than two decades of closure activities, facility investigations, and interim corrective measures, the recommended site-wide alternative meets RCRA corrective action objectives and facilitates the ongoing, successful facility redevelopment for warehousing and distribution. This corrective measures alternative includes: targeted soil and groundwater remediation, sub-slab depressurization, environmental covenants, institutional controls, and a site management plan.

The 62.4-acre site is a successful example of industrial redevelopment in a region of Upstate New York that has been in economic decline for three decades. Manufacturing occurred at the site from 1914 to 1986. RCRA closure activities conducted in the late 1980s and early 1990s facilitated the site redevelopment into an industrial complex that supports a warehousing and distribution business. The successful site reuse has provided Seneca County and the Village of Seneca Falls with stable jobs for dozens of local residents and a reliable tax base. H.P. Neun and Viva Foam Products, Inc. (H.P. Neun), which has leased the facility from the Seneca County Industrial Development Agency (IDA) for more than 20 years, continues to reinvest in the facility to continue the site revitalization. Seneca County IDA and H.P. Neun have agreed in principle to an industrial use environmental covenant that will further secure the continued beneficial site reuse during and after implementing corrective measures.

Following the initial RCRA closure activities and site redevelopment in the early 1990s, the RCRA corrective action process continued with the *RCRA Facility Assessment* (Chester Environmental 1994) and *RCRA Facility Investigation* (RFI) (URS 2002). These investigations identified volatile organic compounds (VOCs) in soil and groundwater near the site buildings and metals in historical outfall ravine surface soil. The following investigations, monitoring programs, and interim corrective measures were implemented since the RFI (between 2003 and 2013):

- 1999-2013 Semi-annual groundwater sampling
- 2003-2004 Soil vapor intrusion pathway investigation
- 2004 Building 9 office area crawl space ventilation system installation
- 2004 Historical outfall ravine soil sampling
- 2005 Historical outfall sediment sampling
- 2005 Monitored natural attenuation assessment
- 2005 Buildings 2, 7, and 11 investigation (soil and groundwater sampling)
- 2005 Building 11 area sub-slab depressurization system installation
- 2006 Building 7 area sub-slab depressurization system installation

- 2006 and 2012 fish and wildlife resource impact assessments
- 2006-2013 Quarterly indoor air and annual sub-slab vapor sampling
- 2008 Building 10 investigation (soil and sub-slab vapor sampling)
- 2010 Building 10 area sub-slab depressurization system installation
- 2010/2011 Building 1A sump and pit ventilation and sub-slab depressurization system installation
- 2012 Sub-slab vapor investigation
- 2012 Multi-phase extraction pilot test

The soil, sediment, groundwater, and soil vapor investigations/interim corrective measures conducted over the last 15 years have resulted in the collection of:

- 373 indoor air samples
- 71 outdoor air samples
- 59 basement and crawlspace air samples
- 84 sub-slab vapor samples
- 7 soil vapor samples
- 71 surface soil samples
- 226 subsurface soil samples
- 135 sediment samples
- 630 groundwater samples

These data have been combined with site-specific geologic and hydrogeologic characteristics to develop a conceptual site model, which provided the framework for developing and evaluating corrective measures for each medium.

Soil

Soil containing VOC concentrations greater than the New York State Department of Environmental Conservation (NYSDEC) Restricted Use - Industrial Soil Cleanup Objectives (SCOs)¹ is restricted to three areas (approximately 0.17 acres) to the south of Buildings 2 and 11. Targeted excavation of soil in the Building 2 and 11 areas is recommended to meet industrial SCOs and reduce the flux of

¹ Industrial SCOs are recommended because of the limited extent of VOC concentrations in soil, the historical industrial use, the M-1 industrial zoning designation, and the agreement by Seneca County IDA and H.P. Neun to institute an environmental covenant.

VOCs to groundwater. Cadmium is present at concentrations greater than industrial SCOs in historical outfall ravine surface soil. The ravine soil investigations and fish and wildlife resource impact analyses indicate that no significant threats to terrestrial resources exist near the historical outfalls. Targeted excavation and off-site soil disposal is recommended for historical ravine soil with cadmium concentrations greater than industrial SCOs. However, the ravines may be difficult to access because of dense vegetation and steep, uneven terrain.

Groundwater

VOCs have been reported at concentrations greater than NYSDEC Class GA Standards over approximately 25 acres of the site. The upper water-bearing zone is in a low permeability glacial till unit, and the VOCs dissolved within the groundwater migrate very slowly, on the order of a few feet per year. On September 30, 2003, the US Environmental Protection Agency (USEPA) determined that the Environmental Indicator (EI) for Contaminated Groundwater Under Control had been achieved and groundwater has not migrated beyond, and is expected to remain within, the site boundary (USEPA 2003). The extent of VOCs in groundwater and the low permeability of the till make it infeasible to remediate groundwater completely. Environmental covenants, institutional controls, and a Site Management Plan are recommended to restrict groundwater use, control inadvertent contact with groundwater containing VOCs, and monitor the effect of soil remediation on groundwater quality.

Soil Vapor and Indoor Air

VOCs, primarily trichloroethene (TCE), have been reported in both soil vapor and indoor air. ICMS were implemented between 2004 and 2011 to decrease VOCs in sub-slab vapor and indoor air in the occupied buildings (Buildings 1A, 7, 9, 10, and 11). TCE in groundwater and unsaturated soils adjacent to or beneath the buildings can volatilize and migrate into sub-slab soil vapor. Locating and treating all sources of TCE that could contribute to potential soil vapor intrusion is infeasible. Instead, sub-slab depressurization and flexible implementation of institutional controls to match the continued facility use for distribution and warehousing are recommended.

Sediment

Background sediment quality in an adjacent lake and canal (Van Cleef Lake and the Seneca-Cayuga Canal) upstream of the site is poor and contains metals concentrations greater than NYSDEC sediment criteria. Historical petroleum releases, not associated with former site activities, are apparent in Van Cleef Lake (Malcolm Pirnie 2005b). Cadmium associated with former historical outfalls may have migrated into limited areas of the lake and canal but is buried beneath a natural more recent cap of sediment that contains lower or non-detectable concentrations. Fish and wildlife that live in or use the lake and canal have a negligible potential for exposure to buried cadmium-containing sediments. There is also a negligible potential for human exposure to sediment near the site because the New York State Canal Corporation prohibits swimming, fishing and hunting at or near canal structures. Subsequent steps of the FWRIA, further evaluation of soil/sediment quality, or evaluation or implementation of corrective measures are not proposed.



Corrective Measures Study Report

Former Philips Display
Components Facility

This CMS Report evaluates corrective measures that address VOCs in groundwater, soil, and indoor air and metals in soil. Corrective action objectives, which include the applicable regulations and guidance established by NYSDEC and NYSDOH, provide the context for the alternatives evaluation process. Applicable technologies were screened based on chemicals of potential concern and site characteristics. The technologies were assembled into possible alternatives for each medium and evaluated based on RCRA performance standards and criteria.

The recommended corrective measures include:

- Removing and disposing of soil with VOC and metals concentrations greater than industrial SCOs.
- Implementing a Site Management Plan to monitor groundwater, apply institutional controls, and restrict site use to warehousing and distribution through an environmental covenant.
- Depressurizing the sub-slab in the buildings where applicable.
- Applying no action for sediments in Van Cleef Lake and the Seneca and Cayuga Canal.

1. Purpose and Report Organization

The purpose of this corrective measures study (CMS) is to meet Resource Conservation and Recovery Act (RCRA) corrective action objectives (CAOs) for, and sustain the current redevelopment of, the former Philips Display Components Facility (site) in Seneca Falls, New York (Figure 1-1). The site owner (Seneca County Industrial Development Agency) and the primary occupant (H.P. Neun and Viva Foam Products, LLC) have agreed to restrict current and future site use to distribution and warehousing. GTE Operations Support Incorporated has tailored a CMS evaluation process that facilitates or improves ongoing operations, complies with applicable regulatory criteria and guidance, and incorporates geologic, hydrogeologic, and chemical fate and transport data collected over more than two decades of RCRA closures, investigations, and interim corrective measures (ICMs).

The detailed evaluation process in this *CMS Report* involves the following steps:

- Define CAOs.
- Identify potential treatment and containment technologies.
- Screen the technologies for effectiveness, implementability, and cost.
- Assemble selected technologies into corrective measure alternatives.
- Perform a detailed corrective measure alternatives analysis using specific evaluation criteria.

This CMS report is organized to:

- Define the basis for corrective measures by presenting the operational history (Section 2), the remedial and investigative history (Section 3), the investigative data (Section 4), and the Conceptual Site Model (Section 5).
- Develop CAOs and applicable technologies (Section 6).
- Screen technologies to develop corrective measure alternatives (Section 7).
- Evaluate and select corrective measure alternatives that meet the stated objectives (Sections 8 and 9).
- Provide a list of source documents cited in the text (Section 10).

2. Site Description and Background

The site setting and history and the geological and hydrogeological framework, summarized below, provide the basis for the conceptual site model (Section 5). The site location, former industrial practices, geology, and hydrogeology also provide context for understanding the distribution of chemicals of potential concern (COPCs) for which corrective measure alternatives will be developed and evaluated (Sections 7 and 8). This information also supports the CMS objective to sustain the current industrial site use, consistent with how it has been used for nearly 100 years.

2.1 Site Setting

The 64.2-acre site at 50 Johnston Street in the Village of Seneca Falls, New York, (Figures 1-1 and 2-1) is a complex of interconnected buildings constructed between 1914 and the 1970s on approximately 13 acres (Figure 2-1). The remaining 51 acres are asphalt parking lots and roadways, grassy areas, and woods. Residential and undeveloped properties surround the site to the west, north, and east. Van Cleef Lake and the Cayuga-Seneca Canal, part of the New York State Canal System, are adjacent to the south.

The Cayuga-Seneca Canal was built in stages, and went through many enlargements and route and lock location changes. The first canal in the area opened in 1821 and brought wealth and industry to the region. In the early 1900s the mill area of Seneca Falls was submerged under what is Van Cleef Lake (Cayuga-Seneca Canal). The businesses within the lake footprint were relocated to higher ground. Remnants of the former industrial buildings and canal lock structures are still visible when the water level in the lake is lowered for lock maintenance.

2.2 Site History

The following list summarizes the site history.

- **Prior to 1914** – Undeveloped.
- **1914 through the 1930s** – Water pumps were manufactured in Buildings 1A through 5. Roof drainage, stormwater, and wastewater were managed in a combined system of floor drains that discharged to Van Cleef Lake via outfall pipes (historical outfalls HO1 and HO2).
- **1930s through the early 1950s** – Black-and-white television components were manufactured on site. Buildings 6 through 10 were added to expand the complex of interconnected buildings. Terra cotta pipe under drains were laid beneath Buildings 7 and 9 during construction. As manufacturing processes expanded floor drains were cut into the concrete floors and connected to the under drains. Roof drainage, stormwater and wastewater from Buildings 7, 8, and 9 was combined into outfall pipe HO3 and discharged to a ravine and eventually, via overland flow, to the Cayuga-Seneca Canal (Figure 2-2).

- **Mid-1950s through the early 1970s** – Manufacturing was converted to color-television components in the early 1950s. Buildings 10A, 11, 11A, 12, 13, and 13A were added to the building complex (Figure 2-1). Similar to the drainage structures in Buildings 7 and 9, reinforced concrete pipe under drains were constructed beneath Buildings 10, 10A, 11, 11A, 13 and 13A. Floor drains were connected to these under drains and combined roof drainage, stormwater and process wastewater discharged to outfall pipes HO4, HO5, HO6, and HO7 with overland flow to the Cayuga and Seneca Canal. Building 12 housed laboratories and corporate offices.
- **1970s to 1986** – Waste-handling practices changed when an interceptor sewer and waste water treatment plant (WWTP) were constructed in the early 1970s. Outfall pipes HO2 through HO5 were rerouted to the interceptor sewer for treatment. Outfall pipes HO1, HO6, and HO7 were modified to convey stormwater only. A network of aboveground interior piping in the ceiling rafters was also installed to carry process wastes to the treatment plant. Manufacturing operations ceased in 1986.
- **1986 to 1989** – With the cessation of manufacturing, the WWTP was decommissioned and the interceptor sewer was rerouted to convey roof drainage and stormwater directly to the Cayuga and Seneca Canal at an interceptor trench outfall (ITO). In 1989, the Seneca County Industrial Development Agency acquired the site.
- **1989 to present** – H.P. Neun Company, Inc. and later Viva Foam Products, Inc. (H.P. Neun) leases the building complex from the Seneca County Industrial Development Agency for warehousing. Only roof drains and stormwater discharge to the ITO.

2.3 Geology

The unconsolidated soils consist of a discontinuous and variably thick layer of urban fill (up to 8 feet but typically less than 1 foot thick) that overlies a very low permeability till (up to 45 feet thick) across the site. The fill beneath Buildings 10, 11, 12, 13, and 13A, which were constructed in the 1960s, consists of relatively uniform pea gravel or crusher run gravel. Beneath the older buildings, the fill consists of angular gravel with minor amounts of sand and silt. The Building 1A concrete slab appears to have been constructed directly on top of native till with no underlying gravel or sand fill. Below the fill is approximately 20 to 45 feet of till (silt and clay matrix with varying amounts of sand and gravel). Discontinuous, thin (less than 0.5 foot thick) sandy lenses have been observed at varying depths across the site from as shallow as 6.6 feet below ground surface (bgs) to as deep as 30 feet bgs (URS 2002). The till outcrops along the southern site boundary at an escarpment to the north of the Cayuga-Seneca Canal. The top of the escarpment is approximately 50 feet higher than the canal.

The Bertie Limestone bedrock geologic unit lies below the unconsolidated soils and outcrops along the southern site boundary to the north of the canal. A permeable zone of weathered bedrock is spatially discontinuous across the site. Little to no weathered bedrock is present in the

northwestern part of the site (at MW-BR-01, MW-BR-02, and MW-BR-03), and more than 15 feet of weathered bedrock or gravel was observed in the southern portion of the site (at MW-BR-04, MW-BR-05, and MW-BR-06). Schematic geologic cross sections are provided as Figure 2-3.

2.4 Hydrogeology

The till is an unconfined, water-bearing unit with a water table 3 to 5 feet bgs (Figures 2-3 and 2-4 and Table 2-1). The till is recharged by precipitation. Groundwater within the till flows south-southeast toward the lake and canal (Figure 2-4). Groundwater is discharged from the till through a seepage face along the outcrop south of the site near the lake and canal.

The hydraulic gradient within the till has been measured to be 0.01 to 0.02 feet per foot (Figure 2-4). The hydraulic conductivity of the till ranges from 0.02 to 0.42 feet per day (8.2×10^{-6} to 1.5×10^{-4} centimeters per second [cm/sec]) (URS 2002). Using the average hydraulic conductivity (0.1 foot per day), the range of hydraulic gradients (0.01 to 0.02 feet per foot) in Darcy's Law with an estimated effective porosity (0.18, the specific yield of a silt matrix [Fetter 1994]), yields an average groundwater velocity of 2 to 4 feet per year.

Some groundwater from the till migrates vertically down into the discontinuous gravel/weathered bedrock unit near the lake and canal. Water levels measured in weathered bedrock monitoring wells near the lake and canal show that the potentiometric surface is influenced by the rise and fall of water levels in these surface water bodies from the operation of the canal locks.

Groundwater in the Bertie Limestone is recharged by precipitation in the regional outcrop area and vertical leakage where covered by saturated unconsolidated soils. Groundwater flow through the Bertie Limestone is to the southeast (Figure 2-5) mainly through fractures, joints, and bedding planes (i.e., secondary porosity features; URS 2002). The potentiometric surface of groundwater in the Bertie Limestone ranges in depth from ground surface to 100 feet bgs. Water levels measured in bedrock wells during the February 2013 Semi-Annual Groundwater Monitoring event (Table 2-1) confirms that the groundwater generally flows from north to south and discharges to the lake and canal (Figures 2-4 and 2-5). A comparison of potentiometric surface elevations to the top of bedrock elevations (February 2013) shows that the bedrock exhibits varying degrees of confining pressure. Little confining pressure exists near MW-BR-03 in the northwest part of the site and a larger amount of confining pressure occurs in the north central part of the site near MW-BR-02. MW-BR-05 and MW-BR-06, which are screened within a more permeable weathered bedrock and gravel zone, are in hydraulic connection with Van Cleef Lake and the Cayuga and Seneca Canal.

3. Remedial and Investigative History

Activities conducted over the last 25 years supported the initial site redevelopment in the late 1980s and continue to sustain its productive use. Because of the collaboration between multiple stakeholders (Seneca County IDA, H.P. Neun, GTE Operations Support Incorporated, NYSDEC and USEPA), these corrective measures and investigations could be implemented while warehousing and distribution activities were ongoing. GTE Operations Support Incorporated is committed to continuing this successful, integrated corrective measure/site redevelopment strategy.

3.1 RCRA Corrective Actions

To comply with RCRA hazardous waste management regulations regarding the WWTP operation, a RCRA Part B Permit application was submitted in 1984. After receiving interim status under RCRA, the permit application was withdrawn when a decision was made to cease manufacturing. Withdrawing the permit application did not release the site from RCRA interim status; therefore, the WWTP decommissioning (e.g., treatment plant, process tanks, settling lagoons) proceeded as RCRA closure activities.

Various investigations and RCRA corrective actions have occurred since 1986. Interim status hazardous waste management units (incinerator, incinerator feed tanks, and container storage areas) were closed in 1987. H.P. Neun began operating its warehousing and distribution business in 1989. Between 1987 and 1992, surface impoundments and the WWTP were closed in accordance with the facility *Closure Plan* (Chester Engineers 1987) and the NYSDEC (Secor 1996).

3.2 RCRA Facility Assessment and Investigation

Floor and under drains were grouted and sealed in the early 1990s. A RCRA Facility Assessment was completed in 1994 (Chester Environmental 1994). Twenty-one areas were investigated, including the interim drum storage, satellite storage, underground fuel oil tank, polychlorinated biphenyl, capacitor storage, and open burn areas. Following the RCRA Facility Assessment, the nature and extent of contaminants were evaluated in multiple phases. NYSDEC conditionally approved the RFI (URS 2002) on June 5, 2003, pending evaluation of the historical outfalls (HOs) and preparation of a *CMS Work Plan*.

A *Soil Vapor Intrusion Pathway Investigation Work Plan* (Malcolm Pirnie 2003a) was submitted on May 7, 2003 and approved by NYSDEC on June 17, 2003. Three rounds (summer 2003, fall 2003, and winter 2004) of indoor and outdoor air samples were collected. A *Soil Vapor Intrusion Pathway Investigation Report* (Malcolm Pirnie 2004a), detailing the analytical results of more than 100 soil vapor and indoor air samples, was submitted to NYSDEC, the New York State Department of Health (NYSDOH), and the USEPA on September 13, 2004. The report findings suggest the buildings share common sub-slabs and indoor air; therefore soil vapor intrusion pathways could not be ruled out in the buildings except Building 12. On April 6, 2005, NYSDEC approved the *Soil Vapor Intrusion Pathway Investigation Report* (Malcolm Pirnie 2004a). In September 2005, the

Current Human Exposure Under Control EI was achieved through the ICMs in Buildings 7, 9, and 11 (USEPA 2005a).

Based on the conclusions of the *RFI Report and RFI addenda* (URS 2003 and Malcolm Pirnie 2004a), the *Corrective Measures Study Work Plan (CMS Work Plan, Malcolm Pirnie 2005a)* grouped SWMUs retained for further evaluation into the following Areas of Concern (AOCs) (Figure 3-1):

1. **Building 2 area** – Volatile organic compounds (VOCs) in soil and groundwater to the south of Building 2 and Building 5.
2. **Building 7 area** – VOCs in soil and groundwater south of Buildings 7 and 9.
3. **Building 11 area** – VOCs in soil and groundwater south of Building 11A.
4. **Soil Vapor Intrusion Pathways** – VOCs in sub-slab vapor beneath Buildings 1, 2, 3, 4, 6, 7, 8, 9, 10, 10A, 11A, 13, and 13A.
5. **Historical Outfalls** – Metals, primarily cadmium, in HO ravine soils.

The *CMS Work Plan* included supplemental investigations to support the corrective measures evaluation. Soil and sediment sampling was conducted in August 2004 and May 2005 to further investigate the HOs (Appendix A). In 2005, soil and groundwater samples were collected in the Buildings 2, 7, and 11 areas to further delineate the horizontal and vertical extent of VOCs (Section 3.4 and Appendix B). An assessment was performed to evaluate monitored natural attenuation (MNA) as a potential corrective measure (Section 3.4 and Appendix B).

3.3 Interim Corrective Measures

As discussed in the *Soil Vapor Intrusion Pathway Investigation Report* (Malcolm Pirnie 2004) and the *Corrective Measures Study Work Plan* (Malcolm Pirnie 2005a), ICMs were implemented to improve indoor air quality in Buildings 7, 9, and 11. Additional ICMs were later implemented in Buildings 10 and 1A. Data collected during the implementation of the ICMs were used to evaluate corrective measures for soil vapor intrusion pathways (Area of Concern 4) in the CMS Report.

After the 2003-2004 soil vapor intrusion pathway investigation and subsequent investigations, the following five ICMs were implemented:

ICM	Design Plan Title	Design Plan Reference	Month Installed
Building 9 office area crawl space ventilation system	Proposed Ventilation System - Building 9 office area	Malcolm Pirnie 2003b	November 2004
Building 11 area SSD system	Building 11 area Sub-slab Depressurization System Design Plan	Malcolm Pirnie 2005c	November 2005
Building 7 area SSD system	Building 7 area Sub-slab Depressurization System Design Plan	Malcolm Pirnie 2006	October 2006
Building 10 area SSD system	Building 10 area Sub-slab Depressurization System Design Plan	Malcolm Pirnie 2009	September 2010
Building 1A sump and pit ventilation and SSD system	ICM components discussed during June 4, 2012 NYSDEC site walk	Not Applicable	December 2010, modified April 2011

The five ICMs were implemented between 2004 and 2011 in occupied buildings with the highest indoor air concentrations. The ICMs, which consisted of ventilation and sub-slab depressurization systems, were used to mitigate VOCs, primarily TCE, in sub-slab vapor and indoor air.

The ICMs have been monitored since their installation. Indoor air samples have been collected quarterly since 2006, and sub-slab vapor samples have been collected annually since 2006 to evaluate the ICMs (SSD and ventilation systems) performance. The ICMs have operated as designed. The Building 9 office area crawl space ventilation system was deactivated in June 2010. Crawl space air TCE concentrations have increased slightly since June 2010 but have been less than results prior to activation of the ventilation system. Building 9 office indoor air TCE concentrations generally have been less than 5 µg/m³ since June 2010.

Sub-slab vapor concentrations have decreased in the buildings where ICMs are operating. TCE concentrations in the Buildings 7, 10, and 11 sub-slab vapor; Building 9 crawl space air; and

Building 1A basement indoor air have decreased by at least one order of magnitude over the past six years. TCE concentrations in indoor air fluctuate seasonally but are typically higher during the heating season, when the bay doors and windows are closed. Despite these fluctuations, indoor air TCE concentrations continue to show a decreasing trend since ICM implementation. The average TCE indoor air concentration in samples collected between June 2009 and 2012 from each building where ICMs have been implemented is less than the NYSDOH air guideline value of $5 \mu\text{g}/\text{m}^3$.

3.4 Corrective Measure Study Investigations

Between May 2005 and October 2012, CMS investigations, pilot tests, and ICMs were completed. The data collected from these activities have been submitted to the NYSDEC in 15 semi-annual groundwater sampling reports, 28 quarterly indoor air sampling reports, and four ICM design plans. The data were used to further define and evaluate the magnitude and extent of VOC concentrations and to develop the corrective measure alternatives evaluated herein. A summary of CMS investigations are provided below and in Appendices A and B.

3.4.1 Historical Outfall Soil and Sediment Sampling

The 2004 HO soil analytical results were provided in the December 2004 RFI Addendum (Malcolm Pirnie 2004b). Sediment sampling was completed in 2005 in accordance with the *CMS Work Plan*, (Malcolm Pirnie 2005a) to establish background conditions in the Van Cleef Lake and the Cayuga and Seneca Canal. As discussed in Appendix A, corrective measures for metals in the HO ravines have been developed and no further action is proposed for sediment.

3.4.2 Monitored Natural Attenuation Investigation

An investigation was conducted in accordance with the *CMS Work Plan* (Malcolm Pirnie 2005a) to evaluate MNA as a potential corrective measure. MNA relies on natural attenuation processes (biodegradation, dispersion, dilution, sorption, volatilization, chemical or biological stabilization, transformation, or destruction of contaminants) to achieve site-specific CAOs. Natural attenuation was evaluated using the June 1993 to October 2011 data collected from 12 groundwater monitoring wells (Appendix B).

Degradation byproducts of reductive dechlorination, including cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC) were present in some groundwater samples. VOC concentrations are generally decreasing site wide; however, VOC attenuation rates could not be calculated with statistical confidence. Without attenuation rates, a time in which the Standards and Guidance Values (SGVs) could be achieved for site-wide groundwater cannot be estimated. Therefore, a comparative analysis of MNA remedial timeframes with other possible alternatives is difficult, and a remedial strategy using only MNA is not considered feasible at this time.

The natural attenuation analytical data and a data discussion are provided in Appendix B.

3.4.3 Buildings 2, 7, and 11 Investigation

The *RFI* (URS 2002) and the *Soil Vapor Intrusion Investigation Report* (Malcolm Pirnie 2004a) concluded a trichloroethene (TCE) source may be present beneath the southeastern portion of Building 11 and adjacent to Buildings 2 and 7. Direct-push soil borings were advanced in the Building 2, 7, and 11 areas in accordance with the *CMS Work Plan* (Malcolm Pirnie 2005a). Soil and groundwater sample analytical data from these borings were used to delineate areas with residual VOC concentrations.

The 2005 Buildings 2, 7, and 11 Investigation results support the RFI conclusions (URS 2002). TCE, the primary COPC, was reported at concentrations in soil ranging from not detected to 1,500 milligrams per kilogram (mg/kg). Evidence of dense non-aqueous phase liquid (DNAPL) was observed at one boring in the both the Building 2 and Building 11 areas. The VOC concentrations in the Building 7 area are likely attributable to an unrelated diffuse area of residual VOC concentrations.

Details of the Buildings 2, 7, and 11 Investigation and the corresponding analytical data and data-validation reports are provided in Appendix B. Boring logs from this and other investigations are included in Appendix C.

3.4.4 Building 10 Investigation

In November 2008, five direct-push soil borings were advanced through the Building 10 slab to evaluate the potential presence of VOCs in subsurface soil. TCE was reported in the soil samples collected from these borings at concentrations ranging from 0.56 to 37 mg/kg. The Building 10 investigation results are provided in Appendix B.

3.4.5 Fish and Wildlife Resource Impact Assessment

Steps I and IIA of a fish and wildlife resource impact assessment (FWRIA) were completed in 2006 and updated in 2012. No threatened or endangered species live on or near the site. Therefore, subsequent steps of the NYSDEC Guidance on Fish and Wildlife Resource Impact Analysis (NYSDEC 1994a) are not proposed. The details of the FWRIA are provided in Appendix A.

3.4.6 Sub-Slab Vapor Investigation

In August and September 2012, a soil vapor intrusion investigation was conducted to assess preferential pathways, delineate sub-slab vapor VOC concentrations, evaluate subslab depressurization (SSD) as a mitigation technique, and evaluate methods to minimize COPC mass flux into the building (ARCADIS, 2012a). The investigation included evaluating historical drains, installing sub-slab vapor extraction and monitoring points, screening sub-slab vapor, testing SSD diagnostics, and evaluating ICMs. The sub-slab vapor VOC screening results indicated VOCs are in the sub-slab vapor beneath the buildings, and Buildings 1, 2, 3, 4, 6 and 8 are candidates for SSD.

The sub-slab vapor investigation results are provided in Appendix B.

3.4.7 Multi-Phase Extraction Pilot Test

A multi-phase extraction (MPE) investigation and a bench-scale soil resistivity test were conducted in October 2012 in accordance with the *Multi-Phase Extraction Investigation Work Plan* (ARCADIS 2012b). The MPE investigation concluded hydraulic and vapor control can be established and sustained with relatively low extraction rates. Therefore, in situ thermal remediation (ISTR) implemented with an MPE system to control, collect, and treat COPCs that would volatilize or dissolve into groundwater during heating is an option for treating site soil and groundwater.

The MPE pilot test results are provided in Appendix B.

4. Nature and Extent

The key findings of the RFI, RFI Addenda, and corrective measures studies are that COPC concentrations greater than industrial SCOs in soil are limited to three isolated areas (each less than 0.1 acre). Sediment data indicate that COPCs are in isolated areas or buried beneath a natural cap of more recent sediment and therefore have negligible potential for exposure. The total area in which COPC concentrations are greater than Class GA Groundwater Standards is approximately 25 acres. COPC concentrations in soil vapor generally coincide with groundwater concentrations. These COPC distributions, combined with historical site use and hydrogeologic conditions, form the basis for developing and evaluating corrective measure alternatives.

The following sections present the nature and extent of concentrations in soil, groundwater, soil vapor, and sediment, and are organized as described below.

- Areas of Concern 1, 2, and 3 (Buildings 2, 7, and 11 areas) – The nature and extent of COPCs in soil and groundwater
- Area of Concern 4 (Soil Vapor Intrusion Pathways) – The sub-slab vapor characterization sample results and the existing ICMs
- Area of Concern 5 (Historical Outfall) – Data that characterize the nature and extent of HO ravine soil and sediment concentrations

4.1 Areas of Concern 1, 2, and 3 (Building 2, 7, and 11 areas) Soil Investigations

Soil investigations were completed at the site between 1999 and 2001 as part of the *RFI* (URS 2002). Additional soil investigations have been conducted since 2002 as part of *RFI Addenda*, the CMS, and ICM activities. A summary of soil sampling conducted since the *RFI* (URS 2002) is provided in Appendix B.

Soil investigations have been completed to define the nature and extent of residual concentrations. A map showing the soil sampling locations is provided as Figure 4-1. Analytical results for soil samples collected since 1999 are provided in Appendix D. Table 4-1 summarizes the compounds reported in soil. The geologic logs for borings advanced during the supplemental investigations and for existing and abandoned monitoring wells are provided in Appendix C.

4.1.1 Restricted Use – Industrial Soil Cleanup Objectives

Soil analytical data were compared to NYSDEC “Restricted Use — Industrial Soil Cleanup Objectives” established in 6 New York Codes, Rules, and Regulations (NYCRR) Part 375. Industrial soil cleanup objectives (SCOs) were selected based on the limited extent of COPC concentrations in soil, the historical industrial use, the M-1 industrial zoning designation, and the proposed environmental covenant (Section 6.1).

TCE was reported in soil sampled in the Building 2 and 11 areas (AOCs 1 and 3) at concentrations greater than the industrial SCOs. Although other VOCs were reported in soil samples, they were either reported at the same locations as TCE or at random locations that do not form a continuous area. Therefore, TCE has been carried through this CMS as the main driver for soil remediation and is discussed in the following sections. Cadmium was reported at a concentration greater than industrial SCOs in the HO ravines (Section 4.4) and in one surface soil sample in the Building 11 area (GRSS-04).

4.1.2 Building 2 Area Soil Analytical Results

The Building 2 area includes areas near Buildings 2, 3, and 5 and covers approximately 0.6 acres (Figure 3-1). Soil samples collected during the RFI and subsequent CMS investigations from the Building 2 area were evaluated to identify areas where the VOC concentrations exceeded the industrial SCOs. TCE was reported in 57 of 63 Building 2 area soil samples and was the primary VOC identified in analytical samples. TCE concentrations ranged from 0.0008 to 1,600 mg/kg (Table 4-1). The soil samples with the highest TCE concentrations were collected at 29.5 feet bgs at B2-PH05 and 30 feet bgs at MW-BI-01 (1,600 and 1,200 mg/kg, respectively) (Figure 4-2). Boring MW-BI-01 was advanced approximately 100 feet south of Building 2 along the site access road. Boring B2-PH05 was advanced approximately 100 feet northeast of MW-BI-01. Soil samples collected from boring B2-PH07, located between borings B2-PH05 and MW-BI-01 contained up to 7 mg/kg of TCE and did not contain DNAPL.

A temporary monitoring well, screened in the till from 28 to 33 feet bgs, was installed at B2-PH05. No water samples were collected because the well did not produce measurable water. A monitoring well, screened from 30-35 feet bgs, was installed at boring MW-BI-01 but was abandoned in 2008 because it was dry.

Metals reported in Building 2 area soil borings were less than their respective industrial SCOs.

TCE concentrations in soil samples collected from the Building 2 area are provided on Figure 4-2. Analytical results from Building 2 area soil sampling activities are provided in Appendix D.

4.1.3 Building 7 Area Soil Analytical Results

The Building 7 area is approximately 0.6 acres and includes the southern part of Building 7 and adjacent areas (Figure 3-1). Soil samples were collected during the RFI from the Building 7 area to evaluate soil quality associated with former process sewers. In 2005, to evaluate potential residual concentrations in soils in the Building 7 area, borings B7-PH01 through B7-PH03 were advanced inside Building 7, and borings B7-PH04 through B7-PH08 were advanced to the south of Building 7. TCE was reported in 37 of 46 soil samples at concentrations ranging from 0.0023 to 48 mg/kg (Table 4-1), less than the industrial SCO for TCE (400 mg/kg). TCE concentrations in soil samples collected from beneath Building 7 (up to 3 mg/kg) were generally lower than concentrations in samples collected from borings advanced outside the building (up to 48 mg/kg). Metals concentrations reported in soil sampled from Building 7 area borings during the RFI, were less than the corresponding industrial SCOs.

No TCE or other chlorinated hydrocarbon source was found in the Building 7 area. The 2005 investigation results further support a RFI conclusion (URS 2002), which suggested that soil and groundwater VOC concentrations in the Building 7 area were attributable to a nearby source (i.e., Building 2 area).

TCE concentrations in soil samples collected from the Building 7 area are provided on Figure 4-3. Analytical results from Building 7 area soil sampling activities are provided in Appendix D.

4.1.4 Building 11 Area Soil Analytical Results

The Building 11 area, which covers approximately one-third of an acre, includes the southern part of Building 11, Building 11A, and adjacent areas (Figure 3-1). TCE was reported in 44 of 49 Building 11 area soil samples at concentrations ranging from 1 to 8,100 mg/kg (Table 4-1). The sample with the highest TCE concentration (8,100 mg/kg) was collected at 22 feet bgs from boring B11-PH08 (Figure 4-4), where globules of DNAPL were observed. TCE results exceeded the industrial SCO in one other soil sample collected in the Building 11 area (470 mg/kg at 15.5 ft. bgs in boring B11-PH09).

Metals were reported in several Building 11 area borings during the RFI. However, only cadmium (sample GRSS-04) exceeded the industrial SCO, at a depth of 0-0.5 foot bgs. Other metals concentrations were less than their respective industrial SCOs.

The Building 11 area TCE soil analytical results are provided on Figure 4-4. Analytical results from Building 11 area soil sampling activities are provided in Appendix D.

4.2 Areas of Concern 1, 2, and 3 (Building 2, 7, and 11 areas) Groundwater Investigations

Groundwater from a network of nine overburden, one weathered bedrock, and five bedrock monitoring wells has been sampled and analyzed on an annual to semi-annual basis to evaluate trends in VOC concentrations. Direct-push groundwater grab samples have been collected in the Building 2, 7, and 11 areas during RFI and CMS activities. Mainly TCE, cis-1,2-DCE, and VC, were reported by the laboratory. Other compounds reported coincide with detections of TCE, cis-1,2-DCE, and VC concentrations greater than the SGVs. Therefore, TCE, cis-1,2-DCE, and VC concentrations have been carried through this CMS as the main drivers for groundwater remediation and are discussed in the following sections. The following sections include groundwater-sample results from monitoring wells and direct-push methods to delineate the nature and extent of COPCs. Groundwater quality for each of the Building 2, 7, and 11 areas was evaluated by comparing the analytical results to NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality SGVs.

The monitoring wells and direct-push boring locations are shown on Figure 4-5. The groundwater TCE concentrations are provided on Figures 4-6, 4-7, and 4-8 and in Tables 4-2 and 4-3. Groundwater sample analytical results are provided in Tables 4-2 and 4-3 and Appendix E. Table 4-4 contains a list of site monitoring wells and well construction information, including well diameters, surveyed horizontal locations and vertical elevations and completed screen intervals. Construction logs for all monitoring wells are provided in Appendix C.

On September 30, 2003, the USEPA determined the EI for Contaminated Groundwater Under Control had been achieved and groundwater has not migrated beyond, and is expected to remain within, the site boundary (USEPA 2003). The USEPA based its determination on the following:

- Groundwater in the overburden does not appear to be in direct hydraulic connection with groundwater in the bedrock.
- Low VOC concentrations are present in groundwater samples collected from bedrock monitoring wells.
- A cliff along the hydraulically downgradient site boundary acts as a geologic boundary.
- Seepage, if any, occurs at a rate equal to evaporation.

4.2.1 Building 2 Area Groundwater Analytical Results

Two monitoring wells (MW-24 and MW-26) screened in the till and one monitoring well (MW-BR-06) screened in the gravel/weathered bedrock were sampled as part of the semi-annual groundwater monitoring. Groundwater samples were also collected from direct-push borings B2-PH01, B2-PH02, B2-PH03, B2-PH04, and B2-PH08. The following summarizes the Building 2 area sampling results:

- TCE and cis-1,2-DCE were reported at concentrations that exceeded the SGVs in samples from the five direct-push borings and in the three monitoring wells within the Building 2 area (Figure 4-6).
- VC was reported at concentrations that exceed the SGV in groundwater samples collected from the five direct-push locations and two of the three monitoring wells screened in the till.
- Other VOCs in Building 2 area wells were reported at concentrations less than the SGV.

4.2.2 Building 7 Area Groundwater Analytical Results

Since the RFI, groundwater samples have been collected from three direct-push borings (B7-PH04, B7-PH06, and B7-PH08) and from one Building 7 area monitoring well screened in the till (MW-23). The following summarizes sampling results in the Building 7 area:

- TCE and cis-1,2-DCE concentrations exceed the SGV (Figure 4-7).
- VC was reported at concentrations greater than the SGV in groundwater samples collected from two of the three direct-push borings (B7-PH04 and B7-PH06).
- Other VOC concentrations in MW-23 were less than their respective SGVs.

4.2.3 Building 11 Area Groundwater Analytical Results

Since the RFI, groundwater samples have been collected from six direct-push borings (B11-PH03, B11-PH04, B11-PH06, B11-PH07, B11-PH08, B11-PH09) and two monitoring wells (MW-22 and MW-25) screened in the till. The following summarizes the Building 11 area sampling results:

- TCE was reported at concentrations greater than the SGV in groundwater samples collected from the six direct-push borings and the two monitoring wells (Figure 4-8).
- Cis-1,2-DCE was reported at concentrations that exceed the SGV in groundwater samples collected from three direct-push borings and the two monitoring wells.
- VC was reported at concentrations that exceed the SGV in groundwater samples collected from two direct-push borings.
- Other VOCs in groundwater sampled from MW-22 and MW-25 and the direct-push borings were reported at concentrations less than the respective SGVs.

4.3 Area of Concern 4 Soil Vapor Intrusion Pathway

Site soil vapor, sub-slab vapor, indoor air, and outdoor air samples were initially collected in 2003 and 2004. VOCs, primarily TCE, were reported in the sub-slab vapor and indoor air (Malcolm Pirnie 2004a). Soil vapor ICMs were implemented to improve indoor air quality in Buildings 1A, 7, 9, 10, and 11, which corresponded to the highest indoor air concentrations in occupied buildings. The

ICMs (Section 3.3) were implemented following submission of ICM design work plans and approval of NYSDEC.

Building inspections, environmental sampling, and sub-slab depressurization pilot testing activities have been used to delineate and define the nature and extent of VOCs in sub-slab vapor and indoor air. The soil vapor, sub-slab vapor, indoor air, and outdoor air sample locations are shown on Figure 4-9. Sub-slab vapor and indoor air concentrations were compared to the NYSDOH air guideline values; NYSDOH's decision matrices (NYSDOH 2006) were used as a guide for evaluating the potential for soil vapor intrusion and the application of mitigating measures. The following sections summarize data collection related to sub-slab soil vapor and indoor air, the current understanding of the extent of potential vapor migration into site buildings, and ICM operations.

4.3.1 Air and Vapor Sampling Program

One sub-slab vapor, one soil vapor, and three indoor/outdoor air sampling events were conducted during the soil vapor intrusion pathway investigation performed in 2003 and 2004. Six additional sampling events were completed between March 2004 and March 2006. Indoor air samples have also been collected quarterly from up to nine buildings (Buildings 1A, 7, 9, 10, 10A, 11, 11A, 13, and 13A) since June 2006, and sub-slab vapor samples have been collected annually from Buildings 7, 10, 10A, 11A, 13, and 13A since 2006. A summary of the air and vapor sampling results is provided in Tables 4-5 through 4-13.

4.3.2 Building Construction and Ventilation

A buildings construction and ventilation can affect vapor intrusion by inducing or retarding the migration of vapors into indoor air (ITRC 2007). The buildings heating, ventilation, and air conditioning (HVAC) system can induce a stack effect and create a pressure differential between indoor air, outdoor air, and the sub-slab. The induction of pressure gradients can result in the migration of VOC-containing vapors away from groundwater or soil toward the building. The foundation type, floor integrity (e.g., cracks, expansion joints), and subsurface features (e.g., utility pipes, drains, sumps) penetrating the building foundation can provide preferential pathways for vapor intrusion.

The site building(s) was constructed in 1914 and expanded several times during 70 years of industrial use. Each successive building was constructed adjacent to, and shares a common wall with, a previous building (Figure 2-1). Most of the buildings are high-bay industrial buildings (20- to 30-foot ceilings), with an estimated total indoor air volume of approximately 10 million cubic feet. The building complex is not actively ventilated, with the following exceptions:

- Two air-conditioning units service the approximately 1,600 square foot Building 9 office area. One window-mounted unit is in the exterior wall; one wall-mounted air-conditioning unit is in an

interior wall and vents to the warehouse. These air-conditioning units allow outdoor and warehouse air into the building when the external vents are opened.

- One wall-mounted air-conditioning unit services the Building 7 office area. The air intake is through the Building 7 warehouse interior wall.
- Building 2A has an HVAC system with an air intake through the roof. A window-mounted air-conditioning unit services the first floor of Building 2A. This building is unoccupied.
- Building 1A has an HVAC system in the basement.

The frequent opening of loading dock doors is the main ventilation source for the building complex. During warm weather, the loading dock doors remain open for cooling, increasing air circulation and the number of indoor-outdoor air exchanges. The loading dock doors typically remain closed during cold weather to reduce heating costs.

The building is slab-on-grade construction with the following exceptions:

- The Building 1A basement contains the furnace that heats the building, a concrete slab floor, a sump, and a pit/trench drain.
- The Building 2 basement is believed to be a former coal storage bin and does not appear to be ventilated or connected to the Building 2 air space.
- An approximately 3-foot high crawl space underlies the approximate 80- by 20-foot Building 9 foyer and office area.
- Two under-slab water reservoirs are beneath Building 9.

Surveys of underground utilities and building features have been completed to understand potential subsurface vapor pathways. The footings, floor joints, and sub-base materials in each building vary based on construction date. The building complex was inspected to assess how surface features could affect soil vapor migration into or away from the buildings. An excavator was used to expose a former under drain pipe north of Building 10A to evaluate the potential for the former process sewer lines and associated backfill to be preferential vapor migration pathways. Ground-penetrating radar was used to locate the historical sub-slab process sewer pipes.

A foundation construction survey was completed and included the orientation and dimensions of foundation. Structural drawings and visual inspection of building columns show that the column footers are not connected. Therefore, building column footers would not likely create isolated pockets where sub-slab vapors could collect. However, pits, trenches, and other subsurface structures may act to isolate sub-slab vapors. An approximate 4-foot difference in the floor elevations exists between Buildings 1 through 9 (higher elevation) and Buildings 10 through 13 (lower elevation). The 4-foot elevation difference may cause a barrier for soil vapor migration between Buildings 9 and 10.

The fill beneath Buildings 10, 10A, 11, 12, 13, and 13A consists of pea or crusher run gravel. The material beneath the slabs in Buildings 1 through 6, consisting primarily of silt and clay, is less

permeable than the gravel beneath the newer buildings. In several buildings, there was a thin void space between the slab bottom and the silt and clay. Little to no gravel was present in cores drilled through the slab in Buildings 2, 4, or 6. The concrete slab in the basement of Building 1A is directly on top of native clay, with no underlying gravel or sand fill.

4.3.3 Soil Vapor and Air Analytical Results

Soil vapor intrusion was first evaluated at the site in 2003 and quarterly indoor air and annual sub-slab vapor sampling has been conducted since 2006. The following soil vapor intrusion samples have been collected over the past decade:

- 373 indoor air samples.
- 71 outdoor air samples.
- 59 basement and crawlspace air samples.
- 84 sub-slab vapor samples.
- 7 soil vapor samples.

A summary of these analytical results is provided below.

The results of one soil vapor and three indoor air sampling events that were conducted in 2003 and 2004 were reported in the *Soil Vapor Intrusion Pathway Investigation Report* (Malcolm Pirnie 2004a). Seven soil vapor samples plus a duplicate were collected in July 2003 from a 6-inch interval between 3 and 5 feet bgs to evaluate soil vapor quality. TCE was the primary VOC reported with soil vapor concentrations ranging from 1.2 $\mu\text{g}/\text{m}^3$ (SVO-B13-01) to 70,000 $\mu\text{g}/\text{m}^3$ (SVO-B2-01). Sub-slab vapor TCE concentrations exceeded the NYSDOH mitigation value of 250 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (in samples collected in July 2003 from Buildings 1, 2, 4, 7, 8, 9, 10, and 11).

Of the 16 target VOCs (Tables 4-5 through 4-13), TCE was the primary VOC in sub-slab vapor and indoor air samples (Malcolm Pirnie 2004a). Tetrachloroethene (PCE); cis-1,2-DCE; and benzene, toluene, ethyl benzene and xylene (BTEX) compounds were also reported in indoor air samples. BTEX compounds are used in fuels and gasoline-powered equipment. Toluene was reported in Building 8 indoor air samples at concentrations greater than the corresponding sub-slab soil vapor sample; therefore this concentration is likely from a current indoor source. Soil vapor intrusion pathways are present or cannot be ruled out in all buildings except Building 12. A soil vapor intrusion pathway is not present in Building 12 based on less than 5 $\mu\text{g}/\text{m}^3$ of VOCs in the sub-slab and indoor air samples (Malcolm Pirnie 2004a). Direct pathways may not be present in each building; however, buildings may share common sub-slabs, and indoor air is co-mingled.

The average indoor air TCE concentrations in samples collected in 2003 and 2004 (prior to implementing ICMs) were greater than the NYSDOH air guideline value of 5 $\mu\text{g}/\text{m}^3$. Indoor air TCE

concentrations currently average less than $5 \mu\text{g}/\text{m}^3$ in buildings where ICMs have been implemented (Section 3.3).

The sub-slab VOC concentrations in Buildings 13 and 13A have decreased by more than an order of magnitude over the past decade, likely as a result of the operation of the Building 10 and 11 SSD systems. No VOCs were reported in the December 2011 sub-slab vapor sample collected from Building 13. Toluene ($1.1 \mu\text{g}/\text{m}^3$) was the only VOC in the December 2011 sub-slab vapor sample collected from Building 13A; however, toluene has not been assigned to a NYSDOH decision matrix. Buildings 13 and 13A indoor air TCE concentrations (less than the NYSDOH air guideline value) are likely a result of indoor air movement from Buildings 10 or 11. PCE and BTEX were also reported in indoor air samples collected from Buildings 13 and 13A, but at concentrations less than $10 \mu\text{g}/\text{m}^3$ and significantly less than the NYSDOH air guideline value for PCE ($100 \mu\text{g}/\text{m}^3$). A source contributing to VOCs in the sub-slab vapor does not appear to be present beneath Buildings 13 or 13A. The indoor air and sub-slab vapor concentrations indicate that a low potential of soil vapor intrusion exists in Buildings 13 or 13A.

Sub-slab vapor VOC concentrations measured with a photoionization detector in September 2012 are provided in Appendix B. These results indicate that sub-slab concentrations have decreased significantly in areas where SSD systems are operating but are still elevated in some areas outside of the influence of the SSD systems.

Ambient (outdoor) air samples have been collected outside Buildings 1, 2, 10A, 11, 12, and 13. Ambient air TCE concentrations have ranged from non-detect to $3.4 \mu\text{g}/\text{m}^3$ with most results less than $0.25 \mu\text{g}/\text{m}^3$.

4.4 Area of Concern 5 Historical Outfalls

Historically, process wastewater from manufacturing operations was discharged to ditches and ravines to the south and east of the building complex. In 1972, process wastewater was rerouted to an on-site treatment plant and HO2 through HO5 were abandoned (Chester Environmental 1995). HO6 and HO7 were abandoned in 1978 (Keystone 1991). The ravines that channeled the overland flow away from each discharge point are the only remaining visible evidence of the historical discharges.

In November 2000, during the *RFI*, soil samples were collected at the edge of Van Cleef Lake and the Cayuga and Seneca Canal. Samples were collected again in August 2004, during the *Historic Outfall Evaluation*, to quantify metals concentrations in the ravines (Malcolm Pirnie 2004b). Sediment sampling was conducted in 2005 in accordance with the *CMS Work Plan* (Malcolm Pirnie 2005a). The HO soil and sediment sampling results are provided in the *Historical Outfall Sediment Sampling Results and Fish and Wildlife Resource Impact Assessment Report* (Appendix A).

Surface and subsurface soil and sediment investigations have been completed to define the nature and extent of concentrations in soil and sediment. HO soil and sediment sampling locations are

shown on Figure 4-10. Historical analytical results from HO soil and sediment sampling activities are provided in Appendix F. Tables 4-14 and 4-15 summarize compounds reported in the HO ravine soil and sediment samples, respectively. The HO soil and sediment analytical results are summarized below.

4.4.1 Historical Outfall Soil Sampling Findings

In the HO soil samples collected in 2000 during the RFI, VOC analytical results were less than NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 values (the applicable regulatory comparison at that time) (NYSDEC 1994b). Metals were reported in HO soil samples collected in 2000 at concentrations greater than TAGM 4046 values. Additional HO ravine surface soil samples were collected in August 2004 and analyzed for Target Analyte List (TAL) metals. The August 2004 sample results (Table 4-14) confirmed residual metals, primarily cadmium, are in the ravine soils. The 2004 HO soil sample results were compared to the NYSDEC Part 375 Industrial SCOs (Figures 4-11a through 4-11c).

Cadmium was reported at concentrations greater than the industrial SCO (60 mg/kg) in 24 of 81 HO soil samples collected in 2004, and in samples collected near HO2, HO3, HO4, HO5, and HO7. The cadmium concentrations ranged from 0.52 to 682 mg/kg (Table 4-14). The sample with the highest cadmium concentration was collected from 0-0.5 foot bgs at boring HO4-SS-03 (Figure 5-11b). No other metals were reported at concentrations greater than their respective industrial SCOs.

4.4.2 Historical Outfall Sediment Sampling Findings

Sediment samples were collected along 12 transects in 2005 to establish background conditions in the lake and canal and in an upstream reference area (Figure 4-12). Sediment sample analytical results were evaluated for spatial patterns relative to the reference sample concentrations and compared to the screening criteria in the NYSDEC Technical Guidance for Screening Contaminated Sediment (NYSDEC 1999). The NYSDEC has established the Lowest Effects Level (LEL) and the Severe Effects Level (SEL) for metals in sediment. The sediment sample results exceeded both the LEL and SEL in 18 of the 48 sampling locations. Sediment in the northeastern portion of Van Cleef Lake and on the northern shore of the canal downgradient of the Seneca Falls dam contained cadmium at concentrations greater than the SEL (Table 4-15). Cadmium-containing sediment in the lake and in reference locations is buried beneath, and essentially capped by, at least 6 inches of sediment with cadmium concentrations less than the LEL and SEL.

Excluding cadmium, metals concentrations in surface sediments of Van Cleef Lake and both upstream and downstream sections of the Cayuga and Seneca Canal routinely exceed NYSDEC LEL sediment criteria. Mean arsenic, chromium, copper, iron, manganese, and nickel concentrations in the lake and canal were comparable to those found upstream. This comparison suggests that a metals source is upstream of the reference area rather than from the HOs. Cores and grab and samples from the lake and upstream canal transects contained black staining with petroleum odors in both shallow and deep portions of cores, providing further evidence of upstream

contaminant sources. The spatial distribution of petroleum staining and elevated copper, manganese, mercury, nickel, and zinc concentrations suggests that background sediment quality is poor and sources upstream from Van Cleef Lake are the primary contributors to existing conditions. The results from each transect are provided in Appendix F.

5. Conceptual Site Model

A conceptual site model (CSM) provides the context needed to match the historical information and collected data with the current and future site uses so that the most effective corrective measure also promotes the beneficial reuse of the site. Geologic, hydrogeologic, geochemical and anthropogenic data are organized and continuously updated in the CSM to facilitate the most complete and up-to-date understanding of the COPC distribution, migration pathways, fate, and potential exposures. GTE Operations Support Incorporated has instituted a dynamic approach to CSM development over the last 20 years by acting on information as it was gathered, supporting the initial site redevelopment through corrective actions, and facilitating beneficial reuse through ICM implementation and regular monitoring. This approach will continue throughout the corrective measure selection and implementation process.

The CSM compiles the physical and chemical information that defines the types and concentrations of COPCs, how and where they were released, their current distribution and likely migration pathways, and the potential for human exposure. Information on COPC releases was gathered from physical evidence, written documentation, engineering drawings, and verbal communication with current and former workers. Migration pathways were investigated via geophysical surveys, soil, groundwater, soil vapor and sediment sampling, and hydraulic testing. The CSM concludes with an exposure assessment based on the compilation of physical and chemical information.

5.1 Release Scenarios and Sources

During active manufacturing from 1914 to 1986, wastewater and fluids from industrial processes were discharged to floor drains and underdrains. As the building complex expanded, the manufacturing processes (and associated wastewater discharges) were moved into different buildings. Wastewater released from the historical outfalls of these drains, and leaks from the drains likely formed the original sources of COPCs in soil, groundwater, soil vapor and sediment. There are no known current, active releases of COPCs. GTE Operations Support Incorporated has no material knowledge or documentation of release scenarios and therefore has relied on the distribution of COPCs to develop an understanding of the potential release scenarios and sources.

5.2 Chemicals of Potential Concern

Chlorinated VOCs were used as degreasing solvents in different buildings throughout the complex. The primary COPC is TCE, concentrations of which are reported in soil, groundwater, soil vapor, and indoor air. TCE degrades into cis-1,2 DCE, which is reported primarily in groundwater and is therefore considered a secondary COPC.

Because of their fluorescent properties, metals, primarily cadmium, were applied as frit to television tubes. Cadmium is considered a COPC in soil and sediment.

5.3 Chemical of Potential Concern Extent and Migration Potential

The majority of COPC mass is adsorbed to soil or dissolved in groundwater in till, which is the upper-water-bearing hydrostratigraphic unit. Because of the low permeability of the till, only three isolated areas exist where COPC concentrations in soil exceed industrial SCOs (VOCs in soil in the Building 2 and 11 areas, and cadmium in the HO ravine soils). The remaining COPC mass is in soil vapor.

TCE and cis-1,2 DCE are soluble in water and are volatile; therefore they can migrate in both groundwater and soil vapor. VOCs can also absorb or adsorb onto soil particles or organic matter and either become incorporated into the soil matrix or be biodegraded if conditions are amenable. These processes attenuate the migration of VOC concentrations.

Advection and diffusion are the primary transport mechanisms. Advection in groundwater is very slow (approximately 2 to 4 feet per year) because of the low hydraulic conductivity and shallow gradient in the saturated till. Diffusion is inherently slow and based solely on concentration gradients under relatively constant temperatures in the subsurface. Advective transport of VOCs in soil vapor is primarily through preferential pathways along the backfill of former or current utilities and beneath building slabs where the sub-slab material is more permeable than native till. Diffusion also occurs in the vapor-phase, albeit slowly because of low concentration gradients. VOC concentrations in soil vapor generally coincide with shallow groundwater concentrations, but only have the potential to migrate into indoor air beneath or in close proximity to buildings.

Despite the attenuation and limited transport processes, sufficient time has passed (since potential releases occurred) to allow VOCs to migrate in groundwater and soil vapor over approximately 25 acres of the site. In addition, industrial processes were moved throughout the building complex over time, indicating that there may have been multiple historical release points.

Cadmium is not volatile and has limited solubility in water. Cadmium readily adsorbs to soil and its migration is therefore limited. Cadmium is found only in isolated areas in soil and sediment near historical outfalls through which wastewater was formerly discharged.

5.4 Land and Groundwater Use and Restrictions

The site is zoned industrial and used for warehousing and distribution. Groundwater in the upper water-bearing unit of till is not used because of negligible yield. There are currently no restrictions on groundwater use, however Seneca County IDA and H.P. Neun have agreed in principle to an environmental covenant to prohibit groundwater use and to restrict operations to warehousing and distribution. Institutional controls are also in place to provide pre-notification of any activities that would disrupt the asphalt and concrete building slabs that form a cap above most of the site.

5.5 Exposure Pathways and Receptors

H.P. Neun uses the building complex for distribution and warehousing. H.P. Neun personnel assemble or pack boxes in portions of Buildings 7, 9, and 11. The maintenance shop is in Building 5, and H.P. Neun's office is in Building 7. Raymond Kelley, Inc. leases storage space for roofing supplies along the southern wall of Building 2. The first floor of Building 1A contains offices (only one of which is used intermittently by Raymond Kelley, Inc.) and the second floor is used for storage. Offices on the first and second floors of Building 2A are unoccupied. H.P. Neun and Seneca County IDA have agreed to restrict future facility use to distribution and warehousing. Formalization of these plans is ongoing and will be incorporated into CMS design and implementation.

5.5.1 Soil Exposure Pathway Assessment

Soils containing TCE at concentrations greater than the industrial SCO are south of Buildings 2 and 11. The areas are capped by asphalt parking lots and roads. No complete exposure pathway exists.

Construction and on-site utility workers could be exposed to surface and subsurface soils during excavations via dermal contact, incidental ingestion, and inhalation of vapors and soil particulates.

5.5.2 Groundwater Exposure Pathway Assessment

No complete direct contact groundwater exposure pathways exist. Groundwater is not used for potable, commercial, agricultural, or industrial purposes at or near the site, and such uses are not planned. Groundwater use restrictions will be part of the site environmental covenant. Furthermore, shallow water supply wells in the till will not be installed near the site because the till does not yield sufficient water. The Village of Seneca Falls obtains its drinking water from Cayuga Lake, which is approximately 2.5 miles east of the site (Seneca Falls 2009).

Under future exposure scenarios, potential human receptors include on-site construction and utility workers who could be exposed to site groundwater (3 to 5 feet bgs). Complete exposure pathways for construction and utility workers include dermal contact, incidental ingestion, and inhalation of vapors.

5.5.3 Soil Vapor Exposure Pathway Assessment

The basic model for soil vapor intrusion is vertical migration of vapors containing VOCs from a subsurface source to indoor air through cracks, foundation joints, or other openings in the floor. Understanding the migration of sub-slab soil vapors and indoor air movement is important in evaluating the potential soil vapor intrusion pathway. Even if VOCs are present in both sub-slab soil vapor and indoor air in the same building, a direct soil vapor intrusion pathway may not be

conclusively determined because of air movement between buildings. Therefore, the sub-slab materials and the building construction need to be accounted for when evaluating corrective measures.

Potential human receptors include on-site workers in Buildings 1A, 7, 9, and 11. Potentially complete exposure pathways for on-site workers related to soil vapor intrusion include inhalation of indoor air. During the heating season indoor air TCE concentrations in some buildings may exceed the NYSDOH air guideline value of $5 \mu\text{g}/\text{m}^3$. However, the annual average TCE indoor air concentration in occupied buildings is less than $5 \mu\text{g}/\text{m}^3$. Under future exposure scenarios, additional potential human receptors include on-site workers in currently unoccupied portions of the building complex.

5.5.4 Historical Outfall Soil and Sediment Exposure Pathway Assessment

Metals were reported in the ravine and ditch samples downgradient of HO2 through HO7; however, only cadmium concentrations exceeded the industrial SCO. The ravines downgradient of HO2, HO3, HO4, and HO5 are difficult to access because they are on a steep grade with dense vegetation. In addition, HO discharges ceased more than 30 years ago and the piping of HO3, HO4, and HO5, if present and associated soils are buried under fill. As a result there are no exposed and accessible areas where potential discharge-containing metals occurred at HO3, HO4, and HO5. Therefore, human receptors would not likely be exposed to the ravine soils downgradient of the outfalls.

HO6 and HO7 discharged to separate drainage ditches, which combine into one drainage swale at the access road. This drainage swale continues to the east and combines with other drainage swales before discharging to the canal. Cadmium was reported at concentrations greater than the industrial SCO near the outfalls and in a surface soil sample collected from the drainage swale east of the access road. Because recreational users may use the access road, human exposure to soil downgradient of HO6 and HO7 was considered. Cadmium in soil in the ravines is largely inaccessible because of steep slopes, uneven terrain, and dense vegetation.

Fish and wildlife that live in or use the lake and canal are not likely to come in contact with cadmium-containing sediments because they are generally capped beneath at least 6 inches of sediment with low cadmium concentrations. Potential exposure to other metals and petroleum-related compounds from upstream sources has a greater potential to affect aquatic resources, as these contaminants are generally present in shallower sediments.

The canal is difficult to access by foot because of the dense vegetation along the northern banks. Under future exposure scenarios, potential human receptors include construction workers or other personnel that may need to dredge the lake or canal. Potential exposure pathways for construction and utility workers include dermal contact with sediments and incidental ingestion of soil.

Additional sediment sampling is not proposed because the sediment sampling program conducted in 2004 provided sufficient data to characterize metal concentrations and evaluate potential exposure pathways. Sediment corrective measures are not evaluated in this CMS because cadmium-containing sediment in the lake is capped beneath at least 6 inches of sediment and potential exposure to site-related metals in sediment is incomplete if sediments remain undisturbed.

5.6 Conceptual Site Model Summary

COPCs are present in soil, sediment, groundwater, and soil vapor, but exposure pathways are either negligible (existing capping or limited access) or are being mitigated (SSD systems for potential soil vapor migration to indoor air). The low permeability of the till limits the migration of COPC in groundwater and renders the yield too low to use as a water supply. These limited exposure conditions will be preserved indefinitely through the commitments by GTE Operations Support Incorporated to proceed through the corrective measures process and by Seneca County IDA and H.P. Neun to enact an environmental covenant to restrict current and future site use to warehousing and distribution, prohibit site groundwater use, and incorporate institutional controls. This conceptual site model and exposure assessment will guide the corrective measure alternatives evaluation, described in the following sections.

6. Corrective Action Objectives

Section 6 identifies and evaluates the objectives and requirements of corrective measures as a preparatory step to developing and screening corrective measure alternatives. The purpose of the CMS is to comply with applicable RCRA corrective action regulations and sustain the current and future beneficial reuse of the site.

Corrective Action Objectives (CAOs) are chemical-, location-, and action-specific cleanup objectives established for protecting human health and the environment, and are based on the nature and extent of COPCs, potential exposure pathways and receptors, and remediation goals (USEPA1990). As such, the current and future use of the site can be integrated into the development of CAOs. For example, an objective of limiting potential exposure pathways can be achieved by incorporating existing site infrastructure or future development plans. For this site, sustaining the current beneficial use is a key objective, and therefore maintaining or improving existing site conditions can be factored into the corrective measures evaluation process. These qualitative CAOs are balanced by quantitative CAOs because the protection of human and ecological receptors can be achieved by reducing or eliminating exposure pathways and by reducing concentrations (USEPA 1988 b).

The CAOs presented in this section and in Table 6-1 were developed with the goal of protecting human health and the environment for each medium and in each of the following AOCs.

- Area of Concern 1 - Building 2 area.
- Area of Concern 2 - Building 7 area.
- Area of Concern 3 - Building 11 area.
- Area of Concern 4 – Soil Vapor Intrusion Pathways.
- Area of Concern 5 – Historical Outfalls.

6.1 Soil

As summarized in Section 4, cadmium concentrations in the HO ravine soil and TCE concentrations in the Building 2 and 11 area soil are greater than industrial SCOs. The CAOs for soil include:

- Minimize potential for exposure (ingestion, inhalation and direct contact) with COPCs in soil above industrial use standards.
- Minimize the potential for exposure to chemicals of potential ecological concern (COPECs) in soil with concentrations that may affect ecological receptors.

The SCOs were selected using the following approach, which is applicable for sites under the RCRA Corrective Action Program and in accordance with NYSDEC Commissioner's Policy 51 (CP-51; NYSDEC 2010a):

- Evaluate if unrestricted SCOs are feasible.
- If unrestricted SCOs are not feasible, apply the most feasible and least restrictive SCOs in accordance with the CP-51 General Approaches to the selection of Soil Cleanup Levels.

Unrestricted and residential SCOs were evaluated and determined to be infeasible because of the distribution of COPC concentrations and geology.

Industrial SCOs were selected based on the following evaluation:

- H.P. Neun and the Seneca County IDA have agreed to restrict future facility use to distribution and warehousing. CMS design and implementation will include formal access agreements, environmental covenants, and institutional controls.
- The site is zoned M-1 industrial.
- Compared to industrial SCOs, applying commercial SCOs would not materially benefit the management of COPCs that would remain in soil, soil vapor or groundwater after implementing corrective measures. The area where COPC concentrations exceed both industrial and commercial SCOs (approximately 0.17 acre) is less than 1 percent of the area evaluated for COPCs in soil vapor and groundwater, and the difference in potential cleanup areas to meet commercial versus industrial SCOs is approximately 0.08 acre. Because of this incremental increase in area, soil corrective measures to meet either industrial or commercial SCOs would be equally effective on COPC concentrations in groundwater and soil vapor. Additionally, obstructions including buried utilities and buildings limit potential corrective measures to discrete areas.
- The same institutional controls would be considered for residual COPCs in soil, soil vapor and groundwater under either an industrial or commercial SCO scenario. The areas where COPC concentrations are greater than commercial or industrial SCOs are already capped by asphalt or concrete, providing the same limitation to potential exposure.

Considering the CAOs and site conditions, corrective measures are warranted for soil.

6.2 Groundwater

As summarized in Section 4.2, VOCs are present in site groundwater at concentrations greater than NYSDEC TOGS SGVs. Considering the groundwater VOC concentrations and site conditions, corrective measures are warranted for groundwater. The groundwater CAOs include:

- Mitigate potential exposure to COPCs in groundwater that exceeds the SGVs by eliminating future groundwater use at the site.

- Manage potential exposure to VOCs in groundwater under construction or utility worker scenarios.
- Control or limit off-site flux of COPC mass.

The CAOs for groundwater comply with applicable groundwater quality standards or guidance values.

6.3 Soil Vapor

The CAO for soil vapor is to mitigate the potential for soil vapor intrusion into the buildings. As summarized in Section 4.3, TCE concentrations in indoor air and sub-slab vapor in several site buildings fall under the mitigate category when compared to the NYSDOH Soil Vapor/Indoor Air Matrix 1. As such, corrective measures are warranted to mitigate the potential for soil vapor intrusion with the exception of Buildings 12, 13, and 13A, which do not fall under the NYSDOH mitigate category. Soil vapor/indoor air CAOs include:

- Mitigate the potential for soil vapor intrusion in buildings where sub-slab vapor and indoor air concentrations fall in the mitigate category of the NYSDOH Soil Vapor/Indoor Air Matrices.
- Reduce indoor air concentrations to less than the NYSDOH air guideline values.

6.4 Sediment

CAOs were not developed for sediment because the sediment in Van Cleef Lake and the Seneca and Cayuga Canal do not merit further action, as discussed in Appendix A. The *Historical Outfall Sediment Sampling Results and Fish and Wildlife Resource Impact Assessment Report* (Appendix A) discusses how the sediment analytical results were assessed for spatial patterns relative to the reference sample concentrations and compared to the screening criteria in the NYSDEC Technical Guidance for Screening Contaminated Sediment (NYSDEC 1999). Cadmium-containing sediment in the lake and in reference locations is capped beneath at least 6 inches of sediment with lower cadmium and higher metals concentrations. Potential exposure of biota and humans to cadmium in Van Cleef Lake sediments is incomplete if sediments remain undisturbed. Arsenic, chromium, copper, iron, manganese, and nickel concentrations in the lake and canal were comparable to those found upstream, indicating that a metals source is upstream of the reference area, and not from HOs.

7. Corrective Measure Technologies - Preliminary Screening

Section 7 identifies and evaluates general response actions, potential corrective measure technologies, and process options. Corrective measure technologies are defined as general categories of actions under each general response action (e.g., *barrier* is a corrective measures technology under the general response action of *containment*). Process options are specific categories of remedies within each corrective measures technology used to implement the technology (e.g., a *groundwater recovery trench* is a process option under the corrective measures technology of *barrier*).

Non-applicable technologies or process options (based on identified COPCs and site characteristics) are eliminated before developing comprehensive corrective measure alternatives or conducting more detailed analyses of such approaches. The technologies/process options retained through an initial screening are later combined into specific corrective measure alternatives (Section 8). The preliminary screening entails:

- Identifying general response actions.
- Screening of technical implementability.
- Evaluating process options.
- Selecting representative process options.

7.1 General Response Actions

General response actions are categories of corrective measures that may be used to either reduce the chemical concentration in each AOC or prevent receptor exposure. They provide the basis for identifying specific corrective measure technologies and process options for each medium. General response actions by medium include:

Soil (Buildings 2 and 11 areas and the historical outfalls)

• no action	• institutional controls
• containment	• removal/disposal
• in situ soil treatment	• ex situ soil treatment

Groundwater (Building 2, 7, and 11 areas)

• no action	• institutional controls
• monitored natural attenuation	• containment
• ex situ groundwater treatment	• in situ groundwater treatment
• discharge	• disposal

Soil Vapor

- no action
- containment
- removal/treatment
- barriers

Corrective measures may be used independently or in combination to satisfy the CAOs.

7.2 Technology Screening

Technical implementability is one of the preliminary screening/evaluation criteria for corrective measure technologies and process options. Technical implementability screening considers the site-specific CAOs, site-specific conditions (geologic setting and contaminant distribution), and contaminant characteristics. The preliminary screening process consisted of reviewing available technologies and listing retained technologies and process options capable of addressing contaminant types in each medium.

Tables 7-1, 7-2, and 7-3 present the preliminary evaluation of technologies based on technical implementability for soil, groundwater, and soil vapor, respectively. Technologies and process options eliminated from further consideration based on technical implementability are shaded gray.

After the technical implementability screening, the retained corrective measure technologies and process options are evaluated using the following criteria:

- Effectiveness
- Cost
- Implementability

The effectiveness of corrective measure technologies and process options are evaluated as follows:

- Potential effectiveness in meeting CAOs for the contaminant types, site conditions, and estimated areas and volumes of affected media.
- Potential human exposures, adverse environmental effects, and nuisance conditions resulting from implementing.

Implementability primarily refers to the administrative aspects of using a process option, such as obtaining necessary permits; the availability and capacity of treatment, storage, and disposal services; and the availability of necessary equipment. Cost plays a limited role in the evaluation of process options during the initial screening. Relative capital and operations and maintenance (O&M) costs are used rather than detailed estimates.

Tables 7-4, 7-5, and 7-6 present the screening and qualitative evaluation of process options for soil, groundwater, and soil vapor, respectively. Technologies and process options eliminated from further consideration based on effectiveness, implementability, and/or cost are shaded.

7.3 Technologies Retained

The following process options were retained in whole or in part as corrective measure alternatives.

Soil (Buildings 2 and 11 areas and the HOs)

- no action
- institutional controls (Site Management Plan)
- soil removal
- soil treatment using thermal heating
- soil treatment using thermal heating in combination with multi-phase recovery of groundwater and vapor
- soil disposal off site

Groundwater (Buildings 2, 7, and 11 areas)

- no action
- institutional controls (Site Management Plan)
- monitored natural attenuation
- remove groundwater through dewatering an excavation
- treat groundwater using thermal heating and multi-phase extraction
- treat groundwater using air stripping

Soil vapor

- no action
- institutional controls (Site Management Plan)
- building demolition
- sub-slab depressurization
- passive venting of sub-slab vapors
- barriers (caulking and sealing floor or other passive barrier)

7.3.1 Soil Options (Buildings 2 and 11 areas and the Historical Outfalls)

The technologies and process options for addressing COPC in soil are described below and evaluated based on effectiveness, implementability, and cost in Table 7-4.

7.3.1.1 *No Action*

The final DER-10 guidance for selecting a corrective measures alternative specifies that a “no action” alternative be developed and examined as a potential corrective measure. The “no action” option, which would not be effective but would be easy to implement with no costs, is retained and examined as a baseline against other corrective measures (Table 7-4).

7.3.1.2 *Institutional Controls*

Institutional controls affect site management and/or use. Institutional controls do not physically alter site conditions and are not intended to reduce the mobility, toxicity, or volume of COPCs as part of the corrective measures alternative. Institutional controls limit the potential for exposure to COPCs through deed notifications, deed restrictions, and a site management and health and safety plan.

Deed notifications are descriptions about the property recorded using an environmental covenant to prohibit certain uses. The covenant could be modified to include land use restrictions and preclude residential use of the property. The covenant could prohibit facilities with sensitive populations and preclude the extraction or use of groundwater. Institutional controls received “moderate” effectiveness, “high” implementability, and “low” cost evaluations (Table 7-4). Institutional controls do not affect the concentration of COPCs in soil, and are considered in combination with other process options (Table 7-4).

7.3.1.3 *Excavation*

Excavation and dewatering involves the physical removal of targeted media. Typical equipment used includes backhoes, draglines, clamshells, vacuum trucks, and front-end loaders. Soil sampling would confirm the removal of contaminants before backfilling. Excavation and removal of soil containing COPCs eliminates the potential for COPCs to leach from soil to groundwater. COPCs may be an inhalation risk during corrective measures activities.

Excavated material is typically characterized and disposed off-site at an approved waste management facility. Off-site transportation of wastes must comply with applicable federal and state shipping and manifesting regulations. Disposal cost depends on the amount of soil removed and the soil characteristics (hazardous or non-hazardous).

Excavation of source zone mass is considered an aggressive remediation method. Excavation received “moderate to high” effectiveness, “moderate” implementability, and “high” cost evaluations (Table 7-4).

7.3.1.4 *In situ Thermal Remediation*

ISTR is an aggressive treatment option that heats the subsurface to volatilize COPC. The heating can be achieved using electrical resistance heating (ERH), thermal conductance heating (TCH), or steam-enhanced extraction. Thermal remediation by injecting steam is not feasible in low permeability soils but ERH and TCH are retained as viable treatment options.

7.3.1.4.1 Electrical Resistance Heating

ERH can be applied in low permeability formations to heat saturated and vadose-zone soils. ERH uses computer controls and standard three-phase power to pass a current between the subsurface electrodes. The soil and groundwater natural electrical resistance causes the temperature to rise in response to the applied current. The ERH process requires pore water to prevent the soils from desiccating and becoming over-resistive; therefore, the upper temperature threshold of the heating process is the boiling point of water (i.e., 100°C at atmospheric pressure).

The rate of heating in an ERH application is dependent on the resistive properties of the formation and the amount of energy delivered to the subsurface; however, subsurface temperatures approaching the boiling point of water are generally achieved in 1 to 2 months.

7.3.1.4.2 Thermal Conductive Heating

TCH is effective in low permeability soils. The TCH process uses electrically powered in situ heater wells that span the vertical treatment interval and are heated to 500 to 800°C. Heat conducts from the heater wells into the formation at a uniform and predictable rate. The thermal conductivity of different soil types has little variability. During the heating process, soils adjacent to the heater wells achieve temperatures higher than the boiling point of water, which will vaporize pore water and VOCs. Although conduction is TCH's primary heat transfer mechanism, convection also occurs (steam and hot groundwater mobilizes in heated parts of the soil column).

7.3.1.4.3 Thermal Remediation and Multi-Phase Extraction

The higher temperature in the thermal treatment areas raises the VOC vapor pressure, increasing volatilization from the soil and groundwater. The volatilized VOCs and dissolved-phase compounds are recovered using MPE. MPE applies a high vacuum to a recovery well increasing the net effective drawdown.

The MPE well's screened interval spans both the saturated and vadose zone thereby removing volatile organic vapors in the soil gas (vapor extraction). Extraction of water from MPE wells lowers the water table and exposes a greater part of the subsurface to vapor extraction. Groundwater extraction also removes dissolved contaminants from the subsurface.

An MPE pilot test was conducted in fall 2012 and is discussed in Section 3.4 and Appendix B.

MPE effectiveness is limited by the soil permeability and the ability to move the water and vapor through the subsurface. Because of technology limitations, MPE was not considered as a stand-alone technology but may be applicable in conjunction with ISTR. MPE would not be implemented with ERH because the soil needs to stay moist to be effective. Implementing ERH would include soil vapor extraction.

7.3.1.4.4 Thermal Remediation Benefits

Increased vapor pressure is the dominant thermal remediation mechanism. Other benefits include:

- The vapor, groundwater, and NAPL viscosities, if any, are reduced at elevated temperatures, resulting in improved mobility and recoverability of vapors and liquids.
- The steam generated within the soil pore space can enhance the effective porosity and improve vapor- and liquid-phase recovery.
- The VOC adsorption coefficients are reduced when soil temperatures are increased, resulting in an increased rate of desorption from soil particles.
- The azeotropic boiling point of TCE (73.4 °C) is lower than the pure compound boiling point (86.9 °C) and the boiling point of water (100 °C). As such, NAPL within the saturated treatment zone will undergo azeotropic boiling at the NAPL/water interface, which will expedite the transfer and recovery of NAPL from the liquid to the vapor phase.

ISTR would include MPE to remove volatilized VOCs. Thermal treatment received “high” effectiveness, “moderate” implementability, and “high” cost ratings (Table 7-4).

7.3.2 Groundwater Options (Buildings 2, 7, and 11 areas)

The technologies and process options for addressing COPC in groundwater are briefly described below and evaluated based on effectiveness, implementability, and cost (Table 7-5).

7.3.2.1 No Action

The “no action” option is retained and examined as a baseline against which other corrective measures are compared (Table 7-5).

7.3.2.2 Institutional Controls

Institutional controls affect site management and/or use and would include the components discussed in Section 7.3.1.2. Institutional controls received “moderate” effectiveness, “high” implementability, and “low” cost evaluations (Table 7-5). Institutional controls do not affect the VOC concentration in groundwater, and are considered in combination with other process options (Table 7-5).

7.3.2.3 Monitored Natural Attenuation

As discussed in Section 3.4 and Appendix B, an MNA approach relies on natural attenuation processes to achieve site-specific CAOs. To evaluate the effectiveness of MNA, VOCs and natural attenuation parameters would be analyzed in groundwater samples collected as part of a long-term monitoring program. MNA received “low” effectiveness, “high” implementability, and “low to moderate” cost evaluations (Table 7-5). The effectiveness of MNA may increase to “moderate” if implemented in conjunction with other process options.

7.3.2.4 Excavation

Excavation and dewatering involves the physical removal of targeted media. Typical equipment used includes backhoes, draglines, clamshells, vacuum trucks, and front-end loaders. Soil sampling would confirm the removal of contaminants before backfilling. Excavation and removal of soil eliminates the potential for COPCs to leach from the soil to groundwater. Dewatering associated with excavation directly removes the groundwater with COPCs. COPC may be an inhalation risk during corrective measures activities. Excavation of source zone mass is considered an aggressive remediation method. Excavation received “moderate to high” effectiveness, “moderate” implementability, and “high” cost evaluations (Table 7-5).

7.3.2.5 In situ Thermal Remediation

ISTR involves subsurface heating in the target interval to volatilize and extract COPCs in soil and groundwater (Section 7.3.1.4). STR received “high” effectiveness, “moderate” implementability, and “high” cost ratings (Table 7-5).

7.3.3 Soil Vapor Intrusion Options

The technologies and process options for addressing soil vapor intrusion are briefly described below and evaluated based on effectiveness, implementability, and cost (Table 7-6).

7.3.3.1 No Action

The “no action” option is retained and examined as a baseline against which other corrective measures are compared (Table 7-6).

7.3.3.2 Sub-Slab Depressurization

Pressure gradient is the driving force for potential migration of soil vapor into buildings (e.g., gas/vapor flows from high to low pressure). Soil gas/vapor can migrate through cracks in the slab or foundation, drain tiles, utility pipes, sumps, conduit penetrations, and other surfaces if the pressure underneath the slab is greater than the pressure in the building.

An SSD system is an engineered system designed to create a vacuum under the floor slab by extracting sub-slab gas/vapors through a network of suction pits. The suction pits are constructed by creating a void directly below the slab and backfilling with gravel. Riser piping is installed from the suction pits to a fan or blower and associated discharge point. Fans or blowers are outside the building to minimize the potential for vapor leaks at the fan/blower or through the discharge piping. Discharge points are placed above the roof line and away from openings into the buildings. The piping and fans/blowers for the system are sized based on the flow and vacuum observed during testing.

SSD is generally the most common, reliable, cost-effective, and efficient approach for soil vapor intrusion mitigation (ITRC 2007). The NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) states “In conjunction with sealing, potential subsurface vapor entry points, an active sub-slab depressurization system (SSD system) is the preferred mitigation method for buildings with a basement slab or slab-on-grade foundation.” Mitigation methods such as SSD are designed to minimize the migration of sub-slab vapors into a building. SSD systems are not designed for mass removal of vapors or to remediate the vapor source.

SSD can be accomplished through the installation of in-line radon style systems connected to each suction point. With this option, in-line fans are installed within the riser piping extending from a suction point. The piping may penetrate the roof, window, or a side wall. The fans are installed within the piping leading to the discharge location. The practicality of using fans depends on the number of individual systems necessary to achieve depressurization in an area. The cost benefit of operating the smaller fans in lieu of a larger blower can be negated if too many fans are needed. Carbon treatment, if necessary, is difficult to implement at multiple locations. However, based on current sub-slab concentration, carbon treatment will not be necessary.

If SSD uses a central system in which suction pits are connected to an enclosed system. Individual riser pipes are typically connected to a larger diameter system of header pipes. Pipes are sized to minimize friction losses, and valves are installed on each riser pipe to control the flow from each suction pit. Advantages of centralized systems include the ability to use blowers capable of larger vacuums when necessary and the ability to accommodate carbon treatment if necessary. Disadvantages can include the installation and operating cost (electricity and operations and maintenance), and space constraints.

SSD received “high” effectiveness, “moderate” implementability, and “moderate” cost ratings (Table 7-6).

7.3.3.3 Slab-Sealing

Slab-sealing involves sealing accessible cracks, expansion joints, sumps, and other openings that can serve as pathways for sub-slab vapors to enter the building. Completely sealing all openings is not feasible. Therefore, slab-sealing is not a stand-alone mitigation option but it is very useful when implemented in conjunction with SSD. Sealing the slab can enhance the SSD performance by

minimizing pathways for short-circuiting of the vacuum influence. Slab-sealing received “low” effectiveness, “high” implementability, and “low” cost ratings (Table 7-6).

7.3.3.4 Passive Barriers

Passive barriers are commonly installed during new construction where a potential for vapor intrusion is anticipated. The barriers are often spray applied; however, sheets of polyvinyl chloride (PVC) or rubber also can be used. The barrier promotes a buildup of vapors beneath it, which cannot be released if a passive or active SSD has not been incorporated. Passive barriers received “moderate” effectiveness, “high” implementability, and “low to moderate” cost ratings (Table 7-6).

7.3.3.5 Passive Venting

Passive venting systems are commonly installed during new construction and consist of a permeable collection layer vented to the atmosphere. The collection layer can be a gravel layer across the building footprint, or gravel trenches with slotted piping to facilitate soil gas collection. A corrugated soil gas collection mat also can be installed in lieu of the gravel trenches. In each case, riser piping is installed from the collection media to the discharge point above the roof level. The heat within the building creates thermal advection within the piping to induce flow. Wind turbines also can be installed on the piping discharges to induce flow when the wind is blowing.

Passive systems, when installed in combination with passive barriers, prevent the buildup of vapors by allowing the vapors to vent to the atmosphere. If a barrier is not installed, vapors could enter the building through existing pathways. If sufficient vapors are present and found to be entering the building, the passive systems can be converted to active SSD systems by adding a fan or blower. The collection layer would enable more efficient operation of an active SSD system. Passive venting received “moderate” effectiveness, “high” implementability, and “moderate” cost ratings (Table 7-6).

7.3.3.6 Building Demolition

Demolishing a building, although costly, would eliminate soil vapor intrusion. However, if the demolished building is rebuilt, soil vapor intrusion mitigation technologies, such as passive barriers or passive venting, may need to be incorporated into the building design. Building demolition received “high” effectiveness, “low” implementability, and “high” cost ratings (Table 7-6).

8. Corrective Measure Alternatives

Remedial technologies retained during the technical implementability and process-option screenings (Section 7.3) are in Table 8-1. The process options are assembled into corrective measure alternatives for each AOC (Building 2, 7, and 11 areas, the soil vapor intrusion pathways, and the HOs) (Figure 3-1). Each alternative is described, including a conceptual design for implementation and the assumptions made, to provide a basis for detailed analysis and comparison to other alternatives. Each alternative for each AOC is provided in Table 8-2.

The following corrective measure alternatives were developed for each AOC:

Alternative ID	Alternative Title	Report Section
Area of Concern 1 – Building 2 area		
Alternative 1A	No Action	8.2.1
Alternative 1B	Site Management Plan (SMP)	8.2.2
Alternative 1C	Excavation	8.3.1
Alternative 1D	Thermal Remediation	8.3.2
Area of Concern 2 – Building 7 area		
Alternative 2A	No Action	8.2.1
Alternative 2B	SMP	8.2.2
Area of Concern 3 – Building 11 area		
Alternative 3A	No Action	8.2.1
Alternative 3B	SMP	8.2.2
Alternative 3C	Excavation	8.5.1
Alternative 3D	Thermal Remediation	8.5.2
Area of Concern 4 – Soil Vapor Intrusion Pathways		
Alternative 4A	No Action	8.2.1
Alternative 4B	SMP	8.2.2
Alternative 4C	Sub-Slab Depressurization (SSD)	8.6.1
Alternative 4D	SSD and Building Demolition	8.6.2
Area of Concern 5 – Historical Outfalls		
Alternative 5A	No Action	8.2.1
Alternative 5B	SMP	8.2.2
Alternative 5C	Ravine Soil Excavation	8.7.1
Alternative 5D	Ravine Soil Capping	8.7.2

The corrective measure alternatives listed above are process options that represent integrated approaches intended to satisfy the corrective action criteria and goals. The corrective measure alternatives, which are evaluated in Sections 8.2 through 8.7, are in accordance with the CAOs in Section 6 (except the no action alternative, which is provided for comparison purposes).

8.1 Threshold and Balancing Criteria

The threshold criteria that must be satisfied in order for an alternative to be considered for selection are:

- (1) Protective of human health and the environment.
- (2) Attain the standards, criteria, and guidance established for the site.

The no action alternatives (Alternatives 1A, 2A, 3A, 4A, and 5A) do not meet the threshold criteria requirements. However, as discussed in Section 8.2.1, the no action alternatives are retained and examined as a baseline against which other corrective measures can be compared. The remaining corrective measure alternatives in Section 8 meet the threshold criteria requirements. As such, the threshold criteria are not considered in the evaluation of corrective measures.

Each corrective measure that passed the threshold screening was evaluated relative to the balancing criteria: long-term effectiveness; reduction in the toxicity, mobility, and volume of wastes; short-term effectiveness; implementability; sustainability; and cost. Balancing criteria analyses are intended to help select an alternative that provides a permanent solution, and reduces toxicity, mobility, and/or volume of area-specific COPCs. The balancing criteria, which are used to compare the positive and negative aspects of each corrective measure alternatives, are discussed below.

- **Long-term effectiveness and permanence** — After the SGVs have been met, engineering and institutional controls will be used to manage treatment residuals or remaining untreated wastes. The components include assessment of the magnitude of residual risk, and assessment of the adequacy and reliability of controls used to manage residual wastes. This may include an assessment of containment systems and institutional controls to determine if they are sufficient to ensure that human and environmental receptor exposure is within protective levels.
- **Reduction of mobility, toxicity, or volume** — This criterion addresses the regulatory preference for selecting corrective measures that include treatment technologies that permanently and significantly reduce the mobility, toxicity, or volume of hazardous substances. Factors evaluated include the treatment process; volume of hazardous material treated; reduction in toxicity or mobility, and contaminant type and quantity.
- **Short-term effectiveness** — This criterion evaluates the potential effects that the alternative will have on human health and the environment during construction and implementation. The

following factors are considered: fire, explosion, exposure to hazardous substances, and potential environmental effects associated with treatment, excavation, transportation, and re-disposal or containment of waste material.

- **Implementability** — This criterion considers the technical and administrative feasibility of implementing an alternative, including the relative availability of technical services and materials.
- **Sustainability** — This criterion addresses natural resource consumption and the environmental burden of implementing an alternative (consistent with the green remediation practices and strategies in Subsection 1.14 of the DER-10).

Qualitative sustainability was assessed based on five green remediation metrics (energy use, air emissions, water consumption, land impact, and material consumption and waste generation).

1. **Energy use** was evaluated by a qualitative fuel, electrical energy, and machinery power comparison to requirements for corrective measures alternative implementation and operation.
2. **Air emissions** (particulates and other air pollutants) were qualitatively evaluated for each alternative using anticipated greenhouse gas emissions associated with equipment use and transportation of materials.
3. **Water consumption** was evaluated for each corrective measure (i.e., use of potable water for equipment cleaning and the off-site disposal of extracted water).
4. **Land impact** was evaluated using relative expected disturbed footprint of each corrective measures alternative with on-site activities (e.g., excavation area, well installation, staging, and decontamination). Consideration was given in the qualitative evaluation to the disturbed acreage original condition (i.e., pristine undisturbed versus previously disturbed industrial area).
5. **Material consumption and waste generation** were evaluated by estimating the amount of materials to be consumed and waste created (i.e., PVC for piping and well casings, soil from excavation or wells) for each corrective measure.

The evaluation is a qualitative comparison of the potential corrective measure alternatives developed for each area (AOC 1 through 5). The sustainability assessment results are included in Table 8-3. The sustainability assessment incorporates the commonly accepted principles of green remediation into the corrective measures selection process.

- **Cost** — Cost includes both capital and O&M costs (Table 8-4 and Appendix G). Capital costs include direct (construction, equipment, and disposal) and indirect (engineering,

legal, and permit) costs. O&M costs are post-construction costs necessary to ensure the corrective measure effectiveness.

8.2 Common Alternatives

The no action and SMP alternatives apply to each of the AOCs and are evaluated below.

8.2.1 No Action

The no action alternatives (Alternatives 1A, 2A, 3A, 4A, and 5A) include no corrective measure or covenant to reduce, control, or monitor potential human health or ecological risks associated with site soil, groundwater, or soil vapor intrusion. The conceptual design assumptions for the no action alternative for each AOC are identified in Table 8-2.

A no-action alternative is unsatisfactory because it would not:

- Meet the CAOs established in Section 6 and the threshold criteria.
- Monitor and protect human health and the environment.
- Achieve short- or long-term effectiveness and permanence.
- Address COPC concentrations in soil, groundwater, and indoor air.
- Designate land-use restrictions or provide long-term control of potential exposure pathways.
- Satisfy the statutory preference for treatment as a principal element of remediation.

Although a no action alternative is unsatisfactory, it is retained and examined as a baseline against which other corrective measures can be compared.

8.2.2 Site Management Plan

The SMP alternatives (Alternatives 1B, 2B, 3B, 4B, and 5B) would limit access to soils and groundwater, and monitor institutional controls and groundwater concentrations. The conceptual design assumptions for the SMP alternatives are in Table 8-2.

Implementing and maintaining a site-wide SMP, including institutional controls, quarterly inspections, and long-term groundwater and air monitoring, is in general accordance with NYSDEC DER-10 (NYSDEC 2010b). An environmental covenant, the details of which would be negotiated with the Seneca County IDA and H.P. Neun, could be used to restrict site and groundwater uses and minimize exposure to site contaminants.

8.2.2.1 Long-Term Effectiveness

Access or land use restrictions could be implemented to eliminate or provide long-term control of potential exposure pathways and achieve long-term effectiveness and permanence.

Natural attenuation processes may reduce VOC concentrations in soil and groundwater to CAOs. The SMP alternatives are estimated to be in place for more than 30 years until the CAOs are achieved.

The low permeability of till allows sufficient time to observe and react to changing conditions, and makes groundwater flow and VOC concentrations relatively immune to off-site property use. Neighboring property owners are unlikely to use groundwater because shallow groundwater does not have enough yield for use as a water source.

The reliability and effectiveness of the SMP is very high and would increase over time as long-term trends are developed. Although residual risk will remain until contaminant concentrations reach regulatory standards, potential adverse effects are minimized by the low permeability soils.

8.2.2.2 Reduction of Toxicity, Mobility, or Volume of Wastes

The primary function of a SMP is to provide long-term control of potential exposure pathways by relying on naturally occurring processes to reduce COPCs. Natural attenuation will require more than 30 years to achieve standards or SGVs. An SMP does not address long-term improvement in soil or groundwater quality, so it has no effect on the COPC toxicity, mobility, and volume.

8.2.2.3 Short-Term Effectiveness

Implementing an SMP presents minimal exposure risks to the community, workers, and the environment because the groundwater monitoring network is not modified. Although an SMP is ineffective for achieving standards or SGVs over the short-term, full protection from exposure risks would occur through the SMP and monitoring program. Contaminant-related risk of fire, exposure to hazardous substances, and threats associated with remediation would be minimal.

8.2.2.4 Implementability

This alternative is technically and administratively feasible and would not interfere with site operations. The monitoring-well network would not need to be expanded or upgraded. Implementing this alternative would not limit or interfere with future corrective measures; however, the time required for reducing the concentration of VOCs is long.

8.2.2.5 Sustainability

An SMP does not affect site actions but does include monitoring and institutional controls, routine activities such as long-term fuel consumption and waste generation (Table 8-3). This plan has the longest corrective measures period.

8.2.2.6 Cost

Capital costs for the SMP alternatives include cost to develop, implement, and maintain the SMP including permitting and legal cost for the deed restrictions (Table 8-4). The capital cost to develop and implement the site-wide SMP is approximately \$295,000. The SMP O&M cost is approximately \$28,000. A 30-year cost calculation (\$1,138,000) was used; however, the duration of an SMP alternative is estimated to be greater than 30 years. The costs for implementing the SMP in each AOC are shown in Table 8-4.

8.3 Area of Concern 1 (Building 2 Area) Alternatives

The following corrective measure alternatives are evaluated for AOC 1 – Building 2 area, which contains groundwater COPC concentrations in excess of SGVs and soil COPC concentrations in excess of industrial SCOs:

- Alternative 1A - No Action
- Alternative 1B - Site Management Plan
- Alternative 1C – Excavation
- Alternative 1D - Thermal Treatment

The no action and SMP alternatives, Alternatives 1A and 1B, respectively, are discussed in Section 8.2 and are considered for each AOC. Implementation of the Site Management Plan and groundwater and site use restrictions would be formalized in an access agreement and an environmental covenant. The conceptual design assumptions for each corrective measures alternative appear in Table 8-2. The following sections present an analysis of corrective measures for the various alternatives considered for AOC 1 using the balancing criteria (Table 8-5).

8.3.1 Alternative 1C: Excavation

Alternative 1C combines soil excavation with the SMP (including institutional controls and long-term monitoring). Building 2 area soil TCE concentrations exceed the industrial SCOs at two borings (Figure 8-1). The conceptual design assumptions for Alternative 1C are in Table 8-2. Implementation of Alternative 1C would involve the excavation and off-site disposal of approximately 2,600 square feet of soil to a maximum depth of 33 feet bgs, which is estimated to take approximately one month. This alternative is estimated to require more than 30 years for groundwater concentrations to attain SGVs.

An analysis of Alternative 1C relative to the balancing criteria is provided in the following sections.

8.3.1.1 Long-Term Effectiveness

Excavation would remove soil with concentrations greater than industrial SCOs and would achieve long-term effectiveness and permanence. The reliability and effectiveness of excavation is very high. Residual risk will remain until contaminant concentrations in groundwater reach regulatory standards. Potential adverse effects are minimized by the low permeability of soils. The remaining VOCs would degrade over time to achieve the SGVs.

8.3.1.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Excavation would eliminate the mobility, toxicity, and COPC mass. The statutory preference for treatment as a principal element is satisfied by excavation.

8.3.1.3 Short-Term Effectiveness

Risks to the community, workers, and the environment would be marginally higher during implementation because of increased site activity and traffic. CAOs and soil protectiveness would be achieved in less than 6 months. Protectiveness from additional media through control of potential exposure pathways would be realized through engineering controls during excavation activities, and through implementing and maintaining the SMP and the monitoring program.

8.3.1.4 Implementability

Excavation is both technically and administratively feasible. The site access road near the excavation would be temporarily closed. Several underground utilities, including natural gas and sewer lines within the proposed excavation area, would need to be temporarily re-routed.

8.3.1.5 Sustainability

Excavation is a conventional technology that uses large fuel-powered equipment with high energy requirements and air emissions. Excavation would generate waste and would require resources for construction and restoration. Although excavation could reduce the SMP length, the operations intensity may make green remediation impacts higher (Section 8.1 and Table 8-3).

8.3.1.6 Cost

Capital costs for Alternative 1C include site preparation, excavation, disposal, and backfill costs (Table 8-4). The approximate capital cost for Alternative 1C is \$1,778,000. Annual O&M costs for SMP maintenance, including groundwater monitoring and inspections are estimated at \$7,900. A 30-year cost calculation (\$2,015,000) was used because the duration of Alternative 1C is unknown.

8.3.2 Alternative 1D: Thermal Remediation

Alternative 1D combines thermal remediation with the SMP (including institutional controls and annual monitoring). Thermal remediation would be implemented in the area identified in Figure 8-1 to reduce soil CPOC concentrations to less than industrial SCOs and also to reduce groundwater COPC concentrations to less than SGVs within the treatment area. The conceptual design assumptions for Alternative 1D are in Table 8-2. If Alternative 1D is implemented, groundwater will still take more than 30 years to attain SGVs. Implementation of Alternative 1D would include installation of:

- Electrodes or heater wells within the treatment area.
- Vapor-liquid extraction and sensor wells bordering and within the treatment area.
- A temporary vapor and water treatment system.

The soil and groundwater volatile components will turn to vapor as they are heated. The vapor and/or groundwater is extracted and treated prior to discharge to the atmosphere or disposal facility. Thermal remediation would take approximately 12 months.

An analysis of Alternative 1D relative to the balancing criteria is provided in the following sections.

8.3.2.1 Long-Term Effectiveness

Thermal remediation would reduce VOC concentrations to meet industrial SCOs and groundwater SGVs in the treatment area and achieve long-term effectiveness and permanence. Groundwater concentrations outside the thermal remediation area may persist above the SGVs. The SMP could restrict land use to provide long-term control of potential exposure pathways.

Natural attenuation processes may reduce remaining VOC concentrations in groundwater to CAOs, and this process would be monitored through annual groundwater monitoring of VOC concentrations. The SMP would remain in place, and the monitoring would continue until SGVs are achieved.

The reliability and effectiveness of thermal remediation is very high. Thermal remediation would destroy the COPC mass within the treatment area. Residual risk will remain until COPC concentrations reach regulatory standards. Potential adverse effects are minimized by the low permeability of the soil. The remaining mass will degrade over time to achieve the SGVs.

8.3.2.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Thermal remediation would reduce the mobility, toxicity, and volume of VOCs in soil and groundwater. The statutory preference for treatment as a principal element would be satisfied.

8.3.2.3 Short-Term Effectiveness

Thermal remediation would pose marginally higher risks to the community, workers, and the environment. Infrastructure wells and process systems would be installed to facilitate thermal treatment. Risks would be limited to construction workers and operators because of electrical and thermal hazards. Engineering controls would be implemented to reduce potential site-worker exposure to fugitive vapors produced as part of thermal treatment. CAOs and protectiveness would be achieved in approximately 12 months.

8.3.2.4 Implementability

Thermal remediation is both technically and administratively feasible and would not interfere with site operations. However, utilities may need to be protected or re-routed.

8.3.2.5 Sustainability

Thermal treatment is an unconventional technology that effectively reduces the VOCs mass in soil and groundwater. The short duration partially compensates for the high energy requirements. This technology significantly reduces water consumption, air emissions, and waste generation. Installation of the system would require the operation of some fuel-powered equipment; however, the run time of large fuel-powered construction equipment would be minimal. The effectiveness of thermal treatment reduces the SMP expected duration.

8.3.2.6 Cost

Capital costs would include site preparation and system installation and operation (Table 8-4). ERH was used as the method of heating to estimate costs. O&M costs for this alternative include groundwater monitoring costs and site inspections. The SMP would continue for 30 years.

Total capital costs are approximately \$2,946,000. The cost attributed to groundwater monitoring and annual inspection of institutional controls in AOC 1 is approximately \$7,900. The 30-year cost calculation (\$3,183,000) was used because the duration of Alternative 1D is unknown.

8.4 Area of Concern 2 (Building 7 Area) Alternatives

Groundwater VOC concentrations exceed SGVs (Section 4) in the Building 7 area (AOC 2). VOC-containing soil and groundwater in the Building 7 area are attributable to another nearby source or an unrelated diffuse contaminant area. The no action and SMP alternatives discussed in Section 8.2 are considered for AOC 2; however, no active remediation alternatives are proposed. The conceptual design summary for each AOC 2 corrective measure alternative appears in Table 8-2.

8.5 Area of Concern 3 (Building 11 Area) Alternatives

The following corrective measure alternatives are evaluated for AOC 3 – Building 11 area contains groundwater COPC concentrations in excess of SGVs and soil COPC concentrations in excess of industrial SCOs:

- Alternative 3A - No Action
- Alternative 3B - Site Management Plan
- Alternative 3C – Excavation
- Alternative 3D - Thermal Treatment

The no action and SMP alternatives, Alternatives 3A and 3B, respectively, are discussed in Section 8.2 and are considered for each AOC. The conceptual design assumptions for each corrective measures alternative appear in Table 8-2. The following sections present an analysis of corrective measures for the various alternatives considered for AOC 3 Building 11 area using the balancing criteria (Table 8-7).

8.5.1 Alternative 3C: Excavation

Alternative 3C combines excavation and the SMP (including institutional controls and long-term monitoring) in the Building 11 area where soil COPC concentrations exceed the industrial SCOs (Figure 8-1). The conceptual design assumptions for Alternative 3C are in Table 8-2. Implementation of Alternative 3C includes excavation and off-site disposal of approximately 780 square feet of soil to a maximum depth of 30 feet bgs, which is estimated to take approximately 1 month. This alternative is estimated to require more than 30 years for groundwater concentrations to meet SGVs.

An analysis of Alternative 3C relative to the balancing criteria is provided in the following sections.

8.5.1.1 Long-Term Effectiveness

Excavation would remove soil with concentrations greater than industrial SCOs and achieve long-term effectiveness and permanence. The reliability and effectiveness of excavation is very high. Residual risk will remain until COPC concentrations in groundwater reach regulatory standards. Potential adverse effects are minimized by the soils low permeability.

8.5.1.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Excavation would eliminate the mobility, toxicity, and COPC mass. The statutory preference for treatment as a principal element is satisfied by excavation.

8.5.1.3 Short-Term Effectiveness

Risks to the community, workers, and the environment would be marginally higher during implementation because of increased site activity and traffic. CAOs and soil protectiveness would be achieved in less than 6 months. Protectiveness from additional media through control of potential exposure pathways would be realized through engineering controls during excavation activities, and through implementing and maintaining the SMP and the monitoring program.

8.5.1.4 Implementability

Excavation is both technically and administratively feasible. The site access road would be temporarily closed near the excavation. Several underground utilities, including natural gas and sewer lines within the proposed excavation area would need to be temporarily re-routed.

8.5.1.5 Sustainability

Excavation is a conventional technology that uses large fuel-powered equipment with high energy requirements and air emissions. Although excavation could reduce the SMP length, green remediation impacts may be higher because of the operations intensity (Section 8.1 and Table 8-3).

8.5.1.6 Cost

Capital costs for Alternative 3C include site preparation, excavation, disposal, and backfill costs (Table 8-4 and Figure 8-1). The approximate capital cost for Alternative 3C is \$633,000. Annual O&M costs for SMP activities including groundwater monitoring and inspections are estimated at \$7,900. A 30-year cost calculation (\$870,000) was used because the duration of Alternative 3C is unknown.

8.5.2 Alternative 3D: Thermal Remediation

Alternative 3D combines thermal remediation and the SMP (including institutional controls and annual monitoring) with thermal remediation in parts of the Building 11 area that contain soil concentrations that exceed the industrial SCOs. Thermal remediation would be implemented in the area identified in Figure 8-1 to reduce soil CPOC concentrations to less than industrial SCOs and also to reduce groundwater COPC concentrations to less than SGVs in the treatment area. It is assumed that there is access to the area where soil COPC concentrations exceed the industrial SCOs. The conceptual design assumptions for Alternative 1D are in Table 8-2. This alternative would take more than 30 years for groundwater concentrations to meet SGVs. Implementation of Alternative 3D would include installation of:

- Electrodes or heater wells within the treatment area.
- Vapor-liquid extraction and sensor wells bordering and within the treatment area.

- A temporary vapor and water treatment system.

The soil and groundwater volatile components will turn to vapor as they are heated. The vapor and/or groundwater is extracted and treated prior to discharge to the atmosphere or a disposal facility. It is expected to take 12 to 18 months for the subsurface to be heated and return to pre-treatment temperatures.

An analysis of Alternative 3D relative to the balancing criteria is provided in the following sections.

8.5.2.1 Long-Term Effectiveness

Thermal remediation would reduce VOC concentrations to meet industrial SCOs and groundwater SGVs in the treatment area and achieve long-term effectiveness and permanence. Groundwater concentrations outside the thermal remediation area may persist above the SGVs. Natural attenuation processes may reduce remaining VOC concentrations in groundwater to CAOs. The SMP could include land use restrictions to eliminate or provide long-term control of potential exposure pathways associated with the residual soil concentrations.

The reliability and effectiveness of thermal remediation is high. Thermal remediation would destroy the mass in soil within the treatment area. Potential adverse effects are minimized by the soils low permeability. The remaining mass would degrade over time to achieve the SGVs.

8.5.2.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Thermal remediation would reduce the mobility, toxicity, and volume of VOCs in soil and groundwater. The statutory preference for treatment as a principal element would be satisfied.

8.5.2.3 Short-Term Effectiveness

Thermal remediation would pose marginally higher risks to the community, workers, and the environment. Infrastructure wells and process systems would be installed to facilitate thermal treatment. Risks because of electrical and thermal hazards are limited to construction workers and operators. Engineering controls would be implemented to reduce potential site-worker exposure to fugitive vapors produced as part of thermal treatment. CAOs and protectiveness would be achieved in approximately 12 months.

8.5.2.4 Implementability

Thermal remediation is both technically and administratively feasible. However, utilities may need to be protected or re-routed.

8.5.2.5 Sustainability

Thermal treatment is an unconventional technology that effectively reduces VOCs in soil and groundwater (Table 8-3). The high energy requirements are partially off-set by the short treatment duration. Thermal treatment uses less water and reduces waste generation. System installation would require the operation of some fuel-powered equipment; however, the run time of large fuel-powered construction equipment would be minimal. The effectiveness of thermal treatment reduces the expected duration of the SMP.

8.5.2.6 Cost

Capital costs for Alternative 3D include site preparation, and system installation and operation (Table 8-4). ERH was used as the method of heating to estimate costs. Capital costs are approximately \$1,100,000. O&M costs for SMP maintenance, including groundwater monitoring and site inspections associated with the Building 11 area are estimated at \$7,900. A 30-year cost calculation (\$1,337,000) was used because the duration of Alternative 3D is unknown.

8.6 Area of Concern 4 (Soil Vapor Intrusion) Alternatives

The corrective measure alternatives to be evaluated for AOC 4 – Soil Vapor Intrusion Pathways are:

- Alternative 4A - No Action
- Alternative 4B - Site Management Plan
- Alternative 4C - Sub-slab depressurization
- Alternative 4D - Sub-slab depressurization and building demolition

The no action and SMP alternatives, Alternatives 4A and 4B, respectively, are discussed in Section 8.2 and are considered for each AOC. The conceptual design for each corrective measures alternative appears in Table 8-2. The following sections present an analysis of corrective measures for the various alternatives considered for AOC 4 – Soil Vapor Intrusion Pathways using the balancing criteria (Table 8-8).

8.6.1 Alternative 4C: Sub-Slab Depressurization

Alternative 4C includes SSD to mitigate potential soil vapor intrusion and SMP (including institutional controls, monitoring of indoor air quality, and inspections). SSD systems would be installed in buildings where sub-slab VOC concentrations were reported greater than NYSDOH sub-slab vapor criteria. A SSD system is designed to create a vacuum under the slab through a network of suction pits. The sub-slab vapor suction pits would be placed to depressurize areas with the highest sub-slab vapor VOC concentrations and where preferential pathways are identified.

Diagnostic test results would be used to develop the SSD system design, including the appropriate number and locations of sub-slab vapor suction pits and air flow rates (NYSDOH 2006). Pressure monitoring points would be installed to confirm the presence of negative pressures in the sub-slab and SSD system's radius of influence. Confirmation indoor air sampling would be conducted to evaluate the SSD systems effect on indoor air concentrations. Alternative 4C implements new SSD systems in Buildings 1, 2, 3, 4, 6, 8, and 10A, and modifies existing SSD systems in Buildings 1A, 7, 9, 10, and 11.

An analysis of Alternative 4C relative to the balancing criteria is provided in the following sections.

8.6.1.1 Long-Term Effectiveness

Long-term effectiveness and permanence would be achieved through implementing and maintaining the SSD systems. Neither SSD systems nor an SMP address existing COPC concentrations in soil and groundwater. The SSD systems and SMP would likely remain in place for more than 30 years unless monitoring activities indicate that the SSD systems can be deactivated.

The reliability and effectiveness of SSD systems is very high. The need to mitigate soil vapor intrusion will likely continue over the long-term because soil and groundwater VOC concentrations beneath the site buildings will not be treated other than with natural processes.

8.6.1.2 Reduction of Toxicity, Mobility, or Volume of Wastes

SSD is an active mitigation technology because it removes some COPC mass from below the building. The primary function of a SSD system is to depressurize the sub-slab relative to indoor air to prevent the migration of sub-slab vapors into a building. SSD systems must continue to operate to maintain an effect on the toxicity, mobility, and volume of the COPC mass. Although the toxicity and volume of COPCs in the sub-slab soils would not be reduced appreciably, SSD would minimize potential exposure to COPCs.

8.6.1.3 Short-Term Effectiveness

The installation and maintenance of SSD systems would pose minimal exposure risks to the community, workers, and the environment. Construction activities would be minimal and could be completed within six months. SSD is effective at mitigating soil vapor intrusion immediately following implementation.

8.6.1.4 Implementability

SSD is both technically and administratively feasible and would not interfere with current site operations. Operation and maintenance activities and compliance reporting requires minimal administrative activities. This alternative would not limit or interfere with future corrective measures.

8.6.1.5 Sustainability

Installing and operating the SSD systems and implementing the SMP, including institutional controls, involve routine activities that require energy and some fuel consumption. Installation of SSD systems does not affect the corrective measure duration, which is dependent on corrective measures associated with other AOCs. The sustainability evaluation summary for Alternative 4C is provided in Table 8-3.

8.6.1.6 Cost

The approximate capital cost associated with Alternative 4C is \$715,000 (Table 8-4). Annual cost attributed to inspecting institutional controls in AOC 4 is estimated at \$2,200. The annual O&M cost associated with Alternative 4C is approximately \$88,500. A 30-year cost calculation (\$3,436,000) was used because the duration of alternative 4C is unknown.

8.6.2 Alternative 4D: Building Demolition and Sub-Slab Depressurization

Alternative 4D includes demolishing buildings 2 through 6, implementing an SMP with institutional controls, and installing SSDs in buildings where sub-slab VOC concentrations were greater than NYSDOH sub-slab vapor criteria (Buildings 1, 1A, 7, 8, 9, 10, 10A, and 11). A SSD system is described in Section 8.6.1. If the demolished buildings are rebuilt, soil vapor intrusion mitigation techniques, such as passive barriers or venting, may be included in the new building design.

An analysis of Alternative 4D relative to the balancing criteria is provided in the following sections.

8.6.2.1 Long-Term Effectiveness

Long-term effectiveness and permanence would be achieved through implementing and maintaining the SSD systems. SSD systems, building demolition and an SMP do not address existing COPC concentrations in soil and groundwater although they would be effective at reducing exposures related to soil vapor intrusion. Long-term effectiveness is achieved through SSD system operation and demolition of Buildings 2 through 6. Construction of a new building may require corrective measures to mitigate potential soil vapor intrusion. The SSD systems and SMP would likely remain in place for 30 years.

The reliability and effectiveness of SSD and building demolition is very high. The need to mitigate potential soil vapor intrusion would likely continue over the long term as natural processes degrade residual concentrations.

8.6.2.2 Reduction of Toxicity, Mobility, or Volume of Wastes

SSD is an active mitigation technology because it removes some COPC mass from below the building. The primary function of a SSD system is to depressurize the sub-slab relative to indoor air

to prevent the migration of sub-slab vapors into a building. SSD systems must continue to operate to maintain effect on the toxicity, mobility, and volume of the COPC mass. The statutory preference for treatment as a principal element is satisfied by excavation or thermal remediation used in Alternatives 1C, 1D, 3C, and 3D. Building demolition does not reduce the toxicity, mobility, or volume of wastes, but it eliminates the vapor intrusion exposure pathway.

8.6.2.3 Short-Term Effectiveness

Installing and modifying systems and demolishing buildings could likely be completed within 6 months. Alternative 4D would pose marginally higher risks to the community, workers, and the environment because of increased site activity and transportation associated with the building demolition. The community, workers, and the environment would be protected during demolition activities through the use of engineering controls. Potential risks would be limited to on-site populations for demolition activities; and apply to both on-site and off-site populations for the transportation and disposal of demolition debris. Exposure risks associated with soil vapor intrusion would be mitigated through maintaining the SSD systems and SMP.

8.6.2.4 Implementability

Building demolition and installing and operating SSD systems are both technically and administratively feasible. The demolition and disposal activities would not interfere with site operations. However, several site buildings would no longer be available for warehousing operations. Operation and maintenance activities associated with the SSD systems, the SMP, and compliance reporting requires minimal administrative activities. This alternative would not limit or interfere with future corrective measures.

8.6.2.5 Sustainability

Demolition of Buildings 2 through 6 with off-site disposal of demolition debris is a conventional technology that uses large-scale fuel-powered construction equipment with high energy requirements and elevated air emissions (Table 8-3). Demolition would generate considerable amounts of waste materials (debris) and would require materials and resources for restoration. Debris would be trucked to the disposal site.

Installing and operating the SSD systems and implementing the SMP, including institutional controls, involve routine activities that require energy and fuel consumption. Installation of SSD systems does not affect the corrective measures duration, which is dependent on corrective measures associated with other AOCs. The sustainability evaluation summary for Alternative 4D is provided in Table 8-3.

8.6.2.6 Cost

Capital costs for Alternative 4D include building demolition, SSD implementation, and SMP modification and implementation are approximately \$2,703,000 (Table 8-4). Annual O&M costs for SSD and SMP maintenance, including O&M and inspections are approximately \$80,300. A 30-year cost calculation (\$5,112,000) was used because the duration of Alternative 4D is unknown.

8.7 Area of Concern 5 (Historical Outfalls) Alternatives

The corrective measure alternatives to be evaluated for AOC 5 – Historical Outfalls, which was identified as having COPC concentrations in soil that exceed industrial SCOs, are:

- Alternative 5A - No Action
- Alternative 5B - Site Management Plan
- Alternative 5C - Ravine Soils Excavation
- Alternative 5D - Ravine Soils Capping

The no action and SMP alternatives, Alternatives 5A and 5B, respectively, are discussed in Section 8.2 and are considered for each AOC. The conceptual design for each corrective measures alternative appears in Table 8-2. The following sections present an analysis of corrective measures for the various alternatives considered for AOC 5 using the balancing criteria (Table 8-9).

8.7.1 Alternative 5C: Excavation

Alternative 5C involves soil excavation in the HO ravines where COPC concentrations exceed the industrial SCOs and an SMP (including institutional controls). The conceptual design assumptions for Alternative 5C are in Table 8-2. Planning and implementation would take several months and would include excavation in an approximately 250-square-foot area to a maximum depth of 2 feet bgs.

An analysis of Alternative 5C relative to the balancing criteria is provided in the following sections.

8.7.1.1 Long-Term Effectiveness

HO ravine soil excavation would achieve long-term effectiveness and permanence by removing soil with COPC concentrations greater than industrial SCOs. The SMP could put in place access or land use restrictions to eliminate or provide long-term control of potential exposure pathways associated with the remaining COPC. The reliability and effectiveness of excavation is very high.

8.7.1.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Excavation would eliminate the mobility, toxicity, and COPC mass. The statutory preference for treatment as a principal element is satisfied by excavation.

8.7.1.3 Short-Term Effectiveness

Excavation would pose marginally higher risks to the community, workers, and the environment during implementation because of increased site activity and traffic. Engineering controls would be used to protect the community, workers, and the environment. Potential risks would be limited to on-site and off-site populations for the excavation, transportation, and disposal of soil. CAOs and protectiveness from soils would be achieved in less than 6 months.

8.7.1.4 Implementability

Excavation is both technically and administratively feasible, although accessing the HO ravine soils on the steep slopes would require additional engineering controls. The excavation and disposal would not interfere with site operations. Implementation would not limit or interfere with future corrective measures associated with other AOCs.

8.7.1.5 Sustainability

Excavation is a conventional technology that uses large fuel-powered construction equipment with high energy requirements and air emissions. Excavation would generate waste and would require resources for construction and restoration. Green remediation impacts described in Section 8.1 would likely be greater than other alternatives because of higher fuel consumption, air emissions, and waste generation (Table 8-3).

8.7.1.6 Cost

Capital costs for Alternative 5C include site preparation, excavation, disposal and backfill (Table 8-4). Capital costs for the excavation in AOC 5 are approximately \$94,000. Annual O&M costs for SMP maintenance, including groundwater monitoring and inspections, are estimated at \$2,200. A 30-year cost calculation (\$160,000) was used because the duration of Alternative 5C is unknown.

8.7.2 Alternative 5D: Capping

Alternative 5D involves the capping the HO ravines where COPC concentrations exceed the industrial SCOs and an SMP (including institutional controls). The conceptual design assumptions for Alternative 5D are in Table 8-2. Potential capping materials include a geomembrane and rip-rap. Planning and implementation would take approximately 6 months and would include capping of an approximately 250-square-foot area within the HO ravines.

An analysis of Alternative 5D relative to the balancing criteria is provided in the following sections.

8.7.2.1 Long-Term Effectiveness

HO ravine soil capping would achieve long-term effectiveness and permanence by limiting potential exposure to soil with COPC concentrations greater than industrial SCOs. However, capping would not reduce COPC concentrations. The SMP could restrict access or land use to provide long-term control of potential exposure pathways. The reliability and effectiveness of capping, which would be confirmed through annual inspections, is high.

8.7.2.2 Reduction of Toxicity, Mobility, or Volume of Wastes

Capping would not reduce soil toxicity or COPC mass in the HO ravines but would limit the mobility. Although the toxicity and volume of COPC in the HO ravines would not be reduced, capping would minimize the potential exposure.

8.7.2.3 Short-Term Effectiveness

Excavation would pose marginally higher risks to the community, workers, and the environment during implementation because of increased site activity and traffic. Engineering controls would be used to protect the community, workers, and the environment. Potential risks would be limited to construction workers during capping of the HO soils. Capping the HO soils could be achieved in less than 6 months.

8.7.2.4 Implementability

Capping is both technically and administratively feasible, although accessing the HO ravine soils would require engineering controls because of the steep slopes. Capping would not interfere with site operations. Implementation would not limit or interfere with future corrective measures associated with other AOCs.

8.7.2.5 Sustainability

Capping is a conventional technology that uses large fuel-powered construction equipment with high energy requirements and air emissions. Capping would generate no waste but would require resources for construction and restoration. Green remediation impacts described in Section 8.1, would likely be less than the excavation alternative (Table 8-3).

8.7.2.6 Cost

Capital costs for Alternative 5D include site preparation and capping (Table 8-4). Capital costs for the capping in AOC 5 are approximately \$70,000. Annual O&M cost for SMP maintenance is



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estimated at \$2,200. A 30-year cost calculation (\$136,000) was used because the duration of alternative 5D is unknown.

9. Conclusions

Corrective measure alternatives were developed following accepted USEPA and NYSDEC guidance. CAOs were established based on NYSDEC and NYSDOH SGVs and potential exposure pathways, applicable technologies were presented and screened, and each retained alternative was independently evaluated in accordance with RCRA criteria. The basis for this evaluation was a sound understanding of historical operations, previous corrective actions, site-specific hydrogeologic characteristics, and the nature and extent of COPCs. The following are key findings of the investigations conducted over the last 15 years, based on the collection and analysis of 1,656 soil, groundwater, air, soil vapor and sediment samples:

- Soil in three isolated areas south of Buildings 2 and 11 and in the HO ravines (each less than 0.1 acre) contain COPC concentrations greater than industrial SCOs.
- Groundwater contains VOC concentrations greater than SGVs in approximately 25 acres, primarily to the south of the building complex. The mass flux of these VOCs in groundwater is very low because the upper-water bearing zone is comprised of till, which has very low hydraulic conductivity and limits groundwater flow and VOC transport to less than 3 feet per year. USEPA determined that the EI for Contaminated Groundwater Under Control had been achieved and groundwater has not migrated beyond, and is expected to remain within, the site boundary (USEPA 2003).
- Soil vapor beneath the building complex (except Buildings 12, 13, and 13A) contains VOCs, primarily TCE, which require mitigation based on the NYSDOH Vapor Intrusion Guidance.
- Van Cleef Lake and Seneca and Cayuga Canal sediment contains arsenic, chromium, copper, iron, manganese, and nickel concentrations comparable to those found upstream, indicating that these metals are from upstream source(s). Cadmium in lake sediment was reported at concentrations greater than SGVs, but is capped beneath at least 6 inches of sediment with lower cadmium and higher metals concentrations from upstream sources. Sediment on the northern shore of the Cayuga and Seneca Canal contains cadmium concentrations below the NYSDEC Severe Effect Level. Potential exposure of biota and humans to cadmium in lake and canal sediments is incomplete if sediments remain undisturbed.

Corrective measure alternatives were developed based on these findings. The alternatives were independently evaluated based on technical merit, but against a backdrop of successful revitalization and ongoing beneficial use of the facility. Over the last 25 years, numerous corrective actions, investigations and ICMs were implemented concurrently with an active warehousing and distribution operation. This successful track record shows that environmental and business revitalization can be achieved simultaneously at this site. H.P. Neun and the Seneca County IDA have agreed to maintain this collaboration with GTE Operations Support Incorporated, which is in the process of formalizing these communications through a written access agreement.

H.P. Neun and Seneca County IDA have also agreed to collaborate on the selected corrective measures alternative, and will remain key stakeholders during CMS design and implementation.

Based on the evaluation of RCRA performance standards and criteria and the continued integration of corrective measures with the current beneficial use, the following site-wide corrective measures alternative is recommended:

- Remove and dispose of off-site, soil with concentrations greater than industrial SCOs. Note: If pre-design data or site-use restrictions change the assumptions made in this CMS, alternate technologies will be considered.
- Restrict groundwater use.
- Implement an environmental covenant to restrict future site use to warehousing and distribution.
- Implement a Site Management Plan for groundwater monitoring and institutional controls.
- Depressurize the sub-slab in buildings where appropriate based on feasibility and NYSDOH guidance (no sub-slab corrective measures are warranted in Buildings 12, 13, and 13A).
- No action for sediments in Van Cleef Lake and the Seneca and Cayuga Canal.

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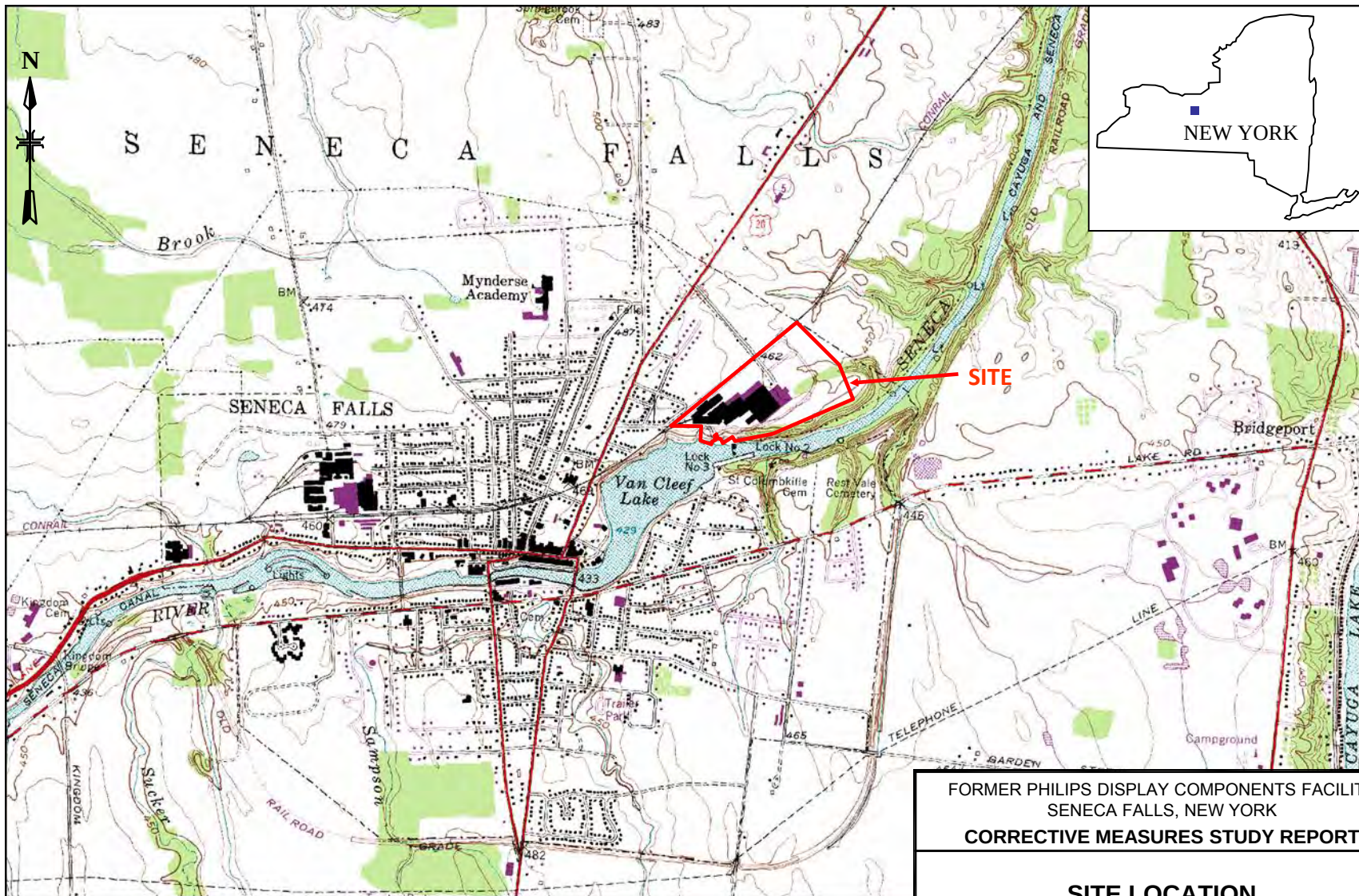
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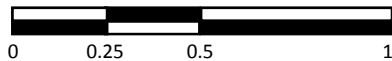
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Figures



MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC SERIES, SENECA FALLS QUADRANGLE
 APPROXIMATE SCALE IN MILES



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
 SENECA FALLS, NEW YORK
 CORRECTIVE MEASURES STUDY REPORT

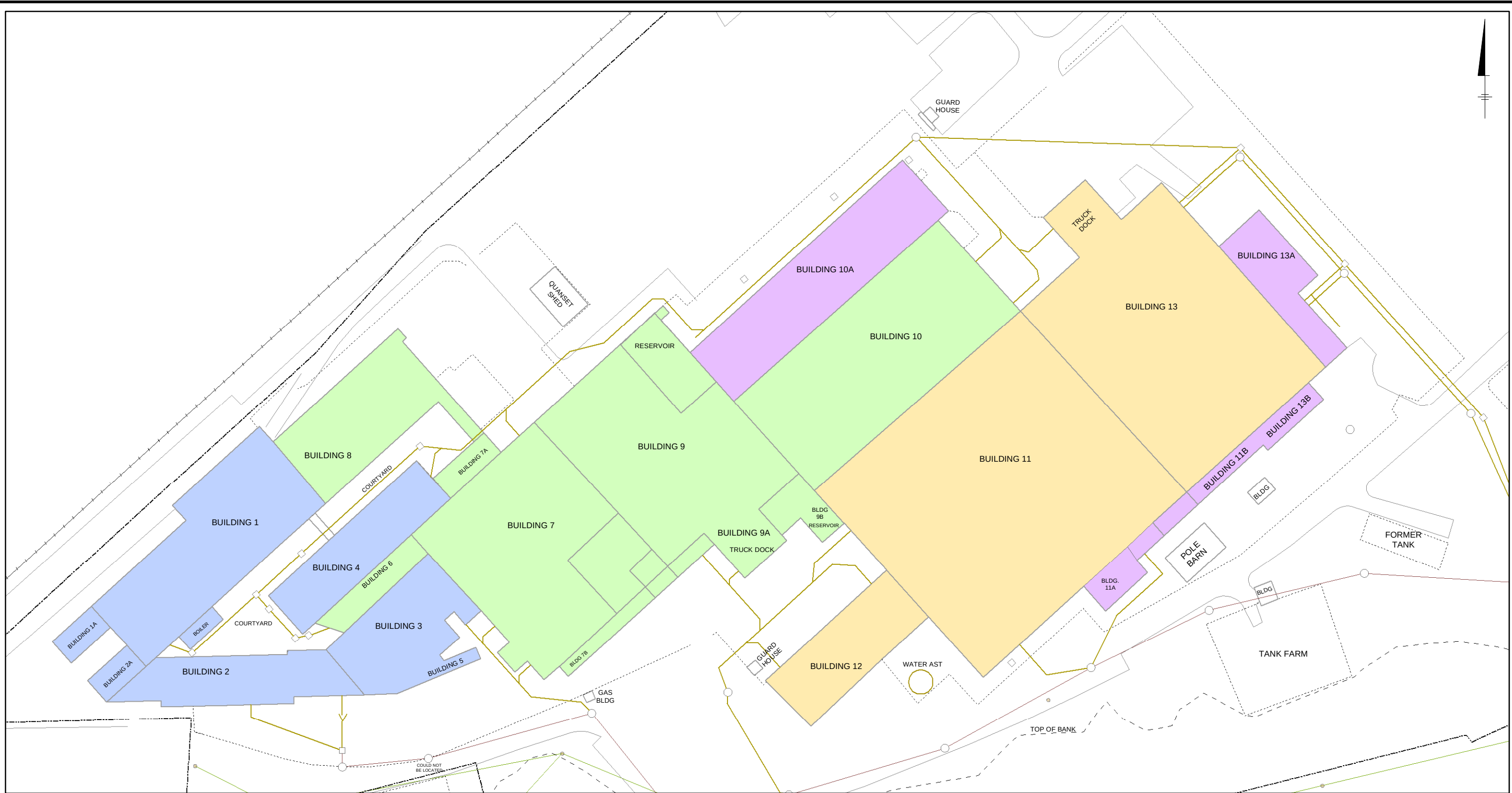
SITE LOCATION



FIGURE

1-1

CITY: DEN-TECH DIV/GRPUP:(ENV/IM) DB: R.MCKINNEY LD: PIC: PM: TM:
PROJECT: Path: G:\Project\Seneeca Falls\MapDocuments\2013\1502-1 Building Construction.mxd Date Saved: 6/20/2013 7:00:55 AM

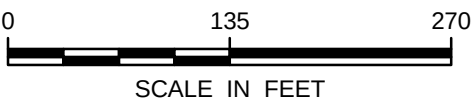


LEGEND

- MANHOLE/CATCHBASIN
- STORM SEWER PIPE
- RAILROAD TRACK
- - - PROPERTY BOUNDARY
- - - INTERCEPTOR PIPE
- - - FENCE
- ELECTRIC OVERHEAD LINE

APPROXIMATE BUILDING CONSTRUCTION DATES

- 1914
- 1949-1953
- 1956
- 1967-1973



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

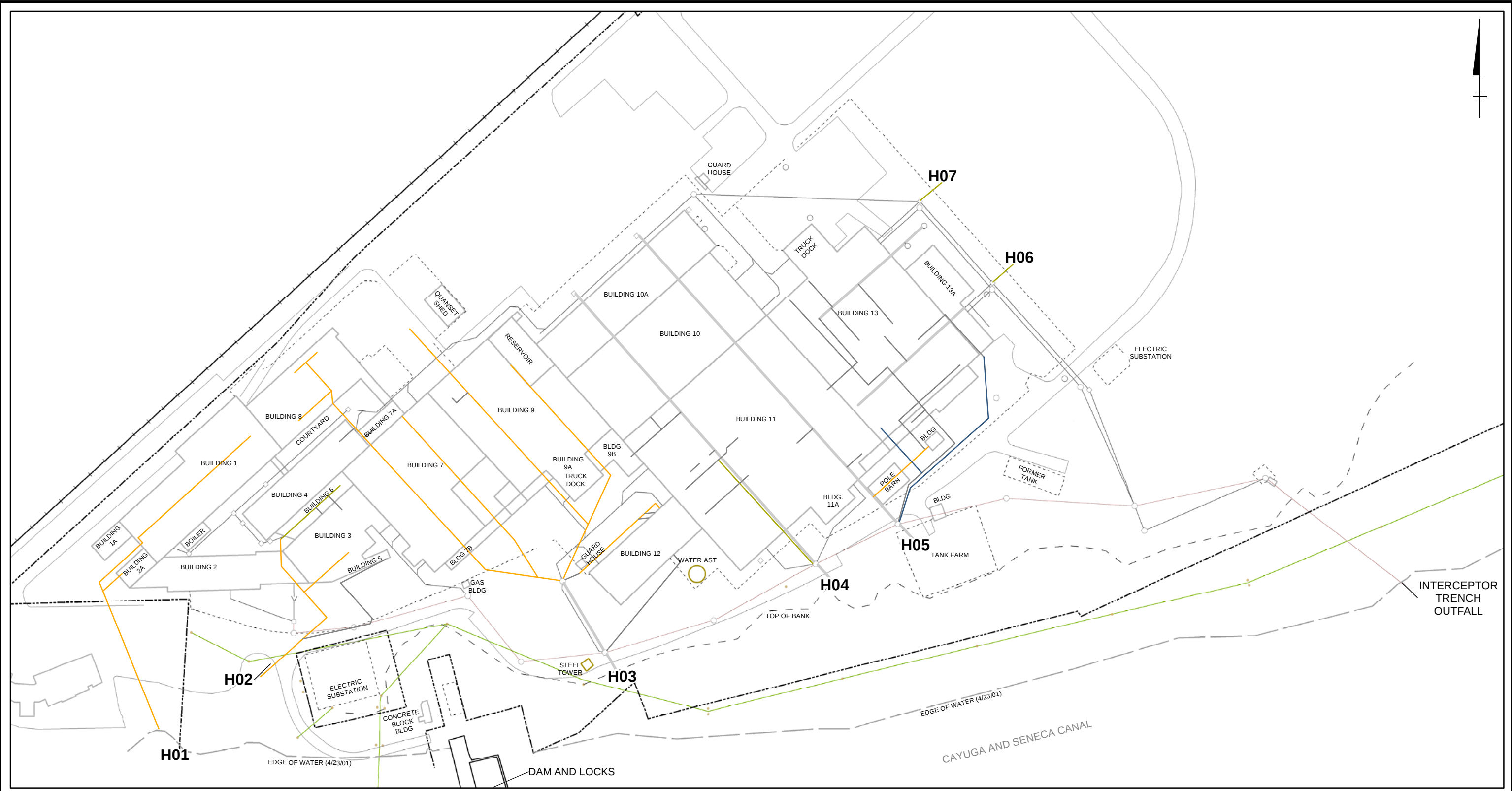
CORRECTIVE MEASURES STUDY REPORT

BUILDING CONSTRUCTION SEQUENCE

FIGURE
2-1

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
SOURCE: O'Brien and Gere Engineers, Inc. Drawing No. 5816.23966.010 dated October 2001

CITY: SCOTTS DALE DIV/GROUP:(ENV/IM) DB: M. EASTERLING LD: PIC: PM: TM: Path: G:\Projects\Seneca Falls\MapDocuments\2013\Env22 - Historical Outfall Location Map.mxd Date Saved: 6/20/2013 7:03:17 AM PROJECT:



LEGEND

○ MANHOLE/CATCHBASIN

● ELECTRICAL POLE

H01 HISTORICAL OUTFALL

— RAILROAD TRACK

--- PROPERTY BOUNDARY

— INTERCEPTOR PIPE

--- FENCE

— ELECTRIC OVERHEAD LINE

— STORM SEWER PIPE

PIPE MATERIALS AND LOCATIONS (SOURCE: SYLVANIA ELEC. PROD., INC. JULY 13, 1967)

— UNIDENTIFIED PIPE

— CAST IRON

— CONCRETE

— SANITARY LINE

— TERRA COTTA

0 175 350

SCALE IN FEET

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

HISTORICAL OUTFALLS

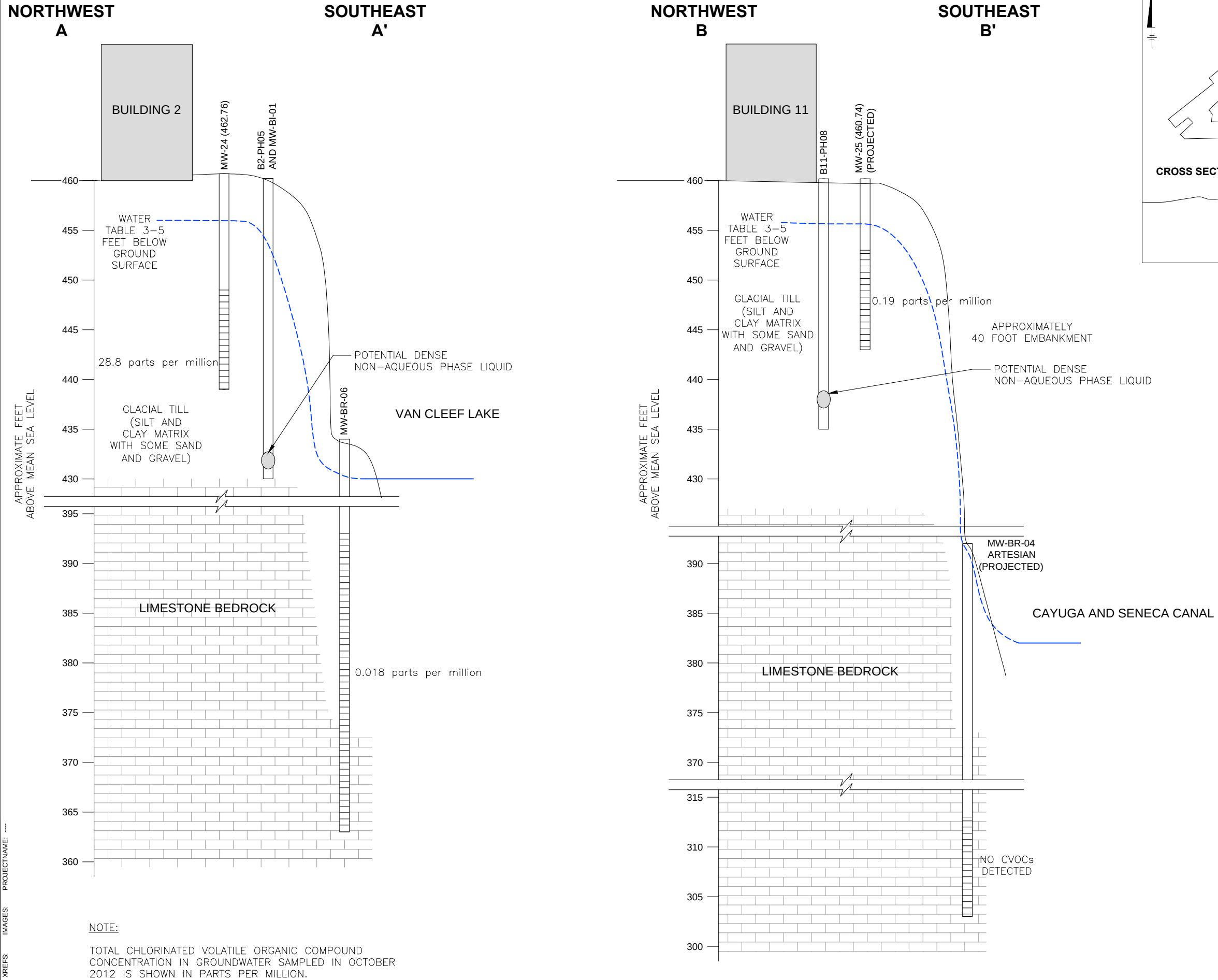


FIGURE

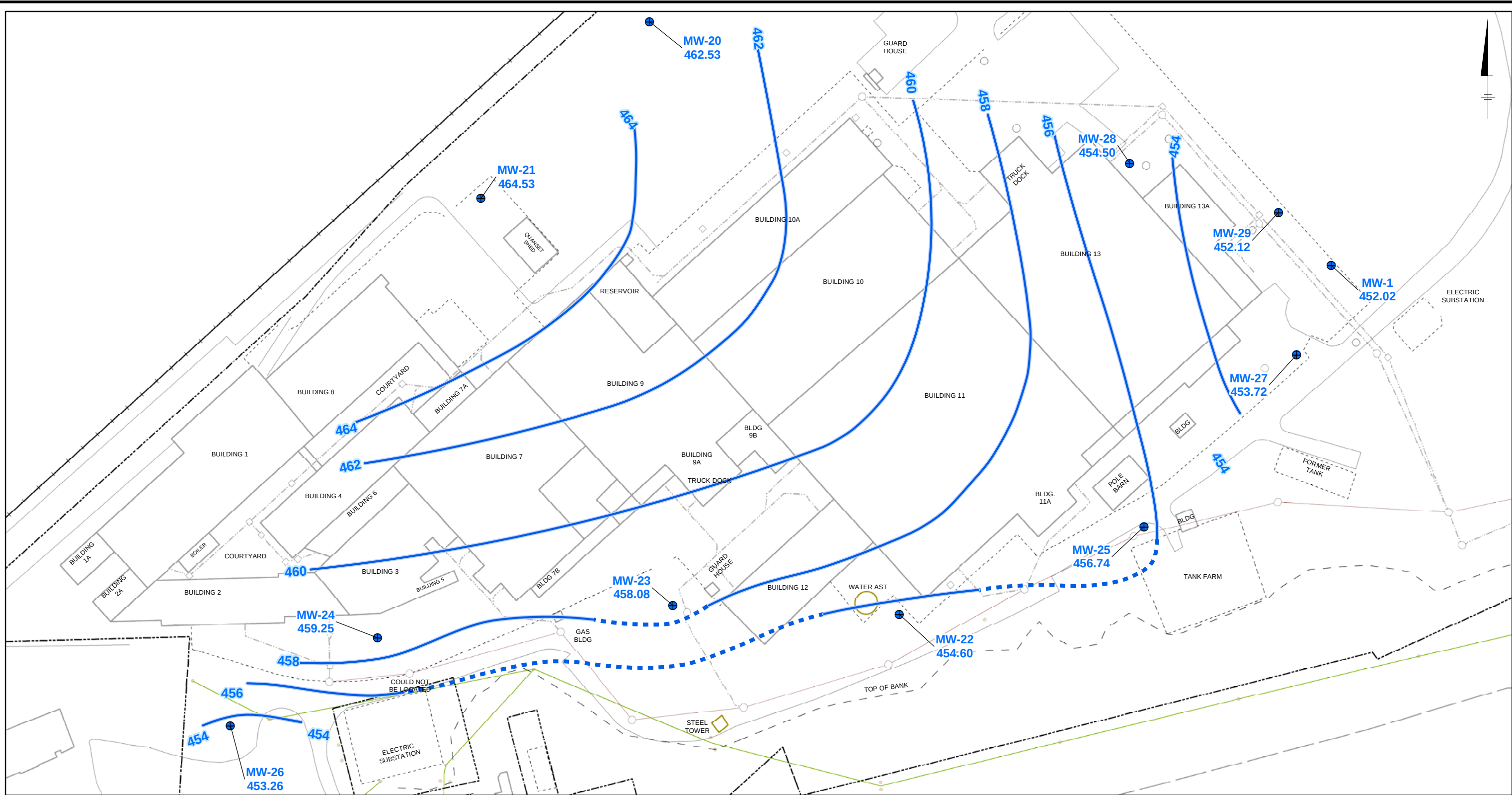
2-2

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

CITY: (Refd) DIV: (Group: Refd) DE: (Refd) LD: (Refd) PIC: (Refd) PM: (Refd) TM: (Refd) LVR: (Option: "OFF" = REF*) G:\ENV\CD\Fairbairn\ACT0456303\030000000555\2013-04\CORRECTIVE MEASURES REPORT\456303\01 - R3.dwg LAYOUT: 2-3 SAVED: 6/17/2013 3:20 PM ACADVER: 18.1S (LMS TECH) PAGES: 23 PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 6/17/2013 3:21 PM BY: GONZALEZ, JAMES

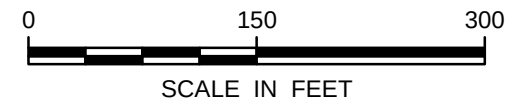


CITY: DEN-TECH DIV/GRP: (ENV/IM) DB: M. EASTERLING LD: PIC: PM: TM:
PROJECT: 04563003.0000.Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-3 - Shallow GW Potentiometric Feb 2013.mxd Date Saved: 6/17/2013 10:56:09 AM



LEGEND

- MONITORING WELL
- MANHOLE/CATCHBASIN
- Electrical Pole
- POTENTIOMETRIC CONTOUR (ft-anvd)
- RAILROAD TRACK
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE
- STORM SEWER PIPE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

NOTES:
1. ft-anvd - Water Elevations presented in feet above National Vertical Datum.

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

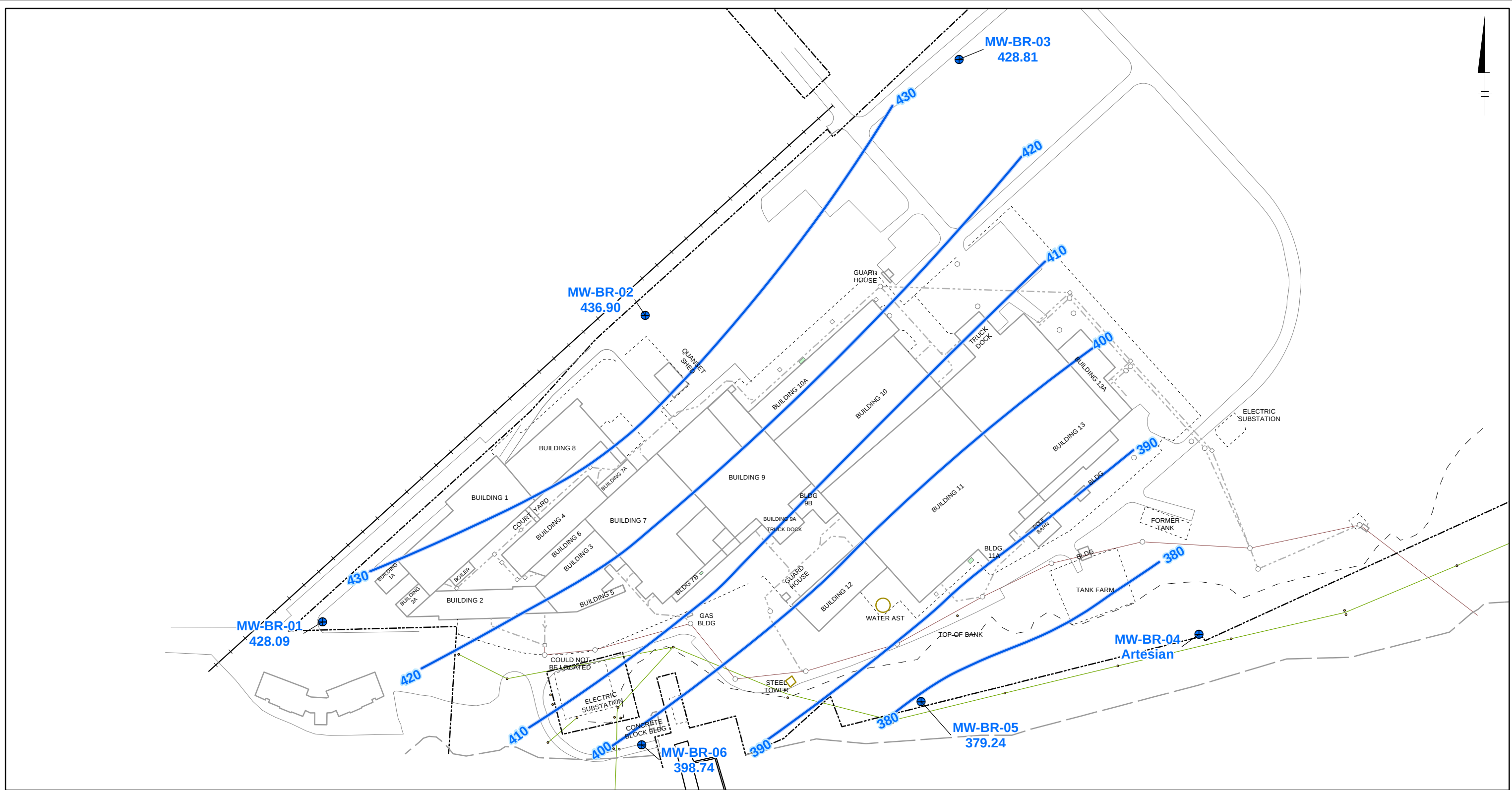
POTENTIOMETRIC CONTOURS
SHALLOW GROUNDWATER
FEBRUARY 26, 2013



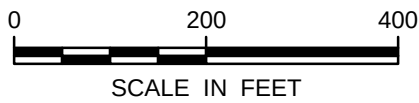
FIGURE

2-4

CITY: SCOTTS DALE DIV/GROUP: ENV/IM DB: M. EASTERLING LD: PIC: PM: TM:
PROJECT: 04563003.0000_Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-4 - Bedrock GW Potentiometric Feb 2013.mxd Date Saved: 6/7/2013 10:59:10 AM



- LEGEND**
- MONITORING WELL
 - MANHOLE/CATCHBASIN
 - POTENTIOMETRIC CONTOUR (ft-anvd)
 - RAILROAD TRACK
 - PROPERTY BOUNDARY
 - INTERCEPTOR PIPE
 - FENCE
 - ELECTRIC OVERHEAD LINE
 - STORM SEWER PIPE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. ft-anvd - Water Elevations presented in feet above National Vertical Datum.

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

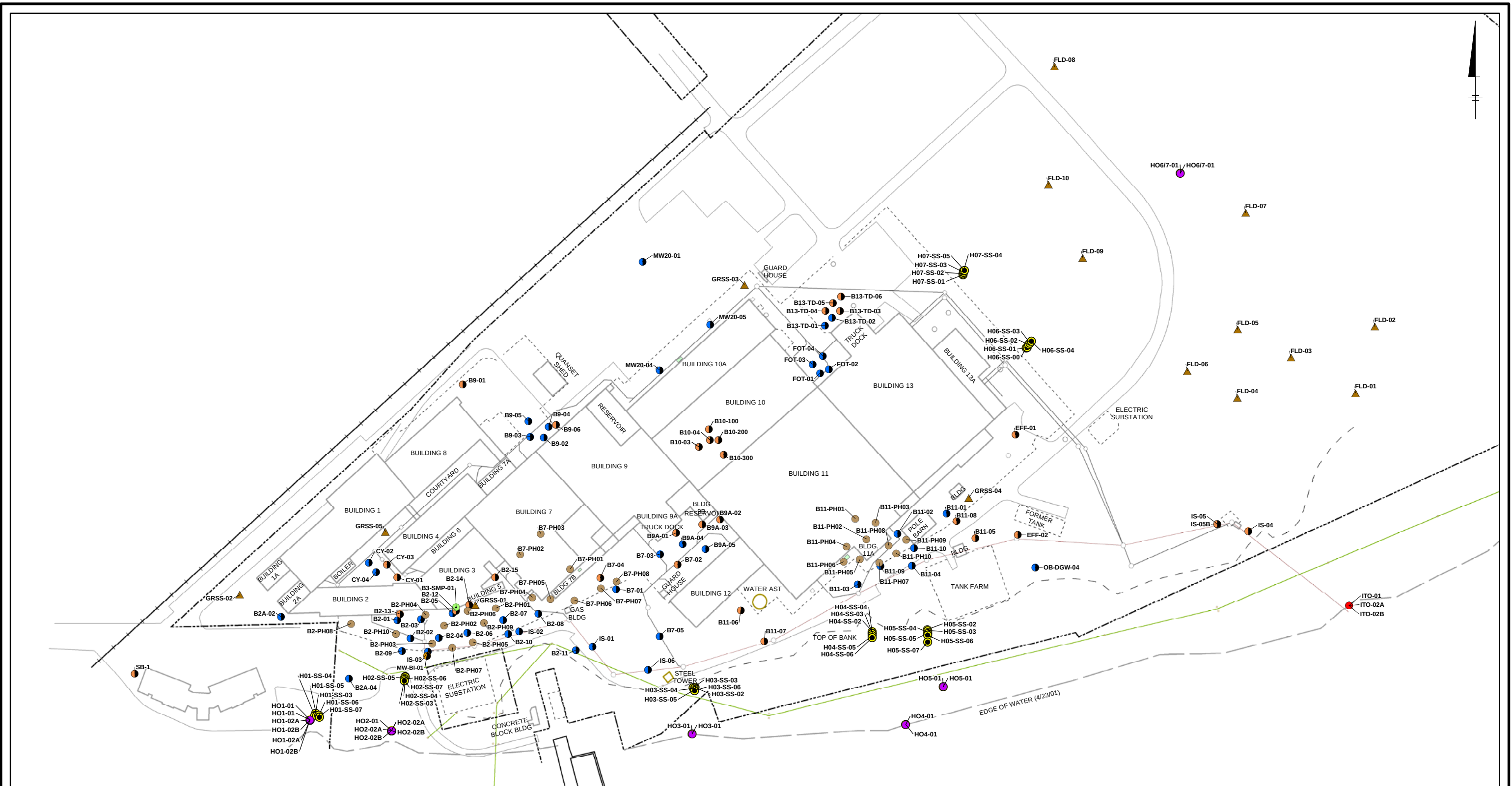
CORRECTIVE MEASURES STUDY REPORT

POTENTIOMETRIC CONTOURS
BEDROCK GROUNDWATER
FEBRUARY 26, 2013

FIGURE
2-5

1. AREA OF CONCERN (AOC) 4 - SOIL VAPOR INTRUSION PATHWAYS.
2. AOC 5 - HISTORICAL OUTFALLS.



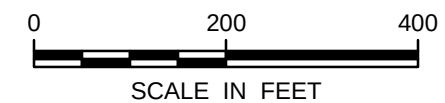


LEGEND

- INTERCEPTOR TRENCH OUTFALL SAMPLE LOCATION
- TEMPORARY MONITORING WELL SOIL BORING
- ▲ SURFACE SOIL SAMPLE LOCATION
- OTHER SOIL BORING SAMPLE LOCATION
- RCRA FACILITY INVESTIGATION/HISTORICAL OUTFALL SAMPLE LOCATION
- SUMP SOIL SAMPLE LOCATION
- 2005 GEOPROBE BORING

-  2004 HISTORICAL OUTFALL SOIL SAMPLE LOCATION
 RAILROAD TRACK
 PROPERTY BOUNDARY
 INTERCEPTOR PIPE
 FENCE
 ELECTRIC OVERHEAD LINE

- STORM SEWER PIPE
○ MANHOLE/CATCHBASIN



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
SOURCE: O'Brien and Gere Engineers, Inc. Drawing No. 5816.23966.010 dated October 2001

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

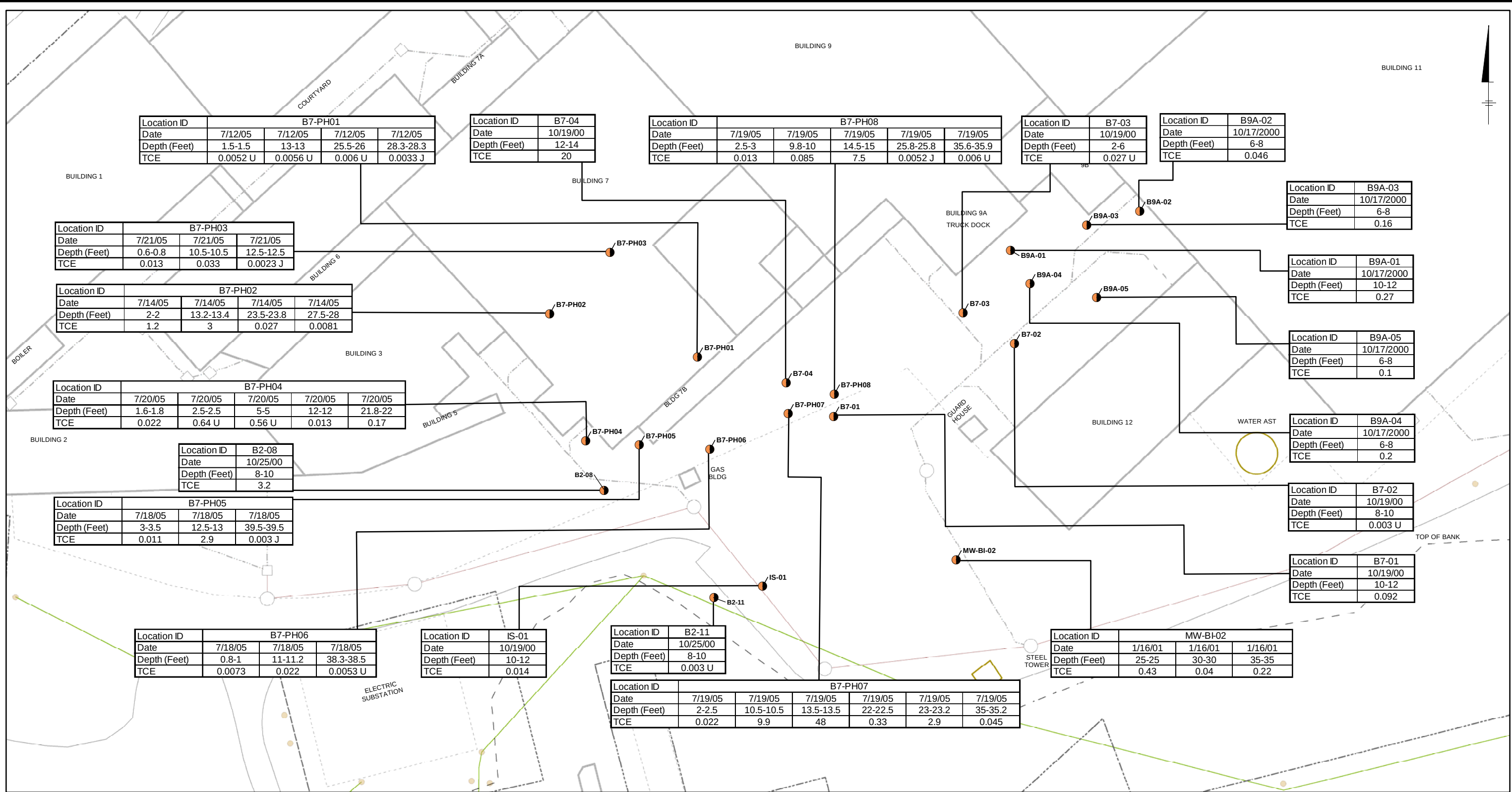
SOIL SAMPLING LOCATIONS



FIGURE

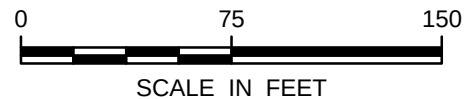
4-1

CITY: DEN-TECH DIV/GROUP:(ENV/IM) DB: R.MCKINNEY LD: P.C. PM: TM: 6/11/2013 9:56:34 AM
Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-7v2 Building 7 Area Historical VOCs.mxd Date Saved: 6/11/2013 9:56:34 AM
PROJECT:



LEGEND

- SOIL SAMPLE LOCATION
- MANHOLE/CATCHBASIN
- RAILROAD TRACK
- STORM SEWER PIPE
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. All results are displayed in milligrams per kilogram (mg/kg).
2. U - Not Detected
J - Estimated below reporting limit
TCE - Trichloroethene
3. Exceeds the Industrial Soil Cleanup Objective for TCE (400 mg/kg)

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

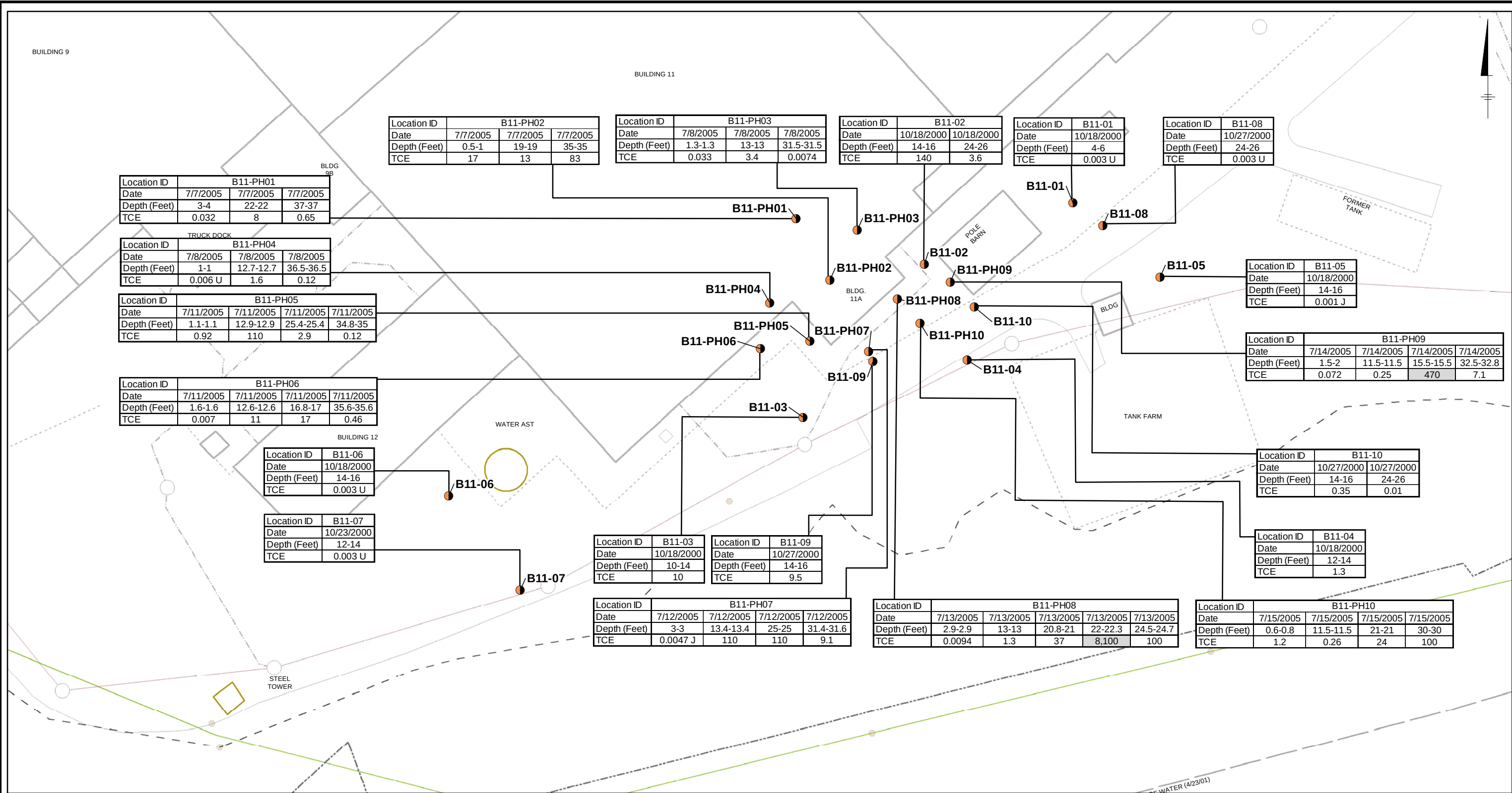
AREA OF CONCERN 2
TRICHLOROETHENE CONCENTRATIONS
IN SOIL



FIGURE

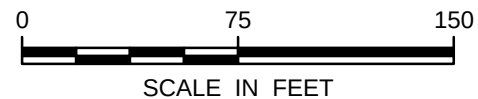
4-3

CITY: DEN-TECH DIV/GROUP:(ENV/IM) DB: R.MCKINNEY LD: PIC: PM: TM: Pat: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-8v2 - Building 11 Area Historical VOCs.mxd Date Saved: 6/11/2013 9:58:15 AM PROJECT:



LEGEND

- SOIL SAMPLE LOCATION
- MANHOLE/CATCHBASIN
- RAILROAD TRACK
- STORM SEWER PIPE
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

NOTES:

- All results are displayed in milligrams per kilogram (mg/kg).
- U - Not Detected
J - Estimated below reporting limit
TCE - Trichloroethene
- Exceeds the Industrial Soil Cleanup Objective for TCE (400 mg/kg)

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

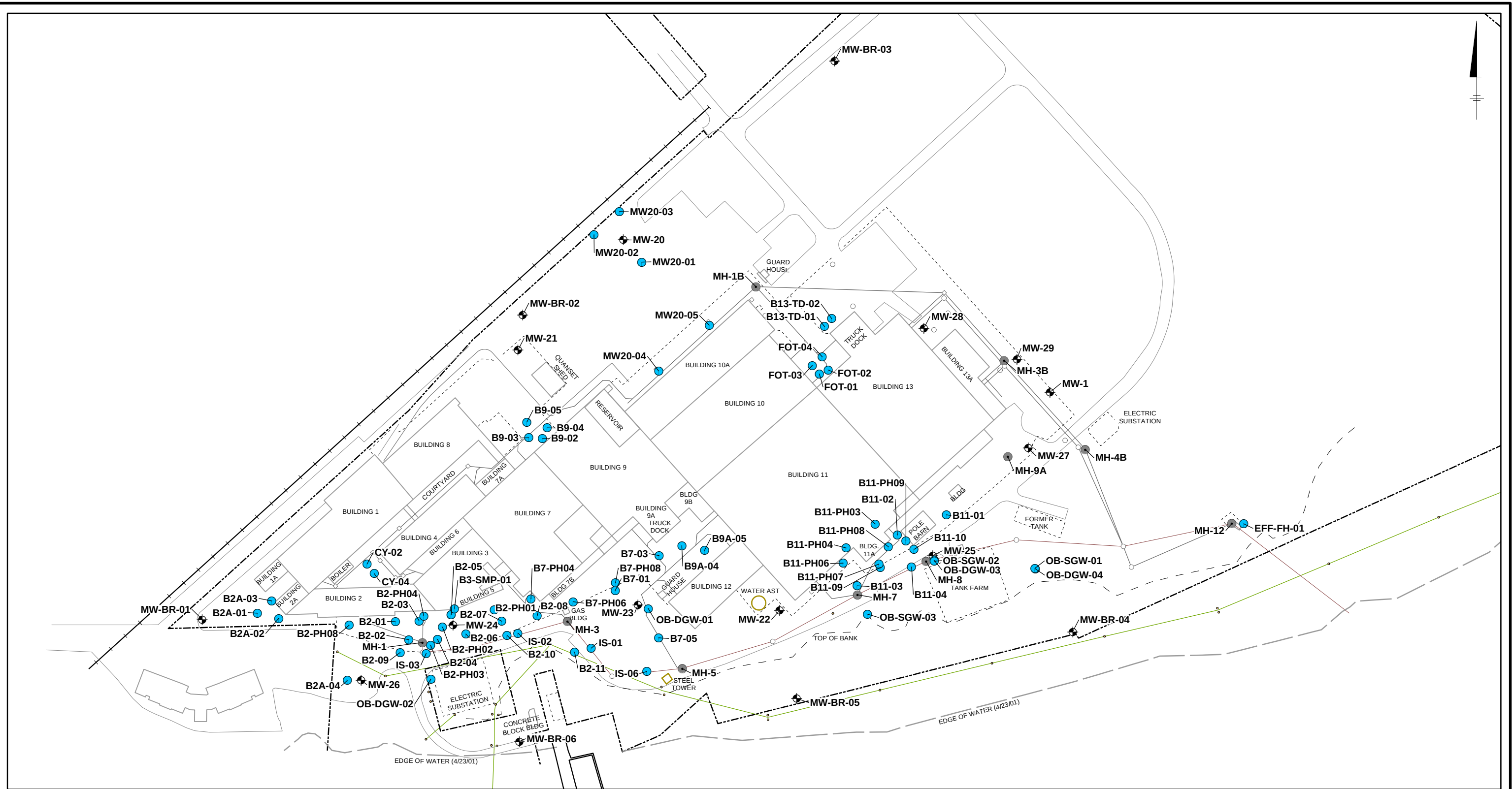
AREA OF CONCERN 3
TRICHLOROETHENE CONCENTRATIONS
IN SOIL



FIGURE

4-4

CITY: SCOTTS DALE DIV/GROUP: ENV/IM DB: M. EASTERLING LD: P/C: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-9 - Groundwater Sample Location Map.mxd Date Saved: 6/20/2013 7:13:42 AM PROJECT:



LEGEND

- MANHOLE SAMPLE
- MONITORING WELL SAMPLE
- SOIL BORING GRAB SAMPLE
- MANHOLE/CATCHBASIN
- RAILROAD TRACK
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE
- STORM SEWER PIPE



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

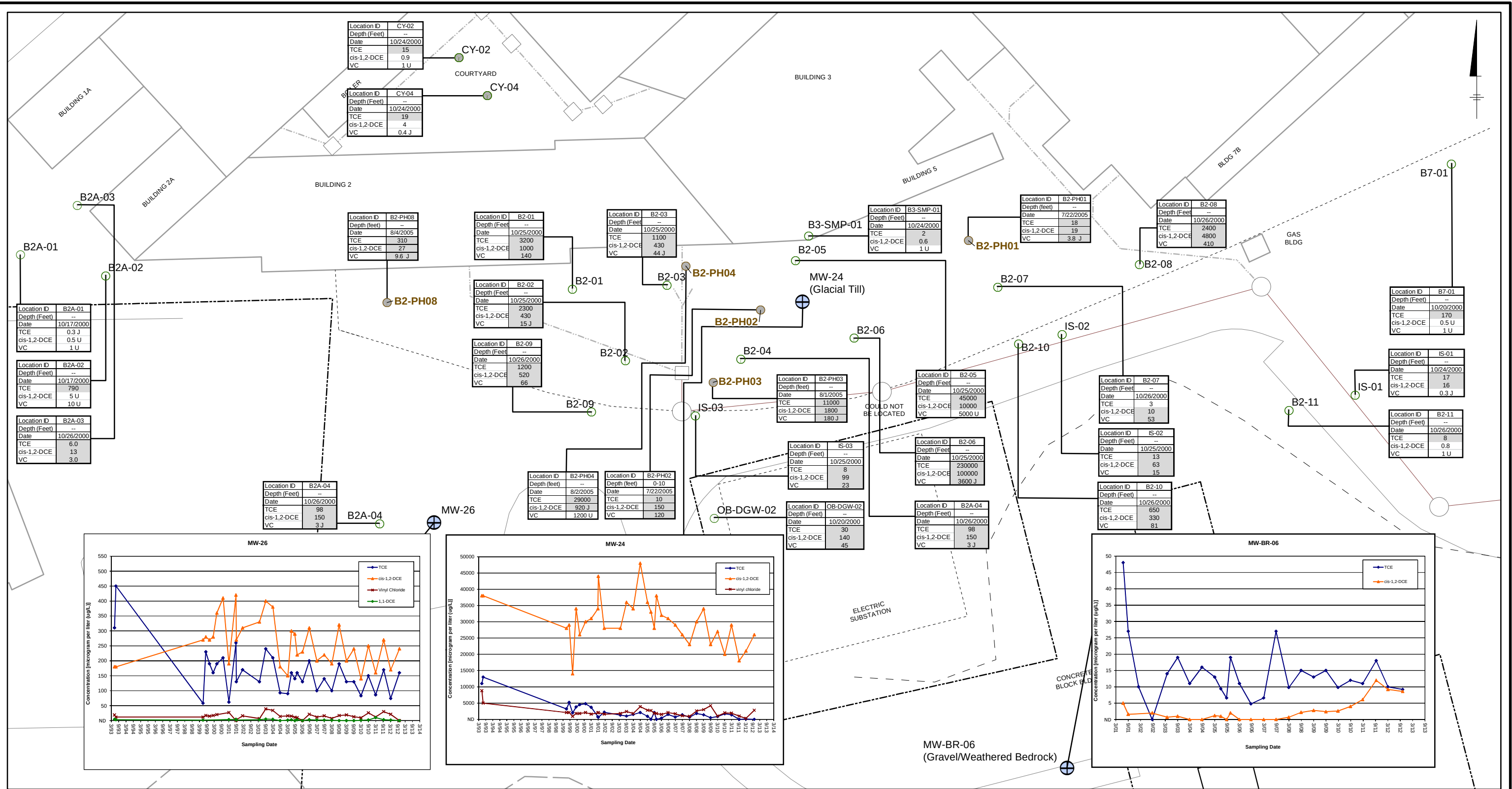
GROUNDWATER SAMPLING LOCATIONS



FIGURE

4-5

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
SOURCE: O'Brien and Gere Engineers, Inc. Drawing No. 5816.23966.010 dated October 2001

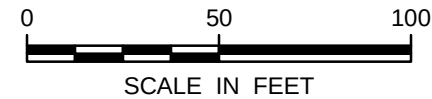


LEGEND

- RCRA FACILITY INVESTIGATION DIRECT-PUSH SAMPLE LOCATION
- CORRECTIVE MEASURES STUDY DIRECT-PUSH SAMPLE LOCATION
- MONITORING WELL
- MANHOLE/CATCHBASIN
- RAILROAD TRACK
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- STORM SEWER PIPE

PROJECTION: NAD_1983_StatePlane_New_York_Central
FIPS_3102_Feet

- NOTES:**
- Results are provided in micrograms per liter.
 - J - Estimated
U - Not Detected
B - Compound Detected in the Blank
TCE - Trichloroethene
cis-1,2-DCE - cis-1,2-Dichloroethene
VC - Vinyl Chloride
 - Only three compounds are shown, however other compounds above the screening criteria are in Appendix E.
 - Exceeds the Class GA Standard for TCE (5 ug/L), cis-1,2-DCE (5 ug/L), or VC (2 ug/L)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

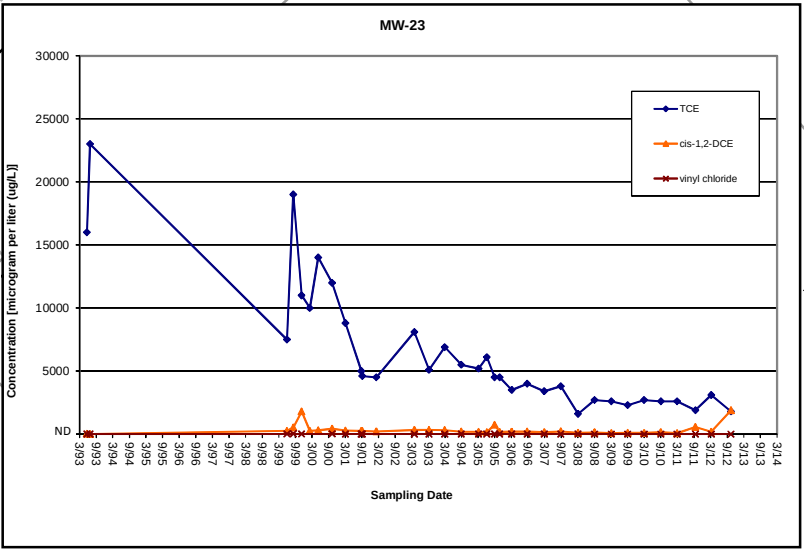
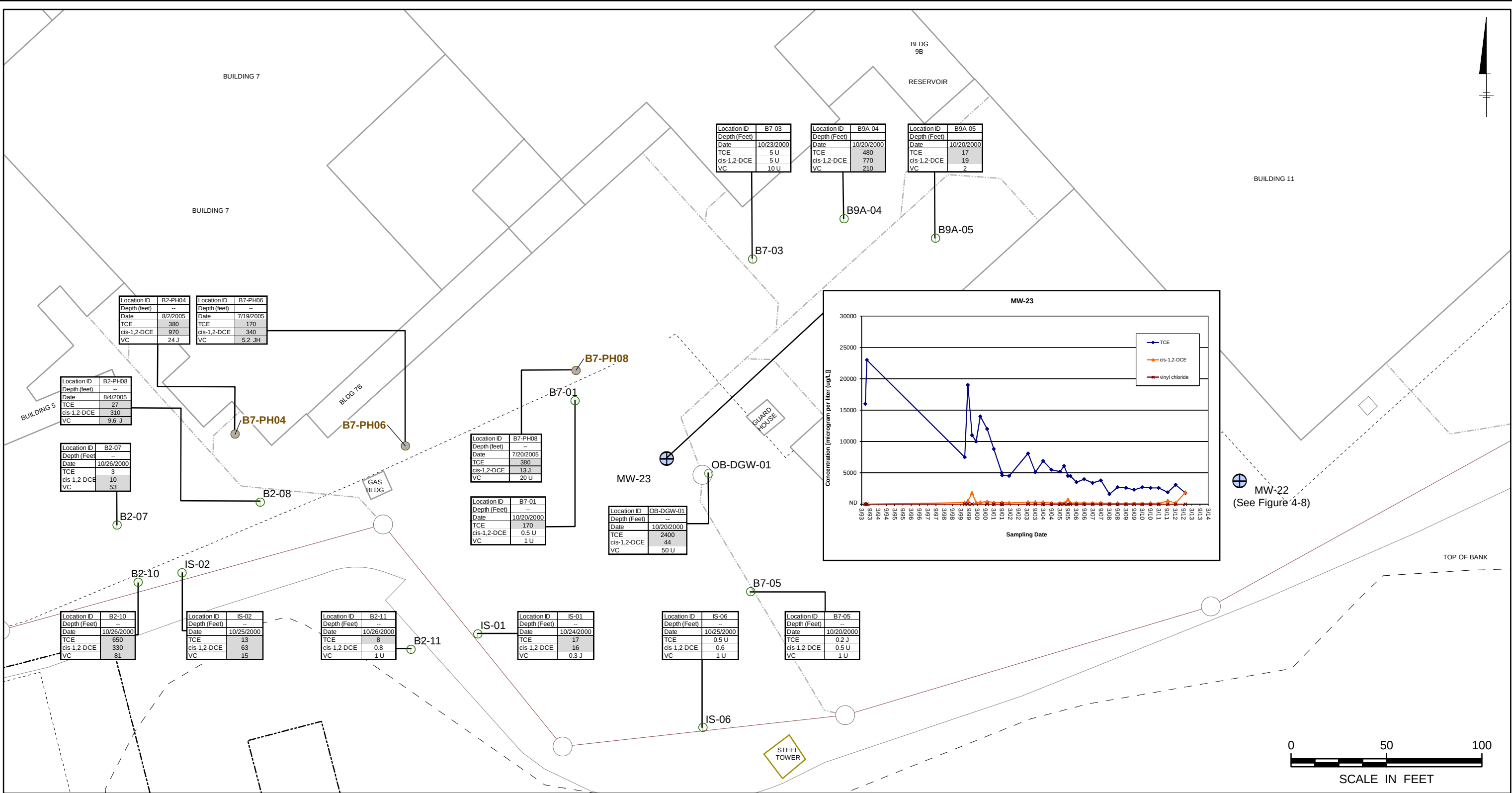
**AREA OF CONCERN 1
VOLATILE ORGANIC COMPOUNDS
IN GROUNDWATER**



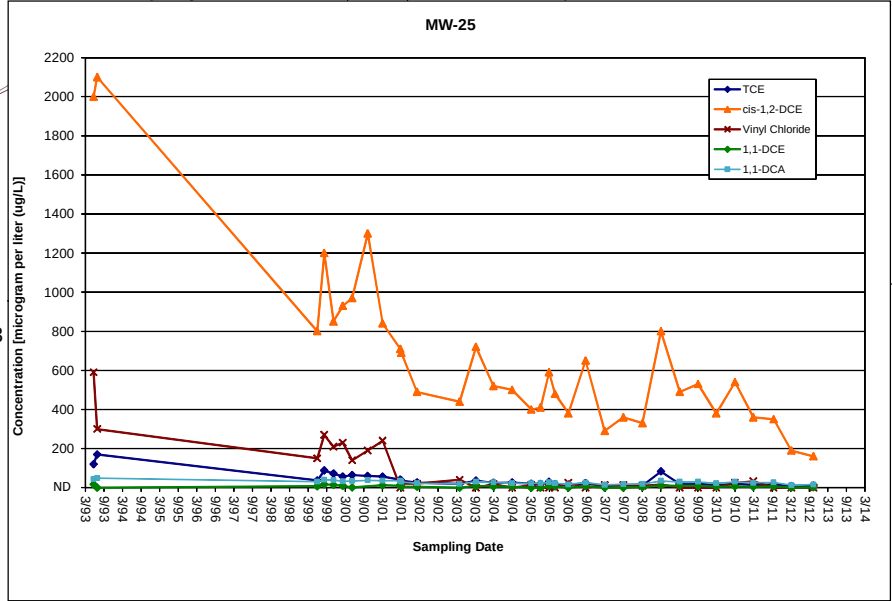
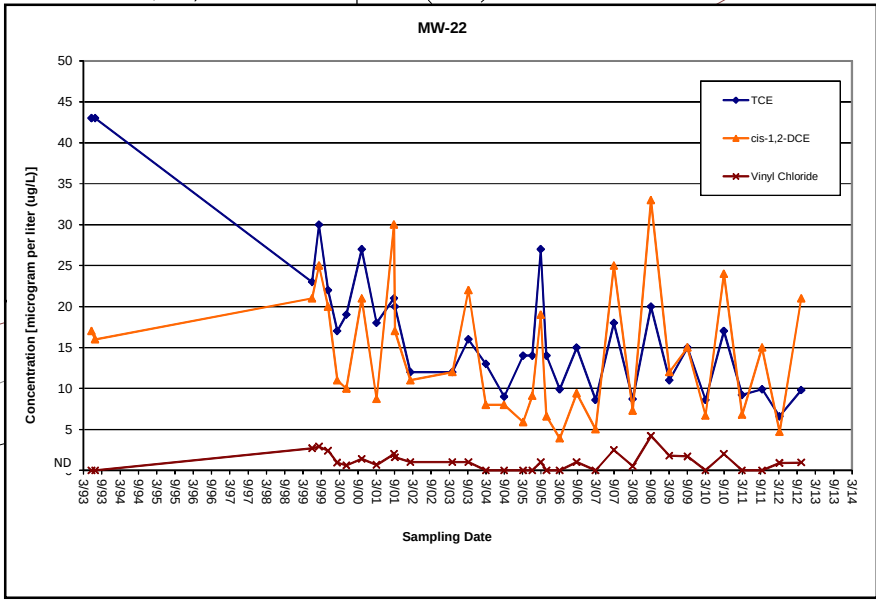
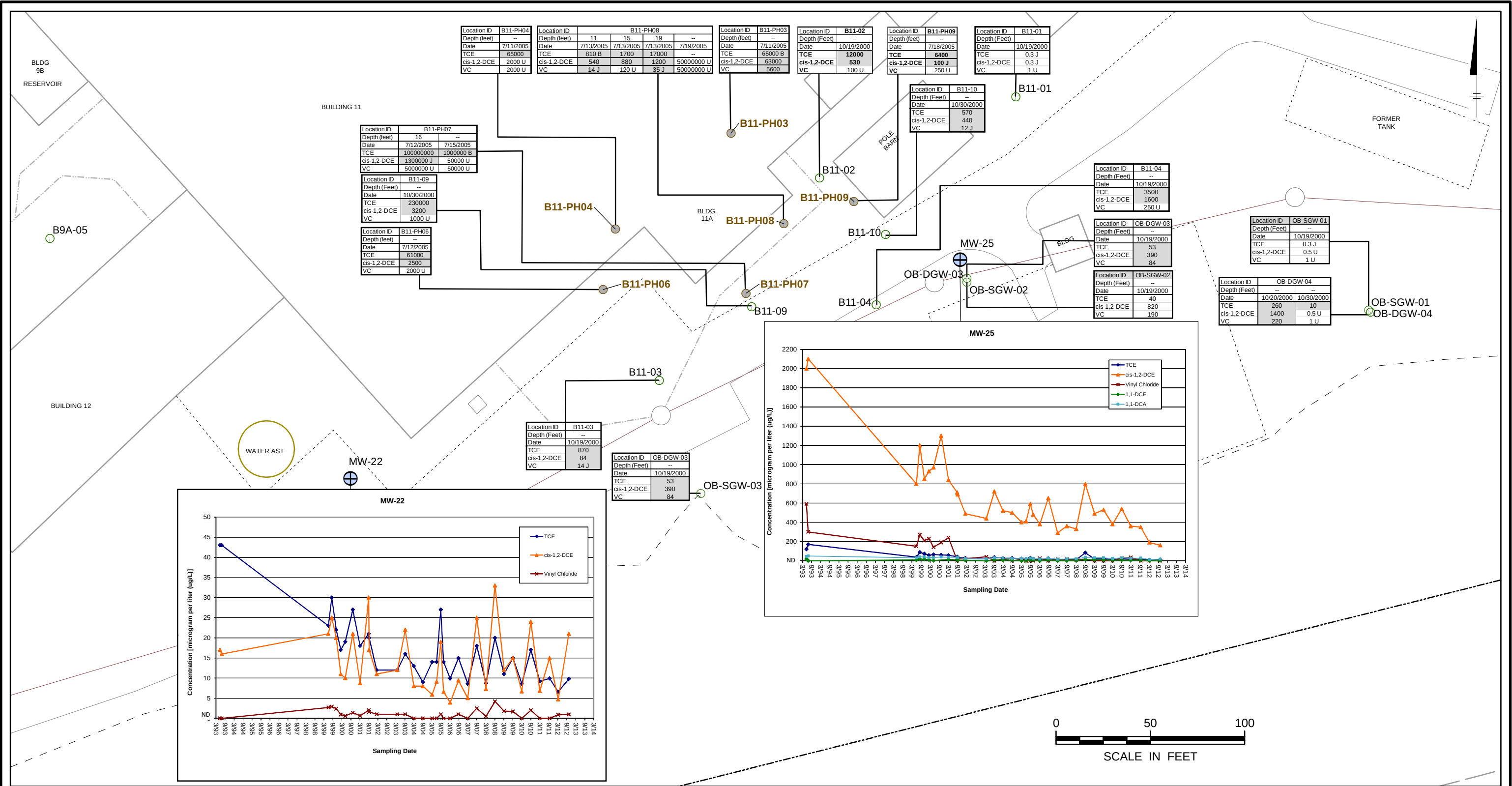
FIGURE

4-6

CITY: SCOTTS DALE DIV/GROUP: ENV/IM DB: M. EASTERLING LD: P/C: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig4-7-11v2 - GW TCE Bldg 7 Chembox.mxd Date Saved: 6/20/2013 7:15:02 AM PROJECT: 04563003.0000



CITY: SCOTTS DALE DIV/GROUP: ENV/IM DB: M. EASTERLING LD: P/C: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\Env5-12\2 - GW TCE Bldg 11 Chembox.mxd Date Saved: 6/20/2013 7:15:28 AM PROJECT: 04563003.0000



- LEGEND**
- RCRA FACILITY INVESTIGATION DIRECT-PUSH SAMPLE LOCATION
 - CORRECTIVE MEASURES STUDY DIRECT-PUSH SAMPLE LOCATION
 - MONITORING WELL
 - MANHOLE/CATCHBASIN
 - RAILROAD TRACK
 - PROPERTY BOUNDARY
 - INTERCEPTOR PIPE
 - FENCE
 - STORM SEWER PIPE

PROJECTION: NAD_1983_StatePlane_New_York_Central
FIPS_3102_Feet

NOTES:

- Results are provided in micrograms per liter.
- J - Estimated
U - Not Detected
B - Compound Detected in the Blank
TCE - Trichloroethene
cis-1,2-DCE - cis-1,2-Dichloroethene
VC - Vinyl Chloride
- Only three compounds are shown, however other compounds above the screening criteria are in Appendix E.
- Exceeds the Class GA Standard for TCE (5 ug/L), cis-1,2-DCE (5 ug/L), or VC (2 ug/L)

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

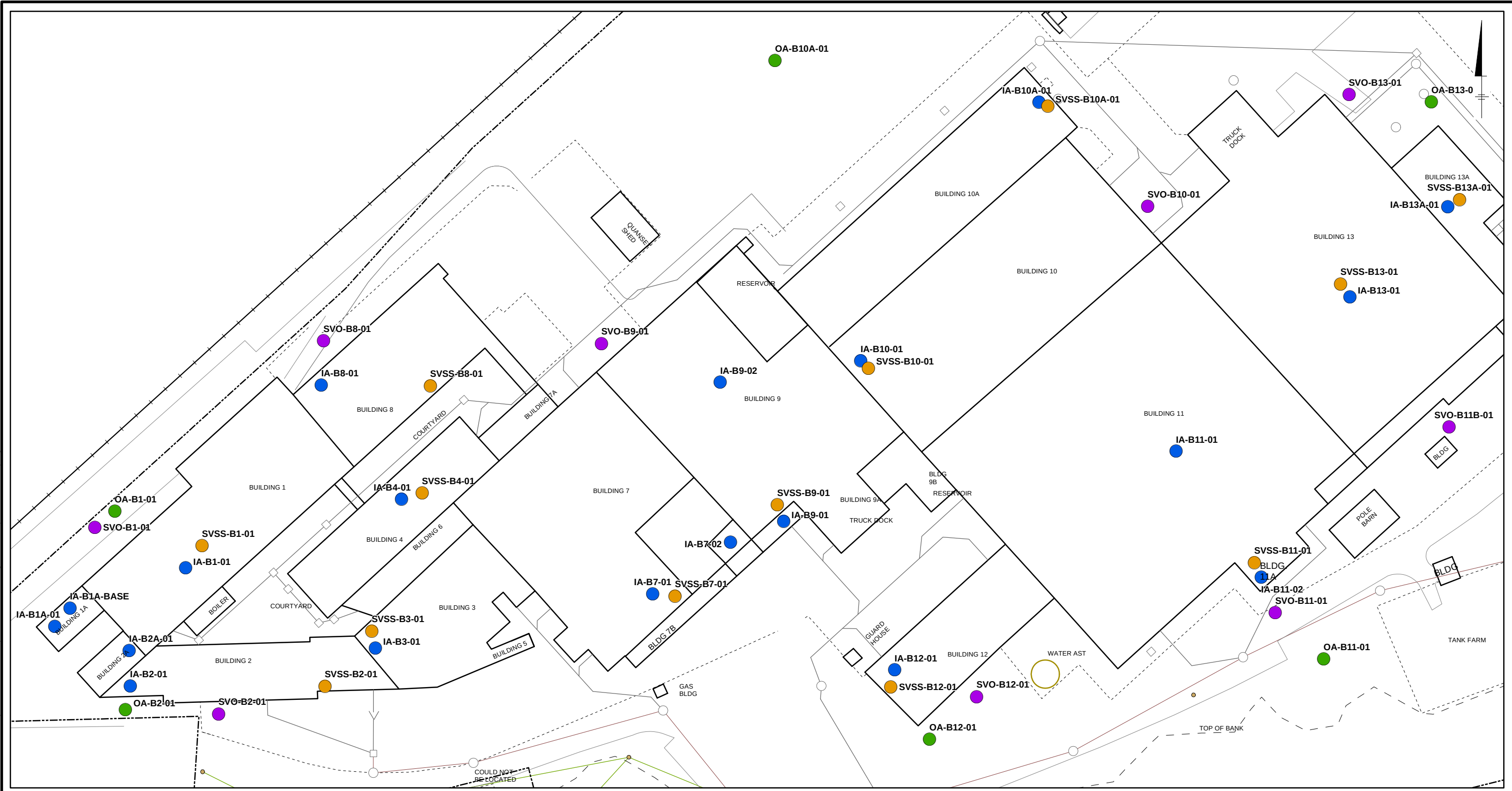
CORRECTIVE MEASURES STUDY REPORT

AREA OF CONCERN 3
VOLATILE ORGANIC COMPOUNDS
IN GROUNDWATER

FIGURE
4-8

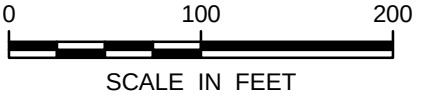
ARCADIS

CITY: CLE DIV/GROUP:(ENV/IM) DB: L.GREENE LD: R.MCKINNEY P/C: PM: TM: PROJECT: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig5-13 SoilVaporIntrusionSamplingLocations.mxd Date Saved: 5/31/2013 10:11:42 AM



- LEGEND**
- SOIL VAPOR SAMPLE
 - SUB-SLAB VAPOR SAMPLE
 - OUTDOOR AIR SAMPLE
 - INDOOR AIR SAMPLE
 - MANHOLE/CATCHBASIN
 - RAILROAD TRACK

- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- - - - - FENCE
- ELECTRIC OVERHEAD LINE
- STORM SEWER PIPE



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

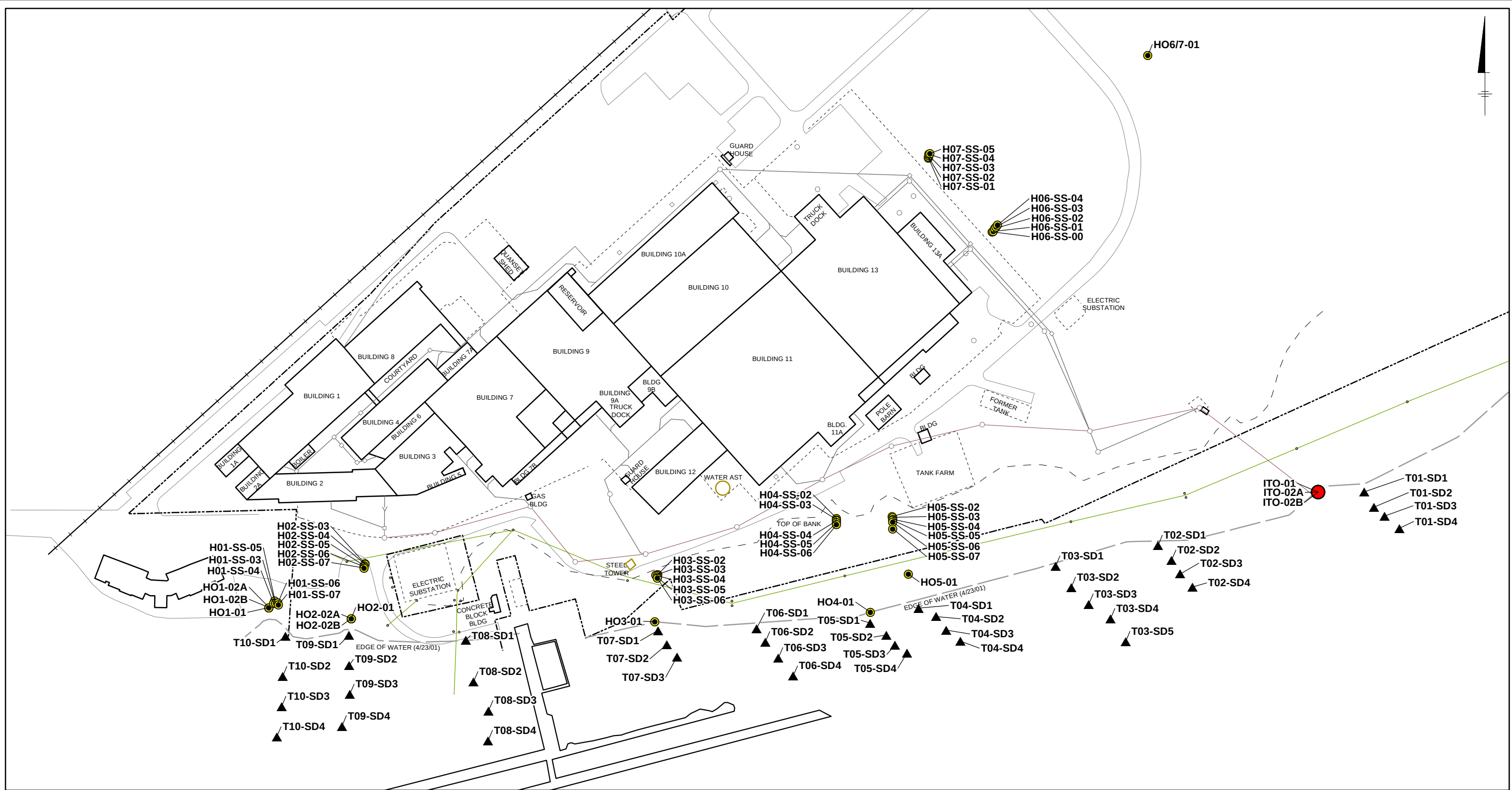
AIR SAMPLING LOCATIONS

 **ARCADIS**

FIGURE
4-9

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

CITY: DEN-TECH DIV/GROUP:(ENV/IM) DB: R.MCKINNEY, LD: P.C. PM: TM: Pat: G:\Project\Seneca Falls\MapDocuments\2013\Env-15 - Historical Outfall Location Map.mxd Date Saved: 6/20/2013 7:16:51 AM PROJECT:



LEGEND

▲

 SEDIMENT SAMPLE LOCATIONS

●

 INTERCEPTOR TRENCH OUTFALL SAMPLE LOCATION

●

 HISTORICAL OUTFALL SOIL SAMPLE LOCATION

○

 MANHOLE/CATCHBASIN

—+—

 RAILROAD TRACK

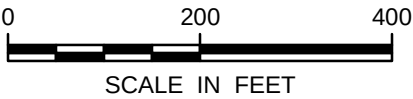
 PROPERTY BOUNDARY

 INTERCEPTOR PIPE

 FENCE

 ELECTRIC OVERHEAD LINE

 STORM SEWER PIPE



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

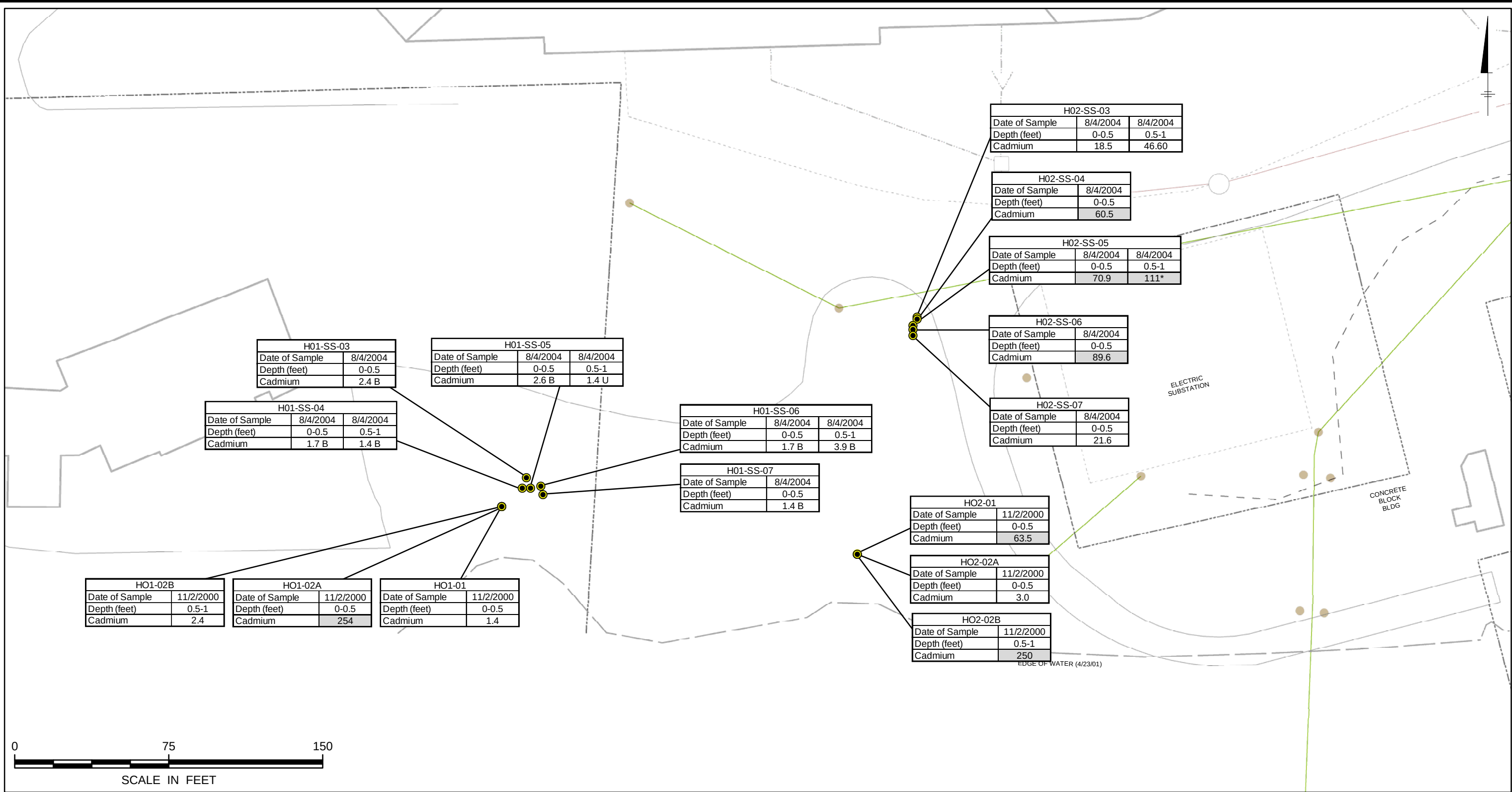
CORRECTIVE MEASURES STUDY REPORT

**HISTORICAL OUTFALL SOIL AND
SEDIMENT SAMPLING LOCATIONS**

FIGURE
4-10

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
SOURCE: O'Brien and Gere Engineers, Inc. Drawing No. 5816.23966.010 dated October 2001

CITY: SCOTTSDALE DIV/GROUP: ENV/IM DB: M.EASTERLING LD: PIC: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\Env5-16a - Cadmium Concentrations.mxd Date Saved: 6/20/2013 7:17:28 AM PROJECT:



LEGEND

- Historical Outfall Sample Location
- Fence
- Electric Overhead Line
- Railroad Track
- Storm Sewer Pipe
- Property Boundary
- Interceptor Pipe

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. All results are displayed in milligrams per kilogram (mg/kg).
2. U - Not Detected
B- Compound was detected in blank
* - Laboratory quality control sample analyses not within control limits
3. Exceeds the Industrial Soil Cleanup Objective for Cadmium (60 mg/kg)

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

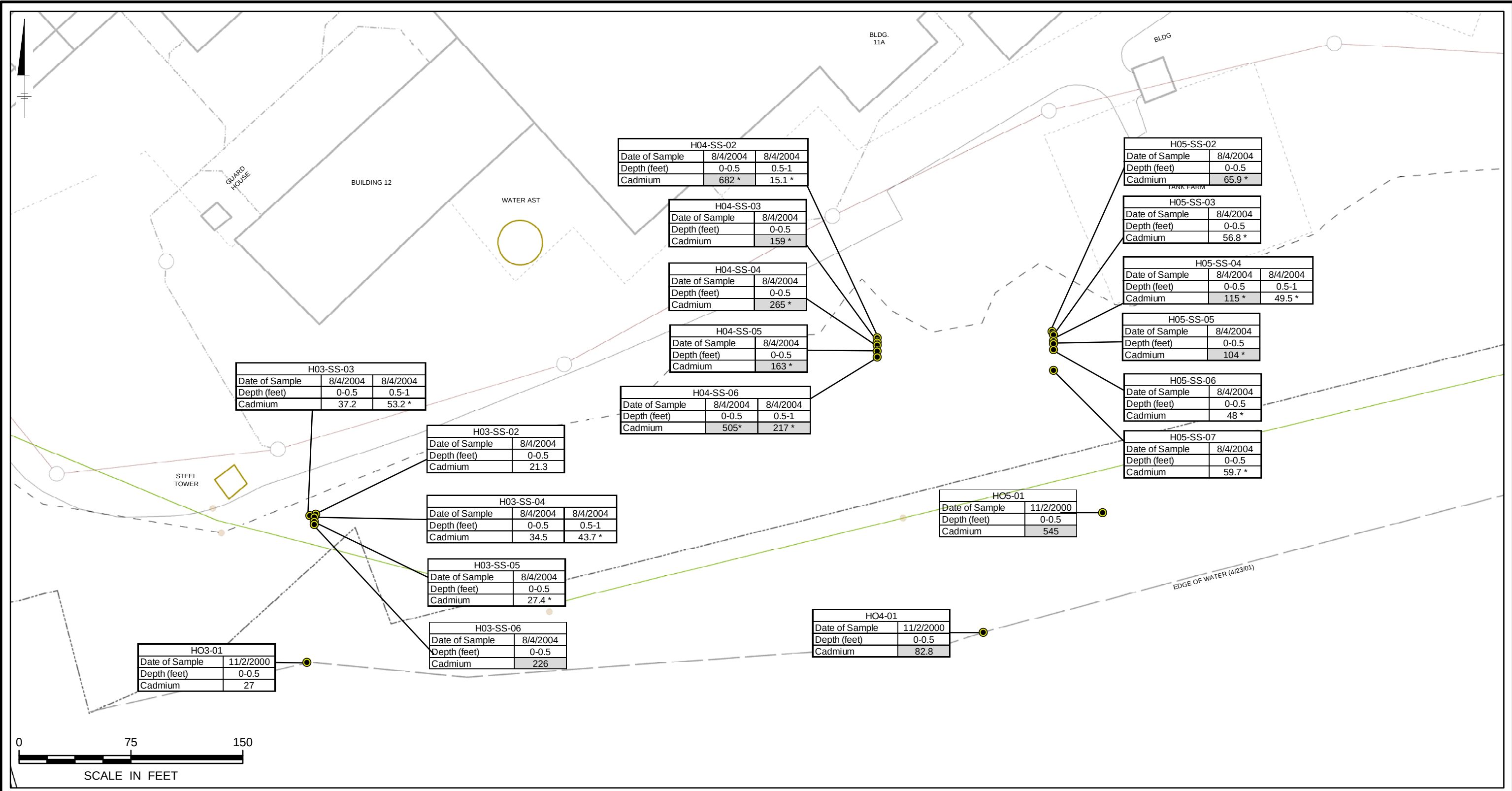
CORRECTIVE MEASURES STUDY REPORT

CADMIUM CONCENTRATIONS
IN HISTORICAL OUTFALL SOIL SAMPLES

ARCADIS

FIGURE
4-11a

CITY: SCOTTS DALE DIV/GRP: (ENV/IM) DB: M. EASTERLING LD: P/C: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig4-11b - Cadmium Concentrations.mxd Date Saved: 6/1/2013 11:01:58 AM PROJECT:



LEGEND

HISTORICAL OUTFALL SAMPLE LOCATION

RAILROAD TRACK

STORM SEWER PIPE

PROPERTY BOUNDARY

INTERCEPTOR PIPE

FENCE

ELECTRIC OVERHEAD LINE

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

NOTES:

1. All results are displayed in milligrams per kilogram (mg/kg).

2. U - Not Detected
B- Compound was detected in blank
* - Laboratory quality control sample analyses not within control limits

3. Exceeds the Industrial Soil Cleanup Objective for Cadmium (60 mg/kg)

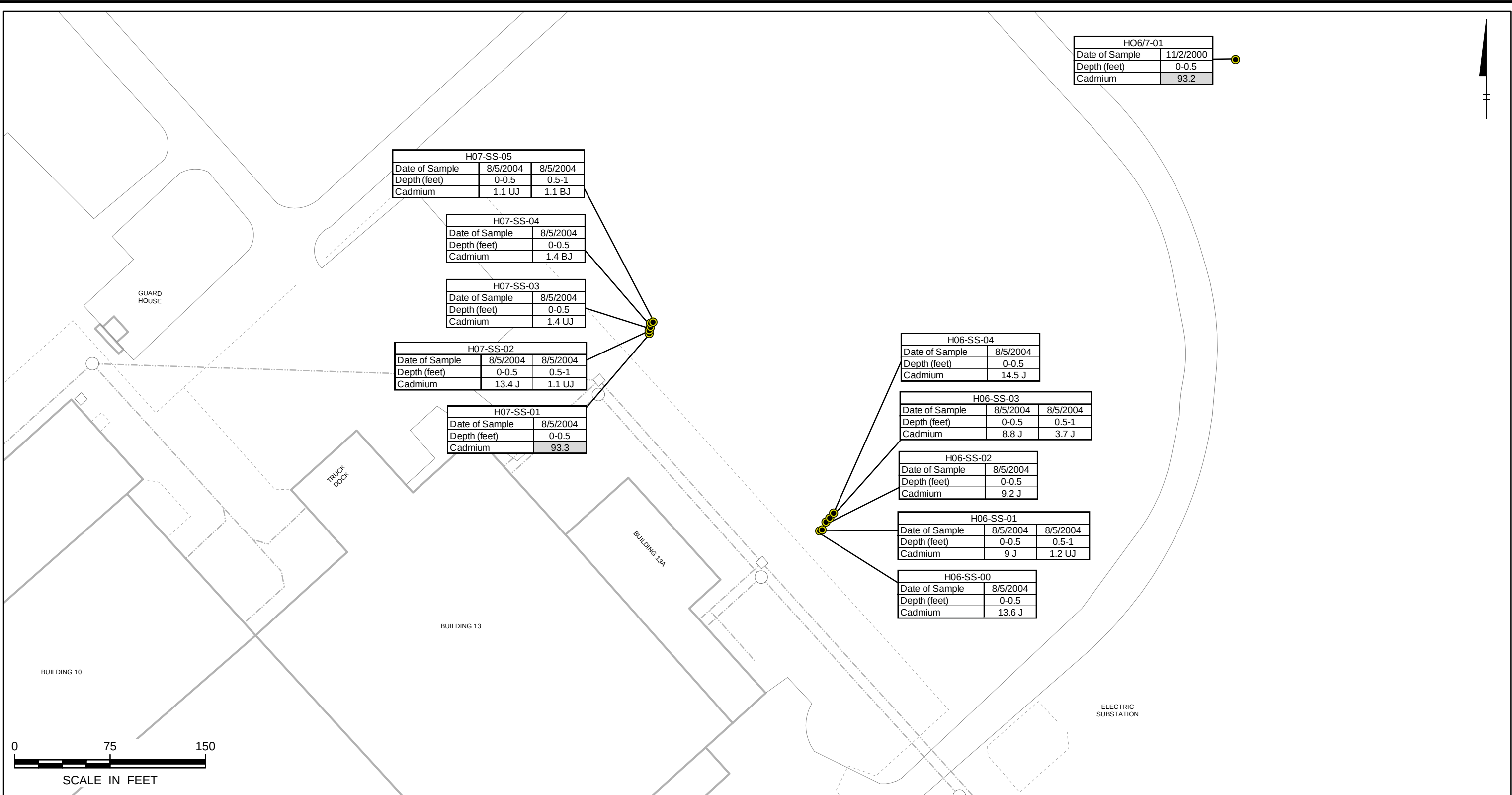
FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

CADMIUM CONCENTRATIONS
IN HISTORICAL OUTFALL SOIL SAMPLES

FIGURE
4-11b

CITY: SCOTTS DALE DIV/GROUP: (ENV/IM) DB: M. EASTERLING LD: P/C: PM: TM: PROJECT: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig4-11c - Cadmium Concentrations.mxd Date Saved: 6/20/2013 7:18:51 AM



- LEGEND**
- HISTORICAL OUTFALL SAMPLE LOCATION
 - RAILROAD TRACK
 - STORM SEWER PIPE
 - PROPERTY BOUNDARY
 - INTERCEPTOR PIPE
 - FENCE
 - ELECTRIC OVERHEAD LINE

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. All results are displayed in milligrams per kilogram (mg/kg).
2. U - Not Detected
B- Compound was detected in blank
J- Estimated
3. Exceeds the Industrial Soil Cleanup Objective for Cadmium (60 mg/kg)

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

**CADMIUM CONCENTRATIONS
IN HISTORICAL OUTFALL SOIL SAMPLES**



FIGURE

4-11c

LEGEND

- INTERCEPTOR TRENCH SEWER
- HISTORIC OUTFALL PIPE
- OVERLAND HISTORIC DISCHARGE FLOW
-  MAY 2005 METALS RESULTS (Cd/OTHER AS NOTED) RELATIVE TO SCREENING LEVELS
-  SEDIMENT SAMPLING TRANSECT IDENTIFICATION
-  REFERENCE SEDIMENT SAMPLE TRANSECT

NOTES

SAMPLES WERE LABELED SEQUENTIALLY ALONG EACH TRANSECT FROM NORTH TO SOUTH (SD1 NORTHERNMOST TO SD4 SOUTHERNMOST)

SEL = SEVERE EFFECT LEVEL
LEL = LOWEST EFFECT LEVEL
RL = REPORTING LIMIT
Cd = CADMIUM
Cu = COPPER
Ni = NICKEL
Zn = ZINC
mg/kg = MILLIGRAMS PER KILOGRAM

 GREATER THAN SEL

 GREATER THAN LEL AND RL, BUT LESS THAN SEL

 GREATER THAN LEL, BUT LESS THAN REPORTING LIMIT

 NON-DETECT OR DETECTED LESS THAN LEL

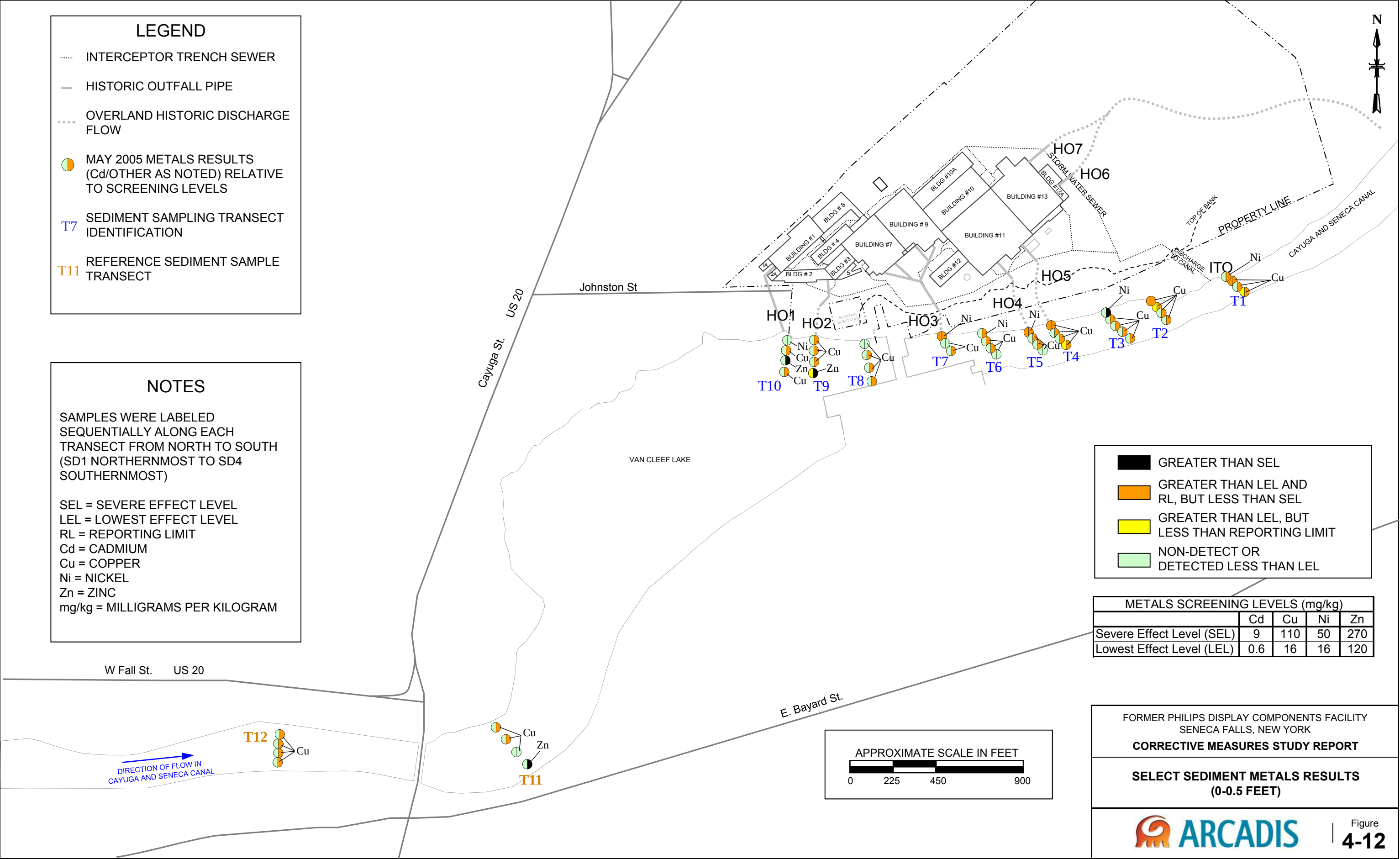
METALS SCREENING LEVELS (mg/kg)				
	Cd	Cu	Ni	Zn
Severe Effect Level (SEL)	9	110	50	270
Lowest Effect Level (LEL)	0.6	16	16	120

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

SELECT SEDIMENT METALS RESULTS
(0-0.5 FEET)

 | Figure 4-12



Tables

Table 2-1
Depth to Water Measurements (February 26, 2013)

Former Philips Display Components Facility
Seneca Falls, New York

Well Number	Datum Elevation	Depth to Water (feet)	Water Level Elevation (feet AMSL)
MW-1	460.83	8.81	452.02
MW-20	463.42	1.23	462.19
MW-21	467.39	2.86	464.53
MW-22	460.77	6.17	454.60
MW-23	460.59	2.51	458.08
MW-24	462.76	3.51	459.25
MW-25	460.74	4.00	456.74
MW-26	458.80	5.54	453.26
MW-27	460.45	6.73	453.72
MW-28	461.26	6.76	454.50
MW-29	459.89	7.77	452.12
MW-BR-01	462.64	34.55	428.09
MW-BR-02	467.87	30.97	436.90
MW-BR-03	457.06	28.25	428.81
MW-BR-04	396.39	Artesian	Artesian
MW-BR-05	401.34	22.10	379.24
MW-BR-06	436.30	37.56	398.74

Note:

AMSL = Above mean sea level

Table 4-1
Soil Volatile Organic Compounds, Semi-Volatile Organic Compounds, and Metals Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

	Building 2 Area			Building 7 Area			Building 10 Area			Building 11 Area			
Parameter	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	NYSDEC Industrial Standards [ppb]
Volatile Organic Compounds (µg/kg)													
Acetone	52 / 63	4 - 37,000	B2-PH05,29.5-29.5	40 / 45	4 - 1,500	B7-PH04,2.5-2.5	0 / 0	ND		37 / 39	3 - 5,400	B11-SBS-02,14-16	1,000,000 °
Benzene	5 / 63	2 - 9	B2-SBS-05,22-24,B2-SBS-14,24-26	4 / 46	0.7 - 350	B7-SBS-03,2-6	0 / 5	ND		1 / 49	0.7 - 3,800	B11-PH09,15.5-15.5	89,000
Bromoform	1 / 63	19,000	MW-BI-01,30-30	0 / 46	ND		0 / 0	ND		0 / 37	ND		1,000,000 °
2-Butanone (MEK)	5 / 63	0.6 - 42	B2-SBS-15,6-8	0 / 46	4 - 78	B9-SBS-02,12-14	0 / 0	ND		5 / 49	0.6 - 200	B11-PH06,12.6-12.6	1,000,000 °
Carbon disulfide	12 / 63	0.6 - 72	B2-PH07,32.5-32.5	5 / 46	0.6 - 17	B7-PH04,1.6-1.8	0 / 0	ND		4 / 47	0.8 - 8	B11-PH06,35.6-35.6	----
Chloroform	0 / 63	ND		0 / 46	ND		0 / 0	ND		1 / 49	4	B11-SBS-09,14-16	700,000
Chloromethane	0 / 63	24	B2-SBS-03,14-16	0 / 46	ND		0 / 0	ND		0 / 49	ND		----
1,1-Dichloroethane	2 / 63	0.8 - 0.9	B2-SBS-01,2-6	0 / 46	ND		0 / 5	ND		2 / 49	1 - 3	B11-SBS-05,14-16	480,000
1,1-Dichloroethene	8 / 63	0.6 - 47	B2-SBS-14,4-6	3 / 46	0.6 - 1	B9A-SBS-04,6-8	0 / 5	ND		4 / 49	0.7 - 4	B11-SBS-02,24-26,B11-SBS-09,14-16	1,000,000 °
1,2-Dichloroethane	20 / 63	1 - 10,000	B2-SBS-14,24-26	9 / 46	0.7 - 360	B7-PH05,12.5-13	0 / 5	ND		1 / 49	4	B11-SBS-09,14-16	----
cis-1,2-Dichloroethene	38 / 63	0.9 - 20,000	B2-PH05,29.5-29.5	23 / 46	1.5 - 310	B7-PH05,3-3.5	2 / 5	120	B10-03 (10')	20 / 49	0.6 - 3,300	B11-PH03,13-13	1,000,000 °
trans-1,2-Dichloroethene	13 / 63	0.6 - 150	B2-PH03,3.5-3.5	5 / 46	0.6 - 6	B7-SBS-04,12-14	0 / 5	ND		2 / 49	1 - 1	B11-SBS-02,24-26,B11-SBS-09,14-16	1,000,000 °
Ethylbenzene	8 / 63	1 - 710	B2-SBS-06,24-26	1 / 46	2,400	B7-SBS-03,2-6	0 / 5	ND		2 / 48	5	B11-SBS-09,14-16	780,000
Methylene chloride	53 / 63	0.8 - 32,000	B2-PH05,29.5-29.5	45 / 46	0.6 - 300	B7-PH07,13.5-13.5	0 / 0	ND		45 / 49	0.6 - 57,000	B11-PH08,22-22.3	1,000,000 °
4-Methyl-2-pentanone (MIBK)	2 / 63	14 - 190	B2-SBS-14,24-26	0 / 46	ND		0 / 0	ND		1 / 49	4	B11-SBS-02,24-26	----
Styrene	0 / 63	0.8	IS-SBS-03,4-6	0 / 46	ND		0 / 0	ND		1 / 49	4,900	B11-PH09,15.5-15.5	----
Tetrachloroethene	6 / 63	1 - 1,300	B2-PH06,1.5-1.5	1 / 46	2.6	B7-PH04,1.6-1.8	0 / 5	ND		8 / 49	10 - 4,100	B11-PH02,0.5-1	300,000
1,1,2,2-Tetrachloroethane	2 / 63	100 - 4,400	MW-BI-01,30-30	0 / 46	ND		0 / 5	ND		0 / 49	ND		----
Toluene	16 / 63	0.7 - 52,000	B2-PH05,29.5-29.5	3 / 46	0.8 - 140	B7-PH07,13.5-13.5	0 / 5	ND		10 / 48	3 - 73,000	B11-PH08,22-22.3	1,000,000 °
1,1,1-Trichloroethane	0 / 63	ND		0 / 46	ND		0 / 5	ND		1 / 49	3	B11-SBS-03,10-14	1,000,000 °
1,1,2-Trichloroethane	0 / 63	ND		0 / 46	ND		0 / 5	ND		2 / 49	4 - 6	B11-SBS-09,14-16	----
Trichloroethene	57 / 63	0.8 - 1,500,000	B2-PH05,29.5-29.5	37 / 46	0.8 - 48,000	B7-PH07,13.5-13.5	5 / 5	560 - 37000	B10-100 (24'), B10-200 (24')	44 / 49	1 - 8,100,000	B11-PH08,22-22.3	400,000
Vinyl chloride	13 / 63	1 - 2,500	B2-SBS-14,4-6	4 / 46	0.7 - 28	B9A-SBS-04,6-8	0 / 5	ND		3 / 49	12 - 160	B11-PH03,13-13	27,000
Xylenes (total)	12 / 63	0.6 - 5,100	B2-SBS-06,24-26	2 / 46	210 - 8,600	B7-SBS-03,2-6	0 / 0	ND		4 / 49	33 - 8,200	B11-PH09,15.5-15.5	1,000,000 °

Table 4-1
Soil Volatile Organic Compounds, Semi-Volatile Organic Compounds, and Metals Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

	Building 2 Area			Building 7 Area			Building 10 Area			Building 11 Area			
Parameter	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	NYSDEC Industrial Standards [ppb]
Semi-Volatile Organic Compounds (µg/kg)													
Acenaphthene	0 / 4	ND		1 / 11	620	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Anthracene	0 / 4	ND		1 / 11	1,600	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Benzo(a)anthracene	0 / 4	ND		1 / 11	2,100	B9-SBS-04,4-6	N/A			N/A			11,000
Benzo(b)fluoranthene	0 / 4	ND		1 / 11	2,100	B9-SBS-04,4-6	N/A			N/A			11,000
Benzo(ghi)perylene	0 / 4	ND		1 / 11	680	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Benzo(k)fluoranthene	0 / 4	ND		1 / 11	790	B9-SBS-04,4-6	N/A			N/A			110,000
Benzo(a)pyrene	0 / 4	ND		1 / 11	1,700	B9-SBS-04,4-6	N/A			N/A			1,100
bis(2-Ethylhexyl)phthalate	2 / 4	41 - 180	CY-SBS-03,8-10	11 / 11	49 - 640	B9-SBS-04,4-6	N/A			N/A			----
Carbazole	0 / 4	ND		1 / 11	650	B9-SBS-04,4-6	N/A			N/A			----
Chrysene	0 / 4	ND		1 / 11	2,000	B9-SBS-04,4-6	N/A			N/A			110,000
Dibenzo(a,h)anthracene	0 / 4	ND		1 / 11	200	B9-SBS-04,4-6	N/A			N/A			1,100
Dibenzofuran	0 / 4	ND		1 / 11	330	B9-SBS-04,4-6	N/A			N/A			----
Fluoranthene	1 / 4	53	CY-SBS-03,8-10	1 / 11	4,600	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Fluorene	0 / 4	ND		1 / 11	810	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Indeno(1,2,3-cd)pyrene	0 / 4	ND		1 / 11	690	B9-SBS-04,4-6	N/A			N/A			11,000
2-Methylnaphthalene	0 / 4	ND		1 / 11	69	B9-SBS-04,4-6	N/A			N/A			----
Naphthalene	0 / 4	ND		1 / 11	61	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Phenathrene	2 / 4	43 - 50	CY-SBS-01,5,5-5,5	1 / 11	4,500	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Pyrene	1 / 4	50	CY-SBS-03,8-10	1 / 11	4,200	B9-SBS-04,4-6	N/A			N/A			1,000,000 ^c
Metals (mg/kg)													
Aluminum	13 / 13	6,810 - 18,000	CY-SBS-04,2-4	5 / 5	3,160 - 14,400	B9-SBS-04,4-6	N/A			13 / 13	7,420 - 12,000	B11-SBS-03,10-14	----
Antimony	4 / 13	0.25 - 1	GRSS-SS-01,0-0.5	0 / 5	0.24 - 0.54	B9-SBS-04,4-6	N/A			6 / 13	0.21 - 0.25	B11-SBS-06,14-16	----
Arsenic	13 / 13	2.3 - 5.8	CY-SBS-01,5,5-5,5,GRSS-SS-01,0-0.5	5 / 5	2.2 - 6	B9-SBS-04,4-6	N/A			13 / 13	2.1 - 13	EFF-SBS-02,10-14	16 ^f
Barium	13 / 13	43.2 - 156	GRSS-SS-01,0-0.5	5 / 5	28.8 - 154	B9-SBS-06,6-8	N/A			13 / 13	47.1 - 152	B11-SBS-05,14-16	10,000 ^d

Table 4-1
Soil Volatile Organic Compounds, Semi-Volatile Organic Compounds, and Metals Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	Building 2 Area			Building 7 Area			Building 10 Area			Building 11 Area			NYSDEC Industrial Standards [ppb]
	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	Frequency of Detection	Range of Detected Concentrations	Location of Maximum	
Beryllium	13 / 13	0.35 - 0.79	CY-SBS-04,2-4	5 / 5	0.19 - 0.63	B9-SBS-04,4		N/A		13 / 13	0.37 - 0.57	B11-SBS-03,10-14	2,700
Cadmium	1 / 13	26.8 - 27	GRSS-SS-01,0-0.5	0 / 5	2.2	B9-SBS-04,4 6		N/A		5 / 13	0.031 - 33	EFF-SBS-02,10-14	60
Calcium *	13 / 13	29,300 - 136,000	GRSS-SS-01,0-0.5	5 / 5	45,100 - 98,600	B9-SBS-06,6 8		N/A		13 / 13	54,200 - 118,000	B11-SBS-08,24-26	***
Chromium	13 / 13	10.3 - 25	GRSS-SS-01,0-0.5	5 / 5	5.5 - 19	B9-SBS-04,4 6		N/A		13 / 13	9.8 - 16	B11-SBS-03,10-14	800
Cobalt	13 / 13	4.4 - 8.5	B2-SBS-07,12-14	5 / 5	1.9 - 7	B9-SBS-02,12-14		N/A		13 / 13	3.9 - 6	EFF-SBS-01,6-8	----
Copper	13 / 13	12.2 - 41	CY-SBS-01,5.5-5.5,GRSS-SS-01,0-0.5	5 / 5	9.5 - 99	B9-SBS-04,4 6		N/A		13 / 13	11.9 - 85	B11-SBS-08,24-26	270
Iron *	13 / 13	12,000 - 21,800	CY-SBS-04,2-4,B2-PH07,22.5-22.5	5 / 5	8,030 - 20,100	B9-SBS-04,4 6,36822		N/A		13 / 13	11,200 - 17,700	B11-SBS-03,10-14,EFF-SBS-01,6-8	***
Lead	13 / 13	5.4 - 100	GRSS-SS-01,0-0.5	5 / 5	3.1 - 21	B9-SBS-04,4 6		N/A		13 / 13	4.6 - 9	EFF-SBS-01,6-8	400
Magnesium *	13 / 13	10,400 - 34,600	CY-SBS-03,8-10	5 / 5	2,230 - 43,500	B9-SBS-06,6 8		N/A		13 / 13	16,600 - 57,300	B11-SBS-08,24-26	***
Manganese	13 / 13	306 - 913	CY-SBS-04,2-4,B2-PH07,22.5-22.5	5 / 5	253 - 480	B9-SBS-04,4 6,36822		N/A		13 / 13	311 - 759	B11-SBS-01,4-6,B11-SBS-03,10-14	10,000 ^d
Mercury	4 / 13	0.043 - 0.32	GRSS-SS-01,0-0.5	1 / 5	0.044 - 0.072	B7-PH03,11.5-		N/A		8 / 13	0.033 - 0.07	B11-SBS-03,10-14	5.7 ^j
Nickel	13 / 13	9.4 - 25	CY-SBS-04,2-4	5 / 5	4.1 - 15	B9-SBS-04,4 6		N/A		13 / 13	8.9 - 15	B11-SBS-03,10-14	10,000 ^d
Potassium *	13 / 13	2,110 - 6,700	GRSS-SS-01,0-0.5	5 / 5	776 - 4,470	B9-SBS-06,6 8		N/A		13 / 13	270 - 3,870	B11-SBS-02,23-24	***
Selenium	12 / 13	0.42 - 1.2	GRSS-SS-01,0-0.5	5 / 5	0.44 - 1	B9-SBS-05,12-16		N/A		12 / 13	0.51 - 1.2	B11-SBS-08,24-26	6,800
Silver	1 / 13	0.12	GRSS-SS-01,0-0.5	0 / 5	ND			N/A		2 / 13	0.083 - 0.084	B11-SBS-02,14-16	6,800
Sodium *	13 / 13	139 - 938	GRSS-SS-01,0-0.5, B2-PH07, 22.5-22.5	5 / 5	122 - 326	B9-SBS-06,6 8,36822		N/A		13 / 13	183 - 580	EFF-SBS-02,10-14,B11-SBS-02,14-16	***
Thallium	1 / 13	0.89	CY-SBS-04,2-4	0 / 5	ND			N/A		2 / 13	0.54 - 0.55	B11-SBS-02,14-16	----
Vanadium	13 / 13	13.9 - 35	GRSS-SS-01,0-0.5	5 / 5	9.6 - 26	B9-SBS-04,4 6		N/A		13 / 13	14.8 - 23.5	B11-SBS-03,10-14	----
Zinc	13 / 13	28.5 - 210	GRSS-SS-01,0-0.5	5 / 5	22.7 - 85	B9-SBS-04,4 6		N/A		13 / 13	22.2 - 166	EFF-SBS-02,10-14	10,000 ^d

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Industrial Soil Cleanup Objectives (ISCO).

---- = Soil Cleanup Objective not provided for specific chemical in the NYSDEC Standards

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

* = Essential nutrients are categorically eliminated as chemical of potential concern

BOLD = Detected

ND = Not Detected

ppb = parts per billion

c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1,000 parts per million (ppm).

d = The SCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j = This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC Industrial Soil Standards

Table 4-2
Direct-Push Boring Groundwater Sampling Results

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	B2-PH01 7/22/2005	B2-PH02 7/22/2005	B2-PH03 8/1/2005	B2-PH04 8/2/2005	B2-PH08 8/4/2005
Volatile Organic Compounds							
1,1,1-Trichloroethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
1,1,2,2-Tetrachloroethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
1,1,2-Trichloroethane	1	µg/l	5 U	5 U	500 U	1200 U	20 U
1,1-Dichloroethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
1,1-Dichloroethene	0.7	µg/l	5 U	5 U	500 U	1200 U	20 U
1,2-Dichloroethane	0.6	µg/l	5 U	5.6	500 U	1200 U	20 U
1,2-Dichloropropane	1	µg/l	5 U	5 U	500 U	1200 U	20 U
2-Butanone	50	µg/l	10 U	10 U	1000 U	2500 U	40 U
4-Methyl-2-Pentanone	5	µg/l	10 U	10 U	1000 U	2500 U	40 U
Acetone	50	µg/l	12	30	370 JB	1100 JB	9 JB
Benzene	1	µg/l	5 U	3.6 J	500 U	1200 U	20 U
Bromodichloromethane	50	µg/l	5 U	5 U	500 U	1200 U	20 U
Bromomethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Calcium	----	µg/l	--	--	--	--	--
Carbon Disulfide	----	µg/l	5 U	5 U	500 U	1200 U	20 U
Carbon Tetrachloride	5	µg/l	5 U	5 U	500 U	1200 U	20 U
CFC-11	NS	µg/l	5 U	5 U	--	--	--
CFC-12	NS	µg/l	5 U	5 U	--	--	--
Chlorobenzene	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Chlorodibromomethane	----	µg/l	5 U	5 U	500 U	1200 U	20 U
Chloroethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Chloroform	7	µg/l	5 U	5 U	500 U	1200 U	20 U
Chloromethane	5	µg/l	5 U	5 U	500 U	1200 U	20 U
cis-1,2-Dichloroethene	5	µg/l	19	150	1800	920 J	27
cis-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	500 U	1200 U	20 U
Dichloromethane	5	µg/l	5 U	0.48 J	260 JB	660 JB	6.7 JB
Ethylbenzene	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Iron	500	µg/l	--	--	--	--	--
Manganese	500	µg/l	--	--	--	--	--
Methyl N-Butyl Ketone	----	µg/l	10 U	10 U	1000 U	2500 U	40 U
Potassium	----	µg/l	--	--	--	--	--
Sodium	20000	µg/l	--	--	--	--	--
Styrene (Monomer)	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Tetrachloroethene	5	µg/l	5 U	5 U	500 U	1200 U	20 U
Toluene	5	µg/l	5 U	1 J	500 U	1200 U	20 U
Total Xylenes	5	µg/l	5 U	5 U	500 U	1200 U	20 U
trans-1,2-Dichloroethene	5	µg/l	5 U	2 J	500 U	1200 U	20 U
trans-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	500 U	1200 U	20 U
Tribromomethane	NS	µg/l	5 U	5 U	500 U	1200 U	20 U
Trichloroethene	5	µg/l	18	10	11000	29000	310
Vinyl Acetate	5	µg/l	5 U	5 U	--	--	--
Vinyl Chloride	2	µg/l	3.8 J	120	180 J	1200 U	9.6 J
Wet Chemistry Parameters							
Alkalinity (as CaCO3)	----	mg/l	--	--	--	--	--
Ammonia Nitrogen	----	mg/l	--	--	--	--	--
Bromide	2	mg/l	--	--	--	--	--
Chloride	250	mg/l	--	--	--	--	--
Hardness (as CaCO3)	----	mg/l	--	--	--	--	--
Nitrate-N	10	mg/l	--	--	--	--	--
Nitrite	10	mg/l	--	--	--	--	--
Sulfate	250	mg/l	--	--	--	--	--
Total Dissolved Solids	----	mg/l	--	--	--	--	--
Total Organic Carbon	----	mg/l	--	--	--	--	--
pH	----	pH units	--	--	--	--	--

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

BOLD = Exceeds Detection Limit

---- = No specified Standard

U = Not detected

J = Estimated Value

B = Compound was detected in blank

H = Alternate peak selection upon review

Shaded = Value exceeds NYS Class GA Standards

Table 4-2
Direct-Push Boring Groundwater Sampling Results

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	B7-PH04 7/20/2005	B7-PH04 7/20/2005	B7-PH06 7/19/2005	B7-PH08 7/20/2005	B7-PH08 7/22/2005	B11-PH03 7/11/2005
Volatile Organic Compounds								
1,1,1-Trichloroethane	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
1,1,2,2-Tetrachloroethane	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
1,1,2-Trichloroethane	1	µg/l	50 U	25 U	20 U	20 U	--	2500 U
1,1-Dichloroethane	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
1,1-Dichloroethene	0.7	µg/l	50 U	25 U	20 U	20 U	--	2500 U
1,2-Dichloroethane	0.6	µg/l	76 H	62	44 H	34	--	2500 U
1,2-Dichloropropane	1	µg/l	50 U	25 U	20 U	20 U	--	2500 U
2-Butanone	50	µg/l	100 U	12 J	40 U	40 U	--	5000 U
4-Methyl-2-Pentanone	5	µg/l	100 U	50 U	40 U	40 U	--	5000 U
Acetone	50	µg/l	45 J	33 J	13 J	22 J	--	2800 JB
Benzene	1	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Bromodichloromethane	50	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Bromomethane	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Calcium	----	µg/l	--	--	--	--	--	--
Carbon Disulfide	----	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Carbon Tetrachloride	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
CFC-11	NS	µg/l	50 U	25 U	20 U	20 U	--	2500 U
CFC-12	NS	µg/l	50 U	25 U	20 U	20 U	--	2000 U 2500 U
Chlorobenzene	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Chlorodibromomethane	----	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Chloroethane	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Chloroform	7	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Chloromethane	5	µg/l	50 U	25 U	20 U	20 U	--	2000 U 2500 U
cis-1,2-Dichloroethene	5	µg/l	450	380	340	13 J	--	63000
cis-1,3-Dichloropropene	0.4	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Dichloromethane	5	µg/l	6.8 J	3.1 J	3.5 JB	2.5 J	--	2500 UB
Ethylbenzene	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Iron	500	µg/l	--	--	--	--	--	--
Manganese	500	µg/l	--	--	--	--	--	--
Methyl N-Butyl Ketone	----	µg/l	100 U	50 U	40 U	40 U	--	5000 U
Potassium	----	µg/l	--	--	--	--	--	--
Sodium	20000	µg/l	--	--	--	--	--	--
Styrene (Monomer)	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Tetrachloroethene	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Toluene	5	µg/l	50 U	25 U	20 U	20 U	--	490 J
Total Xylenes	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
trans-1,2-Dichloroethene	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
trans-1,3-Dichloropropene	0.4	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Tribromomethane	NS	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Trichloroethene	5	µg/l	1000	470	170	380	--	65000 B
Vinyl Acetate	5	µg/l	50 U	25 U	20 U	20 U	--	2500 U
Vinyl Chloride	2	µg/l	41 JH	24 J	5.2 JH	20 U	--	5600
Wet Chemistry Parameters								
Alkalinity (as CaCO3)	----	mg/l	--	--	--	--	296	--
Ammonia Nitrogen	----	mg/l	--	--	--	--	2.2	--
Bromide	2	mg/l	--	--	--	--	0.265	--
Chloride	250	mg/l	--	--	--	--	77.7	--
Hardness (as CaCO3)	----	mg/l	--	--	--	--	--	--
Nitrate-N	10	mg/l	--	--	--	--	0.1 U	--
Nitrite	10	mg/l	--	--	--	--	0.1 U	--
Sulfate	250	mg/l	--	--	--	--	83.4	--
Total Dissolved Solids	----	mg/l	--	--	--	--	370	--
Total Organic Carbon	----	mg/l	--	--	--	2.5	--	--
pH	----	pH units	--	--	--	--	7.28	--

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

BOLD = Exceeds Detection Limit

---- = No specified Standard

U = Not detected

J = Estimated Value

B = Compound was detected in blank

H = Alternate peak selection upon review

Shaded = Value exceeds NYS Class GA Standards

Table 4-2
Direct-Push Boring Groundwater Sampling Results

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	B11-PH04 7/11/2005	B11-PH06 7/12/2005	B11-PH06 7/15/2005	B11-PH07 7/12/2005	B11-PH07 7/15/2005
Volatile Organic Compounds							
1,1,1-Trichloroethane	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,1,2,2-Tetrachloroethane	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,1,2-Trichloroethane	1	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,1-Dichloroethane	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,1-Dichloroethene	0.7	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,2-Dichloroethane	0.6	µg/l	2000 U	2000 U	--	5000000 U	50000 U
1,2-Dichloropropane	1	µg/l	2000 U	2000 U	--	5000000 U	50000 U
2-Butanone	50	µg/l	4000 U	4000 U	--	10000000 U	100000 U
4-Methyl-2-Pentanone	5	µg/l	4000 U	4000 U	--	10000000 U	100000 U
Acetone	50	µg/l	4000 U	4000 U	--	2200000 J	100000 UB
Benzene	1	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Bromodichloromethane	50	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Bromomethane	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Calcium	----	µg/l	--	--	129000	--	--
Carbon Disulfide	----	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Carbon Tetrachloride	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
CFC-11	NS	µg/l	2000 U	2000 U	--	5000000 U	50000 U
CFC-12	NS	µg/l	--	2000 U	--	5000000 U	50000 U
Chlorobenzene	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Chlorodibromomethane	----	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Chloroethane	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Chloroform	7	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Chloromethane	5	µg/l	--	2000 U	--	5000000 U	50000 U
cis-1,2-Dichloroethene	5	µg/l	2000 U	2500	--	1300000 J	50000 U
cis-1,3-Dichloropropene	0.4	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Dichloromethane	5	µg/l	200 JB	170 JB	--	1200000 J	50000 UB
Ethylbenzene	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Iron	500	µg/l	--	--	3720	--	--
Manganese	500	µg/l	--	--	216	--	--
Methyl N-Butyl Ketone	----	µg/l	4000 U	4000 U	--	10000000 U	100000 U
Potassium	----	µg/l	--	--	3290	--	--
Sodium	20000	µg/l	--	--	23700	--	--
Styrene (Monomer)	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Tetrachloroethene	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Toluene	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Total Xylenes	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
trans-1,2-Dichloroethene	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
trans-1,3-Dichloropropene	0.4	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Tribromomethane	NS	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Trichloroethene	5	µg/l	65000	61000	--	100000000	1000000 B
Vinyl Acetate	5	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Vinyl Chloride	2	µg/l	2000 U	2000 U	--	5000000 U	50000 U
Wet Chemistry Parameters							
Alkalinity (as CaCO3)	----	mg/l	--	--	345	--	--
Ammonia Nitrogen	----	mg/l	--	--	--	--	--
Bromide	2	mg/l	--	--	0.121	--	--
Chloride	250	mg/l	--	--	95.1	--	--
Hardness (as CaCO3)	----	mg/l	--	--	619	--	--
Nitrate-N	10	mg/l	--	--	1.08	--	--
Nitrite	10	mg/l	--	--	0.1 U	--	--
Sulfate	250	mg/l	--	--	70.8	--	--
Total Dissolved Solids	----	mg/l	--	--	550	--	--
Total Organic Carbon	----	mg/l	--	--	2.3	--	--
pH	----	pH units	--	--	7.66	--	--

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

BOLD = Exceeds Detection Limit

---- = No specified Standard

U = Not detected

J = Estimated Value

B = Compound was detected in blank

H = Alternate peak selection upon review

Shaded = Value exceeds NYS Class GA Standards

Table 4-2
Direct-Push Boring Groundwater Sampling Results

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	B11-PH08 7/13/2005	B11-PH08 7/13/2005	B11-PH08 7/13/2005	B11-PH08 7/19/2005	B11-PH09 7/18/2005
Volatile Organic Compounds							
1,1,1-Trichloroethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
1,1,2,2-Tetrachloroethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
1,1,2-Trichloroethane	1	µg/l	50 U	120 U	200 U	50000000 U	250 U
1,1-Dichloroethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
1,1-Dichloroethene	0.7	µg/l	50 U	120 U	30 J	50000000 U	250 U
1,2-Dichloroethane	0.6	µg/l	50 U	120 U	200 U	50000000 U	250 U
1,2-Dichloropropane	1	µg/l	50 U	120 U	200 U	50000000 U	250 U
2-Butanone	50	µg/l	100 U	250 U	400 U	100000000 U	500 U
4-Methyl-2-Pentanone	5	µg/l	100 U	250 U	400 U	100000000 U	500 U
Acetone	50	µg/l	100 UB	250 U	90 JB	100000000 U	190 J
Benzene	1	µg/l	50 U	120 U	200 U	50000000 U	250 U
Bromodichloromethane	50	µg/l	50 U	120 U	200 U	50000000 U	250 U
Bromomethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Calcium	----	µg/l	--	6440000	--	--	--
Carbon Disulfide	----	µg/l	50 U	120 U	200 U	50000000 U	250 U
Carbon Tetrachloride	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
CFC-11	NS	µg/l	50 U	120 U	200 U	--	250 U
CFC-12	NS	µg/l	50 U	120 U	200 U	--	250 U
Chlorobenzene	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Chlorodibromomethane	----	µg/l	50 U	120 U	200 U	50000000 U	250 U
Chloroethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Chloroform	7	µg/l	50 U	120 U	200 U	50000000 U	250 U
Chloromethane	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
cis-1,2-Dichloroethene	5	µg/l	540	880	1200	50000000 U	100 J
cis-1,3-Dichloropropene	0.4	µg/l	50 U	120 U	200 U	50000000 U	250 U
Dichloromethane	5	µg/l	50 UB	12 JB	200 UB	14000000 JB	32 JB
Ethylbenzene	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Iron	500	µg/l	--	1700000	--	--	--
Manganese	500	µg/l	--	46200	--	--	--
Methyl N-Butyl Ketone	----	µg/l	100 U	250 U	400 U	100000000 U	500 U
Potassium	----	µg/l	--	115000	--	--	--
Sodium	20000	µg/l	--	28600	--	--	--
Styrene (Monomer)	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Tetrachloroethene	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
Toluene	5	µg/l	50 U	120 U	200 U	6800000 J	35 J
Total Xylenes	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
trans-1,2-Dichloroethene	5	µg/l	50 U	120 U	200 U	50000000 U	250 U
trans-1,3-Dichloropropene	0.4	µg/l	50 U	120 U	200 U	50000000 U	250 U
Tribromomethane	NS	µg/l	50 U	120 U	200 U	50000000 U	250 U
Trichloroethene	5	µg/l	810 B	1700	17000	1200000	6400
Vinyl Acetate	5	µg/l	50 U	120 U	200 U	--	250 U
Vinyl Chloride	2	µg/l	14 J	120 U	35 J	50000000 U	250 U
Wet Chemistry Parameters							
Alkalinity (as CaCO3)	----	mg/l	--	192	--	--	--
Ammonia Nitrogen	----	mg/l	--	--	--	--	--
Bromide	2	mg/l	--	0.1 U	--	--	--
Chloride	250	mg/l	--	16.8	--	--	--
Hardness (as CaCO3)	----	mg/l	--	25100	--	--	--
Nitrate-N	10	mg/l	--	1.65	--	--	--
Nitrite	10	mg/l	--	0.1 U	--	--	--
Sulfate	250	mg/l	--	60.3	--	--	--
Total Dissolved Solids	----	mg/l	--	310	--	--	--
Total Organic Carbon	----	mg/l	--	1.8	--	--	--
pH	----	pH units	--	7.89	--	--	--

Notes:

µg/L = micrograms per liter

mg/L = milligrams per liter

BOLD = Exceeds Detection Limit

---- = No specified Standard

U = Not detected

J = Estimated Value

B = Compound was detected in blank

H = Alternate peak selection upon review

Shaded = Value exceeds NYS Class GA Standards

Table 4-3
Groundwater VOC Concentrations

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	MW-1 10/7/2011	MW-20 10/7/2011	MW-21 3/22/2011	MW-22 3/29/2012	MW-23 3/29/2012
Volatile Organic Compounds							
1,1,1-Trichloroethane	5	µg/l	5.9	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	µg/l	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	µg/l	8.9	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	µg/l	1.3 J	5 U	5 U	5 U	1 J
1,2-Dichloroethane	0.6	µg/l	5 U	5 U	5 U	5 U	0.62 J
1,2-Dichloropropane	1	µg/l	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	µg/l	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	5	µg/l	10 U	10 U	10 UJ	10 U	10 U
Acetone	50	µg/l	10 U	5.2 J	10 U	10 U	10 U
Benzene	1	µg/l	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	µg/l	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	µg/l	5 U	5 U	5 UJ	5 UJ	5 U
Carbon Disulfide	60	µg/l	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	µg/l	5 U	5 U	5 U	5 U	5 U
CFC-11	----	µg/l	5 U	5 U	5 U	5 U	5 U
CFC-12	----	µg/l	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	µg/l	5 U	5 U	5 U	5 U	5 U
Chlorodibromomethane	NS	µg/l	5 UJ	5 UJ	5 U	5 U	5 U
Chloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U
Chloroform	7	µg/l	5 U	5 U	5 U	5 U	0.64 J
Chloromethane	5	µg/l	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	µg/l	5 U	1.1 J	5 U	4.7 J	190 J
cis-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	5 U	5 U	5 U
Dichloromethane	----	µg/l	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	µg/l	5 U	5 U	5 U	5 U	5 U
Methyl N-Butyl Ketone	----	µg/l	10 U	10 U	10 U	10 U	10 U
Styrene (Monomer)	5	µg/l	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	µg/l	5 U	5 U	5 U	5 U	5 U
Toluene	5	µg/l	5 U	5 U	5 U	5 U	5 U
Total Xylenes	5	µg/l	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	µg/l	5 U	5 U	5 U	5 U	2 J
trans-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	5 U	5 U	5 U
Tribromomethane	----	µg/l	5 UJ	5 UJ	5 UJ	5 U	5 U
Trichloroethene	5	µg/l	5 U	5 U	5 U	6.6	3100 J
Vinyl Acetate	5	µg/l	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	µg/l	5 U	3.6 J	5 U	5 U	5 U

Notes:

µg/L = micrograms per liter

BOLD = Exceeds detection limit

---- = No specified standard

U = Not detected

J = Estimated value

Shaded = Value exceeds NYS Class GA Standards

VOC = volatile organic compound

Table 4-3
Groundwater VOC Concentrations

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	MW-24 3/29/2012	MW-25 3/29/2012	MW-26 3/29/2012	MW-27 3/25/2011	MW-28 10/7/2011	MW-29 3/29/2012
Volatile Organic Compounds								
1,1,1-Trichloroethane	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	µg/l	1000 U	13 J	1.6 J	5 U	5 U	5 U
1,1-Dichloroethene	5	µg/l	1000 U	25 U	1.9 J	5 U	5 U	5 U
1,2-Dichloroethane	0.6	µg/l	1000 U	25 U	0.5 J	5 U	5 U	5 U
1,2-Dichloropropane	1	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
2-Butanone	50	µg/l	2000 U	50 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	5	µg/l	2000 U	50 U	10 U	10 U	10 U	10 U
Acetone	50	µg/l	2000 U	50 U	4 J	10 U	5.1 J	10 U
Benzene	1	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Bromomethane	5	µg/l	1000 UJ	25 UJ	5 U	5 UJ	5 U	5 UJ
Carbon Disulfide	60	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
CFC-11	----	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
CFC-12	----	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Chlorodibromomethane	NS	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Chloroethane	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Chloroform	7	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Chloromethane	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	µg/l	21000	190	170	5 U	1.1 J	61
cis-1,3-Dichloropropene	0.4	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Dichloromethane	----	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Methyl N-Butyl Ketone	----	µg/l	2000 U	50 U	10 U	10 U	10 U	10 U
Styrene (Monomer)	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Toluene	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Total Xylenes	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	µg/l	1000 U	25 U	2 J	5 U	5 U	5 U
trans-1,3-Dichloropropene	0.4	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Tribromomethane	----	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Trichloroethene	5	µg/l	100 J	7.9 J	74	5 U	2.9 J	5 U
Vinyl Acetate	5	µg/l	1000 U	25 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	µg/l	290 J	25 U	21	5 U	5 U	3.5 J

Notes:

µg/L = micrograms per liter

BOLD = Exceeds detection limit

---- = No specified standard

U = Not detected

J = Estimated value

Shaded = Value exceeds NYS Class GA Standards

VOC = volatile organic compound

Table 4-3
Groundwater VOC Concentrations

Former Philips Display Component Facility
Seneca Falls, New York

Sample Name Date Collected	NYS Class GA Standards	Units	MW-BR-01 10/7/2011	MW-BR-02 10/7/2011	MW-BR-03 3/24/2011	MW-BR-04 10/7/2011	MW-BR-05 3/29/2012	MW-BR-06 3/29/2012
Volatile Organic Compounds								
1,1,1-Trichloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	µg/l	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	5	µg/l	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	50	µg/l	4.3 J	10 U	10 UJ	4.3 J	5.3 J	4.8 J
Benzene	1	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	µg/l	5 U	5 U	5 UJ	5 U	5 UJ	5 U
Carbon Disulfide	60	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
CFC-11	----	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
CFC-12	----	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Chlorodibromomethane	NS	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	7	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	µg/l	5 U	5 U	5 U	5 U	1.1 J	9.2
cis-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Dichloromethane	----	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Methyl N-Butyl Ketone	----	µg/l	10 U	10 U	10 U	10 U	10 U	10 U
Styrene (Monomer)	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Total Xylenes	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	0.4	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Tribromomethane	----	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	µg/l	5 U	5 U	5 U	5 U	5 U	10
Vinyl Acetate	5	µg/l	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	µg/l	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

µg/L = micrograms per liter

BOLD = Exceeds detection limit

---- = No specified standard

U = Not detected

J = Estimated value

Shaded = Value exceeds NYS Class GA Standards

VOC = volatile organic compound

**Table 4-4
Monitoring Well Construction**

**Former Philips Display Component Facility
Seneca Falls, New York**

Well ID	Northing	Easting	Install Date	Abandonment Date	Sampling Frequency	Well Diameter (in)	Well Depth (TOC) (ft bls)	Measuring Point Elevation (ft)	Ground Elevation (ft)	Depth to Bedrock (ft)	Bedrock Elevation (ft)	Screen Length (ft)	Top of Screen Depth (ft bls)	Bottom of Screen Depth (ft bls)	Top of Screen Elevation (ft)	Bottom of Screen Elevation (ft)
MW-1	1063064.23	766717.55	Mar-83	NA	Annual	4.00	32.27	460.83	458.68	Unknown	Unknown	10.00	20.00	30.00	438.68	428.68
MW-20	1063388.51	765815.49	May-93	NA	Annual	4.00	13.40	463.42	464.09	Unknown	Unknown	10.00	4.00	14.00	460.09	450.09
MW-21	1063156.22	765591.47	May-93	NA	Discontinue	4.00	21.50	467.39	467.73	Unknown	Unknown	10.00	11.60	21.60	456.13	446.13
MW-22	1062605.55	766144.26	May-93	NA	Semi-Annual	4.00	15.10	460.77	461.04	Unknown	Unknown	10.00	5.00	15.00	456.04	446.04
MW-23	1062617.59	765844.34	May-93	NA	Semi-Annual	4.00	18.64	460.59	461.14	Unknown	Unknown	10.00	9.00	19.00	452.14	442.14
MW-24	1062576.13	765452.78	Jun-93	NA	Semi-Annual	4.00	24.50	462.76	463.02	Unknown	Unknown	10.00	14.50	24.50	448.52	438.52
MW-25	1062719.21	766467.93	May-93	NA	Semi-Annual	4.00	17.78	460.74	458.82	Unknown	Unknown	10.00	6.00	16.00	452.82	442.82
MW-26	1062460.25	765257.74	May-93	NA	Semi-Annual	4.00	14.48	458.80	459.35	Unknown	Unknown	10.00	5.00	15.00	454.35	444.35
MW-27	1062946.58	766670.72	May-93	NA	Discontinue	4.00	17.95	460.45	458.18	Unknown	Unknown	10.00	5.00	15.00	453.18	443.18
MW-28	1063200.02	766451.27	Jun-93	NA	Annual	4.00	18.20	461.26	458.68	Unknown	Unknown	10.00	5.50	15.50	453.18	443.18
MW-29	1063134.30	766648.29	Jun-93	NA	Semi-Annual	4.00	20.40	459.89	457.65	Unknown	Unknown	10.00	8.00	18.00	449.65	439.65
MW-BR-01	1062589.28	764921.99	Jun-01	NA	Annual	2.00	151.20	462.64	462.98	34.00	428.98	110.00	45.00	155.00	417.98	307.98
MW-BR-02	1063230.52	765602.26	Jun-01	NA	Annual	2.00	124.25	467.87	468.16	53.00	415.16	65.00	61.00	126.00	407.16	342.16
MW-BR-03	1063765.60	766263.19	Jun-01	NA	Discontinue	2.00	155.00	457.06	457.37	54.00	403.37	90.00	60.00	150.00	397.37	307.37
MW-BR-04	1062557.04	766764.12	Jun-01	NA	Annual	2.00	90.00	396.39	393.49	20.00	373.49	10.00	80.00	90.00	313.49	303.49
MW-BR-05	1062418.77	766179.01	Jun-01	NA	Semi-Annual	2.00	47.35	401.34	399.74	12.00	387.74	20.00	27.00	47.00	372.74	352.74
MW-BR-06	1062329.60	765592.05	Jun-01	NA	Semi-Annual	2.00	70.70	436.30	436.77	64.00	372.77	30.00	44.00	74.00	392.77	362.77
MW-BI-01	1062510.64	765395.18	Jan-01	May-08	Abandoned	2.00	34.95	463.11	463.46	33.00	430.46	5.00	30.00	35.00	433.46	428.46
MW-BI-02	1062546.89	765885.22	Jan-01	May-08	Abandoned	2.00	40.45	462.95	463.39	37.00	426.39	5.00	35.00	40.00	428.39	423.39
MW-BI-03	1062687.25	766438.12	Jan-01	May-08	Abandoned	2.00	33.61	460.72	461.17	31.00	430.17	5.00	30.00	35.00	431.17	426.17
MW-2	1062690.04	766868.16	Mar-83	Jun-93	Abandoned	4.00	22.00	449.19	445.95	21.00	425.00	10.00	12.00	22.00	434.75	424.75
MW-3	1062717.48	766988.10	Mar-83	Jun-93	Abandoned	4.00	24.50	446.00	443.20	24.00	419.00	10.00	14.50	24.50	430.03	420.03
MW-4	1062773.14	767111.18	Mar-83	Jun-93	Abandoned	4.00	26.00	444.56	441.96	25.50	417.00	10.00	16.00	26.00	428.80	418.80
MW-5	1062826.44	766860.32	Unknown	Unknown	Abandoned	NR	NR	457.47	NR	NR	NR	NR	NR	NR	434.90	424.90
MW-6	1062875.05	766969.28	Unknown	Unknown	Abandoned	NR	NR	457.22	NR	NR	422.00	NR	NR	NR	431.65	421.65
MW-7	1062730.02	767075.12	Sep-83	Jun-93	Abandoned	NR	80.00	443.12	440.52	23.50	417.00	NR	NR	NR	382.00	362.62
MW-8	1063069.70	766711.70	Feb-84	Oct-12	Abandoned	8.00	150.00	461.91	459.67	35.00	423.61	open borehole	NR	NR	NR	NR
MW-9	1062807.63	767168.41	Mar-84	Jun-93	Abandoned	8.00	85.00	443.86	441.89	27.00	415.00	NR	NR	NR	380.00	360.89
MW-10	1062666.89	766877.38	Mar-84	Jun-93	Abandoned	8.00	84.00	448.81	446.31	20.50	417.00	NR	NR	NR	383.00	363.31
MW-11	1062915.03	767067.28	Jul-84	Jun-93	Abandoned	6.00	98.00	455.94	453.42	40.00	413.00	18.00	80.00	98.00	373.00	354.92
MW-12	1062916.60	767048.46	Jul-84	Jun-93	Abandoned	NR	42.00	456.27	453.60	36.00	420.00	10.00	32.00	42.00	421.00	411.60
MW-13	1063074.17	766900.30	Unknown	Unknown	Abandoned	NR	NR	459.56	NR	NR	421.39	NR	NR	NR	431.59	421.79
MW-14	1062822.52	767121.37	Nov-85	Jun-93	Abandoned	NR	35.33	446.44	443.11	25.33	417.78	10.00	15.58	25.42	427.53	417.69
MW-15	1062755.10	767059.44	Nov-85	Jun-93	Abandoned	NR	33.50	445.32	442.84	25.00	419.34	10.00	35.00	25.00	427.84	417.84
MW-16	1062686.90	766902.65	Nov-85	Jun-93	Abandoned	NR	32.00	448.90	444.93	22.50	423.43	9.13	12.85	21.98	432.08	422.95

Notes:

in = inches
ft = feet
bls = below land surface
NA = Not Applicable
NR = Not Recorded

Table 4-5
Building 9 Area Crawl Space and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 9 OFFICE INDOOR AIR																																
Sample ID	IA-B9-01																																
Date Collected	7/15/03	10/2/03	1/20/04	3/26/04	12/22/04	3/31/05	7/22/05	9/20/05	1/11/06	7/17/06	12/12/06	3/20/07	6/21/07	9/28/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/23/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.22	0.55 U	0.27 U	0.15 U	0.17	0.076	0.10	0.12	0.13	0.23	0.21	0.44	0.065	0.071	0.25	0.14	0.22 U	0.18	0.34	0.38	0.39	0.22 U	NS	0.27 U	0.16 U	0.11 U	0.82 U	0.055 U	0.11 U	0.084 NJ	0.11 U	0.16 U	0.11 U
1,1,2,2-Tetrachloroethane	0.14 U	0.69 U	0.34 U	0.069 U	0.069 U	0.069 U	0.069 U	0.14 U	0.069 U	0.21 U	0.14 U	0.27 U	0.069 U	0.069 U	0.10 U	0.14 U	0.27 U	0.069 U	0.38 UJ	0.082 U	0.34 U	0.27 U	NS	0.34 U	0.21 U	0.14 U	0.10 U	0.069 U	0.14 U	0.069 U	0.14 U	0.21 U	0.14 U
1,1,2-Trichloroethane	0.10 U	0.55 U	0.27 U	0.055 U	0.055 U	0.055 U	0.055 U	0.11 U	0.055 U	0.16 U	0.11 U	0.22 U	0.055 U	0.055 U	0.082 U	0.11 U	0.22 U	0.055 U	0.31 U	0.065 U	0.27 U	0.22 U	NS	0.27 U	0.16 U	0.11 U	0.082 U	0.055 U	0.11 U	0.055 U	0.11 U	0.16 U	0.11 U
1,1-Dichloroethane	0.080 U	0.40 U	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.081 U	0.040 U	0.12 U	0.081 U	0.16 U	0.040 U	0.040 U	0.061 U	0.081 U	0.160 U	0.040 U	0.230 U	0.049 U	0.20 U	0.16 U	NS	0.20 U	0.12 U	0.081 U	0.061 U	0.040 U	0.081 U	0.040 U	0.081 U	0.12 U	0.081 U
1,1-Dichloroethene	0.040 U	0.40 U	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.16 U	0.040 U	0.12 U	0.079 U	0.16 U	0.040 U	0.040 U	0.059 U	0.079 U	0.160 U	0.040 U	0.220 U	0.048 U	0.20 U	0.16 U	NS	0.20 U	0.12 U	0.079 U	0.059 U	0.040 U	0.079 U	0.040 U	0.079 U	0.12 U	0.079 U
1,2-Dichloroethane	0.087	0.40 U	0.20 U	0.093	0.077	0.049	0.04 U	0.081 U	0.093	0.34	0.16 U	0.32 U	0.081 U	0.081 U	0.12 U	0.16 U	0.32 U	0.081 U	0.45 U	0.11	0.4 U	0.32 U	NS	0.40 U	0.24 U	0.16 U	0.12 U	0.081 U	0.16 U	0.094 NJ	0.16 U	0.24 U	0.16 U
Benzene	1.3	2.2	2.3	2.7	2.7	0.77	2.0	1.3	3.5	3.1	2.9	3.1	0.42	0.51	1.5	1.4	0.61	0.51	2.8	1.1	1.4	0.96	NS	1.7	0.67	0.87	0.65	0.40	0.43	0.55	1.4	1.7	1.3
cis-1,2-Dichloroethene	0.22	0.67	0.2 U	0.38	0.27	0.04 U	0.16	0.16	0.17	1.1	0.27	0.52	0.040 NJ	0.040 U	0.31	0.40	0.52	0.075	0.67 NJ	0.12	0.24	0.16 U	NS	0.87	0.12 U	0.13	0.14	0.063	0.078	0.055	0.12	0.12 U	0.14 NJ
Ethylbenzene	1.4	1.1	2.7	0.91	0.87	0.28	2.9	0.96	2.0	4.0	1.3	1.1	0.43	0.32	0.52	0.48	0.69	0.43	1.4	0.43	1.5	0.91	NS	1.1	0.69	0.58	0.22	0.27	0.54	0.056	0.48	0.6	0.73
m-Xylene & p-Xylene	5	2.8	10	3.1	3.3	0.91	8.3	3.6	5.6	18.0	4.3	3.8	1.8	1	1.6	1.8	2.6	1.6	5.2	1.4	5.6	3.3	NS	4	2.5	1.9	0.69	0.78	1.6	0.087	1.6	2.0	1.8
o-Xylene	2	1.2	3.2	1.2	1.2	0.33	2.4	1.2	3.0	6.5	1.6	1.3	0.61	0.36	0.56	0.65	0.91	0.56	1.8	0.52	2.1	1.3	NS	1.4	1 J	0.7	0.25	0.26	0.65	0.043 U	0.54	0.71	0.70
Tetrachloroethene	0.77	0.68 U	0.75	0.6	3.1	0.088	0.52	2.6	0.51	8.8	2.0	2.0	0.35	0.31	1.6	0.52	1.1	1.6	0.38 U	0.16	0.34 U	0.27 U	NS	1.1	0.20 U	0.14	0.10 U	0.088	0.18	0.10	0.90	5.80	1.2
Toluene	9.6	4.1	11	7.5	5.7	1.4	9.4	2.9	9.4	10	6.8	4.5	1.5	1.8	3.1	4.1	11	2.8	8.3	4.1	12	14	NS	12	5.7	4.2	3.2	1.9	3.5	0.66	6.5	6.0	5.5
trans-1,2-Dichloroethene	0.056 U	0.40 U	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.079 U	0.04 U	0.12 U	0.079 U	0.16 U	0.040 U	0.040 U	0.059 U	0.079 U	0.160 U	0.040 U	0.220 U	0.048 U	0.20 U	0.16 U	NS	0.20 U	0.12 U	0.079 U	0.059 U	0.040 U	0.079 U	0.040 U	0.079 U	0.12 U	0.079 U
Trichloroethene	22	30	15	1.3	4.6	0.12	4.3	0.70	4.0	4.2	9.1	14	0.34	0.37	5.9	5.3	1.2	2.6	18	1.2	1.7	0.34	NS	5.9	0.91	3.0	3.0	2.2	2.1	1.8	5.3	1.3	4.0
Vinyl chloride	0.020 U	0.26 U	0.13 U	0.026 U	0.028	0.026 U	0.026 U	0.051 U	0.026 U	0.15 U	0.1 U	0.2 U	0.051 U	0.051 U	0.077 U	0.10 U	0.20 U	0.051 U	0.28 U	0.064 U	0.26 U	0.20 U	NS	0.26 U	0.15 U	0.10 U	0.077 U	0.051 U	0.10 U	0.051 U	0.10 U	0.15 U	0.10 U

Sample Description	BUILDING 9 CRAWL SPACE AIR																																
Sample ID	IA-B9-CS																																
Date Collected	7/15/03	10/2/03	1/20/04	3/26/04	12/22/04	3/31/05	7/22/05	9/20/05	1/11/06	7/17/06	12/12/06	3/20/07	6/21/07	9/28/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
Differential Pressure (inches water)	NA	NA	NA	NA	-0.03	-0.07	-0.15*	-0.15	-0.15	-0.15	-0.15	-0.11	-0.10	-0.08	-0.04	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	0	-0.12	0	0	0	0	0	0	0	0	0	0
1,1,1-Trichloroethane	NS	0.55 U	0.27 U	0.18	0.14	0.040 U	0.093	0.55 U	0.12	0.44 U	0.17	0.27	0.22 U	0.27 U	0.16 U	0.082 U	0.27 U	0.22 U	0.22 U	0.11 U	0.43 U	0.27 U	NS	0.060	NS	0.68 U	0.11 U	0.27 U	0.55 U	0.55 U	0.055 U	0.27 UJ	0.44 U
1,1,2,2-Tetrachloroethane	NS	0.69 U	0.34 U	0.069 U	0.069 U	0.069 U	0.069 U	0.69 U	0.069 U	0.55 U	0.21 U	0.21 U	0.27 U	0.34 U	0.21 U	0.10 U	0.34 U	0.27 U	0.27 UJ	0.14 U	0.54 U	0.34 U	NS	0.069 U	NS	0.86 U	0.14 U	0.34 U	0.69 U	0.69 U	0.069 U	0.34 UJ	0.55 U
1,1,2-Trichloroethane	NS	0.55 U	0.27 U	0.055 U	0.055 U	0.055 U	0.055 U	0.55 U	0.055 U	0.44 U	0.16 U	0.16 U	0.22 U	0.27 U	0.16 U	0.082 U	0.27 U	0.22 U	0.22 U	0.11 U	0.43 U	0.27 U	NS	0.055 U	NS	0.68 U	0.11 U	0.27 U	0.55 U	0.55 U	0.055 U	0.27 UJ	0.44 U
1,1-Dichloroethane	NS	0.40 U	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.40 U	0.040 U	0.32 U	0.12 U	0.12 U	0.16 U	0.20 U	0.12 U	0.061 U	0.200 U	0.16 U	0.16 U	0.081 U	0.32 U	0.20 U	NS	0.040 U	NS	0.51 U	0.081 U	0.20 U	0.40 U	0.40 U	0.040 U	0.20 UJ	0.32 U
1,1-Dichloroethene	NS	0.40 U	0.20 U	0.040 U	0.040 U	0.040 U	0.040 U	0.79 U	0.040 U	0.32 U	0.12 U	0.12 U	0.16 U	0.20 U	0.12 U	0.059 U	0.200 U	0.16 U	0.16 U	0.079 U	0.31 U	0.20 U	NS	0.040 U	NS	0.50 U	0.079 U	0.20 U	0.40 U	0.40 U	0.040 U	0.20 UJ	0.32 U
1,2-Dichloroethane	NS	0.40 U	0.20 U	0.081	0.057	0.040	0.040 U	0.40 U	0.040 U	0.65 U	0.24 U	0.24 U	0.32 U	0.40 U	0.24 U	0.12 U	0.40 U	0.32 U	0.32 U	0.16 U	0.65 U	0.40 U	NS	0.081 NJ	NS	1.0 U	0.16 U	0.40 U	0.81 U	0.81 U	0.081 U	0.40 UJ	0.65 U
Benzene	NS	0.64	1.6	1.7	1.7	0.51	0.96	0.96	2.4	2.9	2.8	2.1	0.13 U	0.38	1.1	1.1	0.42	0.38	1.6	0.8	1.5	0.99	NS	1.2	NS	0.99	0.489	0.45	0.39	1.7	0.22	0.66 J	0.80
cis-1,2-Dichloroethene	NS	1.6	0.95 NJ	2.4	0.24	0.19	0.87	1.1	0.29	1.2	0.29	0.56	0.44	0.48	0.21	0.23	0.87	0.18 NJ	0.31 NJ	0.18	0.39 NJ	0.40	NS	0.29	NS	0.69	0.12	0.20 U	0.42	0.40 U	0.13	0.20 UJ	0.32 U
Ethylbenzene	NS	0.48	1.4	0.78	0.61	0.22	1.7	0.83	1.2	3.5	1.6	0.65	0.17 U	0.24	0.32	0.38	0.56	0.25	0.78	0.28	1.4	0.69	NS	0.61	NS	0.65	0.11	0.22 U	0.52	0.43 U	0.043 U	0.58 J	0.41
m-Xylene & p-Xylene	NS	1.2	4.8	2.7	2.1	0.65	5.2	3.0	3.8	15	5.2	2.4	0.35 U	0.61	1.0	1.3	1.9	0.87	2.6	0.91	4.8	2.5	NS	2.4	NS	2.4	0.29	0.43 U	1.4	0.87 U	0.043 U	2.3 J	1.0
o-Xylene	NS	0.52	1.7	1.1	0.87	0.22	2.7	1.0	1																								

Table 4-6
Building 11 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 11 INDOOR AIR																													
Sample ID	IA-B11-01																													
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	8/30/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.29	2.0	0.65	0.65	0.24	0.40	0.82	0.87	0.25	0.093	0.15	0.87 J	0.25	0.25	0.16	0.60	0.22 U	0.37	0.14	0.55	0.37	0.12	0.11 NJ	0.34	0.34	0.15 U	0.13 NJ	0.28	0.14 U	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.69 U	0.51 U	0.069 U	0.27 U	0.34 U	0.27 U	0.21 U	0.10 U	0.069 U	0.069 U	0.34 U	0.12 U	0.12 U	0.10 U	0.21 UJ	0.27 U	0.43 U	0.069 U	0.62 U	0.14 U	0.082 U	0.11 U	0.14 U	0.14 U	0.19 U	0.069 U	0.14 U	0.17 U	0.34 U
1,1,2-Trichloroethane	0.10 U	0.55 U	0.41 U	0.055 U	0.22 U	0.27 U	0.22 U	0.16 U	0.082 U	0.055 U	0.055 U	0.27 U	0.093 U	0.093 U	0.082 U	0.16 U	0.22 U	0.34 U	0.055 U	0.50 U	0.11 U	0.065 U	0.091 U	0.11 U	0.11 U	0.15 U	0.055 U	0.11 U	0.14 U	0.27 U
1,1-Dichloroethane	0.080 U	0.40 U	0.30 U	0.040 UJ	0.16 U	0.20 U	0.16 U	0.12 U	0.061 U	0.04 U	0.040 U	0.20 U	0.069 U	0.069 U	0.061 U	0.12 U	0.16 U	0.25 U	0.04 U	0.37 U	0.081 U	0.049 U	0.068 U	0.81 U	0.081 U	0.11 U	0.04 U	0.081 U	0.10 U	0.20 U
1,1-Dichloroethene	0.040 U	0.40 U	0.30 U	0.099	0.16 U	0.20 U	0.16 U	0.23 J	0.059 U	0.04 U	0.040 U	0.20 U	0.067 U	0.067 U	0.059 U	0.15 NJ	0.16 U	0.25 U	0.04 U	0.36 U	0.12	0.048 U	0.066 U	0.79 U	0.094	0.11 U	0.04 U	0.079 U	0.099 U	0.20 U
1,2-Dichloroethane	0.080 U	0.40 U	0.30 U	0.040 U	0.32 U	0.40 U	0.32 U	0.24 U	0.12 U	0.081 U	0.081 U	0.40 U	0.14 U	0.13 U	0.12 U	0.24 U	0.32 U	0.49 U	0.081 U	0.73 U	0.16 U	0.10 U	0.14 U	0.16 U	0.16 U	0.23 U	0.081 U	0.16 U	0.20 U	0.40 U
Benzene	1.1	3.8	3.2	3.0	2.1	2.6	7.0	4.5	0.89	0.58	0.77	2.9	2.4	1.2	0.96	2.9	3.8	3.1	1.5	2.4	1.9	0.99	1.7	2.4	1.9	0.99	1.5	1.3	2.2	2.1
cis-1,2-Dichloroethene	0.55	4.8	2.5	1.6	0.91	0.83 NJ	1.6	1.5	1.2	0.25	0.52	2.3	1.2	2.1	0.95	1.9	2.1	2.6	0.35	3.2	3.3	1.0	0.78	1.2	1.1	0.47	0.52	0.65	0.75	0.59
Ethylbenzene	1.4	1.0	3.0	1.9	1.6	0.74	2.6	1.1	0.69	0.52	0.30	1.0	0.91	1.80	0.19	1.1	3.2	3.6	0.96	1.5	2.7	1.1	0.83	0.63	1.1	1.5	1	1.2	3.6	4.4
m,p-Xylene	3.5	3.0	11	4.3	7.4	2.2	7.4	4.3	2.2	1.4	0.91	3.7	3.5	6.9	0.25	3.8	13	13	3.5	5.6	12	4.3	3.2	2.3	4.2	5.9	3.8	4.5	11	2.5
o-Xylene	1.2	1.0	2.9	2.6	2.9	0.83	2.4	1.4	0.83	0.52	0.31	1.3	1.2	2.3	0.078	1.3	4.3	4.8	1.3	2.0	4.3	1.5 J	1.1	0.85	1.6	2.3	1.4	1.7	3.9	1.1
Tetrachloroethene	7.8	6.8	4.7	6.6	14	6.0	6.4	3.5	7.5	1.8	0.75	8.8	1.5	2.7	1.8	0.64	0.75	1.2	0.37	0.62 U	0.68	0.42	0.82	1.1	1.3	1.6	0.49	2.9	2.5	0.83
Toluene	12	11	6.0	5.3 J	3.7	3.6	11	7.5	2.2	1.5	1.2	5.3	5.3	2.5	1.4	5.3	7.9	17	3.4	6.0	5.7	3.0	4.6	2.6	2.7	4.5	2	1.9	5.4	4.6
trans-1,2-Dichloroethene	0.056 U	0.40 U	0.30 U	0.040 U	0.16 U	0.20 U	0.16 U	0.12 U	0.059 U	0.04 U	0.040 U	0.20 U	0.067 U	0.067 U	0.059 U	0.12 U	0.16 U	0.25 U	0.04 U	0.36 U	0.079 U	0.048 U	0.066 U	0.79 U	0.079 U	0.110 U	0.040 U	0.079 U	0.099 U	0.20 U
Trichloroethene	5.0	36	33	59	3.4	20	20	9.1	3.4	0.70	3.9	18	5.9	4.0	6.4	14	12	5.4	1.5	26	7.5	2.8	2.2	5.6	3.7	0.98	1.8	4.8	4.9	0.82
Vinyl chloride	0.020 U	0.26 U	0.19 U	0.064 J	0.20 U	0.26 U	0.20 U	0.15 U	0.077 U	0.051 U	0.051 U	0.26 U	0.087 U	0.084 U	0.077 U	0.15 U	0.2 U	0.31 U	0.051 U	0.46 U	0.10 U	0.064 U	0.085 U	0.10 U	0.10 U	0.14 U	0.05 U	0.10 U	0.13 U	0.26 U

Sample Description	BUILDING 11A INDOOR AIR																													
Sample ID	IA-B11-02																													
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	8/30/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.56	2.2	0.65	0.65	0.23	0.49	0.87	0.98	0.22	0.11	0.21	0.82 J	0.23	0.21	0.15	0.49	0.19 NJ	0.51	0.12	0.65	0.40	0.14	0.11 U	0.39	0.43	0.079 NJ	0.11 NJ	0.35	0.14 U	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.69 U	0.34 U	0.069 U	0.21 U	0.34 U	0.27 U	0.21 U	0.096 U	0.069 U	0.10 U	0.34 U	0.21 U	0.21 U	0.10 U	0.27 UJ	0.23 U	0.43 U	0.10 U	0.62 U	0.14 U	0.069 U	0.14 U	0.10 U	0.14 U	0.069 U	0.069 U	0.10 U	0.17 U	0.34 U
1,1,2-Trichloroethane	0.10 U	0.55 U	0.27 U	0.055 U	0.16 U	0.27 U	0.22 U	0.16 U	0.076 U	0.055 U	0.082 U	0.27 U	0.16 U	0.16 U	0.082 U	0.22 U	0.18 U	0.34 U	0.082 U	0.50 U	0.11 U	0.055 U	0.11 U	0.082 U	0.11 U	0.055 U	0.055 U	0.082 U	0.14 U	0.27 U
1,1-Dichloroethane	0.08 U	0.40 U	0.20 U	0.040 UJ	0.12 U	0.20 U	0.16 U	0.12 U	0.057 U	0.04 U	0.061 U	0.20 U	0.12 U	0.12 U	0.061 U	0.16 U	0.13 U	0.25 U	0.061 U	0.37 U	0.081 U	0.040 U	0.081 U	0.061 U	0.081 U	0.040 U	0.040 U	0.061 U	0.10 U	0.20 U
1,1-Dichloroethene	0.04 U	0.40 U	0.20 U	0.079	0.12 U	0.20 U	0.16 U	0.12 U	0.056 U	0.04 U	0.059 U	0.20 U	0.12 U	0.12 U	0.059 U	0.16 U	0.13 U	0.40 NJ	0.059 U	0.36 U	0.13	0.040 U	0.079 U	0.11 U	0.13 U	0.04 U	0.04 U	0.085 NJ	0.099 U	0.20 U
1,2-Dichloroethane	0.08 U	0.40 U	0.20 U	0.040 U	0.24 U	0.40 U	0.32 U	0.24 U	0.12 U	0.081 U	0.12 U	0.40 U	0.24 U	0.24 U	0.12 U	0.32 U	0.27 U	0.49 U	0.12 U	0.73 U	0.16 U	0.085 NJ	0.16 U	0.12 U	0.16 U	0.081 U	0.081 U	0.12 U	0.20 U	0.40 U
Benzene	1.6	3.5	3.0	4.2	1.9	2.9	7.3	4.8	1.2	0.61	0.80	3.8	3.1	1.1	1.2	3.2	4.5	1.9	1.3	2.8	2.3	1.2	1.6	2.8	2.4	0.8	1.1	1.4	1.4	2.5
cis-1,2-Dichloroethene	1.8	5.6	3.0	1.5	1.1	1.1 NJ	2.0	1.7	0.71	0.39	0.79	2.3	1.1	1.3	0.87	2.1	2.3	0.95 NJ	0.30	3.5	3.8	1.3	0.90	1.2	1.4	0.38	0.34	0.84	0.44	0.50
Ethylbenzene	4.7	1.0	3.0	2.0	1.8	0.91	2.6	1.3	0.87	0.74	0.52	1.1	1.0	2.2 NJ	1.0	1.4	3.3	2.4 J	0.87	1.4	3.3	1.7	0.86	0.72	1.3	1.7	0.86	1.5 J	2.8	4.1
m,p-Xylene	15	3.2	12	6.9 J	6.9	2.8	6.9	4.8	2.9	2.4	2.0	4.1	3.8	8.7	4.0	5.2	13	7.8 J	3.2	5.6	15	7.8	3.3	2.6	5.2	6	3.2	5.7 J	8.3	4.0
o-Xylene	3.7	1.0	3.0	3.0 J	2.9	1.1	2.3	1.6	1.0	0.78	0.61	1.4	1.3	2.8	1.7	1.8	4.2	2.3 J	1.2	2.0	5.2	2.8 J	1.1	0.89	1.9	2.2	1.2	2.2 J	2.9	1.6
Tetrachloroethene	18	8.1	5.4	14 J	14	6.8	6.8	4.5	5.6	3	1.3	8.8	1.3	1.2	0.75	0.68	0.81	0.81	0.31	0.62 U	0.81	0.59	0.93	1.3	1.6	1.3	0.38	3.6 J	1.7	1.5
Toluene	10	9.8	6	7.5 J	4.5	3.8	9.8	7.9	2.9	2.1	2.1	7.5	7.9	2.9	3.0	6.8	9.0	11	3.2	6.0	6.8	3.8 J	4.8	3.3	3.3	2.7	1.3	2.4 J	4.8	4.6
trans-1,2-Dichloroethene	0.056 U	0.40 U	0.20 U	0.040 U	0.12 U	0.20 U	0.16 U	0.12 U	0.056 U	0.04 U	0.059 U	0.20 U	0.12 U	0.12 U	0.059 U	0.16 U	0.13 U	0.25 U	0.12	0.36 U	0.079 U	0.040 U	0.079 U	0.059 U	0.079 U	0.040 U	0.040 U	0.059 U	0.099 U	0.20 U
Trichloroethene	39	97	42	81	3.9	20	21	12	2.5	1.5	5.4	18	4.8	3.0	5.9	13	13	5.4	1.8	30	9.1	2.5	2.3	6.1	4.6	0.86	1.2	6.2	2.9	0.90
Vinyl chloride	0.020 U	0.26 U	0.13 U	0.072 J	0.15 U	0.26 U	0.20 U	0.15 U	0.074 U	0.051 U	0.077 U	0.26 U	0.15 U	0.15 U	0.077 U	0.20 U	0.17 U	0.31 U	0.077 U	0.46 U	0.10 U	0.051 U	0.10 U	0.77 U	0.10 U	0.05 U				

Table 4-6
Building 11 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 13 INDOOR AIR																												
Sample ID	IA-B13-01																												
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.55	2.8	1.0	1.0	0.22 U	1.6	1.1	0.82	0.38	0.45	0.87 J	0.20	0.21	1.6	1.4	0.65	0.53	0.39	1.4	1.2	0.93	0.27 J	0.59	0.72	0.21	0.82	0.68	0.39	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.34 U	0.14 U	0.069 U	0.27 U	0.21 U	0.27 U	0.14 U	0.10 U	0.14 U	0.27 U	0.12 U	0.12 U	0.10 U	0.14 UJ	0.14 U	0.27 U	0.14 U	0.069 U	0.069 U	0.14 U	0.27 UJ	0.14 U	0.069 U	0.10 U	0.069 U	0.069 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.10 U	0.27 U	0.11 U	0.055 U	0.22 U	0.16 U	0.22 U	0.11 U	0.082 U	0.11 U	0.22 U	0.093 U	0.093 U	0.082 U	0.11 U	0.11 U	0.22 U	0.11 U	0.055 U	0.055 U	0.110 U	0.22 UJ	0.11 U	0.055 U	0.082 U	0.055 U	0.055 U	0.27 U	0.27 U
1,1-Dichloroethane	0.080 U	0.20 U	0.081 U	0.040 UJ	0.16 U	0.12 U	0.16 U	0.081 U	0.061 U	0.081 U	0.16 U	0.069 U	0.069 U	0.061 U	0.081 U	0.081 U	0.16 U	0.081 U	0.053	0.049	0.081 U	0.16 UJ	0.081 U	0.040 U	0.061 U	0.04 U	0.040 U	0.20 U	0.20 U
1,1-Dichloroethene	0.044	0.52	0.23	0.14	0.16 U	0.12 U	0.16 U	0.17 J	0.067	0.079 U	0.16 U	0.067 U	0.079	0.39	0.29 NJ	0.14	0.27	0.079 U	0.40	0.34	0.31	0.16 UJ	0.21	0.18	0.058	0.15	0.22 NJ	0.20 U	0.20 U
1,2-Dichloroethane	0.080 U	0.20 U	0.12	0.040 U	0.32 U	0.24 U	0.32 U	0.16 U	0.12 U	0.16 U	0.32 U	0.14 U	0.13 U	0.12 U	0.16 U	0.32 U	0.14 U	0.16 U	0.32 U	0.16 U	0.081 U	0.32 UJ	0.16 U	0.081 U	0.12 U	0.081 U	0.085 U	0.40 U	0.40 U
Benzene	2.3	1.9	1.5	3.1	2.1	3.8	7.7	3.8	1.4	1.3	2.9	2.7	1.5	0.80	2.0	1.9	1.9	2.2	0.48	0.73	1.5	3.5 J	2.1	0.79	2.2	1.7	1.3	2.1	1.5
cis-1,2-Dichloroethene	1.1	4.0	2.1	1.1	0.44	1.5 NJ	2.1	0.83	0.95	1.3	1.7	0.48	0.52	0.63	0.56	1.3	0.95	0.95	0.19	0.33	1.3	1.1 J	0.25	0.44	0.39	0.97	0.25 NJ	0.61	0.20 U
Ethylbenzene	2.4	0.69	0.74	3.9	4.2	2.9	3.6	1.3	2.0	2.0	1.3	0.83	2.9 NJ	0.96	0.74	1.4	2.6	1.8	0.16	0.48	2.1	1.3 J	0.54	0.45	1.4	1.8	1.3	7.1	9.4
m,p-Xylene	7.5	2.0	2.6	9.6	19	10	9.1	4.3	6.5	6.9	4.3	3.0	11 EJ	3.5	2.3	5.2	8.7	6.9	0.52	1.7	7.8	4.6 J	1.6	1.7	5.0	7.1	2.5	3.0	1.5
o-Xylene	2.4	0.74	0.74	3.4	7.8	4.3	3.2	1.5	2.4	2.5	1.7	1.1	3.8	1.1	0.78	1.7	2.6	2.2	0.18	0.56	2.4 J	1.5 J	0.58	0.60	1.5	2.5	1.0 NJ	1.6 NJ	1.3
Tetrachloroethene	19	4.8	2.6	3.8	5.2	9.5	7.5	1.8	4.5	1.3	7.5	0.61	8.1	0.31	0.22	0.63	0.75	0.66	0.068 U	0.16	0.51	1.2 J	0.54	0.67	2.2	1.2	1.4	0.90	0.34
Toluene	11	3.8	3.1	6.8 J	4.1	5.7	9.8	7.5 EJ	4.1	2.9	6.0	3.7	3.3	3.8	3.8	5.3	11	6.4	0.60	2.1	4.5	7.3 J	5.2	1.3	4.6	3	3.5	9.8	7.9
trans-1,2-Dichloroethene	0.056 U	0.20 U	0.079 U	0.040 U	0.16 U	0.12 U	0.16 U	0.079 U	0.059 U	0.079 U	0.16 U	0.067 U	0.067 U	0.059 U	0.079 U	0.079 U	0.16 U	0.079 U	0.04 U	0.040 U	0.079 U	0.16 UJ	0.079 U	0.040 U	0.059 U	0.040 U	0.040 U	0.20 U	0.20 U
Trichloroethene	11	13	8.6	41	1.6	16	21	5.4	2.6	6.4	12	2.6	1.5	4.1	5.2	7.5	5.4	3.5	2.4	1.8	6.4	3.7 J	6.9	2.1	1.5	2.8	3.1	3.9	0.53
Vinyl chloride	0.026	0.13 U	0.051 U	0.056 J	0.2 U	0.15 U	0.20 U	0.10 U	0.077 U	0.10 U	0.20 U	0.087 U	0.084 U	0.077 U	0.10 U	0.10 U	0.20 U	0.10 U	0.051 U	0.051 U	0.10 U	0.20 UJ	0.10 U	0.051 U	0.077 U	0.051 U	0.051 U	0.26 U	0.26 U
Building Number	BUILDING 13 SUB-SLAB VAPOR																												
Sample ID	SVSS-B13-01																												
Date Collected	7/17/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	18	NS	NS	11 U	NS	NS	8.2	NS	NS	NS	3.9	NS	NS	NS	3.5	NS	NS	NS	3.2	NS	NS	NS	2.1	NS	NS	NS	5.5 U	NS	NS
1,1,2,2-Tetrachloroethane	0.14 U	NS	NS	14 U	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	6.9 U	NS	NS
1,1,2-Trichloroethane	0.1 U	NS	NS	11 U	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	5.5 U	NS	NS
1,1-Dichloroethane	0.08 U	NS	NS	8.1 U	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	4.0 U	NS	NS
1,1-Dichloroethene	0.04 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	4.0 U	NS	NS
1,2-Dichloroethane	0.08 U	NS	NS	8.1 U	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	4.0 U	NS	NS
Benzene	3.6	NS	NS	6.4 U	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.67	NS	NS	NS	0.64 U	NS	NS	NS	0.68	NS	NS	NS	3.2 U	NS	NS
cis-1,2-Dichloroethene	0.056 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	4.0 U	NS	NS
Ethylbenzene	1.5	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	4.3 U	NS	NS
m,p-Xylene	22	NS	NS	22 U	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	11 U	NS	NS
o-Xylene	6.6	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	4.3 U	NS	NS
Tetrachloroethene	37	NS	NS	14 U	NS	NS	13	NS	NS	NS	5.8	NS	NS	NS	3.5	NS	NS	NS	3.3	NS	NS	NS	2.6	NS	NS	NS	6.8 U	NS	NS
Toluene	11	NS	NS	7.5 U	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	1.3	NS	NS	NS	0.75 U	NS	NS	NS	1.1	NS	NS	NS	3.8 U	NS	NS
trans-1,2-Dichloroethene	0.056 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	4.0 U	NS	NS
Trichloroethene	2.8	NS	NS	11 U	NS	NS	1.3	NS	NS	NS	1.1	NS	NS	NS	1.6	NS	NS	NS	1.1	NS	NS	NS	2.1	NS	NS	NS	5.4 U	NS	NS
Vinyl chloride	0.02 U	NS	NS	5.1 U	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	2.6 U	NS	NS

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit
J - Estimated
E - Result exceeded upper limit of calibration range
NJ - Tentative in identification and estimated
NS - Not Sampled

Table 4-6
Building 11 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 13A INDOOR AIR																												
Sample ID	IA-B13A-01																												
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.58	1.9	1.0	0.93	0.23	1.5	1.1	1.1	0.41	0.45	0.93 J	0.27	0.25	1.3	1.3	0.65	0.35	0.35	1.5	1.3	0.82	0.26	0.75	0.54	0.33 NJ	0.46	0.50	0.36	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.069 U	0.21 U	0.069 U	0.27 U	0.27 U	0.27 U	0.21 U	0.082 U	0.14 U	0.27 U	0.14 U	0.14 U	0.069 U	0.14 UJ	0.10 U	0.17 U	0.14 U	0.069 U	0.069 U	0.10 U	0.17 U	0.069 U	0.069 U	0.14 U	0.069 U	0.069 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.10 U	0.055 U	0.16 U	0.055 U	0.22 U	0.22 U	0.22 U	0.16 U	0.065 U	0.11 U	0.22 U	0.11 U	0.11 U	0.055 U	0.11 U	0.082 U	0.14 U	0.11 U	0.055 U	0.055 U	0.082 U	0.14 U	0.055 U	0.055 U	0.11 U	0.055 U	0.055 U	0.27 U	0.27 U
1,1-Dichloroethane	0.080 U	0.040 U	0.12 U	0.040 UJ	0.16 U	0.16 U	0.16 U	0.12 U	0.049 U	0.081 U	0.16 U	0.081 U	0.081 U	0.040 U	0.081 U	0.061 U	0.10 U	0.081 U	0.065	0.061	0.061 U	0.10 U	0.041 NJ	0.040 U	0.081 U	0.040 U	0.040 U	0.20 U	0.20 U
1,1-Dichloroethene	0.054	0.25	0.12 U	0.12	0.16 U	0.16 U	0.16 U	0.12 U	0.095	0.079 U	0.16 U	0.079 U	0.079 U	0.33	0.28 NJ	0.14	0.11	0.11	0.37	0.40	0.25	0.10 U	0.20	0.12	0.079 U	0.12	0.17 NJ	0.20 U	0.20 U
1,2-Dichloroethane	0.080 U	0.040 U	0.12 U	0.040 U	0.32 U	0.32 U	0.32 U	0.24 U	0.10 U	0.16 U	0.32 U	0.16 U	0.16 U	0.081 U	0.16 U	0.12 U	0.20 U	0.16 U	0.081 U	0.081 U	0.12 U	0.20 U	0.081 U	0.081 U	0.16 U	0.081 U	0.081 U	0.40 U	0.40 U
Benzene	2.6	1.8	1.2	2.7	2.4	3.5	6.7	3.5	1.2	1.3	2.5	1.9	1.7	0.70	1.30	2.1	1.9	2.3	0.54	0.67	1.2	3.1	1.3	0.75	1.5	1.7	0.97	1.8	1.4
cis-1,2-Dichloroethene	1.2	3.1	1.5	0.91	0.67	1.8 NJ	1.8	1.4	1.1	1.3	1.7	0.95	0.75	0.48	0.56	1.2	0.48	0.59	0.25	0.40	0.67	1.1	0.10	0.39	0.40	0.51 NJ	0.25	0.52	0.20 U
Ethylbenzene	3.1	0.78	0.56	3.9	4.8	3.0	3.7	1.9	3.7	2.6	1.3	1.4	4.3	0.96	0.52	1.6	2.7	2.0	0.36	0.61	2.8	1.4	0.26	0.47	1.8	1.4	1.2	5.8	9.6
m,p-Xylene	9.6	2.6	1.7	12	21	11	9.1	6.1	9.6	9.1	4.3	5.2	17 E	3.5	1.7	5.6	9.1	6.9	1.2	2.0	9.6	4.6	0.67 U	1.7	6.8	5.4	2.7	2.5	3.1
o-Xylene	3.1	0.043 U	0.56	3.9	8.3	4.3	3.0	2.1	3.5	3.1	1.5	1.8	6.1	1.1	0.61	1.8	2.6	2.2	0.38	0.65	3.0 J	1.6	0.24	0.59	2.2	1.9	1.1 NJ	1.4 NJ	1.8 U
Tetrachloroethene	20	3.9	2.2	2.9	8.1	8.1	6.8	3.0	5.2	1.3	8.1	1.2	0.75	0.25	0.22	0.88	0.50	0.54	0.095	0.19	0.41	1.2	0.14	0.62	2.9	0.57	1.4	0.66	0.35
Toluene	12	4.1	2.6	6.8 J	4.5	6.0	9.0	8.7 J	4.1	3.5	4.5	4.9	4.5	3.3	2.4	4.1	7.9	5.3	0.94	1.9	4.5	7.1	1.4	1.2	3.0	3	3.1	7.9	8.0
trans-1,2-Dichloroethene	0.056 U	0.04 U	0.12 U	0.040 U	0.16 U	0.16 U	0.16 U	0.12 U	0.048 U	0.079 U	0.16 U	0.079 U	0.079 U	0.040 U	0.079 U	0.059 U	0.099 U	0.079 U	0.04 U	0.040 U	0.059 U	0.10 U	0.040 U	0.040 U	0.079 U	0.040 U	0.040 U	0.20 U	0.20 U
Trichloroethene	11	12	7.0	15	2.2	15	19	10	3.1	6.4	12	5.2	1.9	3.3	4.7	8.1	3.3	3.4	2.7	2.1	4.7	3.4	2.3	1.8	2.4	1.4	2.7	3.2	0.72
Vinyl chloride	0.020 U	0.026 U	0.077 U	0.049 J	0.20 U	0.20 U	0.20 U	0.15 U	0.064 U	0.10 U	0.20 U	0.10 U	0.10 U	0.051 U	0.10 U	0.08 U	0.13 U	0.10 U	0.051 U	0.051 U	0.077 U	0.13 U	0.51 U	0.051 U	0.10 U	0.051 U	0.051 U	0.26 U	0.26 U
Building Number	BUILDING 13A SUB-SLAB VAPOR																												
Sample ID	SVSS-B13A-01																												
Date Collected	7/17/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	1.4	NS	NS	11 U	NS	NS	1.9	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS
1,1,2,2-Tetrachloroethane	0.28 U	NS	NS	14 U	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS
1,1,2-Trichloroethane	0.2 U	NS	NS	11 U	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS
1,1-Dichloroethane	0.16 U	NS	NS	8.1 U	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS
1,1-Dichloroethene	0.08 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
1,2-Dichloroethane	0.16 U	NS	NS	8.1 U	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS
Benzene	0.32	NS	NS	6.4 U	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS
cis-1,2-Dichloroethene	1.2	NS	NS	7.9 U	NS	NS	11	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
Ethylbenzene	0.17 U	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS
m,p-Xylene	0.59	NS	NS	22 U	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS
o-Xylene	0.24	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS
Tetrachloroethene	5.1	NS	NS	14 U	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS
Toluene	0.35	NS	NS	7.5 U	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	1.1	NS	NS
trans-1,2-Dichloroethene	0.11 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
Trichloroethene	53	NS	NS	34	NS	NS	64	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS
Vinyl chloride	0.04 U	NS	NS	5.1 U	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit
J - Estimated
E - Result exceeded upper limit of calibration range
NJ - Tentative in identification and estimated
NS - Not Sampled

Table 4-7
Building 7 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 7 WAREHOUSE INDOOR AIR																									
Sample ID	IA-B7-01																									
Date Collected	7/15/03	10/2/03	1/20/04	12/12/06	3/20/07	6/21/07	9/28/07	12/11/07	3/26/08	6/17/08	9/25/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.42	0.45	0.35	0.28	0.43	0.055	0.060	0.16 U	0.14	0.11 U	0.16 UJ	0.60 U	0.18 U	0.27 U	0.082 U	0.11 U	0.16 U	0.14 U	0.33 U	0.16 U	0.11 U	0.22 U	0.055 U	0.055 U	0.55 U	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.34 U	0.21 U	0.34 U	0.34 U	0.069 U	0.069 U	0.21 U	0.14 U	0.14 U	0.21 UJ	0.76 UJ	0.23 U	0.34 U	0.10 U	0.14 U	0.21 U	0.17 U	0.41 U	0.21 U	0.14 U	0.27 U	0.069 U	0.099 U	0.69 U	0.34 U
1,1,2-Trichloroethane	0.1 U	0.27 U	0.16 U	0.27 U	0.27 U	0.055 U	0.055 U	0.16 U	0.11 U	0.11 U	0.16 UJ	0.60 U	0.18 U	0.27 U	0.082 U	0.11 U	0.16 U	0.14 U	0.33 U	0.16 U	0.11 U	0.22 U	0.055 U	0.055 U	0.55 U	0.27 U
1,1-Dichloroethane	0.08 U	0.2 U	0.12 U	0.2 U	0.2 U	0.040 U	0.040 U	0.12 U	0.081 U	0.081 U	0.12 UJ	0.45 U	0.13 U	0.20 U	0.061 U	0.081 U	0.12 U	0.10 U	0.24 U	0.12 U	0.08 U	0.16 U	0.040 U	0.040 U	0.40 U	0.20 U
1,1-Dichloroethene	0.04 U	0.2 U	0.12 U	0.2 U	0.2 U	0.040 U	0.040 U	0.12 U	0.079 U	0.079 U	0.12 UJ	0.44 U	0.13 U	0.20 U	0.059 U	0.079 U	0.12 U	0.099 U	0.24 U	0.12 U	0.08 U	0.16 U	0.040 U	0.040 U	0.40 U	0.20 U
1,2-Dichloroethane	0.08 U	0.2 U	0.12 U	0.4 U	0.4 U	0.081 U	0.081 U	0.24 U	0.16 U	0.16 U	0.24 UJ	0.89 U	0.27 U	0.40 U	0.12 U	0.16 U	0.24 U	0.20 U	0.49 U	0.24 U	0.16 U	0.32 U	0.081 U	0.094	0.81 U	0.40 U
Benzene	1.1	1.4	2.5	6.1	3.5	0.29 NJ	0.42	2.0	2.2	1.2	1.2 J	5.8	2.1	2.8	1.1	2.8	3.2	0.73	1.7	2.0	1.7	1.1	0.90	0.87	2.7	1.8
cis-1,2-Dichloroethene	0.21	0.95	1.0	0.52	0.95	0.095 NJ	0.075	0.63	0.75	0.44	0.12 J	0.52	4.4	0.34 NJ	0.067	0.26	0.75	0.099	0.24 U	0.66	0.14	0.16 U	0.083	0.17	0.40 U	0.20 U
Ethylbenzene	1.1	1.6	2.6	2.6	0.87	0.24	0.23	0.78	0.87	1.3	1.1 J	4.3	0.91	2.1	0.74	1.5	1.9	0.61	1.1	0.79	0.89	1.5	0.85	0.68	2.1	1.0
m-Xylene & p-Xylene	3.6	3.0	10	9.1	2.8	0.74	0.56	2.5	3.2	4.8	4.0 J	14	3.1	6.5	2.2	5.6	6.9	2.0	3.4	2.5	3.0	5.3	3.1	2.6	5.6	2.3
o-Xylene	1.3	0.87	3.1	3.2	1.0	0.24	0.22	0.87	1.1	1.7	1.6 J	4.8	1.2	2.4	0.83	2.1	2.4	0.87 J	1.3	0.85	0.98	2.0	1.1	0.99	2.0	0.84
Tetrachloroethene	0.62	0.62	2.2	4.5	2.4	0.19	0.14	3.0	0.75	0.35	0.28 J	0.75 U	0.36	0.34 U	0.10 U	0.14 U	1.2	0.17 U	0.41 U	0.38	0.19	0.30	0.10	3.4	8.1	3.6
Toluene	7.0	2.5	9.4	16	5.3	1.4	1.4	5.3	7.2	6.8	8.3 J	27	8.3	13	4.5	7.2	11	4.9	9.7	6.3	4.2	9.9	3.7	2.7	17	3.4
trans-1,2-Dichloroethene	0.056 U	0.2 U	0.12 U	0.2 U	0.2 U	0.040 U	0.040 U	0.12 U	0.079 U	0.079 U	0.12 UJ	0.44 U	0.13 U	0.20 U	0.059 U	0.079 U	0.12 U	0.099 U	0.24 U	0.12 U	0.08 U	0.16 U	0.040 U	0.040 U	0.40 U	0.20 U
Trichloroethene	2.7	13	5.9	5.9	18	0.64	1.1	3.9	9.7	1.5	1.2 J	6.4	4.8	2.5	0.70	5.4	4.7	1.1	1.3	8.9	1.6	1.0	1.3	3.5	1.6	0.93
Vinyl chloride	0.02 U	0.13 U	0.077 U	0.26 U	0.26 U	0.051 U	0.051 U	0.15 U	0.10 U	0.10 U	0.15 UJ	0.56 U	0.95	0.26 U	0.077 U	0.10 U	0.15 U	0.13 U	0.31 U	0.15 U	0.10 U	0.20 U	0.051 U	0.051 U	0.51 U	0.26 U
Sample Description	BUILDING 7 SUB-SLAB VAPOR																									
Sample ID	SVSS-B7-01																									
Date Collected	7/17/03	10/2/03	1/20/04	12/12/06	3/20/07	6/21/07	9/28/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	33 U	NS	NS	11 U	4.4 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	NS	NS
1,1,2,2-Tetrachloroethane	41 U	NS	NS	14 U	5.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 UJ	NS	NS
1,1,2-Trichloroethane	33 U	NS	NS	11 U	4.4 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UJ	NS	NS
1,1-Dichloroethane	24 U	NS	NS	8.1 U	3.2 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 UJ	NS	NS
1,1-Dichloroethene	24 U	NS	NS	7.9 U	3.2 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 UJ	NS	NS
1,2-Dichloroethane	24 U	NS	NS	8.1 U	3.2 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 UJ	NS	NS
Benzene	19 U	NS	NS	6.4 U	2.6 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.67	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	1.0	0.64 UJ	NS	NS
cis-1,2-Dichloroethene	24 U	NS	NS	7.9 U	3.2 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 UJ	NS	NS
Ethylbenzene	26 U	NS	NS	8.7 U	3.5 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	2.5	0.87 UJ	NS	NS
m-Xylene & p-Xylene	26 U	NS	NS	22 U	8.7 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	1.7 U	1.7 U	2.2 U	2.2 U	2.2 U	2.7	10	2.2 UJ	NS	NS
o-Xylene	27 U	NS	NS	8.7 U	3.5 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.85	3.4	0.87 UJ	NS	NS
Tetrachloroethene	40	NS	NS	17	8.1	1.7	1.4 U	1.4 U	1.4 U	2.0	1.4 U	1.4 U	2.0	2.2	1.5	1.4 U	1.4 U	2.6	1.4 U	2.2	1.7	2.8	1.4 U	3.8 J	NS	NS
Toluene	22 U	NS	NS	7.5 U	3.0 U	1.2	0.79	0.75 U	0.75 U	0.75 U	1.2	0.75 U	0.75 U	1.1	0.75 U	2.5	0.75 U	0.75 U	0.75 U	0.75 U	0.94	1.7	15	0.75 UJ	NS	NS
trans-1,2-Dichloroethene	24 U	NS	NS	7.9 U	3.2 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 UJ	NS	NS
Trichloroethene	3300	NS	NS	1700	470	11	12	12	70	64	24	40	59	59	64	70	43	100	30	19	28	43	13	23 J	NS	NS
Vinyl chloride	15 U	NS	NS	5.1 U	2.0 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 UJ	NS	NS	
Sample Description	BUILDING 7 OFFICE INDOOR AIR																									
Sample ID	IA-B7-02																									
Date Collected																							9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.055 U	0.22 U	0.16 U	0.11 U
1,1,2,2-Tetrachloroethane	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.069 U	0.27 U	0.21 U	0.14 U
1,1,2-Trichloroethane	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.055 U	0.22 U	0.16 U	0.11 U
1,1-Dichloroethane	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS															

Table 4-8
Building 10 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 10 INDOOR AIR																													
Sample ID	IA-B10-01																													
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12	
1,1,1-Trichloroethane	0.20	1.4	0.50	0.55	0.25	0.29 NJ	1.0	0.76	0.13	0.082	0.65 J	0.27	0.24	0.14 U	0.55 U	0.43 U	0.43	0.12	1.1 U	0.25	0.16	0.13 NJ	0.34 U	0.14 U	0.11 U	0.071 NJ	0.21	0.27 U	0.27 U	
1,1,2,2-Tetrachloroethane	0.14 U	0.69 U	0.34 U	0.069 U	0.27 U	0.27 U	0.55 U	0.27 U	0.069 U	0.069 U	0.55 U	0.17 U	0.17 U	0.17 U	0.69 UJ	0.54 U	0.54 U	0.069 U	1.4 U	0.21 U	0.069 U	0.14 U	0.43 U	0.17 U	0.14 U	0.069 U	0.17 U	0.34 U	0.34 U	
1,1,2-Trichloroethane	0.10 U	0.55 U	0.27 U	0.055 U	0.22 U	0.22 U	0.44 U	0.22 U	0.055 U	0.055 U	0.44 U	0.14 U	0.14 U	0.14 U	0.55 U	0.43 U	0.43 U	0.055 U	1.1 U	0.16 U	0.055 U	0.11 U	0.34 U	0.14 U	0.11 U	0.055 U	0.14 U	0.27 U	0.27 U	
1,1-Dichloroethane	0.08 U	0.4 U	0.20 U	0.040 UJ	0.16 U	0.16 U	0.32 U	0.16 U	0.040 U	0.040 U	0.32 U	0.10 U	0.10 U	0.10 U	0.40 U	0.32 U	0.32 U	0.040 U	0.81 U	0.12 U	0.040 U	0.081 U	0.25 U	0.10 U	0.081 U	0.04 U	0.10 U	0.20 U	0.20 U	
1,1-Dichloroethene	0.04 U	0.4 U	0.20 U	0.075	0.16 U	0.16 U	0.32 U	0.16 U	0.040 U	0.040 U	0.32 U	0.099 U	0.099 U	0.099 U	0.40 U	0.31 U	0.31 U	0.040 U	0.79 U	0.12 U	0.040 U	0.079 U	0.25 U	0.10 U	0.079 U	0.04 U	0.099 U	0.20 U	0.20 U	
1,2-Dichloroethane	0.08 U	0.4 U	0.20 U	0.040 U	0.32 U	0.32 U	0.65 U	0.32 U	0.081 U	0.081 U	0.65 U	0.20 U	0.20 U	0.20 U	0.81 U	0.65 U	0.65 U	0.081 U	1.6 U	0.24 U	0.081 U	0.16 U	0.51 U	0.20 U	0.16 U	0.081 U	0.20 U	0.40 U	0.40 U	
Benzene	0.90	3.1	3.5	3.8	3.2	2.2	7.0	6.4	0.67	0.58	2.6	2.8	0.77	0.70	4.2	4.2	4.5	1.4	3.2	2.5	1.2	1.7	4.1	2.6	1.3	0.84	1.7	2.8	1.5	
cis-1,2-Dichloroethene	0.70	4.0	4.4	1.4	4.0	0.95 NJ	2.6	1.9	0.63	0.38	2.8	2.5	3.2	0.75	2.9	3.2	7.5	2.2	3.5	4.4	1.8	1.8	2.3	0.96	0.31	0.64	1.3	0.70	0.81	
Ethylbenzene	0.59	0.91	6.9	1.7	1.6	0.65	2.4	1.0	0.39	0.24	0.74	0.74	1.90	0.42	1.7	2.1	4.8	0.69	1.4	2.1	0.83	0.89	0.72	1.1	0.74	0.61	0.93	1.9	1.6	
m,p-Xylene	1.8	2.8	29	4.3	6.1	2.0	6.9	3.5	1.3	0.61	2.5	2.8	6.9	1.4	6.5	7.4	18	2.3	4.3	8.7	3.0	3.2	2.2	2.9	2.4	2.0	2.5	4.1	1.5	
o-Xylene	0.69	1.0	6.9	2.3	2.5	0.74	2.5	1.1	0.43	0.21	0.91	0.87	2.3	0.52	2.1	2.4	6.1	0.87	1.6	2.9	1.0 J	1.0	0.84	1.0	0.84	0.70	0.95	1.4	0.59	
Tetrachloroethene	6.4	5.2	8.1	22	20	4.1	10	6.2	2.5	0.43	9.5	2.8	1.7	12	1.0	1.2	3.1	0.66	1.4 U	1.5	0.75	0.50	0.71	0.64	0.79	0.19	3.2	5.5	5.9	
Toluene	4.3	5.3	8.7	4.9 J	4.5	3.5	9.4	6.0 J	1.6	1.1	3.8	4.5	2.6	2.2	11	11	28	2.8	7.2	7.2	2.2	5.1	3.9	3.7	3.8	1.5	2.0	7.2	2.9	
trans-1,2-Dichloroethene	0.056 U	0.40 U	0.20 U	0.044	0.16 U	0.16 U	0.32 U	0.16 U	0.040 U	0.040 U	0.32 U	0.099 U	0.099 U	0.099 U	0.40 U	0.31 U	0.31 U	0.040 U	0.79 U	0.12 U	0.040 U	0.079 U	0.25 U	0.10 U	0.079 U	0.040 U	0.099 U	0.20 U	0.20 U	
Trichloroethene	4.0	30	26	45	9.7	15	32	17	2.4	3.0	24	10	5.4	4.3	37	31	13	3.8	64	11	4.4	5.0	20	11	0.61	1.4	13	5.2	0.84	
Vinyl chloride	0.020 U	0.26 U	0.13 U	0.074 J	0.20 U	0.20 U	0.41 U	0.20 U	0.051 U	0.051 U	0.41 U	0.13 U	0.13 U	0.13 U	0.51 U	0.41 U	0.41 U	0.087	1.0 U	0.15 U	0.056 NJ	0.10 U	0.32 U	0.13 U	0.10 U	0.051 U	0.13 U	0.26 U	0.26 U	
Building Number	BUILDING 10 SUB-SLAB VAPOR																													
Sample ID	SVSS-B10-01																													
Date Collected	7/17/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12	
1,1,1-Trichloroethane	26 U	NS	NS	11 U	NS	NS	16 U	NS	NS	NS	11 U	NS	NS	NS	8.7 U	NS	NS	NS	8.7 U	NS	NS	NS	1.1 U	NS	NS	NS	NS	1.1 UJ	NS	NS
1,1,2,2-Tetrachloroethane	32 U	NS	NS	14 U	NS	NS	21 U	NS	NS	NS	14 U	NS	NS	NS	11 U	NS	NS	NS	11 U	NS	NS	NS	1.4 U	NS	NS	NS	NS	1.4 UJ	NS	NS
1,1,2-Trichloroethane	26 U	NS	NS	11 U	NS	NS	16 U	NS	NS	NS	11 U	NS	NS	NS	8.7 U	NS	NS	NS	8.7 U	NS	NS	NS	1.1 U	NS	NS	NS	NS	1.1 UJ	NS	NS
1,1-Dichloroethane	19 U	NS	NS	8.1 U	NS	NS	12 U	NS	NS	NS	8.1 U	NS	NS	NS	6.5 U	NS	NS	NS	6.5 U	NS	NS	NS	0.81 U	NS	NS	NS	NS	0.81 UJ	NS	NS
1,1-Dichloroethene	19 U	NS	NS	7.9 U	NS	NS	12 U	NS	NS	NS	7.9 U	NS	NS	NS	6.3 U	NS	NS	NS	6.3 U	NS	NS	NS	0.79 U	NS	NS	NS	NS	0.79 UJ	NS	NS
1,2-Dichloroethane	19 U	NS	NS	8.1 U	NS	NS	12 U	NS	NS	NS	8.1 U	NS	NS	NS	6.5 U	NS	NS	NS	6.5 U	NS	NS	NS	0.81 U	NS	NS	NS	NS	0.81 UJ	NS	NS
Benzene	15 U	NS	NS	6.4 U	NS	NS	9.6 U	NS	NS	NS	6.4 U	NS	NS	NS	5.1 U	NS	NS	NS	5.1 U	NS	NS	NS	0.6 U	NS	NS	NS	NS	0.64 UJ	NS	NS
cis-1,2-Dichloroethene	38	NS	NS	11	NS	NS	26	NS	NS	NS	14	NS	NS	NS	6.7 NJ	NS	NS	NS	6.3	NS	NS	NS	2.9	NS	NS	NS	NS	0.79 UJ	NS	NS
Ethylbenzene	20 U	NS	NS	8.7 U	NS	NS	13 U	NS	NS	NS	8.7 U	NS	NS	NS	6.9 U	NS	NS	NS	6.9 U	NS	NS	NS	0.87 U	NS	NS	NS	NS	0.87 UJ	NS	NS
m,p-Xylene	20 U	NS	NS	22 U	NS	NS	33 U	NS	NS	NS	22 U	NS	NS	NS	17 U	NS	NS	NS	17 U	NS	NS	NS	2.2 U	NS	NS	NS	NS	2.2 UJ	NS	NS
o-Xylene	21 U	NS	NS	8.7 U	NS	NS	13 U	NS	NS	NS	8.7 U	NS	NS	NS	6.9 U	NS	NS	NS	6.9 U	NS	NS	NS	0.87 U	NS	NS	NS	NS	0.87 UJ	NS	NS
Tetrachloroethene	32 U	NS	NS	14 U	NS	NS	20 U	NS	NS	NS	14 U	NS	NS	NS	11 U	NS	NS	NS	11 U	NS	NS	NS	3.6	NS	NS	NS	NS	6.5 J	NS	NS
Toluene	18 U	NS	NS	7.5 U	NS	NS	11 U	NS	NS	NS	7.5 U	NS	NS	NS	6.0 U	NS	NS	NS	6.0 U	NS	NS	NS	3.7	NS	NS	NS	NS	1.3 J	NS	NS
trans-1,2-Dichloroethene	19 U	NS	NS	7.9 U	NS	NS	12 U	NS	NS	NS	7.9 U	NS	NS	NS	6.3 U	NS	NS	NS	6.3 U	NS	NS	NS	0.79 U	NS	NS	NS	NS	0.79 UJ	NS	NS
Trichloroethene	2700	NS	NS	1100	NS	NS	3200	NS	NS	NS	1800	NS	NS	NS	1700	NS	NS	NS	1200	NS	NS	NS	130	NS	NS	NS	NS	34 J	NS	NS
Vinyl chloride	12 U	NS	NS	5.1 U	NS	NS	7.7 U	NS	NS	NS	5.1 U	NS	NS	NS	4.1 U	NS	NS	NS	4.1 U	NS	NS	NS	0.51 U	NS	NS	NS	NS	0.51 UJ	NS	NS

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit
J - Estimated
NJ - Tentative in identification and estimated
NS - Not Sampled

Table 4-8
Building 10 Area Sub-Slab Vapor and Indoor Air Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	BUILDING 10A INDOOR AIR																												
Sample ID	IA-B10A-01																												
Date Collected	7/15/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.30	1.1	0.49	0.49	0.29	0.34	1.4	0.76	0.21	0.27	0.82 J	0.28	0.19	0.19	0.51	0.43 U	0.65	0.28	0.43 U	0.28	0.34	0.17	0.29	0.24	0.14 NJ	0.14 NJ	0.28	0.17	0.27 U
1,1,2,2-Tetrachloroethane	0.14 U	0.34 U	0.21 U	0.069 U	0.34 U	0.14 U	0.55 U	0.27 U	0.069 U	0.082 U	0.41 U	0.14 U	0.14 U	0.10 U	0.41 UJ	0.54 U	0.54 U	0.10 U	0.54 U	0.21 U	0.10 U	0.21 U	0.21 U	0.14 U	0.069 U	0.069 U	0.17 U	0.21 U	0.34 U
1,1,2-Trichloroethane	0.10 U	0.27 U	0.16 U	0.055 U	0.27 U	0.11 U	0.44 U	0.22 U	0.055 U	0.065 U	0.33 U	0.11 U	0.11 U	0.082 U	0.33 U	0.43 U	0.43 U	0.082 U	0.43 U	0.16 U	0.082 U	0.16 U	0.17 U	0.11 U	0.055 U	0.055 U	0.14 U	0.16 U	0.27 U
1,1-Dichloroethane	0.08 U	0.20 U	0.12 U	0.040 UJ	0.20 U	0.081 U	0.32 U	0.16 U	0.040 U	0.049 U	0.24 U	0.081 U	0.081 U	0.061 U	0.24 U	0.32 U	0.32 U	0.061 U	0.32 U	0.12 U	0.061 U	0.12 U	0.13 U	0.081 U	0.040 U	0.04 U	0.10 U	0.12 U	0.20 U
1,1-Dichloroethene	0.04 U	0.20 U	0.12 U	0.056	0.20 U	0.079 U	0.32 U	0.16 U	0.040 U	0.048 U	0.24 U	0.079 U	0.079 U	0.059 U	0.24 U	0.31 U	0.31 U	0.059 U	0.31 U	0.12 U	0.059 U	0.12 U	0.12 U	0.079 U	0.040 U	0.04 U	0.099 U	0.12 U	0.20 U
1,2-Dichloroethane	0.08 U	0.20 U	0.15	0.040 U	0.40 U	0.16 U	0.65 U	0.32 U	0.081 U	0.10 U	3.1 J	0.16 U	0.16 U	0.12 U	0.49 U	0.65 U	0.65 U	0.12 U	0.65 U	0.24 U	0.12 U	0.24 U	0.25 U	0.16 U	0.081 U	0.081 U	0.20 U	0.24 U	0.40 U
Benzene	2.3	1.5	2.7	2.8	2.7	1.4	7.7	3.8	0.64	0.70	2.6	2.7	0.64	0.83	3.5	4.2	4.5	2.6	2.9	2.7	1.3	1.9	5.9	2.2	1.9	1.3	1.8	2.6	0.70
cis-1,2-Dichloroethene	0.89	2.2	4.8	1.1	4.8	0.38 NJ	3.0	1.9	1.3	1.2	3.3	3.2	1.4	1.5	3.3	5.2	8.7	4.0	4.0	5.2	4.4	1.9	3.6	1.9	0.51	0.67	2.1	1.3	0.42
Ethylbenzene	2.1	0.65	2.3	1.3	2.3	0.69	2.8	0.78	0.52	0.42	0.78	0.87	1.4 NJ	0.48	1.5	2.3	5.2	1.0	1.3	2.5	1.2	0.91	1.1	1.1	0.75	0.61	0.98	2.3	0.77
m,p-Xylene	7.5	2.0	9.1	3.4	9.1	2.3	7.8	2.9	1.7	1.3	2.2	3.2	5.2	1.8	6.1	9.6	17	3.4	4.8	10	4.8	3.2	3.4	3.6	2.6	2.1	3.3	4.6	0.73
o-Xylene	2.7	0.74	2.4	1.8	3.6	0.78	2.5	1.0	0.56	0.48	0.69	1.1	1.8	0.65	1.9	3.0	5.2	1.2	1.6	3.6	1.6 J	1.1	1.2	1.2	0.93	0.76	1.2	1.7	0.25
Tetrachloroethene	7.6	2.7	5.4	6.0	22	3.0	12	6.1	3.2	0.81	12	2.6	1.2	3.1	1.3	1.8	4.1	1.8	0.88	1.1	1.4	0.72	0.97	0.80	1.2	0.24	3.7	3.7	0.80
Toluene	11	3.3	6.0	3.8 J	6.4	2.8	10	4.9 J	2.4	1.5	4.1	4.5	2.1	2.3	8.7	12	28	4.5	7.2	8.3	4.1	5.3	6.4	4.9	2.2	1.7	2.7	5.6	1.4
trans-1,2-Dichloroethene	0.056 U	0.20 U	0.12 U	0.040 U	0.20 U	0.079 U	0.32 U	0.16 U	0.040 U	0.048 U	0.24 U	0.079 U	0.079 U	0.059 U	0.24 U	0.31 U	0.31 U	0.059 U	0.31 U	0.12 U	0.059 U	0.12 U	0.12 U	0.079 U	0.040 U	0.04 U	0.099 U	0.12 U	0.20 U
Trichloroethene	4.5	12	19	32	9.1	7.0	32	15	3.0	4.9	23	9.7	2.8	4.8	19	21	15	4.6	25	9.7	6.4	3.8	13	5.7	0.91	1.1	8.0	5.7	0.40
Vinyl chloride	0.020 U	0.13 U	0.10 NJ	0.066 J	0.26 U	0.10 U	0.41 U	0.20 U	0.051 U	0.064 U	0.31 U	0.10 U	0.10 U	0.077 U	0.31 U	0.41 U	0.41 U	0.12	0.41 U	0.15 U	0.095 NJ	0.15 U	0.16 U	0.1 U	0.051 U	0.051 U	0.13 U	0.15 U	0.26 U
Building Number	BUILDING 10A SUB-SLAB VAPOR																												
Sample ID	SVSS-B10A-01																												
Date Collected	7/17/03	10/2/03	1/20/04	2/14/06	6/28/06	9/13/06	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	14	NS	NS	11 U	NS	NS	3.4	NS	NS	NS	1.1	NS	NS	NS	2.5	NS	NS	NS	2.2	NS	NS	NS	2.5	NS	NS	NS	2.3	NS	NS
1,1,2,2-Tetrachloroethane	3.2 U	NS	NS	14 U	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS	NS	1.4 U	NS	NS
1,1,2-Trichloroethane	2.3 U	NS	NS	11 U	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS	NS	1.1 U	NS	NS
1,1-Dichloroethane	2.5	NS	NS	8.1 U	NS	NS	2.1	NS	NS	NS	0.81 U	NS	NS	NS	1.5	NS	NS	NS	1.4	NS	NS	NS	1.8	NS	NS	NS	1.8	NS	NS
1,1-Dichloroethene	0.9 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
1,2-Dichloroethane	1.8 U	NS	NS	8.1 U	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS	NS	0.81 U	NS	NS
Benzene	3.4 U	NS	NS	6.4 U	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS	NS	0.64 U	NS	NS
cis-1,2-Dichloroethene	10	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
Ethylbenzene	2 U	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	1.0	NS	NS	NS	0.87 U	NS	NS
m,p-Xylene	3.8 U	NS	NS	22 U	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	2.2 U	NS	NS	NS	4.0	NS	NS	NS	2.2 U	NS	NS
o-Xylene	2 U	NS	NS	8.7 U	NS	NS	0.87 U	NS	NS	NS	0.9 U	NS	NS	NS	0.87 U	NS	NS	NS	0.87 U	NS	NS	NS	1.7	NS	NS	NS	0.87 U	NS	NS
Tetrachloroethene	920	NS	NS	44	NS	NS	140	NS	NS	NS	81	NS	NS	NS	95	NS	NS	NS	100	NS	NS	NS	49	NS	NS	NS	50	NS	NS
Toluene	3.2	NS	NS	7.5 U	NS	NS	2.6	NS	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	0.75 U	NS	NS	NS	3.3	NS	NS	NS	0.96	NS	NS
trans-1,2-Dichloroethene	1.3 U	NS	NS	7.9 U	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS	NS	0.79 U	NS	NS
Trichloroethene	120	NS	NS	11 U	NS	NS	20	NS	NS	NS	9.1	NS	NS	NS	10	NS	NS	NS	13	NS	NS	NS	13	NS	NS	NS	12	NS	NS
Vinyl chloride	0.45 U	NS	NS	5.1 U	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS	NS	0.51 U	NS	NS

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit
J - Estimated
NJ - Tentative in identification and estimated
NS - Not Sampled

Table 4-9
Building 1A Basement and First Floor Indoor Air Sample Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Location	BUILDING 1A FIRST FLOOR																										
Sample ID	IA-B1A-01																										
Date Collected	7/15/03	10/2/03	1/20/04	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/24/10	8/30/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.63	0.35 JT	0.19	0.21	0.26	0.06	1.0	0.093	0.098	0.055 U	0.22 U	0.16 U	0.18 U	0.18 U	0.82 U	0.11 U	0.11 U	0.44 U	0.069	0.33 U	0.055 U	0.11 U	0.055 U	0.096 NJ	0.055 U	0.11 U	0.068 U
1,1,2,2-Tetrachloroethane	0.14 U	0.34 U	0.14 U	0.21 U	0.27 U	0.069 U	0.69 U	0.10 U	0.100 U	0.069 U	0.27 U	0.21 U	0.23 U	0.23 U	1 U	0.14 U	0.14 U	0.56 U	0.069 U	0.41 U	0.069 U	0.14 U	0.069 U	0.069 U	0.069 U	0.14 U	0.086 U
1,1,2-Trichloroethane	0.1 U	0.27 U	0.11 U	0.16 U	0.22 U	0.055 U	0.55 U	0.082 U	0.082 U	0.055 U	0.22 U	0.16 U	0.18 U	0.18 U	0.82 U	0.11 U	0.11 U	0.44 U	0.055 U	0.33 U	0.055 U	0.11 U	0.055 U	0.055 U	0.055 U	0.11 U	0.068 U
1,1-Dichloroethane	0.08 U	0.2 U	0.081 U	0.12 U	0.16 U	0.04 U	0.4 U	0.061 U	0.061 U	0.040 U	0.16 U	0.12 U	0.13 U	0.13 U	0.61 U	0.081 U	0.081 U	0.33 U	0.040 U	0.24 U	0.040 U	0.081 U	0.040 U	0.040 U	0.040 U	0.081 U	0.051 U
1,1-Dichloroethene	0.04 U	0.2 U	0.079 U	0.12 U	0.16 U	0.04 U	0.4 U	0.059 U	0.059 U	0.040 U	0.16 U	0.12 U	0.13 U	0.13 U	0.59 U	0.079 U	0.079 U	0.32 U	0.040 U	0.24 U	0.040 U	0.079 U	0.040 U	0.040 U	0.040 U	0.079 U	0.050 U
1,2-Dichloroethane	0.95	0.2 U	0.14	0.24 U	0.32 U	0.081 U	0.97	0.12 U	0.12 U	0.081 U	0.32 U	0.24 U	0.27 U	0.27 U	1.2 U	0.16 U	0.16 U	0.65 U	0.081 U	0.49 U	0.081 U	0.16 U	0.081 U	0.22	0.11	0.16 U	0.14
Benzene	1.8	1.3	0.89	3.5	2.3	0.24	1.2	1.4	1.4	0.14	0.89	4.8	3.8	1.7	2.4	2.7	1.3	1.9	0.70	1.6	1.8	2.0	0.35	0.44	0.52	0.32	1.1
cis-1,2-Dichloroethene	0.89	1.5	0.59	0.71	0.75	0.04 U	0.67	0.32	0.280	0.040 U	0.48	0.59	1.0	0.27	0.59 U	0.52	1.0	2.7	0.094	0.24 U	0.071	0.59	0.040 U	0.16	0.086	0.079 U	0.29
Ethylbenzene	3.4	0.91	0.61	2.0	0.78	0.21	3.8	0.61	0.74	0.65	1.0	0.78	1.1	1.1	6.1	0.69	1.0	2.0	0.67	2.4	0.17	0.45	0.48	0.094	0.80	0.38	0.54
m-Xylene & p-Xylene	12	2.6	1.7	6.1	2.6	0.74	12	1.7	2.6	2.6	3.2	2.9	3.7	3.8	17	2.3	3.2	6.5	2.0	11	0.35	1.3	1.3	0.32	3.7	0.82	1.8
o-Xylene	3.5	0.74	0.56	1.4	0.61	0.18	2.1	0.4	0.69	0.74	0.96	1.0	1.2	1.1	3.9	1.1	0.8	1.8	0.67	2.9	0.19	0.46	0.47	0.12	1.4	0.29	0.62
Tetrachloroethene	25	1.9	8.1	3.6	0.88	0.095	2.4	1.6	0.75	0.068 U	0.88	0.56	0.46	0.22 U	1.0 U	0.58	0.60	0.75	0.13	0.43	0.10	0.58	0.11	0.081	2.8	0.18	0.16
Toluene	52	11	2.8	8.7	3.4	1.5	17	2.9	1.9	2.1	11	6.8	8.7	7.2	37	4.5	4.9	9.0	3.4	16	1.6	2.5	3.5	0.40	1.3	3.5	3.8
trans-1,2-Dichloroethene	0.06 U	0.2 U	0.079 U	0.12 U	0.16 U	0.04 U	0.4 U	0.059 U	0.059 U	0.04 U	0.16 U	0.12 U	0.13 U	0.13 U	0.59 U	0.079 U	0.079 U	0.32 U	0.040 U	0.24 U	0.040 U	0.079 U	0.040 U	0.04 U	0.040 U	0.079 U	0.050 U
Trichloroethene	6.9	10	2.1	9.1	12	0.39	3.4	2.9	4.9	0.059	2.3	9.7	7.0	0.59	2.7	3.7	7.5	27	1.5	2.4	1.1	6.8	0.26	0.75	1.1	1.3	1.3
Vinyl chloride	0.02 U	0.13 U	0.051 U	0.15 U	0.2 U	0.051 U	1.6	0.077 U	0.077 U	0.051 U	0.20 U	0.15 U	0.17 U	0.17 U	0.77 U	0.10 U	0.10 U	0.41 U	0.051 U	0.31 U	0.51 U	0.10 U	0.05 U	0.051 U	0.051 U	0.10 U	0.064 U
Sample Location	BUILDING 1A BASEMENT																										
Sample ID	IA-B1A-BASE																										
Date Collected	7/15/03	10/2/03	1/20/04	12/12/06	3/20/07	6/21/07	9/19/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/24/10	8/30/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	NS	0.6 NJ	0.27 U	0.55 U	1.1 U	0.11 U	0.43	0.22 U	0.22 U	0.055 U	0.27 U	0.35 U	0.55 U	0.071	1.4 U	0.33 U	0.27 U	2.2 U	0.19 U	0.22 U	0.055 U	0.82 U	0.055 U	0.12 NJ	0.055 U	0.22 U	0.11 U
1,1,2,2-Tetrachloroethane	NS	0.69 U	0.34 U	0.69 U	1.4 U	0.14 U	0.14 U	0.27 U	0.27 U	0.069 U	0.34 U	0.45 U	0.69 U	0.069 U	1.7 U	0.41 U	0.34 U	2.7 U	0.24 U	0.27 U	0.069 U	1.0 U	0.069 U	0.10 U	0.069 U	0.27 U	0.14 U
1,1,2-Trichloroethane	NS	0.55 U	0.27 U	0.55 U	1.1 U	0.11 U	0.11 U	0.22 U	0.22 U	0.055 U	0.27 U	0.35 U	0.55 U	0.055 U	1.4 U	0.33 U	0.27 U	2.2 U	0.19 U	0.22 U	0.055 U	0.82 U	0.055 U	0.082 U	0.055 U	0.22 U	0.11 U
1,1-Dichloroethane	NS	0.4 U	0.2 U	0.4 U	0.81 U	0.081 U	0.081 U	0.16 U	0.16 U	0.040 U	0.20 U	0.26 U	0.40 U	0.04 U	1.00 U	0.24 U	0.20 U	1.6 U	0.14 U	0.16 U	0.040 U	0.61 U	0.040 U	0.061 U	0.040 U	0.16 U	0.081 U
1,1-Dichloroethene	NS	0.4 U	0.2 U	0.4 U	0.79 U	0.079 U	0.079 U	0.16 U	0.16 U	0.040 U	0.20 U	0.26 U	0.40 U	0.04 U	0.99 U	0.24 U	0.20 U	1.6 U	0.14 U	0.16 U	0.040 U	0.59 U	0.040 U	0.059 U	0.040 U	0.16 U	0.079 U
1,2-Dichloroethane	NS	0.4 U	0.2 U	0.81 U	1.6 U	0.16 U	0.16 U	0.32 U	0.32 U	0.081 U	0.40 U	0.53 U	0.81 U	0.08 U	2.00 U	0.49 U	0.40 U	3.3 U	0.28 U	0.32 U	0.081 U	1.2 U	0.081 U	0.27 U	0.081 U	0.32 U	0.16
Benzene	NS	0.77	1.1	2.7	3.5	0.35	0.45	1.1	0.73	0.14	0.70	2.0	1.7	1.5	2.8	1.1	0.86	2.3	1.9	1.8	0.96	4.4	0.28	0.55	0.49	0.47	0.73
cis-1,2-Dichloroethene	NS	5.2	0.71	2.8	4.8	0.14	0.29	1.5	1.1	0.040 U	0.83	1.5	1.9	0.079	3.8	0.91	1.7	12	0.77	0.16 U	0.074	5.2	0.040 U	0.24	0.11	0.52	0.24
Ethylbenzene	NS	0.43 U	0.3	1.7	0.87 U	1.4	0.48	0.48	0.32	0.091	0.48	0.56	0.56	0.43	2.9	0.26 U	0.52	1.7 U	1.1	0.91	0.17 NJ	0.65 U	0.32	0.35	0.43	0.18	0.46
m-Xylene & p-Xylene	NS	1	0.74	5.2	2.1	3.7	1.4	1.4	0.91	0.33	1.7	2.1	2.2	1.6	7.8	0.78	1.6	4.8	3.5	3.9	0.53	1.3 U	1.1	0.73	2.0	0.58	1.5
o-Xylene	NS	0.43 U	0.27	1.3	0.87 U	0.83	0.32	0.37	0.30	0.10	0.56	0.78	1.1	0.52	2	0.28	0.40	1.7 U	1.1	1.1	0.17	0.65 U	0.39	0.19	0.79	0.20	0.52
Tetrachloroethene	NS	1.8	3.1	3.8	1.4 U	0.24	1.1	1.2	0.56	0.068 U	0.81	0.52	0.68 U	0.095	1.7 U	0.54	0.68	2.7 U	0.26	0.27 U	0.18	1.0 U	0.12	0.81	1.6	0.28	0.20
Toluene	NS	3.1	1.5	6	3.3	4.5	2.2	1.9	1.0	1.8	5.7	4.5	4.1	3.1	18	1.5	1.7	6.0	7.2	9.4	2.0	1.0	2.7	2.3	0.71	1.0	2.6
trans-1,2-Dichloroethene	NS	0.4 U	0.2 U	0.4 U	0.79 U	0.079 U	0.079 U	0.16 U	0.16 U	0.04 U	0.20 U	0.26 U	0.40 U	0.04 U	0.99 U	0.24 U	0.20 U	1.6 U	0.14 U	0.16 U	0.040 U	0.59 U	0.040 U	0.059 U	0.040 U	0.16 U	0.079 U
Trichloroethene	NS	160	9.1	45	81	2.1	7	20	17	0.081	16	24	29	0.27	86	14	24	120	14	4.5	1.8	67	0.43	5.1	1.6	11	5.0
Vinyl chloride	NS	0.26 U	0.13 U	0.51 U	1.0 U	0.10 U	0.10 U	0.20 U	0.20 U	0.05 U	0.26 U	0.33 U	0.51 U	0.051 U	1.3 U	0.31 U	0.26 U	2.1 U	0.18 U	0.20 U	0.051 U	0.77 U	0.051 U	0.077 U	0.051 U	0.2 U	0.10 U

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit shown
J - Estimated by data validator
NJ - Tentative in identification and estimated
NS - Not sampled

Table 4-10
Ambient Air Sample Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Description	AMBIENT AIR OUTSIDE OF BUILDING 2																									
Sample ID	OA-B2-01																									
Date Collected	7/15/03	10/2/03	1/20/04	3/20/07	6/21/07	8/30/07	9/28/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.21	0.16	0.12	0.15	0.060	NS	0.055 U	0.065	0.055 U	0.060	0.055 U	0.055	0.065	0.11 U	0.065	0.055 U	0.082 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.14 U	0.055 U
1,1,2,2-Tetrachloroethane	0.14 U	0.069 U	0.069 U	0.069 U	0.069 U	NS	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 UJ	0.069 U	0.14 U	0.069 U	0.069 U	0.10 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.17 U	0.069 U
1,1,2-Trichloroethane	0.10 U	0.055 U	0.055 U	0.055 U	0.055 U	NS	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.11 U	0.055 U	0.055 U	0.082 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.14 U	0.055 U
1,1-Dichloroethane	0.080 U	0.040 U	0.040 U	0.040 U	0.040 U	NS	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.081 U	0.040 U	0.040 U	0.061 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.10 U	0.040 U
1,1-Dichloroethene	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	NS	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.079 U	0.040 U	0.040 U	0.059 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.099 U	0.040 U
1,2-Dichloroethane	0.080 U	0.040 U	0.040 U	0.089	0.081 U	NS	0.081 U	0.085	0.081 U	0.081 U	0.081 U	0.081 U	0.081	0.16 U	0.081 U	0.081 U	0.12 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.20 U	0.081 U
Benzene	0.44	0.38	0.45	0.58	0.21	NS	0.32	0.51	0.28	0.24	0.16	0.70	0.08	0.54	0.42	0.42	1.0	0.22	0.58	0.49	0.41	0.28	0.19	0.53	0.31	0.28
cis-1,2-Dichloroethene	0.056 U	0.040 U	0.040 U	0.040 U	0.040 U	NS	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.120	0.079 U	0.040 U	0.040 U	0.059 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.099 U	0.040 U
Ethylbenzene	0.35	0.13	0.19	0.043 U	0.087	NS	0.15	0.10	0.078	0.16	0.091	0.22	0.25	0.69	0.48	0.061	0.52	0.069	0.29	0.11	0.084	0.32	0.085	0.052	0.50	0.19
m-Xylene & p-Xylene	1.1	0.35	0.48	0.087 U	0.23	NS	0.38	0.26	0.20	0.52	0.26	0.69	1.3	1.7	0.74	0.15	1.8	0.11	0.90	0.26 U	0.20	0.96	0.21	0.14	0.95	0.74
o-Xylene	0.35	0.13	0.19	0.043 U	0.083	NS	0.13	0.10	0.078	0.20	0.091	0.29	0.65	0.56	0.26	0.056	0.52	0.043 U	0.32	0.10	0.079	0.33	0.077	0.058	0.34	0.28
Tetrachloroethene	0.30	0.068 U	0.075	0.088	0.068 U	NS	0.11	0.068 U	0.068 U	0.068 U	0.068 U	0.088	0.14	0.14 U	0.075	0.068 U	0.26	0.068	0.077	0.068 U	0.071 U	0.12	0.068 U	0.11	0.17 U	0.068 U
Toluene	3.2	0.64	0.90	0.22	0.49	NS	1.0	0.53	0.36	1.7	0.57	1.2	0.98	5.3	1.2	0.35	4.1	0.45	2.4	0.65	0.48	3.3	0.82	0.47	4.7	0.59
trans-1,2-Dichloroethene	0.056 U	0.04 U	0.04 U	0.04 U	0.040 U	NS	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.079 U	0.075	0.040 U	0.059 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.04 U	0.040 U	0.099 U	0.040 U
Trichloroethene	0.58	0.52	0.81	2.8	0.70	NS	0.31	0.054 U	0.054 U	0.054 U	0.054 U	0.11	0.086	0.86	0.91	0.054 U	0.081 U	0.075	0.066	0.21	0.054 U	0.066	0.054 U	0.054 U	0.13 U	0.054 U
Vinyl chloride	0.020 U	0.026 U	0.026 U	0.051 U	0.051 U	NS	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.10 U	0.051 U	0.051 U	0.077 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.13 U	0.051 U

Sample Description	AMBIENT AIR OUTSIDE OF BUILDING 11																									
Sample ID	OA-B11-01																									
Date Collected	7/15/03	10/2/03	1/20/04	3/20/07	6/21/07	8/30/07	9/28/07	12/11/07	3/26/08	6/17/08	9/24/08	12/18/08	3/26/09	6/25/09	9/23/09	12/17/09	3/24/10	6/22/10	9/22/10	12/28/10	3/23/11	6/22/11	9/21/11	12/20/11	3/28/12	6/14/12
1,1,1-Trichloroethane	0.18	0.15	0.11	0.15	0.055 U	0.055 U	0.055	0.065	0.060	0.055 U	0.055 U	0.055 U	0.071	0.071	0.060	0.055 U	0.055 U	0.065	0.055 U	0.055 U	0.055 U	0.055 U	0.057 NJ	0.055 U	0.055 U	0.055 U
1,1,2,2-Tetrachloroethane	0.14 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 UJ	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
1,1,2-Trichloroethane	0.10 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
1,1-Dichloroethane	0.080 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
1,1-Dichloroethene	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
1,2-Dichloroethane	0.080 U	0.040 U	0.040 U	0.081 U	0.081 U	0.081 U	0.081 U	0.085	0.081 U	0.081 U	0.081 U	0.081 U	0.085	0.081 U	0.081 U	0.081 U	0.081 NJ	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U	0.081 U
Benzene	0.32	0.30	0.45	0.54	0.15	0.17	0.29	0.58	0.31	0.13	0.14	0.54	0.67	0.32	0.26	0.38	0.51	0.31	0.42	0.73	0.39	0.20	0.54	0.45	0.29	0.26
cis-1,2-Dichloroethene	0.056 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.083	0.040 U	0.040 U	0.040 NJ	0.040 U	0.079	0.040 U	0.14	0.040 U	0.040 U	0.084	0.040 U	0.040 U	0.058
Ethylbenzene	0.16	0.091	0.15	0.10	0.061	0.091	0.15	0.19	0.065	0.12	0.096	0.18	0.18	0.23	0.14	0.065	0.15	0.16	0.19	0.28	0.061	0.10	0.22	0.043 U	0.11	0.32
m,p-Xylene	0.32	0.26	0.34	0.29	0.16	0.22	0.43	0.56	0.20	0.38	0.24	0.48	0.41	0.69	0.43	0.18	0.43	0.48	0.46	0.72	0.18	0.30	0.66	0.043 U	0.31	0.46
o-Xylene	0.14	0.10	0.13	0.11	0.052	0.078	0.13	0.21	0.083	0.11	0.083	0.21	0.16	0.23	0.17	0.074	0.16	0.19 J	0.17	0.25	0.077	0.12	0.24	0.043 U	0.12	0.17
Tetrachloroethene	0.14 U	0.068 U	0.068	0.075	0.068 U	0.081	0.12	0.068 U	0.068 U	0.068 U	0.068 U	0.095	0.14	0.088	0.068 U	0.068 U	0.095	0.081	0.068 U	0.33	0.068 U	0.068 U	0.16	0.068 U	0.068 U	0.11
Toluene	1.4	0.45	0.68	0.38	0.32	0.49	0.60	0.72	0.37	0.75	0.64	1.1	0.94	1.4	0.83	0.35	1.1	0.79	1.1	2.3	0.30	0.55	1.1	0.16	0.56	0.83
trans-1,2-Dichloroethene	0.056 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Trichloroethene	0.074	0.13	0.12	0.14	0.12	0.12	0.11	0.086	0.054 U	0.086	0.07	0.13	0.075	0.075	0.51	0.11	0.081	0.22	0.077	3.4	0.068	0.054 U	0.32	0.21	0.056	1.2
Vinyl chloride	0.020 U	0.026 U	0.026 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U

Notes:
All values are shown in units of micrograms per cubic meter (µg/m³).
U - Not detected above reporting limit
NS - Not Sampled
* - Recovery or RPD exceeds control limits
J - Estimated
NJ - Tentative in identification and estimated
RPD - Relative percent difference

Table 4-11
2003 Soil Vapor and Sub-slab Vapor Sample Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sub-Slab Soil Vapor Samples - Summer 2003

Volatile Organic Compound	SVSS-B1-01	SVSS-B2-01	SVSS-B3-01	SVSS-B4-01	SVSS-B7-01	SVSS-B8-01	SVSS-B9-01	SVSS-B10-01	SVSS-B10A-01	SVSS-B11-01	SVSS-B12-01	SVSS-DUP-01 (@ SVSS-B12-01)	SVSS-B13-01	SVSS-B13A-01
1,1,1-Trichloroethane	39 U	11 U	4	39 U	33 U	18	4.6	26 U	14	1900 U	0.22	0.2	18	1.4
1,1,2,2-Tetrachloroethane	49 U	14 U	0.14 U	49 U	41 U	14 U	2.6 U	32 U	3.2 U	2400 U	0.14 U	0.14 U	0.14 U	0.28 U
1,1,2-Trichloroethane	39 U	11 U	0.1 U	39 U	33 U	11 U	1.8 U	26 U	2.3 U	1900 U	0.1 U	0.1 U	0.1 U	0.2 U
1,1-Dichloroethane	29 U	8.1 U	0.08 U	29 U	24 U	10	1.5 U	19 U	2.5	1400 U	0.08 U	0.08 U	0.08 U	0.16 U
1,1-Dichloroethene	28 U	7.9 U	0.04 U	28 U	24 U	7.9 U	0.73 U	19 U	0.9 U	1400 U	0.04 U	0.04 U	0.04 U	0.08 U
1,2-Dichloroethane	29 U	8.1 U	0.08 U	29 U	24 U	8.1 U	1.5 U	19 U	1.8 U	1400 U	0.08 U	0.08 U	0.08 U	0.16 U
Benzene	23 U	6.4 U	2.2	23 U	19 U	7.6	2.8 U	15 U	3.4 U	1100 U	0.15	0.15 U	3.6	0.32
cis-1,2-Dichloroethene	47	7.9 U	0.056 U	28 U	24 U	29	1 U	38	10	2600	0.056 U	0.056 U	0.056 U	1.2
Ethylbenzene	31 U	12	2.1	31 U	26 U	8.7 U	1.9	20 U	2 U	1500 U	0.15	0.1	1.5	0.17 U
Tetrachloroethene	110	14	7.6	48 U	40	180	21	32 U	920	3700	0.36	0.32	37	5.1
Toluene	27 U	24	7.8	27 U	22 U	26	5.6	18 U	3.2	1300 U	0.38	0.24	11	0.35
trans-1,2-Dichloroethene	28 U	7.9 U	0.056 U	28 U	24 U	7.9 U	1 U	19 U	1.3 U	1400 U	0.056 U	0.056 U	0.056 U	0.11 U
Trichloroethene	6600	1300	26	7100	3300	1600	480	2700	120	160000	2.9	2.1	2.8	53
Vinyl chloride	18 U	5.1 U	0.02 U	18 U	15 U	5.1 U	0.37 U	12 U	0.45 U	900 U	0.02 U	0.02 U	0.02 U	0.04 U
m-Xylene & p-Xylene	31 U	58	16	31 U	26 U	43	9.8	20 U	3.8 U	1500 U	1.1	0.68	22	0.59
o-Xylene	32 U	21	8.2	32 U	27 U	19	3.7	21 U	2 U	1600 U	0.43	0.27	6.6	0.24

Outdoor Soil Vapor Samples - Summer 2003

Volatile Organic Compound	SV0-B1-01	SV0-B2-01	SV0-DUP-01 (@ SV0-B2-01)	SV0-B8-01	SV0-B9-01	SV0-B10-01	SV0-B11B-01	SV0-B13-01
1,1,1-Trichloroethane	110	410 U	510 U	0.73	11 U	0.57	0.95	1.8
1,1,2,2-Tetrachloroethane	14 U	520 U	650 U	0.51 U	14 U	0.14 U	0.28 U	0.56 U
1,1,2-Trichloroethane	11 U	410 U	510 U	0.36 U	11 U	0.1 U	0.2 U	0.4 U
1,1-Dichloroethane	8.1 U	310 U	380 U	0.29 U	8.1 U	0.083	25	8.6
1,1-Dichloroethene	7.9 U	300 U	370 U	0.15 U	11	0.041 U	0.75	0.16 U
1,2-Dichloroethane	8.1 U	310 U	380 U	0.29 U	8.1 U	0.082 U	0.28	0.32 U
Benzene	6.4 U	240 U	300 U	3.8	8	9	26	53
cis-1,2-Dichloroethene	7.9 U	300 U	370 U	0.31	1700	20	100	0.23
Ethylbenzene	8.7 U	330 U	410 U	5.1	8.7 U	5.3	23	18
Tetrachloroethene	14 U	510 U	640 U	2.3	14 U	1.6	0.57	1.5
Toluene	7.5 U	290 U	350 U	10	15	26	54	130
trans-1,2-Dichloroethene	7.9 U	300 U	370 U	0.2 U	160	0.59	18	0.22 U
Trichloroethene	1800	70000	74000	140	1100	29	93	1.2
Vinyl chloride	5.1 U	190 U	240 U	0.073 U	180	0.56	9	0.08 U
m-Xylene & p-Xylene	8.7 U	330 U	410 U	30	13	32	120	160
o-Xylene	9 U	340 U	420 U	9	9 U	10	68	41

Notes:

All values are shown in units of µg/m³ (micrograms per cubic meter).

U - Not detected - reporting limit shown

Table 4-12
2003-2004 Soil Vapor Intrusion Investigation Air Sample Analytical Data

Former Phillips Display Components Facility
Seneca Falls, New York

Air Samples Summer 2003

VOC	INDOOR AIR SAMPLES																		DUP-01 (@ IA-B7-01)
	IA-B1-01	IA-B1A-01	IA-B1A-BASE	IA-B2-01	IA-B2A-01	IA-B3-01	IA-B4-01	IA-B7-01	IA-B8-01	IA-B9-01	IA-B9-02	IA-B9-CS	IA-B10-01	IA-B10A-01	IA-B11-01	IA-B11-02	IA-B12-01	IA-B13-01	IA-B13A-01
1,1,1-Trichloroethane	0.57	0.63	NS	0.57	3.3	0.38	0.36	0.42	0.68	0.22	0.15	NS	0.2	0.3	0.29	0.56	0.25	0.55	0.58
1,1,2,2-Tetrachloroethane	0.14 U	0.14 U	NS	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	NS	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1,2-Trichloroethane	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1-Dichloroethane	0.08 U	0.08 U	NS	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	NS	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethene	0.045	0.04 U	NS	0.04 U	0.043	0.04 U	0.04 U	0.04 U	0.049	0.04 U	0.04 U	NS	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.044	0.054
1,2-Dichloroethane	1.1	0.95	NS	0.25	0.44	0.08 U	0.08 U	0.08 U	1.3	0.087	0.08 U	NS	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Benzene	1.3	1.8	NS	2.1	2.3	1.1	0.99	1.1	1.7	1.3	1.1	NS	0.9	2.3	1.1	1.6	0.56	2.3	2.6
cis-1,2-Dichloroethene	0.38	0.89	NS	0.39	0.78	0.22	0.24	0.21	0.56	0.22	0.056 U	NS	0.7	0.89	0.55	1.8	0.15	1.1	1.2
Ethylbenzene	1.9	3.4	NS	4	4.2	1.8	0.82	1.1	1.2	1.4	0.35	NS	0.59	2.1	1.4	4.7	0.39	2.4	3.1
Tetrachloroethene	12	25	NS	39	32	2.3	2.6	0.62	6	0.77	1.9	NS	6.4	7.6	7.8	18	0.69	19	20
Toluene	17	52	NS	72	68	5.3	5.3	7	7.1	9.6	2.1	NS	4.3	11	12	10	2.6	11	12
trans-1,2-Dichloroethene	0.056 U	0.056 U	NS	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	NS	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
Trichloroethene	4.8	6.9	NS	4	5.4	2.9	3.1	2.7	4.1	22	0.22	NS	4	4.5	5	39	0.67	11	11
Vinyl chloride	0.02 U	0.02 U	NS	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NS	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.026	0.02 U
m-Xylene & p-Xylene	6.2	12	NS	14	15	6.2	2.6	3.6	7.4	5	0.93	NS	1.8	7.5	3.5	15	1.1	7.5	9.6
o-Xylene	2	3.5	NS	3.5	3.9	1.6	1	1.3	1.5	2	0.34	NS	0.69	2.7	1.2	3.7	0.43	2.4	3.1

Air Samples Fall 2003

VOC	INDOOR AIR SAMPLES																			DUPLICATE 1 (@ IA-B2A-01)	DUPLICATE 2 (@ IA-B3A-01)
	IA-B1-01	IA-B1A-01	IA-B1A-BASE	IA-B2-01	IA-B2A-01	IA-B3-01	IA-B4-01	IA-B7-01	IA-B8-01	IA-B9-01	IA-B9-02	IA-B9-CS	IA-B10-01	IA-B10A-01	IA-B11-01	IA-B11-02	IA-B12-01	IA-B13-01	IA-B13A-01		
1,1,1-Trichloroethane	0.71	0.35 JT	0.6 JT	0.55	3.3 JT	0.39	0.2	0.45	0.76	0.55 U	0.55 U	0.55 U	1.4	1.1	2	2.2	0.15	2.8	1.9		
1,1,2,2-Tetrachloroethane	0.069 U	0.34 U	0.69 U	0.69 U	0.21 U	0.21 U	0.069 U	0.34 U	0.069 U	0.69 U	0.69 U	0.69 U	0.69 U	0.34 U	0.69 U	0.69 U	0.069 U	0.34 U	0.069 U		
1,1,2-Trichloroethane	0.055 U	0.27 U	0.55 U	0.55 U	0.16 U	0.16 U	0.055 U	0.27 U	0.055 U	0.55 U	0.55 U	0.55 U	0.55 U	0.27 U	0.55 U	0.55 U	0.055 U	0.27 U	0.055 U		
1,1-Dichloroethane	0.073	0.2 U	0.4 U	0.4 U	0.12 U	0.12 U	0.04 U	0.2 U	0.04 U	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.4 U	0.4 U	0.04 U	0.2 U	0.04 U		
1,1-Dichloroethene	0.15	0.2 U	0.4 U	0.4 U	0.12 U	0.12 U	0.04 U	0.2 U	0.063	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.4 U	0.4 U	0.04 U	0.52	0.25		
1,2-Dichloroethane	0.49	0.2 U	0.4 U	0.4 U	0.12 U	0.12 U	0.04 U	0.2 U	1.6	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.4 U	0.4 U	0.04 U	0.2 U	0.04 U		
Benzene	1.6	1.3	0.77	2.4	0.86	2.5	0.77	1.4	2.2	2.2	3.1	0.64	3.1	1.5	3.8	3.5	0.61	1.9	1.8		
cis-1,2-Dichloroethene	1.3	1.5	5.2	2.6	0.79	1.3	0.48	0.95	1.9	0.67	2.2	1.6	4	2.2	4.8	5.6	0.15	4	3.1		
Ethylbenzene	1.1	0.91	0.43 U	2	0.65	2.7	0.78	1.6	0.78	1.1	0.65	0.48	0.91	0.65	1	1	0.32	0.69	0.78		
Tetrachloroethene	5.6	1.9	1.8	3.2	1.2	0.81	0.56	0.62	5.1	0.68 U	2	0.88	5.2	2.7	6.8	8.1	0.095	4.8	3.9		
Toluene	5.3	11	3.1	26	9.4	4.1	1.2	2.5	2.5	4.1	2.4	1.3	5.3	3.3	11	9.8	1.6	3.8	4.1		
trans-1,2-Dichloroethene	0.04 U	0.2 U	0.4 U	0.4 U	0.12 U	0.12 U	0.04 U	0.2 U	0.04 U	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.4 U	0.4 U	0.04 U	0.2 U	0.04 U		
Trichloroethene	7.5	10	160	9.1	5.4	12	4.5	13	10	30	30	210	30	12	36	97	0.59	13	12		
Vinyl chloride	0.026 U	0.13 U	0.26 U	0.26 U	0.077 U	0.077 U	0.026 U	0.13 U	0.026 U	0.26 U	0.26 U	0.26 U	0.26 U	0.13 U	0.26 U	0.26 U	0.026 U	0.13 U	0.026 U		
m-Xylene & p-Xylene	2.7	2.6	1	5.2	1.7	6.1	1.7	3	2	2.8	1.7	1.2	2.8	2	3	3.2	1	2	2.6		
o-Xylene	0.87	0.74	0.43 U	1.4	0.52	1.7	0.48	0.87	0.69	1.2	0.61	0.52	1	0.74	1	1	0.38	0.74	0.043 U		

Air Samples Winter 2004

	INDOOR AIR SAMPLES																			DUPLICATE 1 (@ IA-B11-02)	DUPLICATE 2 (@ IA-B9-01)
VOC	IA-B1-01	IA-B1A-01	IA-B1A-BASE	IA-B2-01	IA-B2A-01	IA-B3-01	IA-B4-01	IA-B7-01	IA-B8-01	IA-B9-01	IA-B9-02	IA-B9-CS	IA-B10-01	IA-B10A-01	IA-B11-01	IA-B11-02	IA-B12-01	IA-B13-01	IA-B13A-01		
1,1,1-Trichloroethane	0.32	0.19	0.27 U	0.28	1.6	0.21	0.17	0.35	0.46	0.27 U	0.41 U	0.27 U	0.5	0.49	0.65	0.65	0.13	1	0.71		
1,1,2,2-Tetrachloroethane	0.14 U	0.14 U	0.34 U	0.069 U	0.21 U	0.21 U	0.069 U	0.21 U	0.21 U	0.34 U	0.51 U	0.34 U	0.34 U	0.21 U	0.51 U	0.34 U	0.069 U	0.14 U	0.21 U		
1,1,2-Trichloroethane	0.11 U	0.11 U	0.27 U	0.055 U	0.16 U	0.16 U	0.055 U	0.16 U	0.16 U	0.27 U	0.41 U	0.27 U	0.27 U	0.16 U	0.41 U	0.27 U	0.055 U	0.11 U	0.16 U		
1,1-Dichloroethane	0.081 U	0.081 U	0.2 U	0.04 U	0.12 U	0.12 U	0.04 U	0.12 U	0.12 U	0.2 U	0.3 U	0.2 U	0.2 U	0.12 U	0.3 U	0.2 U	0.04 U	0.081 U	0.12 U		
1,1-Dichloroethene	0.079 U	0.079 U	0.2 U	0.04 U	0.12 U	0.12 U	0.04 U	0.12 U	0.12 U	0.2 U	0.3 U	0.2 U	0.2 U	0.12 U	0.3 U	0.2 U	0.04 U	0.23	0.12 U		
1,2-Dichloroethane	0.28	0.14	0.2 U	0.17	0.13	0.12 U	0.04 U	0.12 U	0.32	0.2 U	0.3 U	0.2 U	0.2 U	0.15	0.3 U	0.2 U	0.04 U	0.12	0.12 U		
Benzene	1.4	0.89	1.1	1.2	0.83	1.5	0.93	2.5	1.8	2.3	5.1	1.6	3.5	2.7	3.2	3	0.51	1.5	1.2		
cis-1,2-Dichloroethene	1	0.59	0.71	0.79	0.56	0.99	0.71	1	1.3	0.2 U	3	0.95 NJ	4.4	4.8	2.5	3	0.04 U	2.1	1.5		
Ethylbenzene	1.1	0.61	0.3	0.91	0.52	1.1	0.74	2.6	2	2.7	16	1.4	6.9	2.3	3	0.21	0.74	0.56	3.5		
Tetrachloroethene	9.5	8.1	3.1	18	8.1	8.1	2.6	2.2	10	0.75	7.5	0.54	8.1	5.4	4.7	5.4	0.081	2.6	2.2		
Toluene	3.8	2.8	1.5	4.9	3	4.1	2.1	9.4	4.9	11	9.8	7.2	8.7	6	6	6	1	3.1	2.6		
trans-1,2-Dichloroethene	0.079 U	0.079 U	0.2 U	0.04 U	0.12 U	0.12 U	0.04 U	0.12 U	0.12 U	0.2 U	0.3 U	0.2 U	0.2 U	0.12 U	0.3 U	0.2 U	0.04 U	0.079 U	0.12 U		
Trichloroethene	4.8	2.1	9.1	3.2	2	3.1	2.1	5.9	4.2	15	24	75	26	19	33	42	0.28	8.6	7		
Vinyl chloride	0.051 U	0.051 U	0.13 U	0.026 U	0.077 U	0.077 U	0.026 U	0.077 U	0.077 U	0.13 U	0.19 U	0.13 U	0.13 U	0.1 NJ	0.19 U	0.13 U	0.026 U	0.051 U	0.077 U		
m-Xylene & p-Xylene	3.6	1.7	0.74	3.2	1.4	3.3	2.5	10	7.8	10	65	4.8	29	9.1	11	12	0.61	2.6	1.7		
o-Xylene	1.1	0.56	0.27	0.96	0.43	1.2	0.78	3.1	2.2	3.2	16	1.7	6.9	2.4	2.9	3	0.21	0.74	0.56		

Notes:
All values are shown in units of µg/m3 (micrograms per cubic meter).
U - Not detected - reporting limit shown
J - Estimated by data validator
T - Tentative in identification because of poor mass spectral quality
NS - Not sampled
NJ - Tentative in identification and estimated by validator because of spectral interference
VOC - Volatile organic compound

Table 4-12
2003-2004 Soil Vapor Intrusion Investigation Air Sample Analytical Data

Former Phillips Display Components Facility
Seneca Falls, New York

Air Samples Summer 2003

OUTDOOR AIR SAMPLES							
VOC	OA-B1-01	OA-B2-01	OA-B10A-01	OA-B11-01	OA-B12-01	OA-B13-01	DUP.-02 (@ OA-B2-01)
1,1,1-Trichloroethane	0.19	0.21	0.18	0.18	0.21	0.19	0.16
1,1,2,2-Tetrachloroethane	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
1,1,2-Trichloroethane	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,1-Dichloroethane	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,1-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Benzene	0.35	0.44	0.37	0.32	0.36	0.33	0.47
cis-1,2-Dichloroethene	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.15	0.056 U
Ethylbenzene	0.15	0.35	0.18	0.16	0.55	0.15	0.29
Tetrachloroethene	0.14	0.3	0.14	0.14 U	0.19	0.14	0.34
Toluene	1.4	3.2	1.6	1.4	5.7	1.7	4.4
trans-1,2-Dichloroethene	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
Trichloroethene	0.067	0.58	0.049	0.074	0.12	0.22	0.93
Vinyl chloride	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
m-Xylene & p-Xylene	0.3	1.1	0.43	0.32	0.96	0.3	0.77
o-Xylene	0.12	0.35	0.17	0.14	0.38	0.12	0.27

Air Samples Fall 2003

OUTDOOR AIR SAMPLES						
VOC	OA-B1-01	OA-B2-01	OA-B10A-01	OA-B11-01	OA-B12-01	OA-B13-01
1,1,1-Trichloroethane	0.15	0.16	0.2	0.15	0.13	0.17
1,1,2,2-Tetrachloroethane	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
1,1,2-Trichloroethane	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
1,1-Dichloroethane	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,1-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Benzene	0.32	0.38	0.35	0.3	0.32	0.31
cis-1,2-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.056
Ethylbenzene	0.12	0.13	0.12	0.091	0.18	0.087
Tetrachloroethene	0.081	0.068 U	0.075	0.068 U	0.068 U	0.13
Toluene	0.53	0.64	0.53	0.45	0.75	0.45
trans-1,2-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Trichloroethene	0.14	0.52	0.054 U	0.13	0.1	0.16
Vinyl chloride	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
m-Xylene & p-Xylene	0.29	0.35	0.29	0.26	0.52	0.23
o-Xylene	0.1	0.13	0.1	0.096	0.19	0.083

Air Samples Winter 2004

OUTDOOR AIR SAMPLES						
VOC	OA-B1-01	OA-B2-01	OA-B10A-01	OA-B11-01	OA-B12-01	OA-B13-01
1,1,1-Trichloroethane	0.12	0.12	0.12	0.11	0.12	0.11
1,1,2,2-Tetrachloroethane	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
1,1,2-Trichloroethane	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
1,1-Dichloroethane	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,1-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Benzene	0.45	0.45	0.45	0.45	0.48	0.42
cis-1,2-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Ethylbenzene	0.16	0.19	0.19	0.15	0.18	0.1
Tetrachloroethene	0.068 U	0.075	0.081	0.068	0.068 U	0.068 U
Toluene	0.79	0.9	0.94	0.68	0.9	0.57
trans-1,2-Dichloroethene	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Trichloroethene	0.081	0.81	0.075	0.12	0.091	0.054 U
Vinyl chloride	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
m-Xylene & p-Xylene	0.38	0.48	0.36	0.34	0.48	0.23
o-Xylene	0.16	0.19	0.13	0.13	0.19	0.091

Notes:

All values are shown in units of µg/m3 (micrograms per cubic meter).
U - Not detected - reporting limit shown
J - Estimated by data validator
T - Tentative in identification because of poor mass spectral quality
NS - Not sampled
NJ - Tentative in identification and estimated by validator because of spectral interference
VOC - Volatile organic compound

Table 4-13
June 2008 Building 10 Area Sub-Slab Vapor Analytical Data

Former Philips Display Facility
Seneca Falls, New York

Sample Description		BUILDING 10 SUB-SLAB VAPOR										
Sample ID		SVSS-B10-01	SVSS-B10-02	SVSS-B10-03	SVSS-B10-04	SVSS-B10-05	SVSS-B10-06	SVSS-B10-07	SVSS-B10-08	SVSS-B10-09	SVSS-B10-10	Dup of B10-10
Date Collected		6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008
Indoor PID Measurement	ppb	300	500-1000	300-500	300	300	300	300	300	600	800	800
Sub-slab PID Measurement	ppb	2800	68500	>200000	168000	16000	1700	3150	3950	2790	6500	6500
1,1,1-Trichloroethane	µg/m ³	28 U	1100 U	6000 U	7100 U	220 U	4.4 U	55 U	100 U	27 U	23 U	160 U
1,1,2,2-Tetrachloroethane	µg/m ³	35 U	1400 U	7600 U	8900 U	270 U	5.5 U	69 U	130 U	34 U	29 U	200 U
1,1,2-Trichloroethane	µg/m ³	28 U	1100 U	6000 U	7100 U	220 U	4.4 U	55 U	100 U	27 U	23 U	160 U
1,1-Dichloroethane	µg/m ³	21 U	810 U	4500 U	5300 U	160 U	3.2 U	40 U	77 U	20 U	17 U	120 U
1,1-Dichloroethene	µg/m ³	20 U	790 U	4400 U	5200 U	160 U	29	40 U	75 U	20 U	17 U	110 U
1,2-Dichloroethane	µg/m ³	21 U	810 U	4500 U	5300 U	160 U	3.2 U	40 U	77 U	20 U	17 U	120 U
Benzene	µg/m ³	16 U	640 U	3500 U	4200 U	130 U	2.6 U	32 U	61 U	16 U	13 U	93 U
cis-1,2-Dichloroethene	µg/m ³	20 U	3600	38000	12000	790	480	140	1200	750	170 J	1400 J
Ethylbenzene	µg/m ³	22 U	870 U	4800 U	5600 U	170 U	3.5 U	43 U	83 U	22 U	18 U	130 U
Tetrachloroethene	µg/m ³	35 U	1400 U	7500 U	8800 U	270 U	31	68 U	130 U	34 U	28 U	200 U
Toluene	µg/m ³	19 U	750 U	4100 U	4900 U	150 U	5.7	38 U	72 U	19 U	16 U	110 U
trans-1,2-Dichloroethene	µg/m ³	20 U	1200	22000	6700	160 U	110	40 U	75 U	21	17 U	110 U
Trichloroethene	µg/m ³	2300	160000	910000	640000	39000	380	10000	11000	4500	2800 J	25000 J
Vinyl chloride	µg/m ³	13 U	510 U	2800 U	3300 U	100 U	7.9	26 U	49 U	13 U	11 U	74 U
m-Xylene & p-Xylene	µg/m ³	56 U	2100 U	12000 U	14000 U	430 U	8.7 U	110 U	200 U	56 U	48 U	310 U
o-Xylene	µg/m ³	22 U	870 U	4800 U	5600 U	170 U	3.5 U	43 U	83 U	22 U	18 U	130 U

Sample Description		BUILDING 9 SUB-SLAB VAPOR				BUILDING 10A SUB-SLAB VAPOR		BUILDING 11 SUB-SLAB VAPOR	
Sample ID		SVSS-B9-01	SVSS-B9-02	SVSS-B9-03	SVSS-B9-04	SVSS-B10A-02	SVSS-B10A-03	SVSS-B11-02	SVSS-B11-03
Date Collected		6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008	6/18/2008
Indoor PID Measurement	ppb	500	370	370	500	450	600	290	600
Sub-slab PID Measurement	ppb	1000	800	1300	600	1700	1300	2050	19000
1,1,1-Trichloroethane	µg/m ³	1.1 U	1.1 U	2.3	1.1 U	22 U	32 U	100	480 U
1,1,2,2-Tetrachloroethane	µg/m ³	1.4 U	1.4 U	2.7 U	1.4 U	27 U	41 U	27 U	600 U
1,1,2-Trichloroethane	µg/m ³	1.1 U	1.1 U	2.2 U	1.1 U	22 U	32 U	22 U	480 U
1,1-Dichloroethane	µg/m ³	0.81 U	0.81 U	1.6 U	0.81 U	16 U	24 U	16 U	360 U
1,1-Dichloroethene	µg/m ³	0.79 U	0.79 U	1.6 U	0.79 U	16 U	23 U	16 U	350 U
1,2-Dichloroethane	µg/m ³	0.81 U	0.81 U	3.4	0.81 U	16 U	24 U	16 U	360 U
Benzene	µg/m ³	0.64 U	0.64 U	4.2	0.64 U	13 U	19 U	13 U	280 U
cis-1,2-Dichloroethene	µg/m ³	0.79 U	0.79 U	4.4	0.79 U	790	100	480	1900
Ethylbenzene	µg/m ³	0.87 U	0.87 U	12	0.87 U	17 U	26 U	17 U	380 U
Tetrachloroethene	µg/m ³	3.0	52	5.3	8.8	27 U	40 U	27 U	600 U
Toluene	µg/m ³	1.2	0.94	87	0.98	15 U	22 U	17	330 U
trans-1,2-Dichloroethene	µg/m ³	0.79 U	0.79 U	1.6 U	0.79 U	16 U	23 U	250	520
Trichloroethene	µg/m ³	15	3.5	300	11	2800	2800	3900	59000
Vinyl chloride	µg/m ³	0.51 U	0.51 U	1.0 U	0.51 U	10 U	15 U	10 U	220 U
m-Xylene & p-Xylene	µg/m ³	2.2 U	2.2 U	83	4.2	43 U	65 U	43 U	960 U
o-Xylene	µg/m ³	0.87 U	0.87 U	25	1.3	17 U	26 U	17 U	380 U

Notes:

J - Estimated by data validator
 U - Not detected. Reporting limit shown.
 PID - photoionization detector
 ppb - parts per billion
 µg/m³ - micrograms per cubic meter

Table 4-14
2004 Historical Outfalls Metals Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

		Location ID	H01-03	H01-04	H01-04	H01-05	H01-05	H01-06	H01-06	H01-07	H02-03	H02-03	H02-04
		Depth (ft)	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5
Parameter	NYSDEC Industrial Standards [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	mg/kg	7040	4760	7260	6510	5740	10800	5920	5750	5610	5530	5560
Antimony	----	mg/kg	1.7 UNJ	1.4 UNJ	1.8 UNJ	1.6 UNJ	1.6 UNJ	1.7 UNJ	1.8 UNJ	1.4 UNJ	1.9 UNJ	1.9 UNJ	3.1 UNJ
Arsenic	16 ^f	mg/kg	4.2 B	2.6 B	5.5 B	3.6 B	5.3 B	5.7 B	3.1 B	4.3 B	4.2 B	3.5 B	4.1 B
Barium	10000 ^d	mg/kg	55.3	33.4	44.5	52.4	55.5	87.6	46	44.1	85.4	62.3	103
Beryllium	2700	mg/kg	0.76 U	0.63 U	0.77 U	0.69 U	0.7 U	0.73 U	0.78 U	0.63 U	0.83 U	0.83 U	1.3 U
Cadmium	60	mg/kg	2.4 B	1.4 B	1.7 B	1.4 U	2.6 B	3.9 B	1.7 B	1.4 B	46.6	18.5	60.5
Calcium	***	mg/kg	33500	31500	46700	36000	29700	44400	32500	29600	58200	84400	89200
Chromium	800	mg/kg	11.9 UNJ	7.7 UNJ	11.4 UNJ	9.4 UNJ	10.8 UNJ	16.1 UNJ	8.8 UNJ	8.5 UNJ	18.9 UNJ	13.2 UNJ	16.2 UNJ
Cobalt	----	mg/kg	6.8	5.1	7.7	7	7	8.7	6	6.8	6.1	5.8	6
Copper	10000 ^d	mg/kg	22.8	14.5	21.7	19.2	48.7	53.3	20	16.9	52.7	32	49.9
Fluoride (F-, Anion)	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Iron	***	mg/kg	13800	9390	16800	13000	17500	21100	11200	12100	17000	12400	13100
Lead	3900	mg/kg	49.3	22	25.4	20.3	39	39.6	24.4	23.4	56.4	37.8	51.9
Magnesium	***	mg/kg	11800	9900	15100	13200	12100	16800	13200	12000	14200	16700	13500
Manganese	10000 ^d	mg/kg	323	259	496	673	468	710	492	510	440	598	780
Mercury	5.7 ^j	mg/kg	0.06 B	0.037 B	0.039 B	0.042 B	0.057	0.072	0.052 B	0.04 B	0.063	0.038 B	0.057 B
Nickel	10000 ^d	mg/kg	14.8	9.8	17	13.4	13.3	20	12.2	11.4	15.6	14.1	24.1
Percent Solids	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	mg/kg	997	636	886	928	845	1630	852	672	878	818	975
Selenium	6800	mg/kg	2.4 U	2 U	2.5 U	2.2 U	2.2 U	2.3 U	2.5 U	2 U	2.6 U	2.7 U	4.3 U
Silver	6800	mg/kg	0.49 U	0.4 U	0.49 U	0.44 U	0.45 U	0.47 U	0.5 U	0.41 U	0.53 U	0.53 U	0.86 U
Sodium	***	mg/kg	179 NJ	164 NJ	167 NJ	139 NJ	122 BNJ	185 NJ	111 BNJ	164 NJ	215 NJ	223 NJ	311 NJ
Thallium	----	mg/kg	3 U	2.5 U	3 U	2.7 U	2.8 U	2.9 U	3.1 U	2.5 U	3.3 U	3.3 U	5.3 U
Vanadium	----	mg/kg	15.4	10.7	16	12.5	14.5	21.2	12.1	12.3	12.9	11.3	13.3
Zinc	10000 ^d	mg/kg	86.6	42.2	62.5	46.4	89.4	111	53.6	44.6	281	133	288

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Industrial Soil Cleanup Objectives (ISCO).

---- = Soil Cleanup Objective not provided for specific chemical in the NYSDEC Standards

* = Laboratory quality control analyses not within control limits.

U = Not Detected

E = Estimated

J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

mg/kg = milligrams per kilogram

*** = Essential nutrients are categorically eliminated as chemical of potential concern

ppm = parts per million

d = The ISCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated ISCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 ISCO value for this use of the site.

j = This ISCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC ISCO

Table 4-14
2004 Historical Outfalls Metals Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

		Location ID	H02-05	H02-05	H02-06	H02-07	H03-02	H03-03	H03-03	H03-04	H03-04	H03-05	H03-06
		Depth (ft)	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5
Parameter	NYSDEC Industrial Standards [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	mg/kg	5290 EJ	6360	5800	6410	8610	7790 EJ	6370	10800 EJ	6380	9400 EJ	13600
Antimony	----	mg/kg	2 UNJ	2.5 UNJ	1.6 UNJ	1.3 UNJ	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.5 UNJ	1.7 UNJ	1.5 UNJ	1.7 UNJ
Arsenic	16 ^f	mg/kg	5.2 BJ	4.8 B	4.8 B	3.9 B	7 B	6.1 B	6 B	6.9 B	5.7 B	6.8 B	7.2 B
Barium	10000 ^d	mg/kg	134	124	90.8	51.4	98.2	99	81.4	128	83.5	119	763
Beryllium	2700	mg/kg	0.9 U	1.1 U	0.71 U	0.58 U	0.6 U	0.68 U	0.77 U	0.68 U	0.74 U	0.67 U	0.76 U
Cadmium	60	mg/kg	111 *	70.9	89.6	21.6	21.3	53.2 *	37.2	43.7 *	34.5	27.4 *	226
Calcium	***	mg/kg	48400 J	82100	47100	48300	66600	54000 J	104000	32500	54600	55000	28500
Chromium	800	mg/kg	19.5 UJ	16.4 UNJ	17 UNJ	10.2 UNJ	31 UNJ	13.3 U	11 UNJ	18.5 U	14.8 UNJ	16.1 U	20.5 UNJ
Cobalt	----	mg/kg	6.6	7.2	6.4	5.9	7.7	6.8	5.2	9.6	6.3	8.2	8.9
Copper	10000 ^d	mg/kg	50.3 *J	47.4	35.4	23.4	101	120 *J	70.6	77.3 *	75	63.3 *	83.1
Fluoride (F-, Anion)	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Iron	***	mg/kg	18200	15400	14600	13300	25400	18100	14900	24000	17700	21400	25900
Lead	3900	mg/kg	62.1 *J	57.4	64.6	31.8	82	69.9 *J	78.2	102 *J	105	75.2 *J	142
Magnesium	***	mg/kg	11300	13000	12800	15700	27200	12500	10600	13400	11800	14400	9180
Manganese	10000 ^d	mg/kg	1490	1150	625	533	614	516	390	757	488	622	588
Mercury	5.7 ^j	mg/kg	0.069	0.07 B	0.087	0.044	0.12	0.074	0.079	0.092	0.084	0.069	0.14
Nickel	10000 ^d	mg/kg	23.7 *NJ	21.2	21.9	14.3	45.8	29.3 *NJ	26.6	40.5 *NJ	32.6	31.8 *NJ	61.6
Percent Solids	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	mg/kg	864	1160	919	1000	1540	1320	1270	1770	1190	1590	2040
Selenium	6800	mg/kg	2.9 U	3.5 U	2.3 U	1.8 U	1.9 U	2.2 U	2.5 U	2.2 U	2.4 U	2.2 U	2.4 U
Silver	6800	mg/kg	0.57 U	0.7 U	0.78 B	0.37 U	0.38 U	0.44 U	0.49 U	0.43 U	0.47 U	0.43 U	0.49 U
Sodium	***	mg/kg	252 NJ	292 NJ	125 BNJ	100 BNJ	133 NJ	114 BNJ	155 NJ	97.7 BNJ	106 BNJ	128 NJ	157 NJ
Thallium	----	mg/kg	3.6 UNJ	4.3 U	2.8 U	2.3 U	2.4 U	2.7 UNJ	3 U	2.7 UNJ	2.9 U	2.7 UNJ	3 U
Vanadium	----	mg/kg	15.4	19	13.4	12.1	18.4	19.8	13.3	22.9	15.8	19.5	25.9
Zinc	10000 ^d	mg/kg	411 *J	321	386	145	241	223 *J	187	286 *	317	180 *	653

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Industrial Soil Cleanup Objectives (ISCO).

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E = Estimated

J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

mg/kg = milligrams per kilogram

*** = Essential nutrients are categorically eliminated as chemical of potential concern

ppm = parts per million

d = The ISCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated ISCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 ISCO value for this use of the site.

j = This ISCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC ISCO

Table 4-14
2004 Historical Outfalls Metals Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

		Location ID	H04-02	H04-02	H04-03	H04-04	H04-05	H04-06	H04-06	H04-06	H05-02	H05-03	H05-04
		Depth (ft)	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0
Parameter	NYSDEC Industrial Standards [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	mg/kg	6110 EJ	7000 EJ	7930 EJ	7650 EJ	12100 EJ	14100	13700 EJ	9310 EJ	7110 EJ	9690 EJ	4920 EJ
Antimony	----	mg/kg	1.1 UNJ	1.3 UNJ	1.3 UNJ	1 UNJ	1.5 UNJ	1.7 UNJ	1.2 UNJ	1.3 UNJ	1.2 UNJ	1.2 UNJ	1.4 UNJ
Arsenic	16 ^f	mg/kg	2.6 B	3.2 B	3.1 B	2.4 B	5.5 B	6.3 B	5.4 B	3.7 B	6.1 BJ	5.9 BJ	2.4 BJ
Barium	10000 ^d	mg/kg	32.1	208	74.5	198	126	153	148	254	67.5	83.9	44.2
Beryllium	2700	mg/kg	0.49 U	0.56 U	0.56 U	0.46 U	0.66 U	0.77 B	0.72 B	0.56 U	0.52 U	0.51 B	0.63 U
Cadmium	60	mg/kg	15.1 *	682 *	159 *	265 *	163 *	210	217 *	505 *	65.9 *	56.8 *	49.5 *
Calcium	***	mg/kg	68100 J	60900 J	65700 J	35200 J	12600 J	5870	7540 J	53800 J	42900 J	36500 J	53800 J
Chromium	800	mg/kg	10.1 U	14.7 U	12.3 U	13.3 U	18.9 U	19.3 UNJ	19 U	15 U	11.7 UJ	15 UJ	7.4 UJ
Cobalt	----	mg/kg	5.3	6.8	6.6	5.1	9.5	10.4	11.9	9	8.4	8.8	5.6
Copper	10000 ^d	mg/kg	18.7 *J	28.1 *J	20.4 *J	21.7 *J	33.9 *J	32.1	31.2 *J	18.8 *J	21.7 *J	24 *J	16.6 *J
Fluoride (F-, Anion)	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Iron	***	mg/kg	11100	12200	13100	12200	23400	25200	23800	16700	13800	18100	10100
Lead	3900	mg/kg	6.5 B*J	46 *J	13.7 *J	22.3 *J	16.5 *J	15.1	17.2 *J	30.1 *J	19.7 *J	12.6 *J	10 B*J
Magnesium	***	mg/kg	26200	19500	23500	13000	9980	5580	5990	21800	11000	12700	19200
Manganese	10000 ^d	mg/kg	377	566	399	205	409	406	420	459	414	593	476
Mercury	5.7 ^j	mg/kg	0.023 B	0.12	0.041 B	0.055	0.04 B	0.072	0.078	0.54	0.02 B	0.025 B	0.024 B
Nickel	10000 ^d	mg/kg	12 *NJ	14.9 *NJ	14.2 *NJ	13.9 *NJ	23.7 *NJ	24.5	24.6 *NJ	17.3 *NJ	14.9 *NJ	18.8 *NJ	9.8 *NJ
Percent Solids	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	mg/kg	1490	1460	2040	1240	1630	1640	1650	1720	1010	1300	692
Selenium	6800	mg/kg	1.6 U	1.8 U	1.8 U	1.5 U	2.1 U	2.4 U	1.7 U	1.8 U	1.7 U	1.6 U	2 U
Silver	6800	mg/kg	0.31 U	0.36 U	0.36 U	0.29 U	0.42 U	0.49 U	0.34 U	0.36 U	0.33 U	0.33 U	0.4 U
Sodium	***	mg/kg	155 NJ	139 NJ	152 NJ	99 NJ	76.3 BNJ	58.3 BNJ	61.4 BNJ	139 NJ	93.5 BNJ	96.2 NJ	96.2 BNJ
Thallium	----	mg/kg	1.9 UNJ	2.2 UNJ	2.2 UNJ	1.8 UNJ	2.6 UNJ	3 U	2.1 UNJ	2.2 UNJ	2.1 UNJ	2 UNJ	2.5 UNJ
Vanadium	----	mg/kg	11.6	19.7	15.8	15.5	22.5	22.3	22.3	18.7	15.5	18.3	10.2
Zinc	10000 ^d	mg/kg	73.9 *J	1830 *J	427 *J	910 *J	731 *J	442	513 *J	1400 *J	295 *J	244 *J	209 *J

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Industrial Soil Cleanup Objectives (ISCO).

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mg/kg = milligrams per kilogram

*** = Essential nutrients are categorically eliminated as chemical of potential concern

ppm = parts per million

d = The ISCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated ISCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 ISCO value for this use of the site.

j = This ISCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC ISCO

Table 4-14
2004 Historical Outfalls Metals Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

		Location ID	H05-04	H05-05	H05-06	H05-07	H06-00	H06-01	H06-01	H06-01	H06-02	H06-03	H06-03
		Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5
Parameter	NYSDEC Industrial Standards [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Aluminum	----	mg/kg	7100 EJ	7530 EJ	9240 EJ	9190 EJ	5250	6050	5270	6120	7240	7100	7240
Antimony	----	mg/kg	1.2 UNJ	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.4 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.3 UJ	1.5 UJ
Arsenic	16 ^f	mg/kg	3.8 B	5.7 BJ	3.7 BJ	3.7 BJ	3 B	3 B	2.8 B	3.1 B	3.6 B	3.6 B	3.2 B
Barium	10000 ^d	mg/kg	85.4	72	68	76	65.6	50.6	43.5	49.8	59.7	62.7	63.8
Beryllium	2700	mg/kg	0.54 U	0.61 U	0.69 U	0.77 U	0.63 U	0.62 U	0.59 U	0.62 U	0.62 U	0.56 U	0.67 U
Cadmium	60	mg/kg	115 *	104 *	48 *	59.7 *	13.6 J	1.2 UJ	1.2 UJ	9 J	9.2 J	3.7 J	8.8 J
Calcium	***	mg/kg	82500 J	33800 J	33400 J	52100 J	107000	70600	60100	66400	74300	70600	75700
Chromium	800	mg/kg	16.6 U	13.5 UJ	13.8 UJ	16 UJ	8.1 U	8.9 U	8.2 U	9.5 U	12 U	10.4 U	11.4 U
Cobalt	----	mg/kg	7.6	8.6	8.6	8.8	4.9	5.7	5.7	5.6	6.5	6.3	6
Copper	10000 ^d	mg/kg	94.3 *J	52.1 *J	24.3 *J	22.7 *J	39.9 J	21.8 J	17.9 J	30.6 J	24.6 J	22.6 J	49.5 J
Fluoride (F-, Anion)	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Iron	***	mg/kg	13100	19000	17500	17400	10400	12300	11000	12000	13900	13900	13600
Lead	3900	mg/kg	14.4 *J	17.6 *J	14.5 *J	16.4 *J	13	7.4 B	5.8 B	12.7	8 B	8.1 B	17.8
Magnesium	***	mg/kg	8740	7580	17000	17100	20600	24900	21900	26100	22600	25200	28000
Manganese	10000 ^d	mg/kg	424	380	392	439	347	431	364	387	428	394	423
Mercury	5.7 ^j	mg/kg	0.025 B	0.032 B	0.036 B	0.035 B	0.025 BNJ	0.016 UNJ	0.013 BNJ	0.033 BNJ	0.018 BNJ	0.019 BNJ	0.075 NJ
Nickel	10000 ^d	mg/kg	13.9 *NJ	16.8 *NJ	18.1 *NJ	19.3 *NJ	11.2	13	12.1	12.7	14.8	15.2	14.5
Percent Solids	----	mg/kg	--	--	--	--	--	--	--	87.1	--	--	--
Potassium	***	mg/kg	1070	961	1510	1470	1030	1220	968	1120	1350	1370	1440
Selenium	6800	mg/kg	1.7 U	2 U	2.2 U	2.5 U	2 UJ	2 UJ	1.9 UJ	2 UJ	2 UJ	1.8 UJ	2.1 UJ
Silver	6800	mg/kg	0.35 U	0.39 U	0.44 U	0.49 U	0.4 U	0.4 U	0.38 U	0.4 U	0.39 U	0.36 U	0.43 U
Sodium	***	mg/kg	96.7 BNJ	73.2 BNJ	90.8 BNJ	108 BNJ	145 J	136 J	115 J	131 J	131 J	136 J	139 J
Thallium	----	mg/kg	2.1 UNJ	2.4 UNJ	2.7 UNJ	3 UNJ	2.5 U	2.4 U	2.4 U	2.5 U	2.4 U	2.2 U	2.6 U
Vanadium	----	mg/kg	13.7	19.5	17.8	17.8	11.2	11.8	10.2	13.4	13.6	12.8	15.6
Zinc	10000 ^d	mg/kg	354 *J	423 *J	252 *J	248 *J	178	40.6 J	31	156 J	73.4	57.9	154

Notes:

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Exceeds the NYSDEC ISCO

Table 4-14
2004 Historical Outfalls Metals Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Standards [ppm]	Location ID	H06-04	H07-01	H07-02	H07-02	H07-03	H07-04	H07-05	H07-05
		Depth (ft)	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5
		Units/Date	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Aluminum	----	mg/kg	8550	10700	6810	19900	10900	8800	6470	6440
Antimony	----	mg/kg	1.5 UJ	1.7 UJ	1.2 UJ	1.8 UJ	1.6 UJ	1.6 UJ	1.2 UJ	1.3 UJ
Arsenic	16 ^f	mg/kg	4.1 B	4.3 B	3.9 B	4.7 B	4.1 B	2.7 B	3.2 B	3.2 B
Barium	10000 ^d	mg/kg	69.6	94.5	67.4	228	122	89.9	46.5	44.5
Beryllium	2700	mg/kg	0.65 U	0.76 U	0.54 U	1.2 B	0.68 U	0.69 U	0.54 U	0.56 U
Cadmium	60	mg/kg	14.5 J	93.3	1.1 UJ	13.4 J	1.4 UJ	1.4 BJ	1.1 BJ	1.1 UJ
Calcium	***	mg/kg	67500	35700 J	73800	15700	80500	71100	71900	76900
Chromium	800	mg/kg	12.7 U	15.4 U	10.2 U	24.7 U	14.6 U	12.3 U	9.8 U	9.9 U
Cobalt	----	mg/kg	7	8.9	6.7	12.9	8.1	6.2	5.8	6
Copper	10000 ^d	mg/kg	48 J	59.7 J	21.2 J	30 J	28 J	22 J	22.6 J	22.7 J
Fluoride (F-, Anion)	----	mg/kg	--	--	--	--	--	--	--	--
Iron	***	mg/kg	15400	18800	14100	29000	18100	16100	12500	12400
Lead	3900	mg/kg	16.9	36.2	6.8 B	15.4	9 B	7.7 B	6.9 B	8 B
Magnesium	***	mg/kg	27000	13700	32800	11100	22500	21900	26200	29100
Manganese	10000 ^d	mg/kg	408	382	719	972	596	312	415	383
Mercury	5.7 ^j	mg/kg	0.029 BNJ	1.2 NJ	0.043 BNJ	0.21 NJ	0.041 BNJ	0.034 BNJ	0.065 NJ	0.049 NJ
Nickel	10000 ^d	mg/kg	15.7	18.6	14.5	29.1	19.7	16.5	14.1	14.1
Percent Solids	----	mg/kg	--	--	--	--	--	--	--	--
Potassium	***	mg/kg	1620	1300	1140	2110	1690	1530	1290	1200
Selenium	6800	mg/kg	2.1 UJ	2.4 UJ	1.7 UJ	2.5 UJ	2.2 UJ	2.2 UJ	1.7 UJ	1.8 UJ
Silver	6800	mg/kg	0.42 U	0.49 U	0.34 U	0.51 U	0.44 U	0.44 U	0.35 U	0.36 U
Sodium	***	mg/kg	164 J	91.1 BJ	143 J	92.2 BJ	147 J	127 BJ	136 J	140 J
Thallium	----	mg/kg	2.6 U	3 U	2.1 U	3.1 U	2.7 U	2.7 U	2.2 U	2.2 U
Vanadium	----	mg/kg	16.7	26.1	13.1	30.1	18	16.4	11.7	11.6
Zinc	10000 ^d	mg/kg	187	692	39.2	156	50.3	44.2	45.7	43.3

Notes:

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Exceeds the NYSDEC ISCO

Table 4-15
Metals Sediment Concentrations

Former Philips Display Components Facility
Seneca Falls, New York

	Van Cleef Lake			Cayuga and Seneca Canal			Reference Location		
	Frequency of	Range of Detected	Location of	Frequency of	Range of Detected	Location of	Frequency of	Range of Detected	Location of
	Detection	Concentrations	Maximum	Detection	Concentrations	Maximum	Detection	Concentrations	Maximum
Sediment Sample (0-0.50 feet)									
<i>Inorganic Chemicals (mg/kg)</i>									
Aluminum	14 / 14	4,260 - 15,900	T10-SD2, 0-0.5	28 / 28	737 - 12,900	T3-SD1, 0-0.5	8 / 8	2,380 - 10,600	T12-SD1, 0-0.5
Arsenic	14 / 14	3.76 - 7.19	T9-SD3, 0-0.5	27 / 28	2.03 - 13.3	T3-SD1, 0-0.5	7 / 8	2.31 - 6.13	T12-SD1, 0-0.5
Cadmium	1 / 14	2.63	T9-SD4, 0-0.5	8 / 28	1.48 - 8.36	T7-SD1, 0-0.5	0 / 8	ND	--
Chromium	9 / 14	11 - 25.9	T10-SD2, 0-0.5	23 / 28	7.5 - 39.3	T5-SD1, 0-0.5	8 / 8	5.68 - 19.3	T12-SD1, 0-0.5
Copper	14 / 14	14.1 - 54.1	T10-SD2, 0-0.5	28 / 28	4.64 - 54.6	T3-SD4, 0-0.5	8 / 8	13.6 - 43.4	T11-SD2, 0-0.5
Iron	14 / 14	11,500 - 27,200	T10-SD2, 0-0.5	27 / 28	7,550 - 26,000	T3-SD1, 0-0.5	8 / 8	5,250 - 19,000	T12-SD1, 0-0.5
Manganese	14 / 14	224 - 509	T9-SD3, 0-0.5	28 / 28	142 - 349	T6-SD1, 0-0.5	8 / 8	82.5 - 389	T12-SD1, 0-0.5
Mercury	14 / 14	0.0161 - 0.655	T9-SD4, 0-0.5	27 / 28	0.0199 - 0.253	T1-SD4, 0-0.5	8 / 8	0.103 - 0.534	T11-SD4, 0-0.5
Nickel	7 / 14	15.1 - 32.3	T10-SD2, 0-0.5	26 / 28	7.31 - 56.5	T3-SD1, 0-0.5	8 / 8	7.84 - 27	T11-SD2, 0-0.5
Zinc	14 / 14	48.1 - 1,430	T9-SD4, 0-0.5	28 / 28	14.6 - 226	T2-SD2, 0-0.5	8 / 8	67.1 - 420	T11-SD4, 0-0.5
Sediment Sample (0-1 foot)									
<i>Inorganic Chemicals (mg/kg)</i>									
Aluminum	26 / 26	4,260 - 15,900	T10-SD2, 0-0.5	38 / 38	737 - 12,900	T3-SD1, 0-0.5	15 / 15	2,380 - 10,600	T12-SD1, 0-0.5
Arsenic	25 / 26	3.61 - 7.23	T8-SD2, 0.5-1	37 / 38	2.03 - 17.6	T6-SD2, 0.5-1	14 / 15	2.31 - 7.39	T12-SD4, 0.5-1
Cadmium	7 / 26	0.92 - 15.2	T8-SD3, 0.5-1	13 / 38	1.31 - 8.36	T7-SD1, 0-0.5	0 / 15	ND	--
Chromium	21 / 26	7.39 - 26.8	T10-SD2, 0.5-1	30 / 38	7.5 - 39.3	T5-SD1, 0-0.5	15 / 15	5.68 - 19.4	T12-SD4, 0.5-1
Copper	26 / 26	14.1 - 94.9	T8-SD1, 0.5-1	38 / 38	4.64 - 83.7	T6-SD2, 0.5-1	15 / 15	13.6 - 54.8	T12-SD4, 0.5-1
Iron	26 / 26	11,000 - 37,700	T8-SD1, 0.5-1	37 / 38	7,550 - 26,000	T3-SD1, 0-0.5	15 / 15	5,250 - 24,900	T12-SD4, 0.5-1
Manganese	26 / 26	181 - 536	T9-SD3, 0.5-1	38 / 38	142 - 864	T6-SD1, 0.5-1	15 / 15	82.5 - 389	T12-SD1, 0-0.5
Mercury	25 / 26	0.0161 - 0.655	T9-SD4, 0-0.5	37 / 38	0.0195 - 0.255	T4-SD2, 0.5-1	15 / 15	0.103 - 0.546	T11-SD4, 0.5-1
Nickel	17 / 26	11 - 32.3	T10-SD2, 0-0.5	35 / 38	7.3 - 56.5	T3-SD1, 0-0.5	15 / 15	7.84 - 27	T11-SD2, 0-0.5
Zinc	26 / 26	37.1 - 1,440	T8-SD3, 0.5-1	38 / 38	14.6 - 250	T5-SD2, 0.5-1	15 / 15	67.1 - 1,260	T12-SD4, 0.5-1

Notes:

New York State Department of Environmental Conservation (NYSDEC). Technical Guidance for Screening Contaminated Sediment 1994.

mg/kg = milligrams per kilogram

Table 6-1
Summary of Corrective Action Objectives

Former Philips Display Components Facility
Seneca Falls, New York

Medium	Corrective Action Objectives	AOC Applicability					Related Numerical Standards
		AOC 1 Building 2 Area	AOC 2 Building 7 Area	AOC 3 Building 11 Area	AOC 4 Soil Vapor Intrusion Pathways	AOC 5 Historical Outfalls	
Soil	- Mitigate, to the extent practicable, potential exposure to VOCs and metals in soil to match the industrial zoning of the Site. - Minimize, to the extent practicable, potential for ingestion or direct contact with COCs in soil above industrial use standards. - Minimize, to the extent practicable, the potential for inhalation of or exposure from volatilizing contaminants. - Minimize, to the extent practicable, the potential for exposure to COPECs in soil with concentrations that may result in population-level effects for ecological receptors.	Yes	Yes	Yes	No	Yes	NYSDEC ISCOs
Groundwater	- Mitigate exposure to COCs in groundwater that exceed the NYSDEC SGVs. - Mitigate exposure to COCs by restricting groundwater use. - Manage potential exposure to VOCs in groundwater under construction or utility worker scenarios. - Control or limit off-site flux of COC mass from the Site.	Yes	Yes	Yes	No	No	NYSDEC SGVs
Soil Vapor and Indoor Air	Mitigate soil vapor intrusion in buildings where sub-slab vapor and indoor air concentrations fall in the mitigate category on the NYSDOH Soil Vapor/Indoor Air Matrices.	No	No	No	Yes	No	NYSDOH Air Guideline Values; NYSDOH Soil Vapor/Indoor Air Matrix 1

Notes:

New York State Department of Environmental Conservation (NYSDEC) Class GA Standard Guidance Values (SGVs) for Groundwater

NYSDOH - New York State Department of Health

ISCOs - NYSDEC Subpart 375-6: Remedial Program Restricted Use —Industrial Soil Cleanup Objectives

COCs - Chemicals of concern

VOCs - Volatile Organic Compounds

COPECs - chemicals of potential ecological concern

Table 7-1
Preliminary Evaluation of Corrective Measure Technologies for Soil
Former Philips Display Components Facility
Seneca Falls, New York

Response Actions	Remedial Technologies	Process Options	Description	Retained: Yes or No	Decision Rationale
No Action	Not Applicable	No Action	Not Applicable	Yes	Use as a baseline for comparison to other alternatives or guidance values
Institutional Control	Not Applicable	Deed Restrictions	Deed restrictions to limit the property use and implementation of a Site Management Plan.	Yes	Minimize potential for exposure to residual concentrations.
	Not Applicable	Access Restrictions	Place access restrictions along the property boundary (i.e., fencing and signage).	Yes	Minimize potential for exposure to residual concentrations.
Containment	Infiltration Control or Capping	Soil, Asphalt and/or Concrete Cover	Prevent direct contact through the use of cover.	Yes	Most of the area with soil concentrations greater than industrial soil cleanup objectives is covered by asphalt or concrete.
	Barriers (Horizontal or Vertical)	Grout Injection	Pressure inject grout at depth to provide a low permeability confining unit and prevent migration	No	Ineffective in lower permeability soils because of distribution challenges and the lack of variability between the installed features and soil characteristics.
Removal	Excavation	Excavation	Remove soil through mechanical methods.	Yes	Applicable in areas where the soil vapor and groundwater concentrations are co-located with soil concentrations above cleanup levels.
	Extraction	SVE	Apply a vacuum to extraction wells to enhance the VOC volatilization. Recover and treat vapor.	Yes	Limited effectiveness in the low permeability soils but feasible in conjunction with other process options.
		MPE	Apply a vacuum to extraction wells to enhance fluids recovery. Treat and dispose of extracted fluids.	Yes	Limited effectiveness in the low permeability soils but feasible in conjunction with other process options.
Disposal	Disposal	On-site	Disposal or reuse of soil on-site. Generally requires treatment.	No	Not implementable because of space constraints.
		Off-site	Disposal of soil or remediation process residuals off-site.	Yes	Effective. Disposal location will depend soil concentrations. May be combined with other process options.
In-Situ Treatment	Physical	Soil Flushing	Flush soil with liquid to desorb contaminants.	No	Ineffective in lower permeability soils because of distribution and injection challenges and the need to have direct contact with the contaminant mass.
		Surfactant Flushing	Flush soil with surfactant solution to promote the desorption and solubilization of hydrophobic contaminants.	No	Ineffective in lower permeability soils because of distribution and injection challenges and the need to have direct contact with the contaminant mass.
		Thermal Treatment	Heat the subsurface. May require extraction and treatment of vapor stream.	Yes	Effective for chlorinated VOCs. Requires collection and treatment of volatilized VOCs
	Chemical	Oxidation (Injection)	Use oxidizing agent to oxidize contaminants.	No	Ineffective in lower permeability soils because of distribution and injection challenges and the need to have direct contact with the contaminant mass.
		Stabilization/ Solidification	Treatment/Fixation of soil and contaminants by mixing.	No	Ineffective in lower permeability soils because of distribution and injection challenges and the need to have direct contact with the contaminant mass.
	Biological	Enhanced Reductive Dechlorination	Inject a substrate to facilitate biodegradation of chlorinated compounds by microorganisms.	No	Ineffective in lower permeability soils because of distribution and injection challenges and the need to have direct contact with the contaminant mass.
		Bio-venting	Add oxygen to vadose zone to stimulate aerobic microorganisms for the catabolization of contaminants.	No	Ineffective in lower permeability soils because of distribution challenges. PCE and TCE do not have a viable aerobic pathway to ethane and ethene.
Ex-Situ Treatment	Physical	Soil Washing	Move of high quantities of liquids through soil to desorb contaminants.	No	Ineffective in lower permeability soils because of distribution challenges (i.e., mass being trapped in interior pore space and the need for intense mixing and breaking down of soils).
		Low-Temperature Thermal Treatment	Heat soil using a conveyor and burner system to promote the volatilization of VOCs and some SVOCs. Heat of hydration (e.g., quicklime) can also promote volatilization.	Yes	Effective. Requires collection and treatment of VOCs.
		On-site Incineration	Heat soil using a conveyor and burner system to thermally oxidize VOCs.	No	Although effective for on-site soil treatment for VOCs, the cost per unit volume of treated soil would make incineration infeasible.
	Chemical	Stabilization/ Solidification	Fixation of soil and contaminants by mixing.	Yes	Difficult to create enough plasticity in tight clays.
		Oxidation	Oxidize contaminants	Yes	Difficult to create enough plasticity in tight clays.
	Biological	Land Farming	Stockpile and till soils to promote aerobic biodegradation.	No	Not effective for contaminants that degrade under anaerobic conditions (e.g., chlorinated solvents) or metals.

Notes:

MPE Multi-Phase Extraction
VOCs Volatile Organic Compounds
SVOCs Semi-Volatile Organic Compounds
SVE Soil Vapor Extraction

Table 7-2
Preliminary Evaluation of Corrective Measure Technologies for Groundwater

Former Philips Display Components Facility
Seneca Falls, New York

Response Actions	Remedial Technologies	Process Options	Description	Retained: Yes or No	Decision Rationale
No Action	Not Applicable	Not Applicable	Not Applicable	Yes	Use as a baseline for comparison to other alternatives or regulations.
Institutional Control	Not Applicable	Deed Restrictions	Deed restrictions limiting the property use. Implement a Site Management Plan.	Yes	Minimize potential for exposure to residual concentrations
Monitoring	Groundwater Monitoring	Long-Term Groundwater Monitoring	Monitor groundwater quality.	Yes	Minimize potential for exposure to residual concentrations
		Monitored Natural Attenuation	Monitor natural attenuation parameters and groundwater quality.	Yes	Degradation daughter products indicate attenuation is occurring.
Containment	Infiltration Control or Capping	Impermeable Cover	Impermeable cover (concrete and asphalt) to minimize infiltration.	Yes	Asphalt and concrete cover used to reduce infiltration.
	Barriers (Horizontal or Vertical)	Grout Injection	Pressure Injection of grout to provide a low permeability confining unit.	No	Ineffective in lower permeability soils because of distribution challenges and the lack of variability between the installed features and the soil.
		Trenched Cut-off Wall	Low permeability wall to prevent horizontal migration of groundwater. May be combined with groundwater extraction and treatment or similar technology.	No	Minimize preferential pathways; however, groundwater extraction and hydraulic control behind the cut-off wall would be difficult to implement. Also, there would be a minimal difference in hydraulic conductivity between the glacial till and the cut-off wall.
		Sheet Piling	Sheet pile wall preventing horizontal migration of groundwater. May be combined with groundwater extraction and treatment or similar technology.	No	Ineffective in lower permeability soils because of the lack of variability between the installed sheet piles and the soils.
		Permeable Reactive Barrier or Funneling Gate	A passive treatment wall across the groundwater flow path.	No	Ineffective in lower permeability soils because of the lack of variability between the installed features and the soils and the slow natural movement of groundwater.
		Groundwater Extraction	Hydraulic containment through the extraction of groundwater from vertical wells.	No	Ineffective in lower permeability soils because of the low recovery and recharge achievable in the aquifer.
		Groundwater Recovery Trenches	Trenches, drains and piping used to passively collect groundwater.	No	Ineffective in lower permeability soils because of the low recovery and recharge achievable in the aquifer and the slow natural movement of groundwater.
In-Situ Treatment	Physical	Thermal Treatment	Subsurface heating. May require total fluids recovery, including vapor extraction and treatment of vapor stream.	Yes	Effective but requires collection and treatment of VOCs.
		Air Sparging	Strip VOCs using air injection wells.	No	Ineffective in lower permeability soils because of distribution challenges and the lack of a verifiable pathway for the air from the injection point to a point of recovery.
		In-well Stripping	Strip VOCs in a dual-screened well that controls groundwater flow.	No	Ineffective in lower permeability soils where the flow of groundwater cannot be relied upon to move a large enough portion of the mass through the target area.
	Chemical	Oxidation	Oxidize contaminants.	No	Ineffective in lower permeability soils because of distribution challenges associated with injecting the oxidant and the need to have direct contact with the chemical of concern.
		Chemical Reduction	Use a reductant or reductant generating material (i.e., zero valent iron) to degrade contaminants.	No	Ineffective in lower permeability soils because of distribution challenges associated with injecting the reagent and the need to have direct contact with the chemical of concern.
	Biological	Enhanced Reductive Dechlorination	Inject a degradable substrate to facilitate biodegradation of chlorinated compounds by microorganisms.	No	Ineffective in lower permeability soils because of distribution challenges associated with injecting the reagent.
Removal	Removal	Excavation/ Dewatering	Remove soil and/or groundwater through excavation and dewatering.	Yes	Applicable in areas where the soil and groundwater concentrations are co-located.
		MPE	Apply a moderate to high vacuum (i.e. higher than 10 mmHg) to a series of extraction wells for enhanced total fluids recovery. Requires ex-situ treatment and disposal of extracted fluids.	Yes	Not effective in low permeable soils but may be used in combination with other remedial technologies to improve effectiveness.

Table 7-2
Preliminary Evaluation of Corrective Measure Technologies for Groundwater

Former Philips Display Components Facility
Seneca Falls, New York

Response Actions	Remedial Technologies	Process Options	Description	Retained: Yes or No	Decision Rationale
Ex-Situ Treatment	Physical	Air Stripping	Transfer contaminants from an aqueous to a vapor phase. Off-gas may require additional treatment.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
		Carbon Adsorption	Remove contaminants from the aqueous or vapor phase onto activated carbon.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
	Chemical	UV/Chemical Oxidation	Destroy VOCs by changing the oxidation state of target contaminants using UV radiation and chemical oxidants.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
		Ozone	Oxidize contaminants.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
		Oxidation	Oxidize contaminants.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
	Biological	Aerobic Bioreactor	Aerobic biodegradation performed in an engineered bioreactor for contaminant removal from a process stream.	No	Ineffective technology for chlorinated VOCs.
		Anaerobic Bioreactor	Biodegradation in the absence of oxygen performed in an engineered bioreactor for contaminant removal from a process stream.	No	Long hydraulic retention times for complete mineralization of chlorinated ethenes require large reactor volumes.
		Phytoremediation/Wetlands Construction	Provide biological treatment for susceptible constituents.	No	Technically impractical because of space requirements.
Disposal/ Discharge	Disposal	POTW	Off-site discharge to a POTW.	Yes	Effective but may require on-site pretreatment and permits with the POTW.
		Treatment Facility	Off-site disposal of liquids to be containerized and treated by a second party.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
	Reuse	Facility Use	Non-potable on-site reuse of treated groundwater.	Yes	Effective and implementable technology for ex-situ groundwater treatment of VOCs.
		Reinjections	Reinject treated groundwater.	No	Ineffective in lower permeable soil
	Discharge	Surface Water Discharge	Discharge treated groundwater to the Cayuga and Seneca Canal	Yes	Effective and implementable assuming a SPDES permit can be obtained.
		Air Discharge	Discharge from air treatment system.	Yes	Granular activated carbon or air stripper can be used to achieve regulatory air discharge standards.

Notes:

MNA	Monitored Natural Attenuation
MPE	Multi-Phase Extraction
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
CVOCs	Chlorinated Volatile Organic Compounds
UV	Ultraviolet
GAC	Granulated Activated Carbon
POTW	Public Owned Treatment Works
SPDES	State Pollutant Discharge Elimination System

Table 7-3
Preliminary Evaluation of Corrective Measure Technologies for Vapor Intrusion
Former Philips Display Components Facility
Seneca Falls, New York

Response Actions	Remedial Technologies	Process Options	Description	Retained: Yes or No	Decision Rationale
No Action	Not Applicable	Not Applicable	Not Applicable	Yes	Use as a baseline for comparison to other alternatives and regulations
Institutional Control	Not Applicable	Deed Restrictions	Deed restrictions to limit the property use and implementation of a Site Management Plan.	Yes	Minimize potential for exposure to residual concentrations.
	Not Applicable	Work Restrictions	Restrict areas with elevated indoor air concentrations	Yes	Minimize potential for exposure to residual concentrations.
Containment	Building Sealing	Caulking/Sealing	Seal pathways for vapor to enter building (slab, walls, etc.) through caulking, epoxy/polymer coatings, and minor concrete repair, as necessary.	Yes	Minimize potential for exposure to residual concentrations.
		Concrete	Thicken the existing concrete pad.	Yes	Minimize potential for exposure to residual concentrations.
	Passive Barrier	Passive Barrier	Install a spray applied, polyvinyl chloride, or rubber liner during new building construction. Liner to be sealed to perimeter footings, post footings, piping and other protrusions.	Yes	Minimize potential for exposure to residual concentrations.
Mitigation	Building Pressurization	HVAC Adjustments	Keep doors closed and adjust HVAC systems to maintain a higher pressure within the building than under the slab to prevent vapors from entering.	Yes	Most buildings do not have HVAC with fresh air make up capabilities and doors are often left open.
	Air Cleaning	Filtering of Indoor Air	Install carbon filter on HVAC systems or as stand alone units to remove volatile organic compounds from the indoor air.	No	Ineffective because of building size and the large volume of indoor air to filter. Does not prevent vapors from entering the buildings.
	Passive Venting	Passive Venting	Install vent pipes from the subslab to the atmosphere.	Yes	Effective for new construction.
	SSDS	Individual Fans	Depressurize the subslab using inline fans to prevent vapors from entering the buildings.	Yes	Minimize potential for exposure to residual concentrations.
		Centralized Systems	Depressurize the subslab using a centralized blower to prevent vapors from entering the buildings.	Yes	Minimize potential for exposure to residual concentrations.
	SSVS	Individual Fans	Dilute the subslab vapors by introducing fresh air into the subslab using inlet pipes.	No	Best suited for very porous soils. Requires significant infrastructure. May increase potential for vapor intrusion.
		Centralized Systems	Dilute the subslab vapors by introducing fresh air into the subslab using inlet pipes.	No	Best suited for very porous soils. Requires significant infrastructure. May increase potential for vapor intrusion.
	SSP	Individual Fans or Centralized System	Force fresh air beneath the slab to push vapors away from the subslab.	No	Best suited for very porous soils. Requires significant infrastructure. May increase potential for vapor intrusion.
Removal	Demolition	Building Demolition	Demolish a building to remove the potential for vapor intrusion into indoor air.	Yes	Highly effective but has implementability challenges and high costs.

Notes:

HVAC Heating ventilation and air conditioning
SSDS Subslab Depressurization System
SSVS Subslab Ventilation System
SSP Subslab Pressurization

**Table 7-4
Process Options Screening for Soil
Former Philips Display Components Facility
Seneca Falls, New York**

Remedial Technologies	Process Options	Effectiveness Evaluation		Implementability Evaluation		Relative Cost Evaluation		Retained?	
Not Applicable	No Action	Low	No effect on soil concentrations. Effectiveness is attributed to the naturally occurring processes.	High	Easily implemented.	Low	No additional costs.	Yes	Use as a baseline for comparison to other alternatives
Not Applicable	Deed Restrictions	Moderate	No effect on soil concentrations. Maintaining the Site Management Plan will reduce potential exposure to residual concentrations.	High	Easily implemented.	Low	Negligible costs.	Yes	Considered in conjunction with other process options
	Access Restrictions	Moderate	Limiting site access and maintaining the Site Management Plan will reduce potential for exposure to residual concentrations.	High	Easily implemented.	Low	Negligible costs.	Yes	Considered in conjunction with other process options
Infiltration Control or Capping	Soil, Asphalt and/or Concrete Cover	Low	Prevent direct contact and rainwater infiltration using cover. Does not limit leaching to groundwater traversing the area.	Moderate	Extension of impermeable site cover (asphalt, concrete).	Moderate	Moderate capital costs and low O & M costs	Yes	Considered in conjunction with other process options. May provide limited protectiveness in areas not targeted for active remediation.
In-Situ Physical Treatment	Thermal Treatment	High	Effective at treating concentrations in soil.	Moderate	Implementation would require the installation of electrodes or heater wells. The density of the soil would need to be analyzed to determine spacing.	High	High capital cost for installation of infrastructure and off-gas treatment. High O & M costs.	Yes	Considered in conjunction with other process options and incorporates the implementation of components of MPE.
Removal	MPE	Low/ Moderate	Low permeability soils will limit the effectiveness of source mass recovery. Some increased permeability when used in connection with thermal treatment.	Low/ Moderate	Implementation would require a close well network because of low permeability soil.	Moderate	High capital cost to install MPE wells because of well spacing requirements. Moderate operations and maintenance costs.	Yes	Considered in conjunction with other process options
	SVE	Low	Low permeability soil and small vadose zone with low concentrations minimizes the effectiveness. Combine with other process option to capture vapors from the saturated zone.	Low/ Moderate	Not easily implementable because of low permeability soil.	High	High capital cost to install SVE wells in very close proximity to each other. Moderate to high operations and maintenance costs.	No	High costs and difficult implementability in comparison to other process options.
	Excavation	Moderate /High	Effective for mass removal in areas where soil is contributing to groundwater concentrations.	Moderate	Implementation would require predesign sampling to confirm treatment area. Could require the relocation of some site features.	High	Relatively high capital cost based on proposed area for treatment.	Yes	Considered in conjunction with other process options.
Ex-Situ Physical Treatment	Low-Temperature Thermal Treatment	High	Effective at treating VOCs.	Low	Requires space for the handling and treatment of excavated soils.	High	High capital cost for installation of infrastructure and off-gas treatment. High O & M costs.	No	High capital cost and difficult implementability in comparison to other process options.
Ex-Situ Chemical Treatment	Stabilization/ Solidification	Moderate	Effective for chlorinated solvents and other VOCs. Effectiveness is limited by the ability to achieve full contact with the VOCs.	Low	Implementable. Requires the use of a pug mill and addition of water to create plasticity in tight clays.	High	High capital cost for soil excavation and backfill. Not all of the material would be used as backfill and disposal would be required.	No	High capital cost and difficult implementability in comparison to other process options.
	Oxidation	Moderate	Effective at oxidizing chlorinated solvents and other VOCs. Effectiveness is limited by the ability to achieve full contact with the VOCs.	Low	Implementable. Requires the use of a pug mill and addition of water to create plasticity in tight clays.	High	High capital cost for soil excavation and backfill. Not all of the material would be used as backfill and disposal would be required.	No	High capital cost and difficult implementability in comparison to other process options.
Disposal	Disposal Off-site	High	Removes the contaminants.	Moderate	Used in conjunction with excavation. Requires coordination and acceptance of material at an off-site location.	Moderate /High	Cost dependent on the classification of the soil for disposal.	Yes	Considered in conjunction with other process options.

Notes:

MNA Monitored Natural Attenuation
MPE Multi-Phase Extraction
VOCs Volatile Organic Compounds
SVE Soil Vapor Extraction
O&M Operations & Maintenance
SSDS Sub-Slab Depressurization System

Table 7-5
Process Options Screening for Groundwater
Former Philips Display Components Facility
Seneca Falls, New York

Remedial Technologies	Process Options	Effectiveness Evaluation		Implementability Evaluation		Relative Cost Evaluation		Retained for Consideration	
Not Applicable	No Action	Low	Effectiveness, if any, is attributed to naturally occurring processes.	High	Easily implemented	Low	No additional costs.	Yes	Use as a baseline for comparison to other alternatives and regulations
Not Applicable	Deed Restrictions	Moderate	No effect on groundwater concentrations. Maintaining the Site Management Plan will reduce potential exposure to residual concentrations.	High	Easily implemented	Low	Negligible costs.	Yes	May be considered in conjunction with other process options
Groundwater Monitoring	Long-Term Monitoring	Low	Effectiveness, if any, is attributed to naturally occurring processes.	High	Easily implemented	Low	Low capital cost because of existing monitor well network. Limited long term O & M required.	Yes	May be considered in conjunction with other process options
	MNA	Low	Natural attenuation processes would require an extended timeframe to reduce concentrations to cleanup goals.	High	Degradation and bulk attenuation evident in groundwater results.	Low/ Moderate	Low capital cost because of existing monitor well network. Long term O & M required.	Yes	May be considered in conjunction with other process options.
Capping	Impermeable Cover	Moderate	Use cover to prevent direct contact and rainwater infiltration.	Moderate	May require extension of impermeable cover (i.e., asphalt, concrete)	Low/ Moderate	Moderate capital cost and low O&M cost.	Yes	May be considered in conjunction with other process options. Limited protectiveness in areas not targeted for active remediation.
Removal	Excavation/ Dewatering	Moderate /High	Effective for source mass removal in areas where soil concentrations are contributing to groundwater concentrations.	Moderate	Predesign sampling needed to confirm treatment area. Could require the relocation of some site features.	High	Relatively high capital cost based on proposed area for treatment.	Yes	May be considered in conjunction with other process options
	MPE	Low/ Moderate	Low permeability soils will limit the source mass recovery effectiveness. Some increased permeability when used with thermal treatment.	Low/ Moderate	Require a close well network because of low permeability soil.	Moderate	High capital cost to install MPE wells because of well spacing requirements. Moderate O&M costs.	Yes	May be considered in conjunction with other process options.
In-Situ Physical Treatment	Thermal Treatment	High	Effective at treating contaminants in groundwater. Effectively reach treatment goals in a short time frame.	Moderate	Require electrodes or heater wells. Utility conflicts and potential increased vapors during treatment.	High	High capital cost for installation of electrodes and off-gas treatment. High O & M costs.	Yes	May be considered in conjunction with other process options and incorporates the implementation of components of MPE.
Ex-Situ Physical Treatment	Air Stripping	High	Effective for ex-situ treatment of VOCs in groundwater.	High	Implemented using an air stripping unit.	Low	Low capital cost.	Yes	May be considered in conjunction with other process options to treat water created by the implementation of other technologies.
	Carbon Adsorption	Low	Not effective for vinyl chloride.	Low/ Moderate	Carbon can be impregnated with permanganate to improve performance but carbon absorption capacity is reduced.	Moderate /High	High infrastructure costs; moderate long-term O&M cost because of carbon regeneration.	No	Difficult to extract groundwater from low permeability soils. Increased capital and O&M costs without substantial increase in effectiveness.

**Table 7-5
Process Options Screening for Groundwater**

**Former Philips Display Components Facility
Seneca Falls, New York**

Remedial Technologies	Process Options	Effectiveness Evaluation		Implementability Evaluation		Relative Cost Evaluation		Retained for Consideration	
Ex-Situ Chemical Treatment	UV/Chemical Oxidation	Moderate /High	Moderately effective for ex-situ treatment of VOCs in groundwater	Moderate	Implementability contingent upon addressing health & safety concerns from strong oxidant.	High	Moderate capital cost; high O&M cost	No	Difficult to extract groundwater from low permeability soils. Increased capital and O&M costs without substantial increase in effectiveness.
	Ozone	Moderate /High	Moderately effective for ex-situ treatment of VOCs in groundwater. May require longer treatment time compared with other oxidation methods.	Low/ Moderate	Implementability contingent upon addressing health & safety concerns from strong oxidant. Requires production or delivery of ozone in a gaseous state.	High	High capital cost; low to moderate O&M cost	No	Difficult to extract groundwater from low permeability soils. Increased capital and O&M costs without substantial increase in effectiveness.
	Fenton's Reagent/ Hydrogen Peroxide	Moderate /High	Moderately effective for ex-situ treatment of VOCs in groundwater.	Moderate	Implementability contingent upon addressing health & safety concerns from strong oxidant.	High	Moderate capital cost; high O&M cost	No	Difficult to extract groundwater from low permeability soils. Increased capital and O&M costs without substantial increase in effectiveness.
	Potassium Permanganate	Moderate /High	Moderately effective for ex-situ treatment of VOCs in groundwater.	Moderate	Implementability contingent upon addressing health & safety concerns from strong oxidant.	High	Moderate capital cost; high O&M cost	No	Difficult to extract groundwater from low permeability soils. Increased capital and O&M costs without substantial increase in effectiveness.
Disposal	POTW	High	Requires the lowest level of treatment prior to discharge.	Moderate	Requires permitting and construction of discharge line to discharge to POTW.	Moderate	Moderate capital cost and moderate O&M cost	Yes	May be considered in conjunction with other process options
	Off-Site Disposal	High	Removes the contaminated media from the site.	Moderate	Requires acceptance from disposal facility.	High	High transport cost, disposal cost dependent on the concentrations.	Yes	May be considered in conjunction with other process options.
Reuse	Facility Use	Moderate	Effectiveness limited if the property owner needs non-potable water.	Moderate	Implementability is dictated by the property owner needs.	Moderate	Cost contingent upon current property owner's need	No	Does not offer significant benefits compared to current discharge method.
Discharge	Surface Water Discharge	High	Requires high level of treatment to meet discharge standards.	High	Implementability is dictated by SPDES permit requirements.	Low	Negligible capital cost; minimal O&M cost	Yes	May be considered in conjunction with other process options. Easy access to surface water for discharge. Additional monitoring may be required (i.e., acute toxicity limits).
	Air Discharge	High	If necessary, diverting air stripper gaseous effluent through GAC will remove most VOCs.	High	Carbon vessels can be sized and installed.	Low	Low capital cost; low O&M cost	Yes	May be considered in conjunction with other process options.

Notes:

MNA Monitored Natural Attenuation
MPE Multi-Phase Extraction
VOCs Volatile Organic Compounds
CVOCS Chlorinated Volatile Organic Compounds
ERH Enhanced Reductive Dechlorination
UV Ultraviolet
GAC Granulated Activated Carbon
POTW Public Owned Treatment Works
SPDES State Pollutant Discharge Elimination System
O&M Operations & Maintenance

**Table 7-6
Process Options Screening for Vapor Intrusion**

**Former Philips Display Components Facility
Seneca Falls, New York**

Remedial Technologies	Process Options	Effectiveness Evaluation		Implementability Evaluation		Relative Cost Evaluation		Retained for Consideration	
Not Applicable	No Action	Low	No effect on soil vapor or air concentrations	High	Requires no effort to implement.	Low	No additional costs	Yes	Use as a baseline for comparison to other alternatives.
Not Applicable	Deed Restrictions	Moderate	Placing deed restrictions and maintaining the SMP will reduce potential exposure.	High	Easily established through SMP, contingent upon owner/operator agreement.	Low	Negligible Costs	Yes	May be used in conjunction with other process options.
	Work Restrictions	Moderate	Reducing work hours and maintaining the SMP will reduce potential exposure.	High	Easily established through SMP, contingent upon owner/operator agreement.	Low	Negligible Costs	Yes	May be used in conjunction with other process options.
Building Sealing	Caulking/Sealing	Low/ Moderate	Limits the migration of sub slab air into the building.	Moderate/ High	Relatively easy to seal cracks; more difficult to seal entire slab. Access issues possible.	Low	Uses standard caulking or sealing methods.	Yes	May be used in conjunction with other process options.
	Concrete	Moderate	Apply a vacuum to enhance VOC volatilization. Recover and treat vapor at the well head.	Low	Requires building modification (raise the floor and limited access during construction).	High	High installation cost	Yes	High capital cost and difficult to implement in comparison to other process options, but will be considered in select areas and in conjunction with other technologies.
Passive Barrier	Passive Barrier	Moderate	Limits the migration of sub slab air into the building.	High	Easy to implement for new construction. Barrier is subject to damage during construction.	Low/ Moderate	Moderate initial material and installation cost (large footprint). Low cost increase relative to the building construction costs. O&M costs could include repairs during future building renovations and ongoing indoor air sampling to demonstrate effectiveness as sub-slab concentrations persists.	Yes	May be used in conjunction with other process options.
Passive Venting	Passive Venting	Moderate	Venting sub-slab vapors to atmosphere is not as effective as SSDS at reducing the potential for soil vapor intrusion. More effective if installed as part of new building construction.	Moderate	Systems can be easily installed.	Moderate	Moderate installation cost. No operating costs. Long-term O&M.	Yes	May be used in conjunction with other process options.
SSDS	Individual Fans	High	Limits the migration of sub slab air into the building. Removes mass and prevents future accumulation of mass below the slab.	Moderate	Systems can be easily installed.	Moderate	Moderate installation cost. Low operating cost. Long-term O&M.	Yes	May be used in conjunction with other process options.
	Centralized Systems	High	Limits the migration of sub slab air into the building. Removes mass present and prevents future accumulation of mass below the slab.	Moderate	Existing systems can be easily modified.	Moderate	Moderate installation cost. Use multiple low horse power blowers to keep operating costs comparable to sub-slab depressurization with individual fans.	Yes	May be used in conjunction with other process options.
Building Pressurization	HVAC Adjustments	Low	The buildings age and the heating and cooling systems limits the effectiveness of pressurization.	Moderate/ Low	Would be implementable on most of the existing systems. Would also require a change in worker habits to prevent the opening of doors.	Low	Low cost because most of the infrastructure is already in place and would only require modifications in behavior	No	Low effectiveness and difficult to implement. Building is not air tight. Pressurization is cost prohibitive and difficult to control.
Demolition	Building Demolition	High	Removes the potential indoor air exposure.	Low	Difficult to implement and requires agreement by all affected parties.	High	High demolition cost. Could require additional cost for reconstruction.	Yes	May be used in conjunction with other process options.

Notes:

ROI Radius of Influence
VOCs Volatile Organic Compounds
SSDS Subslab depressurization system
SMP Site Management Plan
O&M Operations & Maintenance

**Table 8-1
Summary of Corrective Measures Technology Options Retained**

**Former Philips Display Components Facility
Seneca Falls, New York**

Corrective Measure Technologies	Process Options	Corrective Measure Retained?				
		AOC 1 Building 2 Area	AOC 2 Building 7 Area	AOC 3 Building 11 Area	AOC 4 Soil Vapor Intrusion Pathways	AOC 5 Historical Outfalls
Not Applicable	No Action	Yes	Yes	Yes	Yes	Yes
Not Applicable	Deed, Access, and Work Restrictions	Yes	Yes	Yes	Yes	Yes
Groundwater Monitoring	Long-term Monitoring	Yes	Yes	Yes	NA	NA
	Monitored Natural Attenuation	Yes	Yes	Yes	NA	NA
Infiltration Control or Capping	Soil, Rip Rap, Asphalt and/or Concrete Cover	Yes	Yes	Yes	NA	Yes
Removal	Excavation/Dewatering	Yes	No	Yes	NA	Yes
	Multi-phase Extraction	Yes	No	Yes	NA	NA
Ex-Situ Physical Treatment	Air Stripping	Yes	No	Yes	NA	NA
In-Situ Physical Treatment	Thermal Treatment	Yes	No	Yes	NA	No
Depressurization/Venting of Sub-Slab	Sub-slab Depressurization using in-line fans	NA	NA	NA	Yes	NA
	Sub-slab Depressurization using centralized system	NA	NA	NA	Yes	NA
	Passive Venting System	NA	NA	NA	Yes	NA
Sealing/Barriers	Slab Sealing - Caulking, Polymer, Concrete	NA	NA	NA	Yes	NA
	Passive Barrier	NA	NA	NA	Yes	NA
Demolition	Building Demolition	NA	NA	NA	Yes	NA
Disposal	Publically Owned Treatment Works Discharge	Yes	No	Yes	NA	NA
	Off-site Disposal	Yes	No	Yes	NA	NA
Discharge	Surface Water Discharge	Yes	No	Yes	NA	NA
	Air Discharge	Yes	No	Yes	NA	NA

Notes:

AOC - Area of concern

NA - Not Applicable

Table 8-2
Summary of Corrective Measure Alternatives Conceptual Design Assumptions

Former Philips Display Components Facility
Seneca Falls, New York

Area of Concern 1 (Building 2 Area)	Alt. 1A	Alternative 1B	Alternative 1C	Alternative 1D
	No Action	Implement a Site Management Plan	Excavate soils that Exceed Industrial Standards and Implement a Site Management Plan	Thermal remediation of soils that Exceed Industrial Standards and Implement a Site Management Plan
	NA	<u>Site Management Plan (30+ Years)</u> • Implement deed and access restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Annual inspections to ensure institutional controls are maintained.	<u>Site Management Plan (30+ Years)</u> • Implement deed and access restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Annual inspections to ensure institutional controls are maintained. <u>Excavation (1 year)</u> • Excavate approximately 3,200 cubic yards of soil that exceed the industrial standard.	<u>Site Management Plan (30+ Years)</u> • Implement deed and access restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Annual inspections to ensure institutional controls are maintained. <u>Thermal Remediation (1 year)</u> • Implement thermal remediation in the areas of soil that exceed the industrial standard.
Area of Concern 2 (Building 7 Area)	Alt. 2A	Alternative 2B		
	No Action	Implement a Site Management Plan		
	NA	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Annual inspections to ensure institutional controls are maintained.		
Area of Concern 3 (Building 11 Area)	Alt. 3A	Alternative 3B	Alternative 3C	Alternative 3D
	No Action	Implement a Site Management Plan	Excavate Soils that Exceed Industrial Standards and Implement a Site Management Plan	Thermal remediation of Soils that Exceed Industrial Standards and Implement a Site Management Plan
	NA	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Inspect annually to ensure institutional controls are maintained.	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Inspect annually to ensure institutional controls are maintained. <u>Excavation (1 year)</u> • Excavate approximately 900 cubic yards of soil that exceed the industrial standard.	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual monitoring of site wells <u>(30+ Years)</u> • Annual inspections to ensure institutional controls are maintained. <u>Thermal Remediation (1 year)</u> • Implement thermal remediation in the areas of soil that exceed the industrial standard.
Area of Concern 4 (Soil Vapor Intrusion Pathways)	Alt. 4A	Alternative 4B	Alternative 4C	Alternative 4D
	No Action	Implement a Site Management Plan	Depressurize the Sub-Slab and Implement a Site Management Plan	Depressurize the Sub-Slab, Demolish Buildings and Implement a Site Management Plan
	NA	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual inspections to ensure institutional controls are maintained.	<u>Site Management Plan (30+ Years)</u> • Implement deed and work restrictions and institutional controls to limit site use and worker exposure. • Annual inspections to ensure institutional controls are maintained. • Indoor air sampling to confirm indoor air quality is protective of human health <u>(3 year)</u> • Operate ICM Vapor mitigation systems <u>(30+ Years)</u> <u>Sub-slab Depressurization (30+ Years)</u> • Install sub-slab depressurization systems in Buildings 1, 2, 3, 4, 6, 8, 9, and 10A. • Modify existing sub-slab depressurization systems and install additional suction pits in Buildings 7, 10, and 11. • Periodic operations and maintenance of sub-slab depressurization systems to confirm they are operating as designed.	<u>Site Management Plan (30+ Years)</u> • Implement deed and work restrictions and institutional controls to limit site use and worker exposure. • Annual inspections to ensure institutional controls are maintained. • Indoor air sampling to confirm indoor air quality is protective of human health <u>(3 year)</u> • Continued operation of ICM Vapor mitigation systems <u>(30+ Years)</u> <u>Building Demolition (2 Years)</u> • Demolition of Buildings 2 through 6 <u>Sub-slab Depressurization (30+ Years)</u> • Install sub-slab depressurization systems in Buildings 1, 8, 9, and 10A. • Modify existing sub-slab depressurization systems and install additional suction pits in Buildings 1A, 7, 10, and 11. • Periodic operations and maintenance of sub-slab depressurization systems to confirm they are operating as designed.
Area of Concern 5 (Historical Outfalls)	Alt. 5A	Alternative 5B	Alternative 5C	Alternative 5D
	No Action	Implement a Site Management Plan	Excavate soils that Exceed Industrial standards and Implement a Site Management Plan	Cap soils that Exceed Industrial standards and Implement a Site Management Plan
	NA	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site use and limit access to soil. • Annual inspections to ensure institutional controls are maintained.	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual inspections to ensure institutional controls are maintained. <u>Excavation (1 year)</u> • Excavate soils that exceed the industrial standard. (250 cubic yards)	<u>Site Management Plan (30+ Years)</u> • Implement deed restrictions and institutional controls to limit site and groundwater use and limit access to soil. • Annual inspections to ensure institutional controls are maintained. <u>Capping (1 year)</u> • Cap soils that exceed the industrial standard. (250 square feet)

**Table 8-3
Summary of Sustainability**

**Former Philips Display Components Facility
Seneca Falls, New York**

Alternative	Alternative Description	Energy	Carbon Footprint / Air Emissions	Water Consumption and Water Impacts	Land Impacts	Construction Materials and Waste Generation
AOC 1 Building 2 Area						
1A	No Action	No action not considered as part of the sustainability evaluation.				
1B	SMP	Energy Use associated with site visits for the SMP - Fuel use for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with site visits for the SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with leaving mass in place for soils.	Materials/ Waste associated with SMP - Materials and waste for sampling of groundwater
1C	Excavation and SMP	Energy Use associated with Excavation Activities and site visits for the SMP Excavation - Fuel use for operation of heavy equipment - Fuel use for transport of waste from site - Fuel use for transport of backfill to site SMP - Fuel use for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Excavation Activities and site visits for the SMP Excavation - CO ₂ and air emissions operation of heavy equipment - CO ₂ and air emissions for transport to and from site - Particulate dust emissions from earth moving activities SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with Excavation and SMP Excavation - Water use for wetting of materials during excavation - Dewatering during excavation SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with disturbing the foot print of the excavation and staging areas	Materials/Waste associated with Excavation and SMP Excavation - Waste soils from excavation - Backfill materials for excavation SMP - Materials and waste for sampling of groundwater
1D	Thermal Remediation and SMP	Energy Use associated with Thermal Remediation and site visits for the SMP Thermal Remediation - Electrical use for heating - Electrical use for recovery and treatment associated with the thermal remediation SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Thermal Remediation and site visits for the SMP Thermal Remediation - Air emissions associated with treatment of volatilized mass - CO ₂ and air emissions for transport to and from site SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with Thermal Remediation and SMP Thermal Remediation - Extraction and possible injection of water during thermal remediation SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	No land impacts associated with Thermal remediation	Material/Waste associated with Thermal Remediation and SMP Thermal Remediation - Materials use for well and system installation and abandonment - Waste creation during system installation and abandonment SMP - Materials and waste for sampling of groundwater
AOC 2 Building 7 Area						
2A	No Action	No action not considered as part of the sustainability evaluation.				
2B	SMP	Energy Use associated with site visits for the SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with site visits for the SMP - CO ₂ and air emissions for transport to and from site	Water Use/Impacts associated with SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	No land impacts associated with SMP in the Building 7 Area	Materials/ Waste associated with SMP - Materials and waste for sampling of groundwater
AOC 3 Building 11 Area						
3A	No Action	No action not considered as part of the sustainability evaluation.				
3B	SMP	Energy Use associated with site visits for the SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with site visits for the SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with leaving mass in place for soils.	Materials/ Waste associated with SMP - Materials and waste for sampling of groundwater
3C	Excavation and SMP	Energy Use associated with Excavation Activities and site visits for the SMP Excavation - Fuel use for operation of heavy equipment - Fuel use for transport of waste from site - Fuel use for transport of backfill to site SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Excavation Activities and site visits for the SMP Excavation - CO ₂ and air emissions operation of heavy equipment - CO ₂ and air emissions for transport to and from site - Particulate dust emissions from earth moving activities SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with Excavation and SMP Excavation - Water use for wetting of materials during excavation - Dewatering during excavation SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with disturbing the foot print of the excavation and staging areas	Materials/Waste associated with Excavation and SMP Excavation - Waste soils from excavation - Backfill materials for excavation SMP - Materials and waste for sampling of groundwater
3D	Thermal Remediation and SMP	Energy Use associated with Thermal Remediation and site visits for the SMP Thermal Remediation - Electrical use for heating - Electrical use for recovery and treatment associated with the thermal remediation SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Thermal Remediation and site visits for the SMP Thermal Remediation - Air emissions associated with treatment of volatilized mass - CO ₂ and air emissions for transport to and from site SMP - CO ₂ and air emissions for transport to and from site	Water Use and issues associated with Thermal Remediation and SMP Thermal Remediation - Extraction and possible injection of water during thermal remediation SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	No land impacts associated with Thermal remediation	Material/Waste associated with Thermal Remediation and SMP Thermal Remediation - Materials use for well and system installation and abandonment - Waste creation during system installation and abandonment SMP - Materials and waste for sampling of groundwater

**Table 8-3
Summary of Sustainability**

**Former Philips Display Components Facility
Seneca Falls, New York**

Alternative	Alternative Description	Energy	Carbon Footprint / Air Emissions	Water Consumption and Water Impacts	Land Impacts	Construction Materials and Waste Generation
AOC 4 Soil Vapor Intrusion Pathways						
4A	No Action	No action not considered as part of the sustainability evaluation.				
4B	Sub-Slab Depressurization System (SSDS) and SMP	Energy Use associated with operation of the SSDS and site visits for the SMP SSDS - Electrical use for operation of the SSDS SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with SSDS and regular site visits for the SMP SSDS - Air emissions associated with treatment of volatilized mass - CO2 and air emissions for transport to and from site SMP - CO2 and air emissions for transport to and from site	No water use or issues associated with operation of the SSDS or the AOC 4 portion of the SMP	Land impacts associated with possible disturbed area for system installation	Material/Waste associated with SSDS and SMP SSDS - Materials use for system installation and abandonment SMP - Materials and waste for sampling of groundwater
4C	Building Demolition, SSDS and SMP	Energy Use associated with Building Demolition, operation of the SSDS and site visits for the SMP Building Demolition - Fuel use for operation of heavy equipment - Fuel use for transport of waste from site SSDS - Electrical use for operation of the SSDS SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Building Demolition, SSDS and site visits for the SMP Demolition - CO2 and air emissions operation of heavy equipment - CO2 and air emissions for transport to and from site - Particulate dust emissions from demolition activities SSDS - Air emissions associated with treatment of volatilized mass - CO2 and air emissions for transport to and from site SMP - CO2 and air emissions for transport to and from site	No water use or issues associated with operation of the SSDS or the AOC 4 portion of the SMP Water Use/Impacts associated with Building Demolition - Water use for wetting of materials during demolition	Land impacts associated with disturbing the foot print of the buildings, proposed areas of system installation and staging areas	Material/Waste associated with Building Demolition, SSDS and SMP Demolition - Waste materials from demolition SSDS - Materials use for system installation and abandonment SMP - Materials and waste for sampling of groundwater
AOC 5 Historic Outfalls						
5A	No Action	No action not considered as part of the sustainability evaluation.				
5B	SMP	Energy Use associated with site visits for the SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with site visits for the SMP - CO2 and air emissions for transport to and from site	Water Use and issues associated with SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with leaving mass in place for soils.	Materials/ Waste associated with SMP - Materials and waste for sampling of groundwater
5C	Excavation and SMP	Energy Use associated with Excavation Activities and site visits for the SMP Excavation - Fuel use for operation of heavy equipment - Fuel use for transport of waste from site - Fuel use for transport of backfill to site SMP - Fuel usage for transport to and from site - Electrical/Fuel use for sampling equipment operation	Emissions associated with Excavation Activities and site visits for the SMP Excavation - CO2 and air emissions operation of heavy equipment - CO2 and air emissions for transport to and from site - Particulate dust emissions from earth moving activities SMP - CO2 and air emissions for transport to and from site	Water Use and issues associated with Excavation and SMP Excavation - Water use for wetting of materials during excavation - Dewatering during excavation SMP - Extraction of groundwater for sampling - Extended period of impacts to groundwater	Land impacts associated with disturbing the foot print of the excavation and staging areas	Materials/Waste associated with Excavation and SMP Excavation - Waste soils from excavation - Backfill materials for excavation SMP - Materials and waste for sampling of groundwater
5D	Capping and SMP	Energy Use associated with Capping Activities and site visits for the SMP Capping - Fuel use for operation of heavy equipment - Fuel use for transport of capping materials to site SMP - Fuel usage for transport to and from site	Emissions associated with Capping Activities and site visits for the SMP Capping - CO2 and air emissions operation of heavy equipment - CO2 and air emissions for transport to and from site SMP - CO2 and air emissions for transport to and from site	No water use or issues associated with Capping	Land impacts associated with disturbing the foot print of the capping and staging areas	No Materials/Waste associated with Capping

**Table 8-4
Summary of Costs**

**Former Philips Display Components Facility
Seneca Falls, NY**

Remedial Alternative	Description	Capital Cost (\$)	Annual O&M Cost (\$)	Length of Remedy (Years)	Total Cost (\$)
AOC 1 Building 2 Area					
Alternative AOC 1A	No Action	\$ -	\$ -	-	\$ -
Alternative AOC 1B	Site Management Plan	\$ 35,000	\$ 7,900	30	\$ 272,000
Alternative AOC 1C	Excavation	\$ 1,743,000	\$ -	0.5	\$ 2,015,000
	Site Management Plan	\$ 35,000	\$ 7,900	30	
Alternative AOC 1D	Thermal Remediation	\$ 2,911,000	\$ -	1	\$ 3,183,000
	Site Management Plan	\$ 35,000	\$ 7,900	30	
AOC 2 Building 7 Area					
Alternative AOC 2A	No Action	\$ -	\$ -	-	\$ -
Alternative AOC 2B	Site Management Plan	\$ 35,000	\$ 7,900	30	\$ 272,000
AOC 3 Building 11 Area					
Alternative AOC 3A	No Action	\$ -	\$ -	-	\$ -
Alternative AOC 3B	Site Management Plan	\$ 35,000	\$ 7,900	30	\$ 272,000
Alternative AOC 3C	Excavation	\$ 598,000	\$ -	0.5	\$ 870,000
	Site Management Plan	\$ 35,000	\$ 7,900	30	
Alternative AOC 3D	Thermal Remediation	\$ 1,065,000	\$ -	1	\$ 1,337,000
	Site Management Plan	\$ 35,000	\$ 7,900	30	
AOC 4 Soil Vapor Intrusion Pathways					
Alternative AOC 4A	No Action	\$ -	\$ -	-	\$ -
Alternative AOC 4B	Site Management Plan	\$ 155,000	\$ 2,200	30	\$ 221,000
Alternative AOC 4C	SSD	\$ 560,000	\$ 88,500	30	\$ 3,436,000
	Site Management Plan	\$ 155,000	\$ 2,200	30	
Alternative AOC 4D	Building Demolition	\$ 2,160,000	\$ -	2.0	\$ 5,112,000
	SSD	\$ 388,000	\$ 78,100	30	
	Site Management Plan	\$ 155,000	\$ 2,200	30	
AOC 5 Historical Outfalls					
Alternative AOC 5A	No Action	\$ -	\$ -	-	\$ -
Alternative AOC 5B	Site Management Plan	\$ 35,000	\$ 2,200	30	\$ 101,000
Alternative AOC 5C	Excavation	\$ 59,000	\$ -	0.5	\$ 160,000
	Site Management Plan	\$ 35,000	\$ 2,200	30	
Alternative AOC 5D	Capping	\$ 35,000	\$ -	0.5	\$ 136,000
	Site Management Plan	\$ 35,000	\$ 2,200	30	

Notes:

AOC = Area of Concern

O&M = Operation and Maintenance

SSD = Sub-Slab Depressurization

USEPA = United States Environmental Protection Agency

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA 2000)

Table 8-5
Summary of Alternatives for Area of Concern 1 Building 2 Area

Former Philips Display Components Facility
Seneca Falls, New York

Alternative	Description	Balancing Criteria					
		Long - Term Effectiveness	Reduction in TMV of Wastes	Short - Term Effectiveness	Implementability	Sustainability	Cost
Area of Concern 1							
1A	No Action	Not an effective alternative.	Does not reduce the TMV of wastes.	Not an effective alternative.	Requires no implementation.	Sustainable, but includes no active remediation or monitoring.	No costs.
1B	Implementation of a Site Management Plan	- An effective alternative; should not be affected by site conditions. - Institutional and engineered components of the Site Management Plan have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations site wide reach standards. - Maintaining Institutional controls reduces potential exposure.	- A passive alternative. - Has no effect on groundwater concentrations so reductions in toxicity and volume are attributed to the naturally occurring processes. - Natural limitations on mobility exist because of the low hydraulic conductivity of the soil but no additional reduction in mobility can be attributed to Alternative 1B.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the short-term for achieving standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- No construction necessary. - SMP requires minimal administrative activities. - Does not require off-site treatment or storage. - Minimal disposal of purge water associated with annual sampling will be required. - Does not require special technologies. - Long timeframe is expected for naturally occurring processes to achieve the standards.	- Requires the extended creation of waste during sampling and consumption of fuel for site visits over the long life span of the remedy. - Has the longest useful life (compared to other alternatives) which extends the environmental burden of the remedy (i.e. materials, fuel, etc. are used for a long period of time).	Capital Cost = \$35,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$272,000
1C	Excavation of soils that Exceed Industrial standards with Implementation of a Site Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations site wide reach standards. - Excavation should shorten the timeframe to reach standards. - Excavation removes the mass from the area eliminating the portion of mass that is in the planned excavation. - Maintaining Institutional controls reduces potential exposure.	- An active treatment alternative. - Removal of soil and groundwater results in an immediate reduction in mass and will reduce the toxicity below the industrial standard in soils and will improve progress toward groundwater standards. - Removal of the soils and water that enters the excavation eliminates the volume and mobility of the chemicals of concern sorbed to soils and dissolved in the dewatered groundwater.	- Poses minimal risk to the public, and the environment. - Some risk is posed to the workers through the use of heavy equipment and the depth of excavation required to reach the volatile organic compound-containing soil. - Effective in the short-term for achieving soil standards or guidance values however groundwater concentrations will persist. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Excavation requires both administrative activities and construction. - Requires off-site treatment, storage, or disposal of soil and groundwater removed from the excavated area. - Requires shoring for deep excavation. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities. - Expected wastes include the excavated soil, water from the excavation, and purge water. - Shorter timeframe is expected for the reduction of contaminants.	- Uses large-scale fuel-powered construction equipment with high energy requirements and elevated air emissions. - Excavation involves the generation of considerable amounts of waste materials and the use of materials and resources for construction and restoration. - Movement of soil requires truck transport of soil to the disposal site. - The effectiveness of the excavation reduces the expected length of the remedy eliminating long term energy use and water consumption. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$1,778,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$2,015,000
1D	Thermal remediation of soils that Exceed Industrial standards with Implementation of a Site Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations site wide reach standards. - Thermal remediation should shorten the timeframe to reach standards. - The mass is destroyed or removed as part of thermal remediation. - Maintaining Institutional controls reduces the potential exposure to residual concentrations.	- An active treatment alternative. - Thermal remediation would result in permanent destruction of mass reducing toxicity below the industrial standards in soils and improving progress toward groundwater standards. - Destruction of mass in soils and groundwater eliminates the volume and mobility of the chemicals of concern sorbed to soils and dissolved in the groundwater.	- Poses minimal risk to the public, and the environment. - Some risk to the workers from the elevated temperatures and the volatilized chemicals of concern in soil vapors. - Risk is minimized through the use of personal protective equipment and engineered controls. - Effective in the short-term for reducing mass and achieving standards. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Well and electrode installation and temporary system construction are necessary to implement the thermal treatment. - Requires off-site treatment, storage, or disposal of groundwater removed from the heated area. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities. - Expected wastes include the soil from well installation, purge water during monitoring, and extracted groundwater. - Shorter timeframe is expected for the reduction of contaminants.	- Uses high energy requirements to achieve technical implementation. - Thermal remediation creates water consumption, air emissions, and waste generation during the active period as part of waste management. - Installation of the system will require the operation of fuel-powered equipment over a short duration. - The effectiveness of the thermal treatment reduces the expected length of the remedy eliminating long term energy use and water consumption. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$2,936,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$3,183,000

Notes:
TMV Toxicity, mobility and volume

Table 8-6
Summary of Alternatives for Area of Concern 2 Building 7 Area

Former Philips Display Components Facility
Seneca Falls, New York

Alternative	Description	Balancing Criteria					
		Long - Term Effectiveness	Reduction in TMV of Wastes	Short - Term Effectiveness	Implementability	Sustainability	Cost
Area of Concern 2							
2A	No Action	Not an effective alternative.	Does not reduce the TMV of wastes.	Not an effective alternative.	Requires no implementation.	Sustainable, but includes no active remediation or monitoring.	No costs.
2B	Implementation of a Site Management Plan	- An effective alternative; should not be affected by site conditions. - Institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations site wide reach standards. - Maintaining Institutional controls reduces potential exposure to residual concentrations.	- A passive alternative. - Has no effect on groundwater concentrations so reductions in toxicity and volume are attributed to naturally occurring processes. - Natural limitations on mobility exist because of the low hydraulic conductivity of the soil but no additional reduction in mobility can be attributed to Alternative 2B.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the short-term for achieving standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- No construction necessary. - SMP requires minimal administrative activities. - Does not require off-site treatment or storage. Minimal disposal of purge water associated with annual sampling will be required. - Does not require special technologies. - Long timeframe is expected for naturally occurring processes to achieve the standards.	- Requires the extended creation of waste during sampling and consumption of fuel for site visits over the long life span of the remedy. - Has a long useful life which extends the environmental burden of the remedy (i.e. materials, fuel, etc. are used for a long period of time).	Capital Cost = \$35,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$272,000

Notes:
TMV Toxicity, mobility and volume

Table 8-7
Summary of Alternatives for Area of Concern 3 Building 11 Area

Former Philips Display Components Facility
Seneca Falls, New York

Alternative	Description	Balancing Criteria					
		Long - Term Effectiveness	Reduction in TMV of Wastes	Short - Term Effectiveness	Implementability	Sustainably	Cost
Area of Concern 3							
3A	No Action	Not an effective alternative.	Does not reduce the TMV of wastes.	Not an effective alternative.	Requires no implementation.	Sustainable, but includes no active remediation or monitoring.	No costs.
3B	Implementation of a Se Management Plan	- An effective alternative; should not be affected by site conditions. - Institutional and engineered components of the Site Management Plan have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations site wide reach standards. - Maintaining Institutional controls reduces potential exposure.	- A passive alternative. - Has no effect on groundwater concentrations so reductions in toxicity and volume are attributed to the naturally occurring processes . - Natural limitations on mobility exist because of the low hydraulic conductivity of the soil but no additional reduction in mobility can be attributed to Alternative 3B.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the short-term for achieving standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- No construction necessary. - SMP requires minimal administrative activities. - Does not require off-site treatment or storage. Minimal disposal of purge water associated with annual sampling will be required. - Does not require special technologies. - Long timeframe is expected for naturally occurring processes to achieve the standards.	- Requires the extended creation of waste during sampling and consumption of fuel for site visits over the long life span of the remedy. - Has the longest useful life (compared to other alternatives) which extends the environmental burden of the remedy (i.e. materials, fuel, etc. are used for a long period of time).	Capital Cost = \$35,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$272,000
3C	Excavation of soils that Exceed Industrial standards with Implementation of a Site Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations site wide reach standards. - Excavation should shorten the timeframe to reach standards. - Excavation removes the mass from the area eliminating the portion of mass that is in the planned excavation - Maintaining Institutional controls reduces potential exposure.	- An active treatment alternative. - Removal of soil and groundwater resultsi in an immediate reduction in mass and will reduce the toxicity below the industrial standard in soils and will improve progress toward groundwater standards. - Removal of the soils and water that enters the excavation eliminates the volume and mobility of the chemicals of concern sorbed to soils and dissolved in the dewatered groundwater.	- Poses minimal risk to the public, and the environment. - Some risk is posed to the workers through the use of heavy equipment and the depth of excavation required to reach the volatile organic compound-containing soil. - Effective in the short-term for achieving soil standards or guidance values however groundwater concentrations will persist. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Excavation requires both administrative activities and construction. - Requires off-site treatment, storage, or disposal of soil and groundwater removed from the excavated area. - Requires shoring for deep excavation. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities. Expected wastes include the excavated soil, water from the excavation, purge water during monitoring, and sheetpiling, if it can't be re-used. - Shorter timeframe is expected for the reduction of	- Uses large-scale fuel-powered construction equipment with high energy requirements and elevated air emissions. - Excavation involves the generation of considerable amounts of waste materials and the use of materials and resources for construction and restoration. - Movement of soil requires truck transport of soil to the disposal site. - The effectiveness of the excavation reduces the expected length of the remedy eliminating long term energy use and water consumption. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$624,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$870,000
3D	Thermal remediation of soils that Exceed Industrial standards with Implementation of a Se Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations site wide reach standards. - Thermal remediation should shorten the timeframe to reach standards. - The mass is destroyed or removed as part of thermal remediation. - Maintaining Institutional controls reduces the potential exposure to residual concentrations.	- An active treatment alternative. - Thermal remediation would result in permanent destruction of mass reducing toxicity below the industrial standards in soils and improving progress toward groundwater standards. - Destruction of mass in soils and groundwater eliminates the volume and mobility of the chemicals of concern sorbed to soils and dissolved in the groundwater.	- Poses minimal risk to the public, and the environment. - Some risk to the workers from the elevated temperatures and the volatilized chemicals of concern in soil vapors. - Risk is minimized through the use of personal protective equipment and engineered controls. - Effective in the short-term for reducing mass and achieving standards. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Well and electrode installation and temporary system construction are necessary to implement the thermal treatment. - Requires off-site treatment, storage, or disposal of groundwater removed from the heated area. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities. Expected wastes include the soil from well installation, purge water during monitoring, and extracted groundwater. - Shorter timeframe is expected for the reduction of contaminants.	- Uses high energy requirements to achieve technical implementation. - Thermal remediation creates water consumption, air emissions, and waste generation during the active period as part of waste management. - Installation of the system will require the operation of fuel-powered equipment over a short duration. - The effectiveness of the thermal treatment reduces the expected length of the remedy eliminating long term energy use and water consumption. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$1,100,000 Annual operations and maintenance Cost = \$7,900 Total Cost (30 years) = \$1,337,000

Notes:
TMV Toxicity, mobility and volume
SMP Site Management Plan

Table 8-8
Summary of Alternatives for Area of Concern 4 Soil Vapor Intrusion

Former Philips Display Components Facility
Seneca Falls, New York

Alternative	Description	Balancing Criteria					
		Long - Term Effectiveness	Reduction in TMV of Wastes	Short - Term Effectiveness	Implementability	Sustainability	Cost
Area of Concern 4							
4A	No Action	Not an effective alternative.	Does not reduce the TMV of wastes.	Not an effective alternative.	Requires no implementation.	Sustainable, but includes no active remediation or monitoring.	No costs.
4B	Implementation of a Se Management Plan	- An effective alternative; should not be affected by site conditions. - Institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations site wide reach standards. - Maintaining institutional controls reduces potential exposure to residual concentrations.	- A passive alternative. - Has no effect on vapor concentrations so reductions in toxicity and volume are attributed to the naturally occurring processes. - Natural limitations on mobility exist because of the low hydraulic conductivity of the soil but no additional reduction in mobility can be attributed to Alternative 3B.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the short-term for achieving standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- No construction necessary. - Requires minimal administrative activities. - Does not require off-site treatment or storage. Minimal disposal of purge water associated with annual sampling may be required. - Does not require special technologies.	- Requires the extended creation of waste during sampling and consumption of fuel for site visits over the long life span of the remedy. - Has the longest useful life (compared to other alternatives) which extends the environmental burden of the remedy (i.e. materials, fuel, etc. are used for a long period of time).	Capital Cost = \$155,000 Annual operations and maintenance Cost = \$2,200 Total Cost (30 years) = \$221,000
4C	Sub-Slab Depressurization with Implementation of a Site Management Plan	- An effective alternative; should not be affected by site conditions. - Institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations reach standards.	- An active alternative. - Reduces mobility of volatilized mass into the buildings. - Reduces the volume of volatile organic compound mass in indoor air. - Reduces toxicity of indoor air by reducing the potential for soil vapor intrusion.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the immediate short-term for achieving standards or guidance values though SMP measures will provide protectiveness. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Sub-slab depressurization systems require both administrative activities and construction to execute. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities.	- Requires the extended creation of waste during sampling, consumption of electricity to run the systems and consumption of fuel for site visits.	Capital Cost = \$715,000 Annual operations and maintenance Cost = \$90,700 Total Cost (30 years) = \$3,436,000
4D	Sub-Slab Depressurization and Building Demolition with Implementation of a Site Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations reach standards.	- An active alternative. - Reduces mobility of volatilized mass into the buildings. - Removes the volume of volatile organic compound mass in indoor air. - Reduces toxicity of indoor air by reducing the potential for soil vapor intrusion.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the immediate short-term for achieving standards or guidance values though SMP measures will provide protectiveness. - Demolition of Buildings 2 through 6 will eliminate the potential for soil vapor intrusion in these buildings. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and moderate threats associated with remediation.	- Sub-slab depressurization systems require both administrative activities and construction to execute. - Building Demolition requires both administrative activities and construction to execute. - No construction is necessary to implement the SMP - SMP requires minimal administrative activities.	- Requires the extended creation of waste during sampling, consumption of electricity to run the systems and consumption of fuel for site visits. - Uses large-scale fuel-powered demolition equipment with high energy requirements and elevated air emissions. - Demolition involves the generation of considerable amounts of waste materials and the use of materials and resources for restoration.	Capital Cost = \$2,703,000 Annual operations and maintenance Cost = \$80,300 Total Cost (30 years) = \$5,112,000

Notes:
TMV Toxicity, mobility and volume
SMP Site Management Plan

Table 8-9
Summary of Alternatives for Area of Concern 5 Historical Outfalls

Former Philips Display Components Facility
Seneca Falls, New York

Alternative	Description	Balancing Criteria					
		Long - Term Effectiveness	Reduction in TMV of Wastes	Short - Term Effectiveness	Implementability	Sustainability	Cost
Area of Concern 5							
5A	No Action	Not an effective alternative.	Does not reduce the TMV of wastes.	Not an effective alternative.	Requires no implementation.	Sustainable, but includes no active remediation or monitoring.	No costs.
5B	Implementation of a Site Management Plan	- An effective alternative. - Institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until soil and groundwater concentrations site wide reach standards. - Maintaining Institutional controls reduces the potential exposure to residual concentrations.	- A passive alternative. - Has no effect on groundwater concentrations so reductions in toxicity and volume are attributed to the naturally occurring processes. - Natural limitations on mobility exist because of the nature of the soil but no additional reduction in mobility can be attributed to Alternative 5B.	- Poses minimal risk to the public, workers, and the environment during implementation. - Not effective in the short-term for achieving standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- No construction necessary. - SMP requires minimal administrative activities. - Does not require off-site treatment or storage. Minimal disposal of purge water associated with annual sampling will be required. - Does not require special technologies. - Long timeframe is expected for naturally occurring processes to achieve the standards.	- Requires the extended creation of waste during sampling and consumption of fuel for site visits over the long life span of the remedy. - Has the longest useful life (compared to other alternatives) which extends the environmental burden of the remedy (i.e. materials, fuel, etc. are used for a long period of time).	Capital Cost = \$35,000 Annual operations and maintenance Cost = 2,200 Total Cost (30 years) = \$101,000
5C	Excavation of soils that Exceed Industrial Standards with Implementation of a Site Management Plan	- An effective alternative. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Residual risk remains until groundwater concentrations site wide reach standards. - Excavation should shorten the timeframe to reach standards and removes the residual risk associated with soil concentrations. - Excavation removes the mass from the area eliminating the portion of mass planned excavation - Maintaining Institutional controls reduces the potential exposure to residual concentrations.	- An active treatment alternative. - Removal of soil and groundwater is an immediate reduction in mass and will reduce the toxicity below the industrial standard in soils and improve progress toward groundwater standards. - Removal of the soils and water that enters the excavation eliminates the volume and mobility of the chemicals of concern sorbed to soils and dissolved in the dewatered groundwater.	- Poses minimal risk to the public, and the environment. - Some risk is posed to the workers through the use of heavy equipment and steep slope. - Effective in the short-term for achieving soil standards or guidance values. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Excavation requires both administrative activities and construction. - Requires off-site treatment, storage, or disposal of soil and groundwater removed from the excavated area. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities. - Shorter timeframe is expected for the reduction of contaminants.	- Uses large-scale fuel-powered construction equipment with high energy requirements and elevated air emissions. - Excavation involves the generation of considerable amounts of waste materials and the use of materials and resources for construction and restoration. - Movement of soil requires truck transport of soil to the disposal site. - The effectiveness of the excavation reduces the expected length of the remedy eliminating long term energy use and water consumption. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$94,000 Annual operations and maintenance Cost = \$2,200 Total Cost (30 years) = \$160,000
5D	Capping of soils that Exceed Industrial Standards with Implementation of a Site Management Plan	- An effective alternative at reducing exposures. - The institutional and engineered components of the SMP have a long useful life with routine operations and maintenance. - Does not remove or treat contaminant mass but does prevent exposure. - Maintaining Institutional controls reduces the potential exposure to residual concentrations.	- An active alternative that prevents exposures. - The chemicals of concern in the soil would become immobile. - The toxicity of the soil and volume of soil containing chemicals of concern greater than industrial standards will not be reduced; however, the potential for exposue would be negligible.	- Poses minimal risk to the public, and the environment. - Some risk is posed to the workers through the use of heavy equipment and steep slope. - Effective immediately for preventing exposures. - Minimal contaminant-related risk of fire, exposure to hazardous substances, and minimal threats associated with remediation.	- Capping requires both administrative activities and construction to execute. - The time for beneficial results is immediate. - No construction is necessary to implement the SMP. - SMP requires minimal administrative activities.	- Potentially requires large-scale fuel-powered construction equipment with high energy requirements and elevated air emissions. - Capping involves minimal generation of waste. - Capping requires use of materials and resources for construction and restoration. - Movement of capping materials requires truck transport of materials to the site. - SMP requires fuel consumption and waste generation throughout the length of the remedy.	Capital Cost = \$70,000 Annual operations and maintenance Cost = \$2,200 over the 30 year period Total Cost (30 years) = \$136,000

Notes:
TMV Toxicity, mobility and volume
SMP Site Management Plan

**Corrective Measures Study Report
Appendix A:**

**Historical Outfall Sediment
Sampling Results and Fish and
Wildlife Resource Impact
Assessment Report**

Former Philips Display Components Facility
Seneca Falls, New York

June 2013



**Corrective Measures Study
Report Appendix A:
Historical Outfall Sediment
Sampling and Fish and Wildlife
Resource Impact Assessment
Report**

Former Philips Display
Components Facility

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- A Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data – May 2005
- B Cross Sections of Selected Metals Results
- C Graphs of Mean Metals Concentrations
- D Graphs of Surface Sediment Results
- E Graphs of Correlated Sediment Results

This Historical Outfall Sediment Sampling (HOSS) and Fish and Wildlife Resource Impact Assessment (FWRIA) Report, presents the Van Cleef Lake and the Cayuga and Seneca Canal (also referred to as the Seneca River and Barge Canal) sediment evaluation results and a FWRIA at the former Philips Display Components Facility (site).

Soil quality in the ravines downgradient of the historical outfalls was assessed in 2000 during the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) (URS 2002) and in 2004 as part of an *RFI Addendum* (Malcolm Pirnie 2004). Sediment quality was evaluated through the collection and analysis of 48 surficial sediment samples and 69 sediment samples at depths of up to 4 feet along transects in the lake and canal. Reference sediment samples, which were collected upstream of and at the mouth of Van Cleef Lake, were analyzed to establish background sediment quality.

Analytical results indicate that background sediment quality in Van Cleef Lake and the Seneca and Cayuga Canal upstream of the site is poor. Upstream reference samples contained nickel, copper, and mercury at concentrations that exceeded the respective New York State Department of Environmental Conservation (NYSDEC) Technical Guidance for Screening Contaminated Sediments (NYSDEC 1999b) Lowest Effects Level (LEL), and concentrations of zinc exceeding the Severe Effects Level (SEL). Relatively high concentrations of zinc, nickel, copper, and mercury in reference sample locations shows that the sources of these metals are not associated with former site activities. Similarly, evidence of historical petroleum releases was present in samples throughout Van Cleef Lake and is not associated with former site activities.

Sediment in limited areas in the northeastern portion of the lake and the northern shore of the canal downgradient of the Seneca Falls Dam (between the lake and canal) contained metals that (with the exception of cadmium) are present at concentrations similar to those in reference samples. A subset of sediment samples collected in these areas contained cadmium concentrations greater than in reference samples. Cadmium-containing sediment in Van Cleef Lake, including in reference locations, is buried beneath sediment that contains lower or no detectable levels of cadmium.

Aquatic resources identified in these areas were typical of moderately impaired waterways, and no threatened or endangered animal or plant species are known to be present at or near the site. Fish and wildlife that live in or use the lake and canal are not likely to come in contact with buried cadmium-containing sediments. Exposure to

other metals (and petroleum-related compounds) from sources upstream of the site carries a greater potential to affect aquatic resources.

As part of the FWRIA, field surveys were performed to map and describe plant communities and aquatic resources, observe wildlife species, identify ecological resources, and observe stress (if any) to plants and animals near seven site historical outfalls (HOs). The outfalls were abandoned and grouted in place in the 1970s.

The ravine soil investigations and FWRIA results indicate that no significant threats to terrestrial resources exist near the HOs. The type of habitats or cover types in the HO ravines are present elsewhere on the site and the ravines make up a small percent of the total area of each cover type. Therefore, the value of terrestrial resources in the areas of former overland discharge from the HOs is limited.

Based on these data, subsequent steps of the FWRIA, further evaluation of soil/sediment quality, or evaluation of or implementation of corrective measures for sediment are not proposed.

1. Introduction

This Historical Outfall Sediment Sampling (HOSS) and Fish and Wildlife Resource Impact Assessment (FWRIA) Report describes the results of a FWRIA and the methods and sediment sampling results in Van Cleef Lake and the Cayuga and Seneca Canal near the historical outfalls (HOs) at the Former Phillips Display Components Facility (site) located at 50 Johnston Street, Seneca Falls, New York (Figure 1-1).

The sediment work was conducted in accordance with the final HOSS Work Plan, which was submitted on May 6, 2005 as Appendix A of the *Corrective Measures Study (CMS) Work Plan* (Malcolm Pirnie 2005a). The NYSDEC approved the HOSS Work Plan on May 13, 2005. The FWRIA was conducted in general accordance with Steps I and IIA of the New York State Department of Environmental Conservation (NYSDEC) FWRIA guidance (NYSDEC 1994) and DER-10 Technical Guidance for site Investigation and Remediation (NYSDEC 2010).

This report builds upon the information and recommendations of previous reports. The *RCRA Facility Investigation (RFI) Report* (URS 2002) evaluated the presence of volatile organic compounds (VOCs), fluoride, and metals in soils at the ends of drainage ditches. The ditches discharged stormwater and process water to Van Cleef Lake and the Cayuga and Seneca Canal through seven HOs. The locations of the seven HOs and the interceptor trench outfall (ITO) are shown on Figure 1-2. NYSDEC approved the RFI report on June 5, 2003 with a condition that metals in soil and sediment associated with the HOs be further evaluated. A *Historic Outfall Evaluation Report* (Malcolm Pirnie 2004), which evaluated the potential presence of metals in soils at the head of each outfall, was submitted to NYSDEC on December 10, 2004. The historical outfall evaluation included a preliminary FWRIA that examined terrestrial habitat and resources near the HOs. The *RFI Report* (URS 2002) was submitted to NYSDEC on June 28, 2002.

Because of the presence of heavy metals, particularly cadmium, in soils within six of the seven HO ditches/ravines, a HOSS Work Plan was developed and approved by NYSDEC to evaluate the potential presence of cadmium and other metals in Van Cleef Lake, the Cayuga and Seneca Canals, and in upstream reference areas. A permit for sampling sediment in Van Cleef Lake and the Cayuga and Seneca Canal was obtained from the New York State Canal Corporation (NYSCC) on May 13, 2005. Ocean Surveys, Inc. of Old Saybrook, Connecticut conducted the sediment sampling. Malcolm Pirnie, Inc. (Malcolm Pirnie) oversaw the sampling and processed the

samples prior to shipment to Severn Trent Laboratories, Inc. of Shelton, Connecticut. NYSDEC provided oversight on Friday, May 20, 2005 and Monday and Tuesday, May 23 and 24, 2005. The USEPA provided oversight on Monday, May 23, 2005.

A HOSS Preliminary Summary Report was prepared and submitted to NYSDEC on August 9, 2005 (Malcolm Pirnie 2005b). The HOSS Preliminary Summary Report provided NYSDEC with a sediment data summary and preliminary data analysis. This HOSS-FWRIA Report incorporates information from the previous reports, provides further evaluation of sediment conditions, and documents Steps I and IIA of the FWRIA for both aquatic and terrestrial habitat and resources.

1.1 Historical Outfall Use

Figure 1-3 shows the section of the United States Geological Survey (USGS) 7.5' topographic quadrangle containing the site that was used to evaluate drainage patterns. There is little topographic relief on the majority of the site, except for a steep embankment that leads down to the Cayuga and Seneca Canal and Van Cleef Lake. Along the southern boundary of the site to the east of the dam, there is a sharp 30- to 80-foot drop in elevation. In the southeastern section of the site, topography slopes more gradually towards the Cayuga and Seneca Canal. As shown on Figure 1-3, surficial drainage patterns are in the direction of the Cayuga and Seneca Canal. A drainage ditch at the eastern end of the site directs surface water runoff to the east-northeast into a southward ravine near the Cayuga and Seneca Canal. Seven HOs (HO-1 through HO-7; Figure 1-2) were used between 1948 and 1978 to discharge stormwater, floor drain wastewater, and process wastewater from sumps and pits inside the facility to the top of the embankment.

The westernmost HO (HO-1) was used only for stormwater and roof drainage (Keystone 1991). The original outfall pipe at HO-1 was modified during the construction of Prospect Hill Apartments in 2000. HO-2 through HO-5 were abandoned in 1972 (Chester Environmental 1995b), and HO-6 and HO-7 were abandoned in 1978 (Keystone 1991).

In 1972, an industrial wastewater treatment plant (IWWTP) was constructed at the site, and sewer lines handling non-process wastewater (storm and floor drains) were segregated from those handling process wastewater requiring treatment (Chester Environmental 1995a). A wastewater sewer interceptor pipe was installed along the southern side of the facility to divert process wastewater to the IWWTP. Treated wastewater was discharged to settling lagoons constructed in the southeastern portion

of the site. Discharge of treated wastewater from the settling lagoons to the Cayuga and Seneca Canal at the ITO was authorized by New York State Pollution Discharge Elimination System (SPDES) Permit Number NY-0001228. The location of the ITO is shown on Figure 1-2. Philips ceased operations in the late 1980s, and the SPDES permit was canceled in February 1990. Between 1987 and 1992, the lagoons and IWWTP were closed, and the process, floor, and roof drains were grouted and sealed in accordance with a Facility Closure Plan. The sewer system was subsequently modified as an interceptor trench, which currently conveys rerouted roof drainage and stormwater from exterior catch basins to the Cayuga and Seneca Canal at the ITO. The ITO discharges into the canal 20 feet from the northern shore of the Cayuga and Seneca Canal and is approximately 900 feet to the east (downstream) of the point where discharge from HO-5 entered the Cayuga and Seneca Canal.

Remnants of pipes are present at some HO locations, and no evidence of piping exists at others. A rip-rap channel for stormwater runoff was constructed in the former HO-1 location. Remnants of pipes are present at HO-2, HO-6, and HO-7. No evidence of piping exists at HO-3, HO-4, and HO-5, which are buried under fill. The ravines into which outfalls HO-3, HO-4, and HO-5 discharged were identified in the field downhill of the furthest extent of the fill.

The HO locations were further characterized by reviewing existing engineering drawings, field verifying the locations, and surveying the HO locations. A *Sewer Evaluation Report* (Keystone 1991) and two figures, both prepared by Sylvania in 1967, were used to verify the HO discharge point locations identified in the field. The physical setting at each of the HOs was described during the field verification and documented in the *Historic Outfall Evaluation Report* (Malcolm Pirnie 2004).

The outfall pipe at HO-1 discharged roof drainage to Van Cleef Lake below the water surface approximately 100 feet southeast of the Prospect Hill Apartments (Keystone 1991). Process wastewater was never discharged at HO-1 (Keystone 1991).

HO-2 discharged through a 10-inch steel pipe to a drainage ditch/ravine approximately 130 feet from the edge of Van Cleef Lake. This ravine ends at Van Cleef Lake approximately 350 feet west of the Seneca Falls dam. According to a 1967 Sylvania drawing and a *Sewer Evaluation Report* (Keystone 1991), the pipe at HO-2 ended at the top of the ravine.

HO-3, HO-4, and HO-5 discharged into separate ravines and over the embankment south of the building complex (Figure 1-4). Based on a 1967 Sylvania drawing and

several other drawings, these outfall pipes ended at the top of the embankment. Discharges from HO-3, HO-4, and HO-5 flowed over the embankment and downhill in ravines to the Cayuga and Seneca Canal (Keystone 1991). An abandoned (grouted in place) 18-inch concrete pipe was identified inside the access way upgradient of HO-3, but the discharge point is buried. The outfall pipes at HO-4 and HO-5 discharged process wastewater to ravines that originated approximately 20 feet from the road that runs parallel to and just south of the building complex (1967 Sylvania drawing). Fill that had been placed in the ravines since the outfalls were abandoned overlies the outfall pipes and up to 50 feet of the ravines. Based on field observations, the fill consists mostly of concrete blocks and other construction and demolition debris.

HO-6 and HO-7 are located approximately 200 to 250 feet to the east of Buildings 13 and 13A. The discharge points for HO-6 and HO-7 are located just beyond a grassy field and the edge of a wooded area to the east of the building complex (Figure 1-2). Both outfall pipes were constructed of 18-inch concrete and discharged to separate ditches. Plywood boxes with open tops were located at both of the former outfalls, and may have contained the former discharges to an approximately 3-foot by 3-foot area around the pipes. When the plywood boxes were set at these locations is unknown. HO-6 and HO-7 discharged to two drainage ditches that transect a low-lying area and meet at a culvert that runs underneath the site access road (Figure 1-4). Water in the ditch flows to the east-southeast and discharges to the Cayuga and Seneca Canal after approximately 0.4 mile.

1.2 Summary of Previous Soil Sampling Near Historical Outfalls

1.2.1 Historical Outfall Soil Sampling – 2000

During the RFI (URS 2002), surface soil samples were collected at the seven HOs and the ITO in November 2000. Surface soil samples were collected at the approximate location where the overland flow reached Van Cleef Lake or the Cayuga and Seneca Canal at HO-1 through HO-5 and in the drainage ditch approximately 1000 feet downgradient of HO-6 and HO-7 (Figure 1-4). At each location, at least one sample was collected from the upper 6 inches of surface soil. At HO-1, HO-2, and the ITO, two samples were collected from 0 to 6 inches below ground surface (bgs) and one sample was collected from 6 to 12 inches bgs. The samples were analyzed for Target Compound List (TCL) VOCs, Target Analyte List (TAL) metals, and fluoride. No VOCs, fluoride, or TAL metals were reported by the laboratory at concentrations greater than NYSDEC's Subpart 375-6: Remedial Program Soil Cleanup Objectives for industrial

soil (2006). The TAL metals and VOC analytical results of these surface soil samples are summarized in Tables 1-1 and 1-2, respectively.

1.2.2 Historical Outfall Soil Sampling and Results – 2004

Additional soil samples were collected from the HO ravines in 2004 and the analytical results were presented in the *Historic Outfall Evaluation Report* (Malcolm Pirnie 2004). The locations and depths of additional surface soil samples were selected to further characterize metals-containing soils near the HOs. A total of 36 samples were collected on August 4 and 5, 2004. Locations were identified in the *Historic Outfall Evaluation Work Plan* (Malcolm Pirnie 2003); however, exact sampling locations were selected in the field with the approval of NYSDEC personnel at the time of sampling. Five sampling locations were selected at each HO except at HO-5, where six locations were chosen. Samples were collected from 0 to 6 inches bgs at all 36 locations and from 6 to 12 inches bgs at 14 locations. The location of each surface soil sample was flagged and surveyed by a New York State licensed surveyor. Sample locations are shown on Figure 1-4.

Surface soil samples were collected from HO-1 through HO-7 as close to the former historical outfall pipe discharge point as possible. Samples were collected starting at the top of the native soil in accordance with the procedures described in the NYSDEC-approved Work Plan. At many of the HOs, 0.5 foot of fill material or leaf matter had to be removed. While at the site on August 3, 2004, NYSDEC personnel agreed that background samples and samples at the ITO would not be collected.

Because no VOCs or fluoride were present in the RFI soil samples collected in 2000 at concentrations greater than NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) 4046 recommended soil cleanup objectives, NYSDEC agreed that the additional surface soil samples collected in August 2004 should be analyzed for TAL Metals only using USEPA Method 3010A/6010B.

The HO ravine soil sample metals analytical results are shown in Table 1-3 with a comparison to industrial and protection of ecological resources soil cleanup objectives. In general, concentrations of metals were lowest in samples collected from HO-1 and highest in samples collected from HO-3, HO-4, and HO-5. Cadmium concentrations ranged from not detected (<1.1 milligrams per kilogram [mg/kg]) to 682 mg/kg. As shown on Table 1-3, cadmium was the only metal present in the historical outfall ravine soil samples at a concentration exceeding the industrial soil cleanup objective.

The analytical results for HO soil samples collected in August 2004 were compared to the November 2000 analytical results. The November 2000 samples were collected from the approximate location where the overland flow from the HO reached Van Cleef Lake and the Cayuga and Seneca Canal, whereas the August 2004 samples were collected at locations agreed upon by NYSDEC from as close to the HO discharge points as possible. Several of the HO pipe discharge points were buried under fill. Samples at these locations were collected from the nearest accessible location downgradient of the discharge point.

Excluding the cadmium results, the concentrations of metals detected in the 2000 and 2004 sampling events were similar. The cadmium concentration detected at HO1-SD-02A (254 mg/kg) in November 2000 was not duplicated in any of the eight samples collected at HO-1 in August 2004 or the two other HO-1 samples collected in November 2000. The next highest cadmium concentration at HO-1 was in the sample collected from HO1-SS-06 from 0.5 to 1.0 feet bgs (3.9 mg/kg). Therefore, the cadmium detected at HO1-SD-02A during the RFI appears to have been an anomalous result.

HO-2 August 2004 cadmium results were within the range of results from the three November 2000 samples. In six of the seven samples collected at HO-3 in August 2004, cadmium was reported at a concentration greater than the 27 mg/kg in the sample collected in November 2000, with the highest concentration of 226 mg/kg at HO3-SS-06. All eight of the samples collected at HO-4 in August 2004 (maximum concentration: 682 mg/kg) contained cadmium concentrations greater than the sample collected in November 2000 (82.8 mg/kg). The maximum cadmium concentration reported at HO-5 in August 2004 (115 mg/kg at HO5-SS-04 0-0.5 feet bgs) was less than the 545 mg/kg cadmium concentration reported in the sample collected in November 2000. The cadmium concentrations in samples from HO-6 and HO-7 (maximum concentration: 14.5 mg/kg) were less than the cadmium concentration reported in the November 2000 sample HO6/7-SS-01 (93.2 mg/kg) except for HO7-SS-01 (93.3 mg/kg). This sample was collected from inside the plywood box surrounding the HO where former discharges may have been contained.

2. Lake and Canal Characteristics

The Cayuga and Seneca Canal, connecting Cayuga and Seneca Lakes, is approximately 12 miles long, 12 feet deep, and covers an elevation change of approximately 100 feet in three locks. The Cayuga and Seneca Canal flows in an easterly direction from Seneca Lake and is dammed near Locks 2 and 3 to form Van

Cleef Lake near the site (Figure 1-1). From Van Cleef Lake, the Cayuga and Seneca Canal flows approximately 3 miles to Cayuga Lake. Cayuga Lake connects to the Erie Canal through a gated structure. The Seneca River flows from Cayuga Lake past Montezuma Wildlife Refuge less than 1 mile from Cayuga Lake (Figure 2-1). Construction of the Erie Canal in the early 1800s drained the vast 40,000-acre marsh system at the north end of Cayuga Lake. In 1937, a Civilian Conservation Corps project created a series of low dikes, which would hold water, restoring the marsh habitat. Currently, 7,000 acres of the former marshes have been restored at Montezuma National Wildlife Refuge.

Van Cleef Lake and the Cayuga and Seneca Canal hydraulic characteristics are controlled by the Seneca Falls Dam, Locks 2 and 3, and the hydroelectric power plant located adjacent to the site (Figures 2-2 and 2-3). The dam, lock, and power plant structure were constructed in 1915 to replace the original multi-lock barge canal used in the 1800s. Figure 2-4 depicts this setting based on the 1836 Village of Seneca Falls Map and an overlay of the Van Cleef Lake, dam, and Locks 2 and 3. An aerial photograph showing the site, Van Cleef Lake, the Cayuga and Seneca Canal, the dam, Locks 2 and 3, and the overall direction of flow in the canal are provided on Figure 1-2. Locks 2 and 3, the associated dam, bypass gates and spillway, and the hydroelectric power plant are situated between HO-2 and HO-3.

As shown on Figure 2-4, islands were in what is Van Cleef Lake and between the Seneca River and the original barge canal. These islands had been covered from bank to bank with industrial buildings until 1915, when the existing canal, lock, and dam were constructed. As part of the construction project, industries were forced to abandon their island factories and relocate to higher ground. Once the dam was completed, Van Cleef Lake was formed, flooding the islands and low-lying areas where the industrial buildings had once stood. Remnants of industrial building foundations are still visible when lake levels are lowered (Young 2004 and Figures 2-5, 2-6, and 2-7).

The maximum water depth in Van Cleef Lake, as measured during an August/September 2005 field survey, is approximately 45 feet near the dam (Figure 2-8). The lake has an average water depth greater than 12 feet. The water depth in the Cayuga and Seneca Canal is approximately 12 feet in the navigation channel, which is along the southern edge of the canal near Locks 2 and 3. Features of the historical river channel (Figure 2-4) are still evident in the lake (Figure 2-8).

According to NYSCC records, portions of the Cayuga and Seneca Canal near the site may have been dredged a number of times since discharges via the HOs ceased

in 1972. The approximate dredge footprint is shown in Figure 2-9. The “Bottom Angle”, which represent the extents of the full-depth navigation channel maintained at a minimum depth of approximately 12 feet. Dredging limits may extend beyond the line shown for the transition from the full-depth navigation channel to the channel bottom outside of the navigation channel. Dredging areas may also extend further downstream than shown on Figure 2-8. Dredging would have disrupted communities of benthic invertebrates and rooted aquatic plants, although these would have reestablished over time.

2.1 Operation of Dam, Locks, and Power Plant

The water levels in Van Cleef Lake are controlled by regulating flow through the power plant, the dam spillway, four bypass gates, and the locks occasional operation (TAMS 1982). Flow from Van Cleef Lake into the canal is primarily controlled by the six intake gates, at a depth of approximately 30 feet, and four turbines of the hydroelectric power plant which operate year-round. New York State Electric and Gas (NYSEG) and its predecessors operated the power plant until the Seneca Falls Power Authority (a subsidiary of American Energy, Inc.) assumed operation in 1998. The Seneca Falls Power Authority currently owns and operates the power plant. Lake levels are monitored and regulated by the NYSCC via the dam spillway and four bypass gates.

Flows through the plant vary seasonally and in response to precipitation events. The mean operating lake level, according to the NYSCC, is 430.5 feet (canal datum), and the dam spillway elevation is 427.57 feet (canal datum). A steel wall constructed above the original spillway causes the lake level to be approximately 3 feet higher than the spillway elevation. The navigational season maximum and minimum water level elevations in the Cayuga and Seneca Canal downstream of the dam are 384.0 and 381.5 feet (canal datum), respectively. Thus, the mean water level in Van Cleef Lake is approximately 50 feet higher in elevation than the water level in the canal on the downstream side of the dam.

According to the NYSCC (Holtsnighter 2005), the flow rate through the power plant typically ranges between 2,000 cubic feet per second (cfs) and 3,200 cfs. Because of zebra mussel growth, other obstructions, and maintenance issues, the flow rate through the power plant under mean conditions is approximately 2,500 cfs. When the lake level exceeds 430.5 feet (canal datum), flows over the 50-foot-wide spillway can be as much as 800 cfs. Each of the four bypass gates has a capacity of 300 cfs. These gates are used when the lake level reaches 432.5 feet (canal datum), a condition that

occurred at least four times in 2004, according to the NYSCC (Gobel 2004). Water is also released from the lake to the canal in batch mode as part of lock operations.

During the summer months, lake and canal elevations are maintained as high as possible to facilitate recreational and commercial navigation (Dames & Moore 1992). Beginning sometime between mid-November and January, water levels in Van Cleef Lake are dropped to accommodate spring runoff. Lake levels are dropped again during May and June to accommodate the onset of summer rains and associated runoff. When possible, lake levels are manually lowered at the end of every other navigation season (end of November) for routine maintenance operations (Holtsnichter 2005). Lake levels are also lowered for emergency repairs, special studies, and similar unique needs. The level is dropped by running one or more of the turbines 24 hours a day for 2 to 7 days, opening the spillway, or a combination of the two (Dames & Moore 1992). This type of flow and level management can result in scouring of sediment from the lake bed as the Seneca River returns to its original channel. The location of the turbine intakes 30 feet below the lake surface can induce sediment loss from the lake bed during periods of high flow. In addition, possible effects of low water levels in Van Cleef Lake include drying of bed sediments, wind erosion of sediments, loss of sediment depositional order through agitation and re-suspension, and loss of sediment to downstream areas.

2.2 Historical Water Quality Assessment

Historical data on surface water quality in Van Cleef Lake and the Cayuga and Seneca Canal include the Rotating Intensive Basin Studies Water Quality Assessment Program (NYSDEC 1992a) and the Priority Waterbodies List (NYSDEC 2001). Information on point and non-point discharges to the Cayuga and Seneca Canal upgradient of the site were reviewed in the *Historic Outfall Evaluation Report* (Malcolm Pirnie 2004) to identify significant contributions of metals, particularly cadmium, to the canal. This information was used to assess background surface water quality conditions near the site.

According to the NYSDC Water Quality Report (NYSDEC 2000), the Cayuga and Seneca Canal was on the list of "Waters Needing Verification of Impairment." However, the Cayuga and Seneca Canal is not on the New York State 2004 Section 303d List of Impaired Waters and Waterbodies Requiring Verification of Impairment. Limited documentation is available on specific water quality impairments. A Water Quality Assessment was to be completed on the Cayuga and Seneca Canal in 2003; however,

a Water Quality Report containing this information has not been published to date. No fish advisories exist specific to Van Cleef Lake or the Cayuga and Seneca Canal.

Water from the Cayuga and Seneca Canal upgradient of the site has been sampled by NYSDEC as part of the Rotating Intensive Basin Studies Water Quality Assessment Program (NYSDEC 1992a). A water sample was collected at Bridge Street in downtown Seneca Falls, approximately 0.75 mile upstream of the site. The report states that "recreational boat traffic is common during the navigation season stirring up the river's bottom and increasing the turbidity of the stream" (NYSDEC 1992a). Macroinvertebrates collected in 1989 and 1990 indicated slight community impact. Toxicity testing indicated no significant mortality or reproductive impairment. Water quality was rated as fair. Cadmium, iron, and mercury were determined to be parameters of concern in the water column. Total water hardness varied from 143 to 254 milligrams per liter (mg/L) in 1989-1990 (NYSDEC 1992b). Water hardness is expected to be inversely related to flow rates (Wetzel 2001). The bioavailability and toxicity of several metals (e.g., cadmium and zinc) declines as water hardness increases (Sprague 1985).

The Priority Waterbodies List (NYSDEC 2001) indicates that fishing and fish propagation is threatened and aesthetics are stressed in the Cayuga and Seneca Canal. This report states that the "canal has been heavily impacted by point and non-point sources." Agriculture was cited as the primary source of pollution, although industry and contaminated sediment are also listed as contributors. A historical aerial photograph of Van Cleef Lake (Figure 2-9) documents the effect of stormwater from the City of Seneca Falls on water clarity at the upstream mouth of Van Cleef Lake and downstream waters.

2.3 Water Quality Field Survey

A field survey of Van Cleef Lake and the Cayuga and Seneca Canal within approximately 0.5 mile of the site was conducted on August 30, 2005. The field survey objectives were to assess qualitatively biota presence and habitat and measure selected water quality parameters. Aquatic resources were assessed qualitatively through field observations of the presence of biota, habitat features, and resource use by humans, as discussed in Section 5.0. The presence of submerged aquatic vegetation and emergent aquatic vegetation was noted.

Water quality was measured at 14 sample locations during the August 2005 field survey (Figure 2-9). Twelve sample locations (S1 through S12) were along the 12

transects sampled during the HO sediment sampling event in 2005 (Malcolm Pirnie 2005b) and included an upstream reference area, Van Cleef Lake, and the Cayuga and Seneca Canal extending approximately 2,000 feet downstream of the Seneca Falls Dam. Two additional sample locations were in the middle of Van Cleef Lake (S13 and S14). Dissolved oxygen (DO), temperature, specific conductivity, pH, and lake and canal water transparency were measured at each of the sample locations. Sediment grab samples were also collected at select stations. Table 2-1 and Figures 2-10 and 2-11 summarize the survey results.

Temperature was measured at a minimum of 1-meter intervals starting at 1 m below the water surface and ending at 0.5 m above the bed using a YSI Model 55 meter. No thermocline was observed in Van Cleef Lake in August 2005. Temperature profiles at lake and canal system sampling stations ranged from 23.5 to 24.8 degrees Celsius ($^{\circ}\text{C}$), with a maximum temperature variation over depth within any station of approximately 1°C (Figure 2-10). The lack of a summer thermocline is consistent with conditions expected for a small reservoir with a high flushing rate and a bottom water discharge. Incoming water enters in the upper portion of the water column and is discharged from the lower portion of the dam. This downward movement of water in the 48-acre lake would reduce the presence of a thermocline, which in turn changes temperature and DO conditions in the hypolimnion.

NYSDEC (1992b) reported DO concentrations ranged from 6.5 to 11.9 mg/L in 18 measurements in 1989 and 1990 at a location just upstream of the Bridge Street Bridge in Seneca Falls. In August 2005, DO was measured at a minimum of 1 m intervals starting at 1 m below the water surface and ending at 0.5 m above the bed using a YSI Model 55 meter. The water quality survey conducted in August 2005 shows, with few exceptions that samples met the Class C water quality standard (NYDEC 1999a) for DO. DO concentrations at the reference stations in the canal upstream of Van Cleef Lake were uniform from top to bottom and approximately 8 mg/L (Figure 2-11). Within Van Cleef Lake, DO in the upper 8 m of the water column ranged from 5.3 to 8.9 mg/L. DO concentrations 2 m above the Van Cleef Lake sediments declined to approximately 4 mg/L, likely because of biological and sediment oxygen demand. There was a rapid re-aeration of the entire water column in the Cayuga and Seneca Canal below the dam. The lowest observed DO levels were measured at location S7, where measurements ranged from 5.86 to 6.84 mg/L.

Specific conductivity and pH were measured in August 2005 at approximately 1.5 m below the water surface with a Horiba U-10 water quality meter. The pH levels measured were slightly greater than the upper water quality standard of 8.5 at locations

S8, S13, and S14 in Van Cleef Lake (Table 2-1). NYSDEC (1992b) also found pH levels greater than 8.5 in several samples in 1989-1990.

Water transparency was measured with a Secchi Disc, and two readings (depth at disappearance and depth at reappearance) were recorded and averaged to yield the Secchi depth. The mean water clarity (i.e., Secchi depth) measured in August 2005 was 1.6 m downstream of the dam, 2.3 m in Van Cleef Lake, and 2.8 m in the upstream reference area (Table 2-1). Water clarity within the reservoir system may be affected by stormwater discharge from the Village of Seneca Falls and algae production. The lower water clarity in the canal downstream of the dam observed in August 2005 may also be attributable to the operation of Locks 2 and 3, power generation and discharge from the dam, and discharge from the Village's Publicly Owned Treatment Works (POTW) located near the lock.

Sediment grab samples were collected at six stations (S1, S6, S11, S12, S13, and S14), and sediment texture and benthic organism presence were noted. The sediment in the grab samples consisted mostly of silty clay, silt, or sand. Zebra mussels (*Dreissena polymorpha*), other bivalves, snails (*gastropoda*), chironomids, and oligochaetes were among the organisms observed in the sediment grab samples.

2.4 Van Cleef Lake Bathymetry

The NYSCC periodically conducts bathymetric soundings for portions of Van Cleef Lake and the Cayuga and Seneca Canal to determine locations that require dredging to meet minimum depth and width requirements. NYSCC provided data from the most July 2003 bathymetric sounding event. Project areas not covered by this sounding data include the northern half of Van Cleef Lake, the southern edge of Van Cleef Lake, and the Cayuga and Seneca Canal northern bank downstream of the dam to Lock Number 3. Malcolm Pirnie conducted additional soundings on September 9, 2005 to supplement the navigational channel information (Figure 2-7). The bathymetric survey did not attempt to match methods used by the NYSCC on the waterbody and was not intended to produce a bathymetric map suitable for navigation purposes. Water depths and corresponding Global Positioning System (GPS) coordinates were recorded using a hand-held GPS unit along each transect. This data were supplemented with the water depth data collected in May 2005 during the HO sediment sampling event.

3. Sediment Sampling and Analyses

In accordance with the NYSDEC-approved HOSS Work Plan (Malcolm Pirnie 2005a), sediment sampling was conducted along 12 transects in the Cayuga and Seneca Canal and Van Cleef Lake between May 20 and May 26, 2005 (Figure 3-1). Sampling began in the Cayuga and Seneca Canal and proceeded from downstream to upstream transects. Transects in the Cayuga and Seneca Canal (T1 through T7) were completed between May 20 and May 22, 2005. Lake Transects T8, T9, and T10, and reference Transects T11 and T12 were completed May 23 through 26, 2005. Approximately 120 sediment samples, 6 duplicates, 6 matrix spike/matrix spike duplicate (MS/MSD) samples, and 7 field blanks were collected over the 7 days of sampling. Data from this sampling effort were presented in the *Historic Outfall Sediment Sampling Preliminary Summary Report* (Malcolm Pirnie 2005b), submitted to NYSDEC on August 9, 2005.

3.1 Sediment Sampling Approach

Sediment samples along each transect were designated with a prefix of "SD" and sequentially numbered from north to south (Figure 3-1). Exact coordinates were documented at the time of sampling using GPS equipment.

The sediment sampling locations were based on the HO pipe and ravine locations, and the velocity and direction of water flow in Van Cleef Lake and the Cayuga and Seneca Canal. As noted in the HOSS Work Plan (Malcolm Pirnie 2005a), historical dredging activities and the hydraulics related to the presence of the dam, power plant, and locks influence sediment depositional patterns in the lake and canal. These factors were considered in selecting sampling locations and were incorporated into the evaluation of sediment sampling results.

Sampling encompassed areas where sediments were less likely to have been disturbed by dredging. In these areas, the vertical and horizontal extent of potential metals-containing sediment was assessed by collecting depth-discrete samples using cores. In areas within historical dredging limits, both surface grab samples and depth-discrete samples from the upper 6 inches of sediment were collected.

For locations where cores were collected, cores extended a maximum of 4 feet or until refusal, whichever was shallower. Samples from cores were collected from 0 to 0.5 foot, 0.5 to 1 foot, 1 to 2 feet, 2 to 3 feet, and 3 to 4 feet. Sediment cores were collected using a vibratory corer where water depth was approximately 36 feet or less. Cores in locations with water depth greater than 36 feet were completed with a piston

corer (a vibratory corer could not effectively recover sediment at water depths greater than approximately 36 feet).

3.1.1 Reference Sampling Locations

To establish background metals concentrations in Van Cleef Lake and the Cayuga and Seneca Canal, sediment core samples were collected on two transects (T11 and T12) near the upstream limit of Van Cleef Lake (Figure 3-1). The background sample results were used as a baseline assessment of upstream sediment quality with respect to metals concentrations and to compare sample results in other areas of Van Cleef Lake and the Cayuga and Seneca Canal.

The *Historic Outfall Evaluation Report* (Malcolm Pirnie 2004) identified several potential sources of metals in the lake and canal from upgradient sites. Additionally, previous water quality sampling in the Cayuga and Seneca Canal near Bridge Street (approximately 0.75 mile upstream of the site) conducted by NYSDEC in 1998, indicated that water quality rated “fair” with cadmium, iron, and mercury noted as parameters of concern (NYSDEC 2001).

Transect T12 was located approximately 600 feet downstream of the Bridge Street crossing of the canal within the Village of Seneca Falls. This location was near where NYSDEC conducted water quality testing in 1989 and 1990 (NYSDEC 1992a). Transect T11 was near the mouth of Van Cleef Lake, approximately 300 feet downstream of the bridge over the Cayuga and Seneca Canal at State Route 414. Transect T11 was within a sediment deposition zone where the Seneca and Cayuga Canal widen and the water flow velocities decrease allowing bed load and suspended load to deposit. A stormwater outfall is on the northern shoreline between Transects T11 and T12 and may also contribute additional sediment load to the upstream portion of Van Cleef Lake (Figure 3-1). Along each of the two reference sample transects, samples were collected from four sediment cores at the locations shown on Figure 3-1.

3.1.2 Van Cleef Lake Sampling Locations

Upstream of the dam in Van Cleef Lake, sediment samples were collected along three transects (T8, T9, and T10) beginning near the northern shoreline at the HO-2 location and extending southwest for approximately 250 feet (Figure 3-1). Transect T9 originated from the point where the HO-2 ravine intersects Van Cleef Lake. Transect T10 originated approximately 100 feet to the west of HO-2. Transect T8 was located as close to the power station and dam as safety limits allowed. Transect T8 extended

from the northern shore of Van Cleef Lake to the lock. Samples were collected from four sediment cores along each transect in Van Cleef Lake at approximately 60-foot intervals.

3.1.3 Cayuga and Seneca Canal Sampling Locations

Sediment samples were collected along seven transects (T1 through T7) downstream of the dam. Near HO-3, HO-4, and HO-5, samples were collected along the transects beginning at the intersection of each HO and the Cayuga and Seneca Canal and extending at an angle of approximately 45 degrees in the downstream direction (Figure 3-1). Samples were collected along transects between HO-3 and HO-4, between HO-4 and HO-5, and just downstream of the ITO. Sample locations along Transects T1 and T3 extended the full width of the canal, whereas samples on the other transects extended to the middle of the canal. Samples were collected from four locations in all transects, except at Transect T3 and T7, where samples were collected at five and three locations, respectively. At the transects that extended to the middle of the canal, one sample location was approximately 5 feet from the northern shoreline, one at the endpoint toward the middle of the canal, and the other two sample locations were roughly equidistant from the two endpoints.

3.2 Sample Collection and Processing

Sediment samples were collected in accordance with the protocols described in the *CMS Work Plan* (Malcolm Pirnie 2005a) and analyzed by Severn Trent Laboratories, Inc. Analyses were conducted in accordance with USEPA SW846 analytical and quality assurance/quality control (QA/QC) protocols or their equivalent.

A 9-inch ponar grab scoop was used to collect surface grab sediment and a model 500 vibratory corer or piston corer was used to collect core samples. Analytical testing was completed on sediment from the 0 to 0.5 foot, 0.5 to 1 foot, 1 to 2 feet, 2 to 3 feet, and 3 to 4 feet intervals of the cores and on the top 4 to 6 inches of the surface sediment samples. If the substrate at a particular location resulted in an inadequate amount of sediment, up to three grab samples from as close as possible to the proposed sampling point were composited into one sample.

After samples from a transect were collected, they were transferred to an on-shore sample processing center, where they were prepared for shipment to the laboratory. The cores were cut and split open using electric shears. The sediment was visually classified by a geologist in accordance with the Unified Soil Classification System

(USCS) outlined in ASTM International (ASTM) D2487-00 and ASTM D2488-00. Samples from each appropriate depth interval were placed into separate stainless steel bowls and homogenized. The homogenized sediment was placed into pre-cleaned, laboratory-supplied bottles appropriate for the analyses. Equipment that came into contact with sediment was decontaminated, prior to sampling and between sampling locations.

3.3 Sample Analyses

Samples from the upper 2 centimeters (cm) of sediment at each location were analyzed using simultaneously extracted metals/acid volatile sulfide (SEM/AVS) for cadmium, copper, lead, nickel, and zinc according to procedures included in EPA-600-R-02-011 (USEPA 2005) and Technical Manual EPA-823-B-01-002 (USEPA 2001). Because AVS typically increases with sediment depth as the sediment becomes more anaerobic, its measurement in the upper 2 cm will not overestimate AVS in the biologically active zone, which may extend to 10 cm or more. Samples for SEM/AVS analysis were collected with care to avoid excessive manipulation and exposure to the air.

Sediment samples were analyzed for the following metals by USEPA SW846 Method 6010B/7470A:

- Cadmium
- Arsenic
- Chromium
- Copper
- Mercury
- Nickel
- Zinc.

These metals were selected based on the ravine soil sampling results associated with HO-2, HO-3, HO-4, and HO-5. Sediment samples were also analyzed for aluminum, iron, and manganese by USEPA SW846 Method 6010B to evaluate reduction-oxidation conditions.

The laboratory method detection limits at the time of sampling are provided below:

Metal	Method Detection Limit (mg/kg)
Aluminum	20
Arsenic	1.22
Cadmium	1.0
Chromium	0.34
Copper	0.8
Iron	10.2
Manganese	0.64
Nickel	0.44
Zinc	3.80
Mercury	0.015

Note: The method detection limit for cadmium is greater than the cadmium lower effects level (0.6 mg/kg)

Samples were also analyzed for physical characterization data using the following methods:

- Total Organic Carbon (TOC) by Lloyd Kahn Method (combustion method)
- Gradation Analysis (with hydrometer) by ASTM Method D422
- Total solids by ASTM Method D2216
- Specific gravity by ASTM D854
- Ammonia by EPA Method 350.1
- Total sulfides and sulfates by EPA Method 300.0.

3.4 Quality Assurance/Quality Control Samples

QC samples were collected to ensure that sampling, transportation, and laboratory activities did not bias sample analytical quality. Field blanks, duplicate samples, and MS/MSD samples were collected to provide a quantitative basis for validating the analytical data. Trip blanks were not necessary, as the sampling did not include analysis of VOCs. Six duplicates, six MS/MSD samples, and seven field blanks were collected and analyzed.

4. Sediment Chemistry Results

Sediment analytical results indicate that zinc, nickel, copper, and mercury concentrations in reference samples were equal to or greater than those from samples collected from other locations in Van Cleef Lake and the Cayuga and Seneca Canal. Specific sources for these metals have not been determined; however, they appear to be predominantly from upstream of Van Cleef Lake. Concentrations of petroleum-related compounds were not measured in this study; however, based on sediment core observations, there appeared to be historical petroleum releases to Van Cleef Lake from upstream and not associated with the site. Cadmium was present at concentrations greater than the background/reference concentrations in 1 of 12 surface sediment sample collected in Transects T8 through T10 and in 8 of 28 surface sediment samples collected downgradient of the dam. Sediment containing the highest cadmium concentrations in Van Cleef Lake, including reference locations, is buried beneath surface sediment that does not contain elevated concentrations of cadmium.

4.1 Cayuga and Seneca Canal Sample Observations

Grab samples indicate that sediment in the navigational portion of the canal below the dam was primarily grey to black silt, with increasing content of zebra mussel shells toward the dam. Samples from Transects T6 and T7 collected near the dam were predominantly composed of zebra mussel shells. As suspected, very little sediment was present along these transects, given the higher flow velocities near the power plant and dam.

Core samples were attempted with a vibratory corer along the northern shoreline at each canal transect. Vibratory cores could not be driven more than approximately 2 feet in these areas. In those core samples retrieved, the upper 1 to 1.5 feet consisted primarily of silt-covered gravel. In the one core driven to 2 feet (Transect T1 downgradient of the ITO), the lower 10 inches consisted of moist silt and little clay with a clear transition between the silt and the overlying gravel. Cores closer to the dam along Transects T6 and T7 were primarily gravel and could only be driven a maximum of approximately 1 foot. In one location along Transect T7, a core could not be collected because of vibratory core refusal at the sediment surface. A ponar surface sediment grab sample at this location only recovered cobbles.

4.2 Van Cleef Lake and Reference Sample Observations

In Van Cleef Lake and the reference samples, sediment recovery using a vibratory corer was approximately 3 to 4 feet, while recovery with the piston corer averaged approximately 2 feet. Most cores and grab samples in the lake and reference samples contained black staining with petroleum odors. Some staining was observed in shallow sediment, but staining was also observed in deeper portions of cores, indicating older petroleum releases. Sediment in the canal below the dam did not contain petroleum staining or odors.

4.3 Analytical Results

Sediment sample analytical results are summarized in Attachment A. For this evaluation, the analytical results were assessed for spatial patterns relative to the reference sample concentrations and compared to the screening criteria documented in the NYSDEC Technical Guidance for Screening Contaminated Sediment (NYSDEC 1999b). The screening levels that the NYSDEC has established for metals in sediment are the Lower Effect Level (LEL) and the Severe Effect Level (SEL). If both the LEL and SEL are exceeded, the NYSDEC considers this sediment “severely impacted.” If only the LEL is exceeded, the NYSDEC considers the sediment “moderately impacted”. These screening criteria are not used by NYSDEC as cleanup criteria because many other factors are considered when assessing sediment quality. The LEL and SEL were used in this evaluation for comparison purposes only.

4.3.1 Reference Sample Results

Distributions of cadmium, copper, nickel, and zinc concentrations in sediment organized by transect are presented in Figures B1 through B12 of Attachment B. These four metals were selected to show results that exceeded screening criteria in sediment samples from the various transects. Reference samples from Transects T11 and T12 contained variable concentrations of these metals. Although a stormwater outfall is on the northern shoreline between Transects T11 and T12, the analytical data from samples collected from these two transects are similar. Zinc concentrations were as high as 2,240 mg/kg in samples along Transect T11 in the western, upgradient portion of Van Cleef Lake. The LEL and SEL sediment screening guidance for zinc are 120 mg/kg and 270 mg/kg, respectively. Eleven of the 14 samples at Transect T11 contained zinc concentrations greater than the LEL, of which 8 exceeded the SEL. Similar results were observed further upstream at reference Transect T12, where 11 out of 13 sediment samples exceed the LEL for zinc, and 4 of the 13 samples

exceeded the SEL. Copper, nickel, and mercury results also exceeded the respective LEL frequently in Transects T11 and T12. Cadmium was not detected in sediments at Transect T12 nor in 10 of the 14 samples for Transect T11. The remaining four samples in T11 were collected at depths greater than 1 foot below the top of sediment and contained trace cadmium levels, which were estimated to be less than the reporting limit. No reference station samples yielded unqualified cadmium concentrations above the LEL or SEL. The LEL for cadmium is 0.6 mg/kg, and the SEL is 9 mg/kg.

4.3.2 Spatial Patterns of Metals Concentrations

The spatial patterns of metals concentrations were examined using three graphical methods. Distributions of sediment concentrations organized by transect are presented in Figures B1 through B12 of Attachment B for cadmium, copper, nickel, and zinc. The figures in Attachment B graphically show sample locations and present the analytical data and sample depth for each sample location.

Figures C1 through C9 in Attachment C present graphical illustrations of the mean concentrations for each metal analyzed and are organized by area and sample depth. The areas consist of reference locations (Transects T11 and T12), Van Cleef Lake above the dam (Transects T8 through T10), and Cayuga and Seneca Canal below the dam (Transects T1 through T7). The vertical bars in Figures C1 through C9 represent the range of concentrations in each area at each sample depth, and the numbers of samples in these categories are also indicated on the figures. Metals results were grouped into the three areas and five sample depth intervals (0 to 0.5 foot, 0.5 to 1 foot, 1 to 2 feet, 2 to 3 feet, and 3 to 4 feet) and averaged. To calculate the mean concentrations, one half the reporting limit was used when metals were not detected. In some sample results the reporting limits were higher than the LEL. In these circumstances, the mean concentration exceeds the LEL even though the metal may be seldom detected in these samples.

Mean concentrations of arsenic, chromium, copper, iron, manganese, and nickel in the Van Cleef Lake and Cayuga and Seneca Canal areas were comparable to those found in the reference area (Figures C1, C3 through C6, and C8 in Attachment C). This suggests that the sources of these metals are from areas at or upstream of Transects T11 and T12. In addition, mean concentrations of these metals show similar variations with sediment sample depth interval. Mean concentrations of copper (Figure C4) and nickel (Figure C8) routinely exceed the LEL screening criteria.

Zinc was the only metal with mean sediment concentrations routinely exceeding the SEL (Figure C9). Zinc concentrations in Van Cleef Lake sediments were similar to those from reference sediments upstream and at the mouth of the lake. Zinc was detected at elevated concentrations in samples collected from each sampling location along each transect in the reference areas indicating no relationship exists between the zinc and the proximity to the northern bank of the canal. Maximum mean concentrations were from historical loadings buried beneath 12 inches or more of sediments for both reference and lake locations. Zinc concentrations in canal sediments downstream of the dam were much lower than those in lake and reference sediments.

Mercury concentrations (Figure C7) routinely exceeded LEL screening criteria in reference samples and in Van Cleef Lake. The highest mercury concentrations were reported in the reference samples suggesting that there is an upstream source of mercury that is not associated with former site activities. Lower mercury concentrations in sediments in the Seneca Canal below Van Cleef Lake are consistent with the expectation that mercury partitioning to sediments with higher organic carbon concentrations would occur because of the depositional location upstream of the dam. These data do not suggest that a significant new source of mercury exists in the lake or downstream of the dam. Mercury in the water column is predominantly associated with dissolved organic carbon or suspended particulate matter. The dominant process for removal of mercury from the water column is sedimentation of mercury bound to particulate matter (USEPA 1997).

Surface sediment in 21 of 22 reference and lake samples did not contain cadmium. At the remaining station (T9-SD4), cadmium was present at levels less than the reporting limit. Cadmium concentrations in surface sediments were similar to those from reference stations, but significantly less than deeper sediment concentrations. Mean subsurface cadmium concentrations in Van Cleef Lake (Transects T8, T9, and T10) were higher than those from reference stations and typically greater than the LEL but less than the SEL (Figure C2). Mean cadmium concentrations in the Cayuga and Seneca Canal downstream of Van Cleef Lake were lower than those from lake sediments.

Figures D1 through D9 in Attachment D show metals concentrations in surface sediment samples arranged by transect from upstream to downstream. These figures also show north-to-south spatial patterns along each transect. Surface sediment cadmium concentrations in the Cayuga and Seneca Canal downstream of Van Cleef Lake were higher along the northern shoreline compared to samples from near the

center of the canal (Figure D2). In some sample results, particularly for cadmium, the reporting limits were higher than the LEL. In these circumstances, the concentration appears to exceed the LEL even though the metal may not be detected in this sample.

4.3.3 Interrelationships of Metals Concentrations

The co-occurrence of cadmium, mercury, and zinc concentrations are illustrated in Figures E1 to E3 in Attachment E as examples of the differences among the various metals results. These scatter plots indicate a positive relationship between mercury and zinc concentrations (Figure E1). The relationships between cadmium and zinc concentrations (Figure E2) and cadmium and mercury concentrations (Figure E3) appear to be weak, suggesting that the sources of these and other metals within the system may differ. The three metals do share one common characteristic in that the highest concentrations for each metal tend to occur in subsurface samples, suggesting that historical loadings were higher than recent loadings for each parameter.

Figure 4-1 compares surface sediment concentrations of cadmium (left half of circle) and copper, nickel, and zinc (right half of circle) relative to the LEL and SEL throughout the canal and lake system. Sediment sample analytical results are summarized in Attachment A. Surface sediments exceed LEL criteria for copper, nickel, and zinc routinely throughout the system. In contrast, reference stations and Van Cleef Lake were either at non-detectable or below reporting limit concentrations for cadmium. Cadmium was detected in only 1 of 12 surface sediment samples from Van Cleef Lake. In 20 of 28 surface sediment samples in the Cayuga and Seneca Canal below the dam, cadmium was less than the reporting limit. Samples with detectable cadmium concentrations were located mainly along the canals northern shoreline. No surface sediment samples exceeded the SEL screening criteria for cadmium.

4.3.4 Comparison to Sediment Criteria

Data from transects were grouped into surface (0 to 0.5 foot) and subsurface (0.5 foot to 4 feet) samples and compared to NYSDEC sediment screening criteria. Tables 4-1 and 4-2 show that the 10 selected metals (aluminum, arsenic, cadmium, chromium, copper, iron, magnesium, mercury, nickel, and zinc) were present in most surface sediment samples. The exception was cadmium, which was not present in surface samples in the reference areas and was present in only 9 of 42 remaining surface sediment samples. The maximum detected concentrations for 7 of 9 metals with established sediment criteria were less than the respective SEL (aluminum has no established sediment criteria). Only one surface sample contained a nickel

concentration greater than the SEL, and three surface samples contained zinc at concentrations greater than the SEL. All nine metals with established sediment criteria were present in surface samples at concentrations greater than the LEL. Chromium and manganese results exceeded the LEL in the fewest number of surface samples, while copper, nickel, and zinc results exceeded the LEL in the greatest number of surface samples.

Tables 4-3 and 4-4 show that the 10 metals were present in most subsurface sediment samples, except for cadmium, which was not detected in 38 of 73 subsurface sediment samples. The maximum detected concentrations for five metals (nickel, manganese, arsenic, chromium, and copper) were less than the SEL. Manganese was present in the fewest number of samples, with concentrations greater than the LEL and SEL, while zinc results exceeded the LEL and SEL in the greatest number of samples.

All nine metals with established sediment criteria were present in subsurface samples at concentrations greater than the LEL. Chromium and manganese were present in the fewest number of samples at concentrations greater than the LEL, while copper results exceeded the LEL in the highest number of subsurface samples.

4.3.5 Simultaneously Extracted Metal/Acid Volatile Sulfide Analyses

The bioavailability of some metals can be assessed by comparing the concentration of AVS and SEM in sediment. AVS is composed of solid-phase iron monosulfides (FeS) that are soluble in cold acid. Metals extracted in the cold acid during this procedure are termed SEM. The SEM reacts with the AVS to form insoluble metal sulfide precipitates (e.g., cadmium monosulfide [CdS]). If the molar concentration of AVS in sediment exceeds the molar concentration of the SEM (i.e., the SEM/AVS ratio is less than 1), the metal(s) will not be available to benthic organisms (USEPA 2005).

In accordance with the *CMS Work Plan* (Malcolm Pirnie 2005a), SEM/AVS analyses were conducted only on the upper 2 cm of each surface sample (Attachment A). AVS was not reported in 11 samples, so an SEM/AVS ratio could not be calculated for these samples. The SEM/AVS ratios in the remaining 37 samples ranged from 0.086 to 1.9 (unitless). The SEM/AVS ratios were greater than 1 in samples T3-SD1, T4-SD1, T5-SD1, and T7-SD1 along the northern shore of the Cayuga and Seneca Canal; T8-SD2 in the eastern portion of Van Cleef Lake, and T12-SD3 in the Cayuga and Seneca Canal upgradient of Van Cleef Lake.

5. Fish and Wildlife Resource Impact Assessment-Step 1: Site Description

The CMS report text presents a description of the site, an overview of its operational history, and previous sections summarize analytical data acquired to assess sediment quality near the site. This section contains a description of fish and wildlife resources on the site and adjacent properties, with particular emphasis on terrestrial and aquatic habitats.

Field surveys of the terrestrial and riparian habitat at the site and the area within approximately a 0.5-mile radius were conducted on June 30 and July 1, 2004, and a follow-up survey on October 5, 2012. A similar survey of aquatic resources associated with Van Cleef Lake and the Cayuga and Seneca Canal was conducted during sediment sampling (May 2005) and during field surveys (August 30 and September 9, 2005). The latter surveys included an investigation of aquatic vegetation, characterization of the benthic community, a reconnaissance bathymetric survey to characterize water depth along the northern portion of Van Cleef Lake outside the area routinely mapped and maintained by the NYSCC, and measurement of conventional water quality parameters (Section 2.3). Figure 2-9 identifies water quality monitoring locations from the August/September survey in relation to sediment sampling transect locations.

The objectives of the field surveys were to map and describe plant communities and aquatic resources near the site, observe wildlife species, identify significant ecological resources, and observe evidence of stress to plants and animals (if any) associated with the seven HOs and the ITO. Other sources of information used to identify fish and wildlife resources included aerial photographs, the USGS topographic quadrangle map, the National Wetlands Inventory (NWI) map, consultation with NYSDEC, NYSCC, and U.S. Fish and Wildlife Service (USFWS), and the New York State Freshwater Wetlands map.

5.1 Fish and Wildlife Resource Cover Types

Tables 5-1 and 5-2 list the plant and wildlife species observed during the 2004 and 2012 field surveys, and the locations and cover types in which they were observed. Whenever possible, cover types were classified according to the New York State Natural Heritage Program's (NYNHP's) Ecological Communities of New York State Second Edition (Edinger et al. 2002). The nine main cover types observed (Figure 5-1) during the habitat field survey are described below.

Cover Types

Mowed Lawn – Mowed lawn is found in and around the site buildings and parking lots. Mowed lawn is also present to the northeast along Lamb Road in front of Scepter Corporation, north of the site. Mowed lawn is present adjacent to the southwestern corner of the site around Prospect Hill Apartments. Mowed lawn is also present in the cemeteries south of the site and at the canal park. Some grassy areas on the site have ornamental trees. This cover type is dominated by smooth brome grass (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), white clover (*Trifolium repens*), hop clover (*Trifolium agrarium*), English plantain (*Plantago lanceolata*), common plantain (*Plantago major*), birdsfoot trefoil (*Lotus corniculatus*), and other grass species (*Poa* spp.).

Construction Spoils – This cover type is found southeast of the site buildings, where lagoons were formerly located. A dirt road in this area is also maintained for access to a power line adjacent to the Cayuga and Seneca Canal and is used to access trees blown down during inclement weather and high winds. The area is characterized by sparse vegetation and areas of bare soil. Dominant vegetation in this cover type includes grasses such as fescues (*Festuca pratensis* and *F. rubra*); weedy and invasive species such as ragweed (*Ambrosia artemisiifolia*), everlasting pea (*Lathyrus latifolius*), and yarrow (*Achillea millefolium*); and pioneer species, especially at the borders with the forested cover type, such as tree-of-heaven (*Ailanthus altissima*), eastern cottonwood (*Populus deltoides*), box alder (*Acer negundo*), black locust (*Robinia pseudoacacia*), and black cherry (*Prunus serotina*).

Commercial/Industrial – These areas are characterized by developed land with large buildings and paved areas. Developed areas are typically sparsely vegetated, except for associated grassy areas, with sparse vegetation growing in cracks of paved areas. Corners and cracks of buildings may provide habitat for birds, insects, and bats.

Residential – Residential areas are characterized as having small residential structures or large apartment buildings and associated grassy areas, ornamental trees, and shrubs. The corners and cracks of buildings may provide habitat for birds, insects, bats. The grassy areas, ornamental trees, and shrubs may provide a habitat for wildlife.

Agriculture – Agricultural fields previously planted with row crops are northeast of the site. The fields have been fallow since 2004. Vegetation in the abandoned fields is herbaceous and very similar to that in the successional field cover type.

Successional Field – Successional fields are located north, east, and south of the Scepter Corporation property (north of the site). These areas are dominated by low-growing herbaceous vegetation and appear to be maintained by mowing on a somewhat regular basis. The successional field area along the railroad spur south of the Scepter Corporation property is dominated by herbaceous vegetation including ragweed, milkweed (*Asclepias syriaca*), smooth brome grass (*Bromus inermis*), oxeye daisy (*Chrysanthemum leucanthemum*), Canada thistle (*Cirsium arvense*), orchard grass (*Dactylis glomerata*), teasel (*Dipsacus sylvestris*), horsetail (*Equisetum arvense*), purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), wild carrot (*Daucus carota*), aster species (*Aster spp.*), and goldenrod (*Solidago spp.*). North of the Scepter Corporation property lies undeveloped land zoned commercial/industrial. A roadway to access the land has been constructed. The successional fields on either side of the roadway appear to be maintained and are dominated by herbaceous species similar to those already listed for the other successional field areas.

Forested – The forested area canopy is dominated by trees such as red and sugar maple (*Acer rubrum* and *A. saccharinum*), shagbark and mockernut hickory (*Carya ovata* and *C. tomentosa*), American basswood (*Tilia americana*), black walnut (*Juglans nigra*), tulip poplar (*Liriodendron tulipifera*), butternut (*Juglans cinerea*), and white and red oak (*Quercus alba* and *Q. rubra*). The understory is dominated by saplings of these tree species and others such as black cherry, tree-of-heaven, boxelder (*Acer negundo*), black locust (*Robinia pseudoacacia*), eastern hophornbeam (*Ostrya virginiana*), buckthorn (*Rhamnus cathartica*), amur honeysuckle (*Lonicera maackii*), and American hornbeam (*Carpinus caroliniana*). Vines such as poison ivy (*Toxicodendron radicans*) and wild grape (*Vitis spp.*) can also be found. Herbaceous species include garlic mustard (*Alliaria officinalis*), wild geranium (*Geranium maculatum*), mayapple (*Podophyllum peltatum*), and tall meadow rue (*Thalictrum polygamum*). The community classifications that most closely match what was observed in the forest cover types are Appalachian oak-hickory forest and maple-basswood rich mesic forest.

Scrub/shrub – The scrub/shrub areas are edge areas that likely experienced some disturbance in the past. These areas have some of the species present in the forested habitat, but are dominated by other tree and shrub species such as eastern cottonwood, quaking aspen (*Populus tremuloides*), hawthorns (*Crataegus spp.*), smooth and staghorn sumac (*Rhus glabra* and *R. typhina*), gray dogwoods (*Cornus spp.*), multiflora rose (*Rosa multiflora*), buckthorn, and amur honeysuckle. The area underneath the power line, while classified as forest cover type on Figure 5-1 is

periodically maintained for power line access and as a result is dominated by invasive species such as tree-of-heaven, Japanese knotweed (*Polygonum cuspidatum*), and purple loosestrife; other woody species such as raspberry (*Rubus* spp.), Virginia creeper (*Parthenocissus quinquefolia*), and wild grape; and herbaceous species such as bedstraw (*Galium* sp.), jewelweed (*Impatiens* sp.), goldenrod, and ragweed.

Freshwater Wetlands - No wetland cover types exist on or near the site (Figure 5-2). No NYSDEC-mapped wetlands are present within 2 miles of the site. One NWI wetland is on the site (PUBHx) and one NWI wetland within 0.5 mile of the site (R2UBH) (Figure 5-1). The PUBHx freshwater pond wetland is in the spoils cover type does not have any characteristics of a wetland (hydrology, soil, vegetation). The R2UBH wetland is associated with the Cayuga and Seneca Canal and Van Cleef Lake.

Wetland mapping was compiled using the USFWS NWI and the New York State Freshwater Wetlands maps, as prepared by NYSDEC. The following wetland types, as defined by the Cowardin Classification System and New York State, are present within 2 miles of the site:

Cowardin Classifications

- PFO1A – palustrine forested broad-leaved deciduous, temporarily flooded
- PFO1C – palustrine forested broad-leaved deciduous, seasonally flooded
- PFO1E – palustrine forested broad-leaved deciduous, seasonally flooded/saturated
- PEM1A – palustrine emergent, persistent, temporarily flooded
- PEM1B – palustrine emergent, persistent, saturated
- PEM1Cd – palustrine emergent, persistent, seasonally flooded, partially drained/ditched
- PEM1E – palustrine emergent broad-leaved deciduous, seasonally flooded/saturated
- PSS1E – palustrine scrub/shrub broad-leaved deciduous, saturated
- PSS1Fd – palustrine scrub/shrub broad-leaved deciduous
- PUBF – palustrine, unconsolidated bottom, semi-permanently flooded
- PUBFd – palustrine, unconsolidated bottom, semi-permanently flooded, partially drained/ditched
- PUBFx – palustrine, unconsolidated bottom, semi-permanently flooded, excavated
- PUBHh – palustrine, unconsolidated bottom, permanently flooded, diked/impounded
- PUBHx – palustrine, unconsolidated bottom, permanently flooded, excavated
- R2UBH – riverine, lower perennial, unconsolidated bottom, permanently flooded

The following wetland types identified by New York State are also present:

- SF – 4, 5, 6, 29, 30, 31.
- CU-3.

These wetlands would not have been affected by the HO discharges because they are not located near the ravines.

River, Reservoir, and Lake Resources: The canal, which connects Cayuga and Seneca Lakes, is approximately 12 miles long, 12 feet deep, and covers an elevation change of approximately 100 feet in three locks. It flows in an easterly direction from Seneca Lake and is dammed near Lock 2 to form Van Cleef Lake, a 48-surface-acre reservoir south of the western end of the site. From Van Cleef Lake, the Cayuga and Seneca Canal flows approximately 3 miles to Cayuga Lake. Cayuga Lake connects to the Erie Canal through a gated structure. The Seneca River flows from Cayuga Lake past Montezuma Wildlife Refuge, less than 1 mile from Cayuga Lake.

Low-lying Areas: Low-lying areas on and near the site were observed during the 2004 and 2012 site visits. The first area is on the site north of the interconnected building complex. The dominant vegetation in this area includes white willow (*Salix alba*), cottonwood, and narrow-leaved cattail (*Typha angustifolia*). The second area is northeast of the Scepter Corporation building in a depression area just north of the railroad spur and bordered by successional field habitat. Dominant vegetation in this area includes narrow-leaved cattail, purple loosestrife, rush and sedge species, goldenrod, teasel, and Canada thistle.

5.2 Fauna Associated with Each Cover Type

Terrestrial Cover Types - In general accordance with Step I of the NYSDEC FWRIA guidance, fish and wildlife resources within an approximate 0.5-mile radius of the site were identified. Wildlife uses of each cover type were evaluated using literature sources (Martin et al. 1951) and field observations. Wildlife sightings included direct observations and identifications based on vocalizations, tracks, browse, burrows, and scat. General wildlife values (e.g., food and cover availability) were also noted.

In general, the more developed commercial/industrial and residential areas offer little habitat for wildlife. The vegetated areas (i.e., forested, scrub/shrub, successional field) of the site appear to support wildlife because of the lack of human influence and the

abundance of food and cover. Table 5-2 lists the herptile (amphibian and reptile), bird, and mammal species observed during the June/July 2004 field survey.

Van Cleef Lake and Cayuga and Seneca Canal - As part of the Rotating Intensive Basin Studies, NYSDEC (1992b) characterized the benthic macroinvertebrate community near the Bridge Street bridge, which lies within the upstream reference area. Samples were collected in June, August, and September 1989 and in June, July, and September 1990. The macroinvertebrate community was dominated by midges (Chironomidae), worms (Oligochaeta), and black fly larvae (Simuliidae). An average of 22 species were collected in 1989, with the most numerous species being the worm *Nais variabilis*, the black fly *Simulium vittatum*, and the midge *Dicrotendipes fumidus* (NYSDEC 2005b). An average of 23 species were collected in 1990 with the most numerous species being the worms *Nais variables* and *Nias simplex*, and the midge *Dicrotendipes fumidus*. Mayflies (Ephemeroptera) and caddisflies (Trichoptera) were scarce, while stoneflies (Plecoptera) and beetles (Coleoptera) were absent (NYSDEC 1992b). This type of community is expected considering the waterbody, substrate, and habitat.

Zebra mussels (*Dreissena polymorpha*), chironomid larvae, and a flat worm (phylum *platyhelminthes*) were present in sediment samples collected from the upstream reference area during the August/September 2005 field survey (Table 2-1). Zebra mussel shells were also noted on the surface of sediment core samples collected during the Historic Outfall Sediment Sampling (Malcolm Pirnie 2005b).

Midges and worms were observed in sediment samples collected from Van Cleef Lake during the August/September 2005 field survey (Table 2-1), while zebra mussels, other bivalves (not identified), snails (gastropoda), and scuds (amphipoda) were observed in sediment samples collected from the Cayuga and Seneca Canal downstream of the dam. Few mussel shells were observed on the surface of sediment core samples collected from the lake, but shells were common in core samples collected downstream of the dam (Malcolm Pirnie 2005b).

The Oswego River Finger Lakes Basin Waterbody Inventory and Priority Waterbodies List (NYSDEC 2008) identifies fishing and fish propagation as threatened and aesthetics as stressed in the Lower Seneca River, citing agriculture activities as the primary source of pollution (silt/sediment). Van Cleef Lake, specifically, is unimpaired. NYSDEC classifies the Seneca River and Barge Canal bordering the site (including Van Cleef Lake) as suitable for fish propagation and survival and for primary and secondary contact recreation (NYCRR 6 Part 898: Finger Lakes Drainage Basin). Van

Cleef Lake and the Seneca River and Barge Canal are used for recreational fishing and are not on the New York State 2012 Section 303(d) List of Impaired Waters and Waterbodies Requiring a Total Maximum Daily Load (TMDL) Part 1, 2, or 3 (NYSDEC 2012).

NYSDEC Region 8 Bureau of Fisheries indicates that the Cayuga and Seneca Canal and Van Cleef Lake support a warm water fishery with occasional colder water species moving between Cayuga and Seneca Lakes (NYSDEC 2004). Fish species that may be found in the canal and lake include northern pike (*Esox lucius*), walleye (*Sander vitreus*), largemouth bass (*Micropterus salmoides*), perch (*Perca flavescens*), and sunfish (various species). Occasionally, trout (various species) are caught near the dam, particularly during the winter months when the water temperature is colder (NYSDEC 2004). No state fish advisories are in effect for Van Cleef Lake or the Cayuga and Seneca Canal.

Wildlife observed using the lake and canal during field surveys include Canada geese (*Branta Canadensis*), great blue heron (*Ardea herodias*), mallards (*Anas platyrhynchos*), and herring gulls (*Larus argentatus*). Other sources of information were reviewed to develop lists of wildlife species that may use the aquatic habitats Van Cleef Lake and the Cayuga and Seneca Canal provide. According to the USFWS (1991), 55 species of birds are seasonally abundant or common in the Montezuma National Wildlife Refuge, located approximately 4 miles northeast of the site (Table 5-3). As shown on Table 5-4, five mammal species and eleven species of amphibians and reptiles are found in aquatic habitats in the region (NYSDEC 2005c; Bopp and Kays 2005; and Chapman and Feldhamer 1992).

The NYNHP and USFWS were contacted regarding species of concern, significant habitats, and fishery resources within 2 miles of the site. Results of the query with the NYNHP include the following. The endangered black tern (*Chlidonias niger*), threatened sedge wren (*Cistothorus platensis*), and the northern bog violet (*Viola nephrophylla*) have been documented near the site. The two bird and one plant species require wetland habitats; therefore, suitable habitat for these species do not occur on the site. The NYNHP response also indicates that rare habitats occur near the site; these include Cayuga Lake as a waterfowl winter concentration area, and the Seneca River/Montezuma floodplain forest. NYNHP also indicated that in the 1920s the blackchin shiner (*Notropis heterodon*) occurred in Cayuga Lake, and that inland salt marsh habitat and the plant species seaside crowfoot (*Ranunculus cymbalaria*) also were present. None of the species or rare/significant habitats were found on the site.

Results of this query from the USFWS indicate that, with exception of the Indiana bat (*Myotis sodalis*), no known occurrences of rare and/or threatened plant or wildlife species or significant natural communities or habitats exist on or near the site. The Indiana bat is a federally- and state-listed endangered species that has the potential to live near the site. According to correspondence with USFWS, Indiana bat captures have occurred approximately 3 miles west of the site at the Seneca Meadows landfill (USFWS 2012). A hibernaculum for these bats is in Onondaga County, approximately 38 miles from the project area. No critical habitat is currently designated or proposed on or near the site. The October 2012 field survey included an evaluation of the forested cover type for suitable habitat for the Indiana bat. No evidence of Indiana bat occurrence was found.

The USFWS asked about the presence of wetlands on the site, and if present, the need for a Phase 1 Bog Turtle habitat survey. According to the Guidelines for Bog Turtle Surveys, if wetlands in or adjacent to the project area are *not* known bog turtle habitat, a bog turtle habitat survey should be conducted “if the wetland has emergent and/or scrub-shrub component, or are forested with suitable soils and hydrology, *and* direct and indirect adverse effects to the wetland(s) cannot be avoided” (USFWS 2006). No registered and confirmed New York State or NWI wetlands exist in the project area. One NWI wetland is in the southern portion of the site, but as described previously, this area is within the spoils cover type, and was not confirmed a wetland habitat (no wetland hydrology, soil, vegetation) during the 2004 or 2012 site visits.

5.3 Observations of Stress

Observations of potential signs of stress to vegetation or wildlife associated with the seven HOs and the ITO were based on four site visits: the June/July 2004 field survey of terrestrial resources, the October 2012 field survey of terrestrial resources, the May 2004 sediment sampling and survey of aquatic resources, and the August/September 2005 aquatic habitat survey.

No signs of stress to vegetation or wildlife were observed on site. No signs of stress to fish were observed in Van Cleef Lake. Several dead fish were observed immediately downstream of the dam and powerhouse. The locks were operated just prior to making this observation, and physical stresses associated with lock operations are a likely cause of the fish mortality, as is powerhouse operation.

5.4 Description of Fish and Wildlife Value

The following discussion of resources applies to cover types in the ravines through which the discharges from HO-2, HO-3, HO-4, HO-5, HO-6, and HO-7 flowed. The ravine areas are significantly smaller in size than the total area of each cover type. Therefore, the overall value of terrestrial resources in the areas of overland discharge flow from HO-2, HO-3, HO-4, HO-5, HO-6, and HO-7 is limited. For HO-2, HO-3, HO-4, and HO-5, these areas are limited to the steep embankment on the southeast property boundary. For HO-6 and HO-7, these areas are limited to the:

- Forested, scrub/shrub, and low-lying areas between the building complex and the perimeter road
- Ravine through scrub/shrub and mature forest northeast of the perimeter road
- The low-lying area between the mature forest and the Cayuga and Seneca Canal.

Several of the wildlife species discussed below were observed during the field surveys (Tables 5-1 and 5-2).

5.4.1 Terrestrial Habitat Value

The variability of trees in each individual stand will slightly alter the diversity of wildlife present, and the greater the diversity of tree species, the greater the wildlife value. Although considerable overlap exists between food sources that wildlife may use in each stand, in general, the greater the diversity within the stand, and the larger the tract size, the more significant the habitat value.

The forested areas on and near the site are composed of white and red oak, shagbark and mockernut hickories, white ash, and basswood, which provide an excellent source of food and cover for a variety of wildlife species. Because acorns are a preferred food item and are abundantly available, oak trees are important to wildlife. Acorns are a component in the diets of whitetail deer (*Odocoileus virginianus*), raccoons (*Procyon lotor*), possums (*Didelphis marsupialis*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), wild turkey (*Meleagris gallopavo*), ruffed grouse (*Bonasa umbellus*), and black-capped chickadee (*Parus atricapillus*). The presence of black cherry in the forested areas also increases the value. The fruit is an important food item for songbirds, such as the evening grosbeak (*Hesperiphona vespertina*), rose-breasted grosbeak (*Pheucticus*

melanocephalus), and American robin (*Turdus migratorius*), as well as mammals such as chipmunks and squirrels. With an abundant prey base of birds and small mammals, predators, such as the sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), gray fox (*Urocyon cinereoargenteus*), and skunk (*Mephitis mephitis*) may be present. However, the areal extent of the ravines through which the discharge from HO-2, HO-3, HO-4, HO-5, HO-6, and HO-7 flowed is significantly limited compared to the total area of the forested cover type.

The scrub/shrub areas offer dense cover and varied food sources to a wide variety of bird species because of the edge habitat type provided. Numerous songbird species such as the American robin, European starling (*Sturnus vulgaris*), gray catbird (*Dumetella carolinensis*), northern cardinal (*Cardinalis cardinalis*), sparrows, slate-colored juncos (*Junco hyemalis*), and cedar waxwings (*Bombycilla cedrorum*), use the tree, shrub, and vine species (i.e., staghorn and smooth sumac, hawthorns, grapes, and poison ivy) for food. Ruffed grouse prefer brushy woodlands and also consume the berries and buds of sumacs, poison ivy (*Toxicodendron radicans*), grapes, ironwoods, witch hazel (*Hamamelis* spp.), quaking aspen, and cottonwood. However, the areal extent of the ravine through which the discharge from HO-6 and HO-7 flowed is significantly limited compared to the total area of the scrub/shrub cover type.

Low-lying areas offer food, cover, and may be a drinking water source for various species. Cattail can provide food and habitat for different species. For instance, female red-winged blackbirds (*Agelaius phoeniceus*) are known to attach their open cup nests to cattail stalks, and muskrats (*Ondatra zibethicus*) and some geese feed on the rhizomes or rootstocks. Willows are used by browsing and bud-eating species (i.e., whitetail deer and ruffed grouse). Black locust and slippery elm are of low wildlife value compared to oaks and other tree species, even though the seeds and buds of slippery elm may be used by various songbirds such as American goldfinch (*Carduelis tristis*) and sparrows, and by some mammals such as eastern gray squirrel and whitetail deer. As stated above, numerous songbird species use the fruits of smooth and staghorn sumac and poison ivy for food. However, the areal extent of the ravine through which the discharge from HO-6 and HO-7 flowed is limited compared to the total area of the scrub/shrub cover type.

5.4.2 Van Cleef Lake Habitat Value

Van Cleef Lake provides habitat of marginal quality for fish and wildlife. The developed nature of the adjacent uplands and shorelines offers limited habitat for wildlife that may use the lake. Routine lake drawdowns likely restrict the development of submerged

aquatic vegetation and a balanced fish community. Sediment quality may be affected by elevated levels of conventional parameters (e.g., ammonia and sulfides), and the presence of metals (e.g., zinc and copper) in surface sediments and petroleum hydrocarbons. Fluctuations in lake water levels caused by the lock and dam operation create a dynamic environment that inhibits establishment of plant and benthic invertebrate communities that serve as the food base for many fish and wildlife species. Thus, water level management may be a critical factor limiting the value of Van Cleef Lake to aquatic resources.

Large portions of the shoreline of Van Cleef Lake and the Cayuga and Seneca Canal are hardened with bulkheads and rip-rap (Figures 2-9 and 5-3), providing limited habitat for fish and wildlife. Much of the remaining shoreline has overhanging vegetation (Figures 5-4, 5-5, and 5-6), offering cover and perching sites for wildlife and cover for fish.

Historical photographs taken when the Van Cleef Lake was drained show relatively steep banks, building and former lock foundations, and fallen trees that could provide cover for fish and wildlife (Figures 2-4, 2-5, and 2-6). The bed of the lake has limited topographic features. Figure 2-7 shows that the historical river channel begins at the head of Van Cleef Lake, crosses to the north shore, and terminates near the dam. NYSDEC (2005a) noted a general lack of aquatic shelter in the area.

Land use in the upstream reference area is a mixture of residential and industrial, with many impervious surfaces and landscaped areas. Emergent vegetation was observed in many shoreline areas during the August 2005 field survey with common reed (*Phragmites australis*) and purple loosestrife observed. No significant submerged aquatic vegetation beds were observed in the canal upstream of Van Cleef Lake. Land use along Van Cleef Lake was predominantly residential, and the shoreline is predominantly wooded with steep banks. No significant areas of submerged aquatic vegetation were observed in Van Cleef Lake. Land use along the Cayuga and Seneca Canal downstream of the dam is less developed than on the lake. An outfall from the water treatment plant is on the southern bank immediately east of Lock 2. The shoreline along the northern side of the canal is predominantly wooded, and submerged aquatic vegetation beds were observed in several areas (Figure 2-9). Eurasian water milfoil (*Myriophyllum spicatum*) and tape grass (*Vallisneria spiralis*) were the most common submerged aquatic vegetation species observed. NYSDEC (2005a) noted the same species in that area.

Results of benthic macroinvertebrate sampling near the Bridge Street bridge in Seneca Falls in 1989 and 1990 (NYSDEC 1992b) show the area to be moderately impacted; however, this rating was adjusted to slightly impacted based on the canalized nature of the habitat. This sample location falls within the upstream reference area. Tolerant midges and worms dominated the benthic macroinvertebrate community, while biotic indicators of high water quality (mayflies, stoneflies, and caddisflies) were absent or rare (refer to Section 5.2). The lack of benthic bioindicators of high water quality at the Bridge Street bridge and generally throughout the lake and canal may be associated with the sediment quality (e.g., high TOC, fine-grained sediment, elevated ammonia and sulfides) and water temperature (e.g., warm summer water temperatures).

5.4.3 Cayuga and Seneca Canal Habitat Value

The Cayuga and Seneca Canal (encompassing portions of the Seneca River, Barge Canal, and Van Cleef Lake) is classified as a "Class C" waterbody by the New York State Department of State (NYSDOS 1995) and as such, should be suitable for fish survival and propagation. However, NYSDEC (2001) lists fishing and fish propagation as threatened and aesthetics as stressed in the Cayuga and Seneca Canal. The Priority Waterbodies List states that the "canal has been heavily impacted by point and non-point sources." Agriculture was cited as the primary source of pollution, although industry and contaminated sediment are also listed as sources. Van Cleef Lake and the Cayuga and Seneca Canal are not on the New York State 2012 Section 303(d) List of Impaired Waters and Waterbodies Requiring a TMDL Part 1, 2, or 3 (NYSDEC 2012).

The Cayuga and Seneca Canal downstream of the lock and dam provides somewhat better quality habitat for fish and wildlife than Van Cleef Lake. Although unaffected by the periodic water level fluctuations found in Van Cleef Lake, the canal downstream of the lock and dam is affected by its operation, which causes variable flow rates in the canal. Periods of high flow may cause scouring, which is expected to affect benthic communities and the food chains they support. Periodic canal dredging has a similar affect on the benthic community. Boat traffic can also reduce water quality by resuspending sediment. In addition, discharges from the Seneca Falls Waste Water Treatment Plant outfall, located on the south shore immediately downstream of the locks, may reduce water quality.

5.4.4 Fish Habitat Value

The dominant warm water fish species found in Van Cleef Lake and the Cayuga and Seneca Canal (bluegill [*Lepomis macrochirus*], pumpkinseed [*Lepomis gibbosus*], largemouth bass [*Micropterus salmoides*], and common carp [*Cyprinus carpio*]) forage upon plants, invertebrates, and fish. These species typically lay their eggs in shallow, quiescent water within submerged aquatic vegetation beds. The lack of significant submerged aquatic vegetation in Van Cleef Lake, coupled with the periodic drawdown of lake water levels, inhibits the reproduction, growth, and survival of these species. Although the Cayuga and Seneca Canal downstream of the locks and dam supports submerged aquatic vegetation beds, normal discharge from the power plant and higher discharges associated with the lake drawdown may create an unfavorable for reproduction.

5.4.5 Wildlife Habitat Value

Limited use of the lake and canal by mammals, birds, amphibians, and reptiles was observed. A discussion of potential lake and canal use by representative species listed in Tables 5-3 and 5-4 is in the following paragraphs.

Mammals such as the beaver (*Castro canadensis*) and muskrat are primarily herbivores that consume terrestrial and aquatic vegetation. The muskrat builds dens by burrowing into the shoreline, while beavers construct lodges of branches and mud. The mink (*Mustela vison*) is a carnivore and raccoon an omnivore that commonly forage in aquatic habitats, consuming fish, crustaceans, amphibians, reptiles, insects, and bivalves. Mink use a variety of den sites including old beaver lodges. Raccoons also use a variety of shelters including hollow trees and dens dug in the ground by other animals. Turtles, such as the painted turtle (*Chryemys picta*), are omnivorous, foraging on aquatic vegetation, insects, crayfish, and small mollusks. They lay their eggs in soil near the water. The common garter snake (*Thamnophis sirtalis*) primarily consumes frogs, toads, fish, salamanders, and tadpoles.

Waterfowl, such as the Canada geese and mallards, are primarily herbivores, consuming aquatic and terrestrial plant material. Mallards shift to a diet of invertebrates in the spring when reproduction occurs. Canada geese prefer nest sites close to water with high visibility and in many areas use islands as nest sites, while mallards prefer nesting in grassy areas near the water. The great blue heron feeds primarily on fish, but will also consume amphibians, crustaceans, insects, birds, and mammals. Herons nest in tall trees that may be distant from a water body. The spotted sandpiper (*Actitis*

macularia) feeds primarily on terrestrial and aquatic insects and nests close to water in semi-open habitats.

The aquatic habitats of Van Cleef Lake and the Cayuga and Seneca Canal provide some or possibly all requirements for many of the wildlife species likely to be found in the area. High quality aquatic habitats are present in the Montezuma National Wildlife Refuge, located approximately 4 miles northeast of the site, and in Cayuga and Seneca Lakes.

5.4.6 Value of Resources to Humans

The classification of the Cayuga and Seneca Canal as a "Class C" water body indicates that it is appropriate for primary (e.g., swimming) or secondary (e.g., boating, fishing) contact recreation (NYSDEC 1998).

The Cayuga and Seneca Canal is a recreational and commercial waterway connecting the Erie Canal with upstate New York's Finger Lakes Region. The navigation season on the New York State Canal System generally begins on May 1 and ends in mid-November (NYSCC 2005). In 2004, 3,198 recreational craft passed through Locks 2 and 3 (Callaghan 2005). Recreational activities include boating and sightseeing. Approximately 8 cargo vessels, 11 tour boats, 288 hire boats (e.g., rented house boats), and 100 NYSCC maintenance vessels passed through Locks 2 and 3 in 2004. A promenade along the canal in Seneca Falls connects with the Urban Cultural Park, providing additional recreational opportunities.

No beaches were noted on Van Cleef Lake or the adjacent areas of the Cayuga and Seneca Canal. The hardened or steep shoreline of Van Cleef Lake limits access to the water from the shoreline. However, boaters in the lake and canal may engage in swimming. The NYSCC prohibits swimming at or near canal structures (Callaghan 2005). Therefore, swimming in Van Cleef Lake would be prohibited. Swimming in the Cayuga and Seneca Canal would likely be limited. No swimmers have ever been observed during site visits. Beaches in parks on Seneca and Cayuga Lakes provide attractive swimming areas.

Hunting on Van Cleef Lake is limited by its proximity to the Village of Seneca Falls (Sampson 2005). Additionally, the NYSCC prohibits hunting at or near canal structures (Callaghan 2005).

Fishing is unlikely to occur because of alternative high quality fisheries available in the adjacent lakes and streams in the Finger Lakes Region. The NYSDEC prohibits fishing at or near canal structures (Callaghan 2005). No fishing advisories exist for Van Cleef Lake or the Cayuga and Seneca Canal.

6. Fish and Wildlife Resource Impact Assessment - Step IIA: Pathway Analyses

The objective of Step IIA is to identify fish and wildlife resources, contaminants of concern, sources of contaminants, and potential pathways of contaminant migration and exposure.

6.1 Release of Constituents to Terrestrial and Aquatic Resources

The facility was used for various manufacturing operations from 1914 to 1986. The *RFI Report* (URS 2002) reported metals, VOCs, and semi-volatile organic compounds (SVOCs) in on-site soils and groundwater. Process wastewater from the manufacturing operations was discharged to ravines at the top of the embankment south of the building complex until 1972, when all process wastewater was routed to an on-site treatment plant. The ravines that channeled the overland flow away from each historical discharge point are the only remaining visual evidence of such discharges. The HO use is discussed in Section 1. As discussed in Section 1.2, soil samples were collected from six HO locations and the ITO in 2000 as part of the RFI (URS 2002). The 13 RFI soil samples were predominantly collected at the approximate locations where the overland flow from the HO reached Van Cleef Lake or the Cayuga and Seneca Canal. Soil samples were analyzed for metals, VOCs, and fluoride. Concentrations of VOCs and fluoride in RFI soil samples were below Subpart 375-6: Remedial Program Soil Cleanup Objectives for industrial soil, and for the protection of ecological resources (2006) and NYSDEC's TAGM 4046 recommended soil cleanup objectives. Although a potential pathway for migration of VOCs and fluoride from the site to the lake and canal via the HOs and ITO may be complete, the low concentrations found in RFI soil samples and high volatility of VOCs makes this pathway negligible. Metals were present in soil samples from the HOs and ITO, and some of the samples collected in 2000 exceeded the ecological criteria for cadmium, chromium, copper, mercury, and zinc (Table 1-3).

Additional surface soil sampling was conducted in 2004 at the seven HOs to quantify the concentrations of metals in the ravines at the closest accessible location to the original HO pipe discharge point (Malcolm Pirnie 2004). Fifty-two soil samples were

collected in 2004. Excluding the cadmium results, the concentrations of detected metals were generally similar to concentrations found in 2000. Results of the 2004 sampling show that a portion of the total metals load was attenuated in the soils and organic matter in several of the HO ravines. Cadmium was the metal that most often exhibited this attenuation. Results of the screening for the 2004 samples were similar to those from the 2000 samples (Table 1-3).

Based on preliminary hydraulic modeling results for Van Cleef Lake and the Cayuga and Seneca Canal (Malcolm Pirnie 2004), sediments within or in contact with historical discharges from the site to the northern shore of Van Cleef Lake likely have remained near the shoreline of the lake or have been buried by other sediments over the 30-year period since the HO discharges ceased. Water velocities within the lake are relatively low, and the northern and central portions of the lake appear to be depositional areas. Water velocities in the Cayuga and Seneca Canal downstream of Van Cleef Lake are relatively high (up to 5 feet per second) in the central portion of the canal, but decrease to less than 1 foot per second in a narrow zone along the northern shore. Therefore, the areas most likely to contain evidence of HO discharges from the facility are along the northern shoreline of the canal adjacent to the HO ravines.

Groundwater in the site overburden does not appear to be hydraulically connected with groundwater in the bedrock. VOCs are not present in groundwater collected from bedrock monitoring wells screened in competent rock. A steep cliff along the hydraulically downgradient edge of the site acts as a geologic boundary. No evidence of seeps exists; therefore, seepage, if any, occurs at a rate equal to evaporation.

6.2 Terrestrial Resources Pathway

The pathway analysis identifies potential metals migration mechanisms for heavy metals including cadmium from HO-2, HO-3, HO-4, HO-5, HO-6, and HO-7 and considers if terrestrial wildlife resources are potentially exposed to heavy metals, including cadmium, originating from former discharge at these outfalls.

The former discharge points for HO-2, HO-3, HO-4, and HO-5 were located at the top of the embankment. Discharge from these outfalls flowed over the embankment and downhill in ravines for approximately 200 to 300 feet before reaching Van Cleef Lake (HO-2) or the Cayuga and Seneca Canal (HO-3, HO-4, and HO-5). HO-6 and HO-7 were located east of the building complex, and former discharge from these outfalls flowed approximately 0.4 mile following natural topography through a ravine and a low-lying area before reaching the Cayuga and Seneca Canal. Discharges into the ravines

from HO-2, HO-3, HO-4, and HO-5 ceased in 1972, and discharges from HO-6 and HO-7 ceased in 1978. Based on the soil sampling results (Malcolm Pirnie 2004), a portion of heavy metals in the discharges attenuated in the soil in the ravines associated with the HOs.

Previous sampling indicated that detectable concentrations of several metals were found in soil along Van Cleef Lake and the Cayuga and Seneca Canal, above the water line near the HOs.

The most likely complete exposure pathway for terrestrial resources associated with former discharge from HO-2, HO-3, HO-4, HO-5, HO-6, and HO-7 are for wildlife that may contact soil in the ravines downgradient of these outfalls via ingestion and/or dermal contact during foraging, burrowing, and/or nesting activities. Because the piping of HO-3, HO-4, and HO-5 and a portion of the ravines through which discharge from these outfalls flowed are buried under fill, wildlife exposure to soil at these locations is further reduced. Thus, exposure is likely to be limited to wildlife on, near, or immediately downgradient from HO-2 and (to a lesser extent) HO-3, HO-4, and HO-5. Terrestrial wildlife may also be exposed by ingesting vegetation and soil invertebrates in contact with soil that may have taken up heavy metals. Therefore, the potential for exposure to heavy metals in soil exists for wildlife inhabiting the areas near HO-2, HO-6, and HO-7 and (to a lesser extent) HO-3, HO-4, and HO-5. Based on the limited lateral extent of the ravines and access to the soils in the HO ravines, the exposure of terrestrial resources is considered insignificant.

6.3 Historical Outfalls Pathway for Aquatic Organisms

Excluding cadmium, metals concentrations in surface sediments of Van Cleef Lake and both upstream and downstream sections of the Cayuga and Seneca Canal routinely exceed NYSDEC LEL sediment criteria (Section 4.0). The spatial distribution of elevated copper, manganese, mercury, nickel, and zinc concentrations suggests that that background sediment quality is poor and sources upstream from Van Cleef Lake are the primary contributors to existing conditions. Concentrations of these metals in subsurface sediments are typically higher than those found in surface sediments, suggesting that historical loadings are from upgradient sources. Sediment samples exceeding the NYSDEC SEL for sediment criteria for these metals were typically found beneath 6 inches or more of surface sediments. Although petroleum-related compounds were not analyzed in sediments, petroleum staining of subsurface sediments also suggested historical petroleum releases into the canal/lake system from Van Cleef Lake or further upstream.

Historic Outfall Sediment Sampling results (Malcolm Pirnie 2005b) show that concentrations of most metals (arsenic, chromium, copper, iron, manganese, mercury, nickel, and zinc) in samples from Van Cleef Lake and the Cayuga and Seneca Canal adjacent to and downstream of the site are similar to or lower than concentrations found in the upstream reference area (Section 4.0). Aquatic biota may be exposed to these metals in surface sediment throughout the canal/lake system at levels exceeding the LEL. If disturbed, exposure to subsurface sediments could occur at levels greater than the SEL. However, because concentrations of these metals in sediment adjacent to and downstream from the site are similar to or lower than those in the reference area, the migration pathway from the site to the lake/canal system appears to be incomplete.

Cadmium was not present in surface sediment at concentrations greater than the NYSDEC SEL sediment criteria in the Cayuga and Seneca Canal and Van Cleef Lake (Section 4.0). Cadmium was not detected in surface samples at the eight reference stations. Subsurface cadmium concentrations in reference samples were also not detected in 15 of 19 reference samples. Four subsurface reference samples contained trace levels of cadmium estimated less than the reporting limit (RL) but greater than the 0.6 mg/kg LEL screening criteria.

Within Van Cleef Lake, 11 of 12 surface sediment samples contained no cadmium (Section 4.0), while the remaining location had an estimated concentration less than the RL but greater than the LEL. Buried sediments within Van Cleef Lake contained cadmium concentrations greater than reference samples in some locations. Eight out of 33 subsurface sediment samples, representing 5 of 12 sampling locations, exhibited concentrations above the SEL screening criteria. These samples were beneath 6 to 36 inches of sediment in which cadmium was not detected. Potential exposure of biota to cadmium in Van Cleef Lake sediments is incomplete if sediments remain undisturbed. However, the stability of sediments along the historical stream channel may be compromised during lake drawdown for dam and lock maintenance.

Cadmium concentrations in surface sediments (0 to 0.5 foot) from the samples downstream of Van Cleef Lake were greater than those in reference area samples (Section 4.0). Within the Cayuga and Seneca Canal downstream of the dam for Van Cleef Lake, 19 of 27 surface sediment samples did not contain cadmium. Of the eight surface sediment samples with cadmium, three contained trace concentrations (below the RL but above the LEL). The remaining five samples contained cadmium concentrations ranging from 3.77 to 8.36 mg/kg. Cadmium occurred primarily in samples adjacent to the canals northern shore extending approximately 2,000 feet

downstream of the locks and dam and outside the navigation channel dredge area. These results are consistent with the preliminary hydrodynamic modeling of discharge and potential settling areas (Malcolm Pirnie 2005b).

Under natural pH and water conditions, most metals do not exist in soluble forms for long periods, and if metals from the historical discharges reached Van Cleef Lake or the Cayuga and Seneca Canal, the metals generally would have accumulated in bottom sediment. Once in the sediment, most metals sorb onto hydrous iron and manganese oxides, clayey minerals, and organic materials and may partition into the sediments.

The lake and canal fish and wildlife resources include warm water fish (bluegill, pumpkinseed, largemouth bass, and common carp), birds (Canada goose, mallard, and great blue heron), mammals (muskrat and raccoon), and reptiles and amphibians (painted turtle and common garter snake; Section 5.2). Exposure to metals other than cadmium and possibly petroleum-related compounds from other sources is more likely than exposure to cadmium. Fish and wildlife resources may be exposed to elevated metals and petroleum compound concentrations found in canal surface sediment by sediment ingestion (direct contact), dermal intake (indirectly by dissolution of metals from sediment into pore water or the water column), prey ingestion (indirectly by consumption of prey that have accumulated metals from the sediment or sediment pore water). Although cadmium associated with former manufacturing operations at the site may have migrated into the canal sediments the exposure pathways are limited.

7. Conclusions

This HOSS-FWRIA report summarizes a comprehensive assessment of terrestrial and aquatic habitats and resources on and near the site, an evaluation of soil quality associated with former discharges from HOs, and a detailed evaluation of sediment quality in adjacent portions of Van Cleef Lake and the Seneca and Cayuga Canal. The information presented has been obtained through exhaustive literature reviews, consultations with regulatory agencies, and field investigations conducted in accordance with the following NYSDEC-approved work plans:

- *RFI Work Plan* (Secor International, Inc. 1996);
- *Historic Outfall Evaluation Work Plan* (Malcolm Pirnie 2003); and
- HOSS Work Plan – Appendix A of *CMS Work Plan* (Malcolm Pirnie 2005a).

Sediment quality was evaluated through the collection and analysis of 117 sediment samples (48 surficial and 69 at depth) along transects in the lake and canal. Background sediments in Van Cleef Lake and the Seneca and Cayuga Canal upstream of the site contained nickel, copper, and mercury at concentrations exceeding the LEL, and concentrations of zinc exceeding the SEL. Historical petroleum releases to Van Cleef Lake was apparent and was not associated with site former activities. Cadmium associated with former HO's may have migrated into limited areas of the lake and canal but is buried beneath sediment that contains lower or non-detectable concentrations.

No significant threats to terrestrial resources exist near the HO's. The HO ravines are significantly smaller in size than the total area of each resource type present at the site. Therefore, the overall value of terrestrial resources in the areas of overland discharge flow from the HO's is limited. Aquatic resources were typical of moderately impaired waterways, and no threatened or endangered animal or plant species are known to be present at or near the site. Fish and wildlife that live in or use the lake and canal are not likely to come in contact with buried cadmium-containing sediments. Subsequent steps of the FWRIA, further evaluation of soil/sediment quality, or evaluation or implementation of corrective measures is not proposed.

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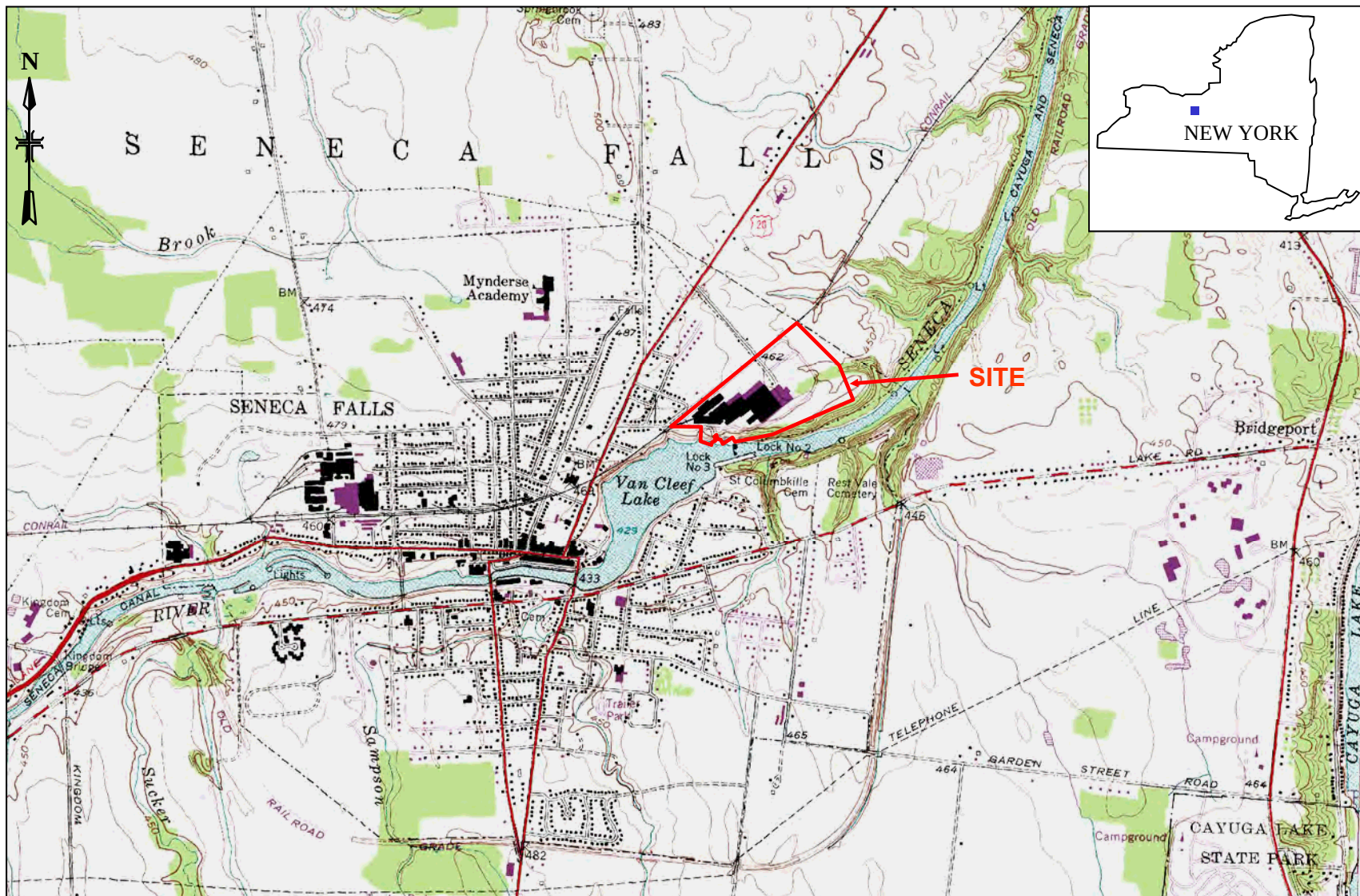
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**Corrective Measures
Study Report**

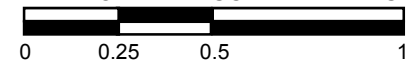
Appendix A

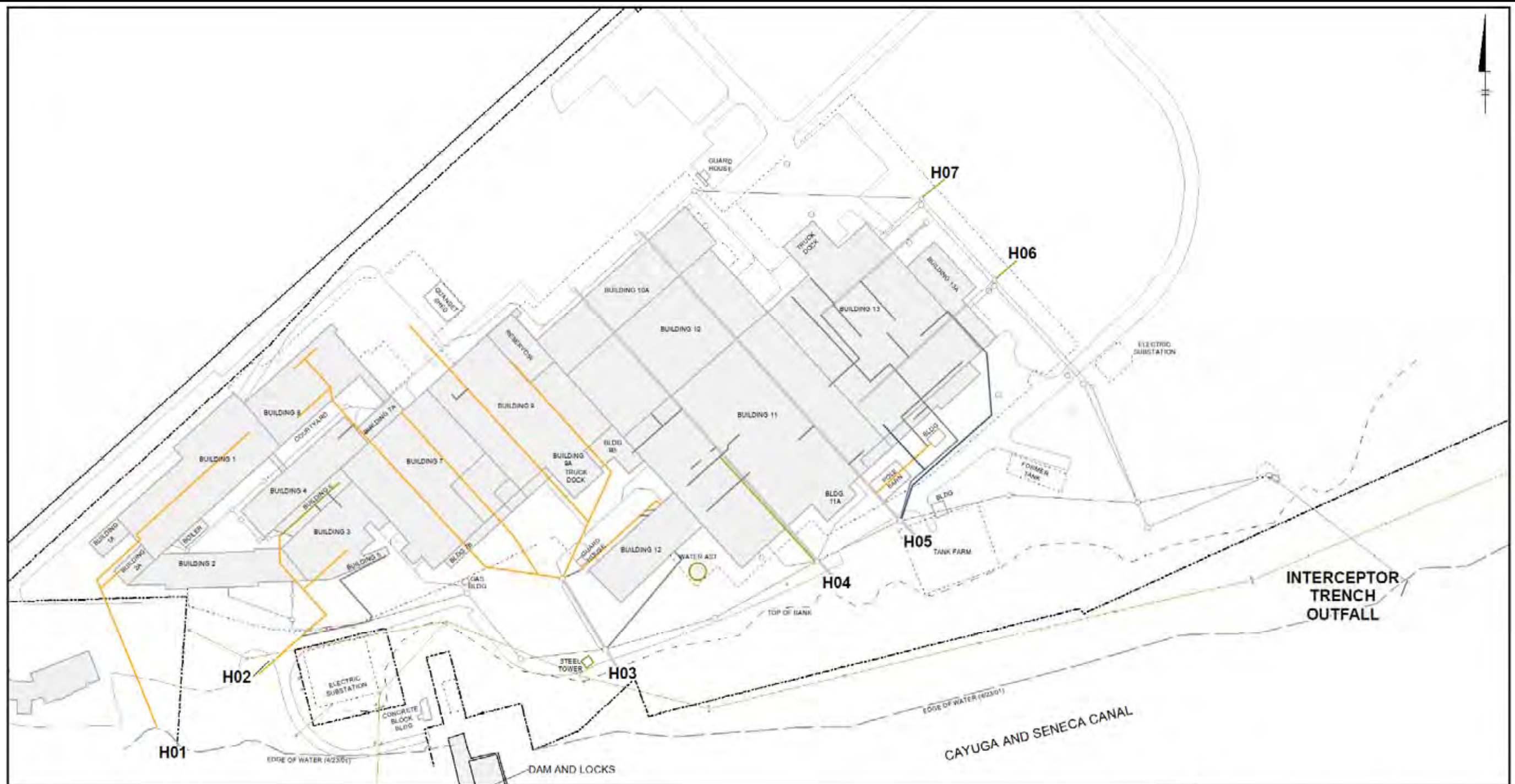
Figures



MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC SERIES, SENECA FALLS QUADRANGLE, JULY 1, 1988

APPROXIMATE SCALE IN MILES





LEGEND

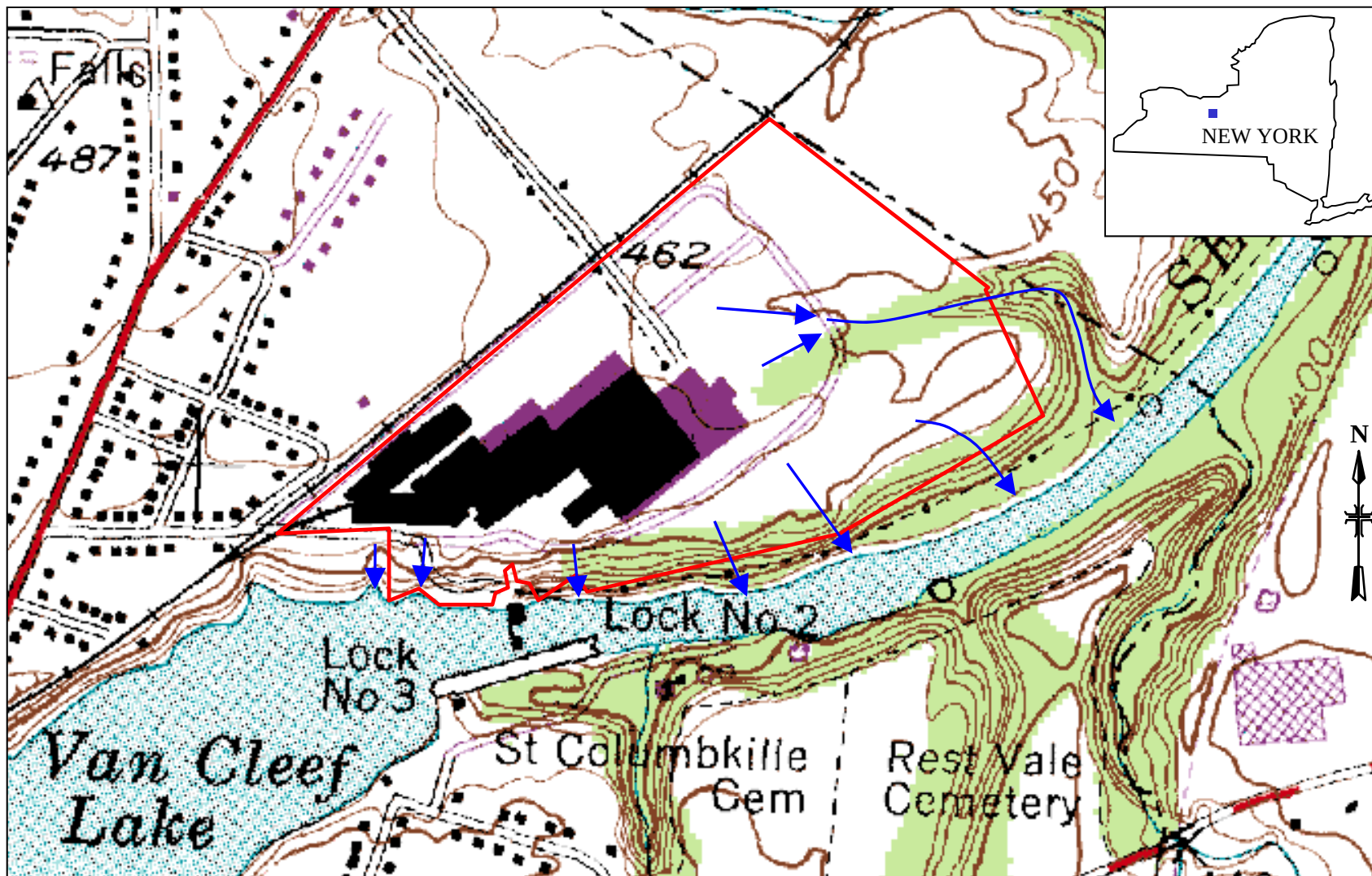
OVERLAND OUTFALL DISCHARGE FLOW	RAILROAD TRACK	PIPE MATERIALS AND LOCATIONS (SOURCE: SYLVANIA ELEC. PROD., INC. JULY 13, 1987)
MANHOLE/CATCHBASIN	PROPERTY BOUNDARY	UNIDENTIFIED PIPE
ELECTRICAL POLE	INTERCEPTOR PIPE	CAST IRON
H01 HISTORICAL OUTFALL	FENCE	CONCRETE
	ELECTRIC OVERHEAD LINE	SANITARY LINE
	STORM SEWER PIPE	TERRA COTTA

0 175 350
SCALE IN FEET



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
HISTORICAL OUTFALLS

FIGURE 1-2

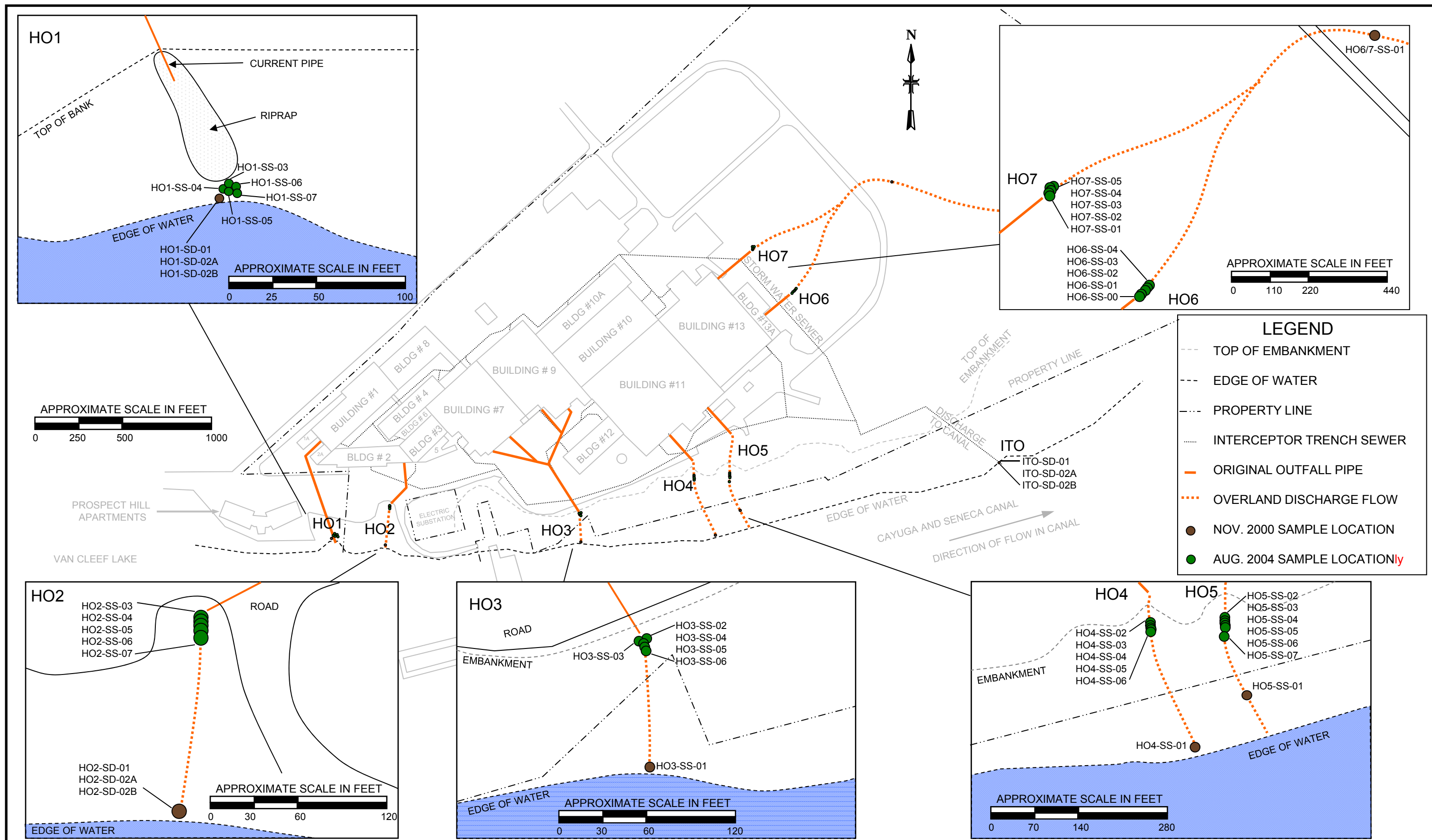


MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC SERIES, SENECA FALLS QUADRANGLE, JULY 1, 1988



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
 SENECA FALLS, NEW YORK
 CORRECTIVE MEASURES STUDY REPORT
DRAINAGE MAP

FIGURE 1-3





MAP SOURCE: RECREATIONAL CHART 14786, NEW YORK STATE CANAL SYSTEM, 13TH EDITION, SEPTEMBER 2001, U.S. DEPARTMENT OF COMMERCE



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
SOUNDINGS IN THE NEW YORK STATE CANAL SYSTEM

FIGURE 2-1



Figure 2-2

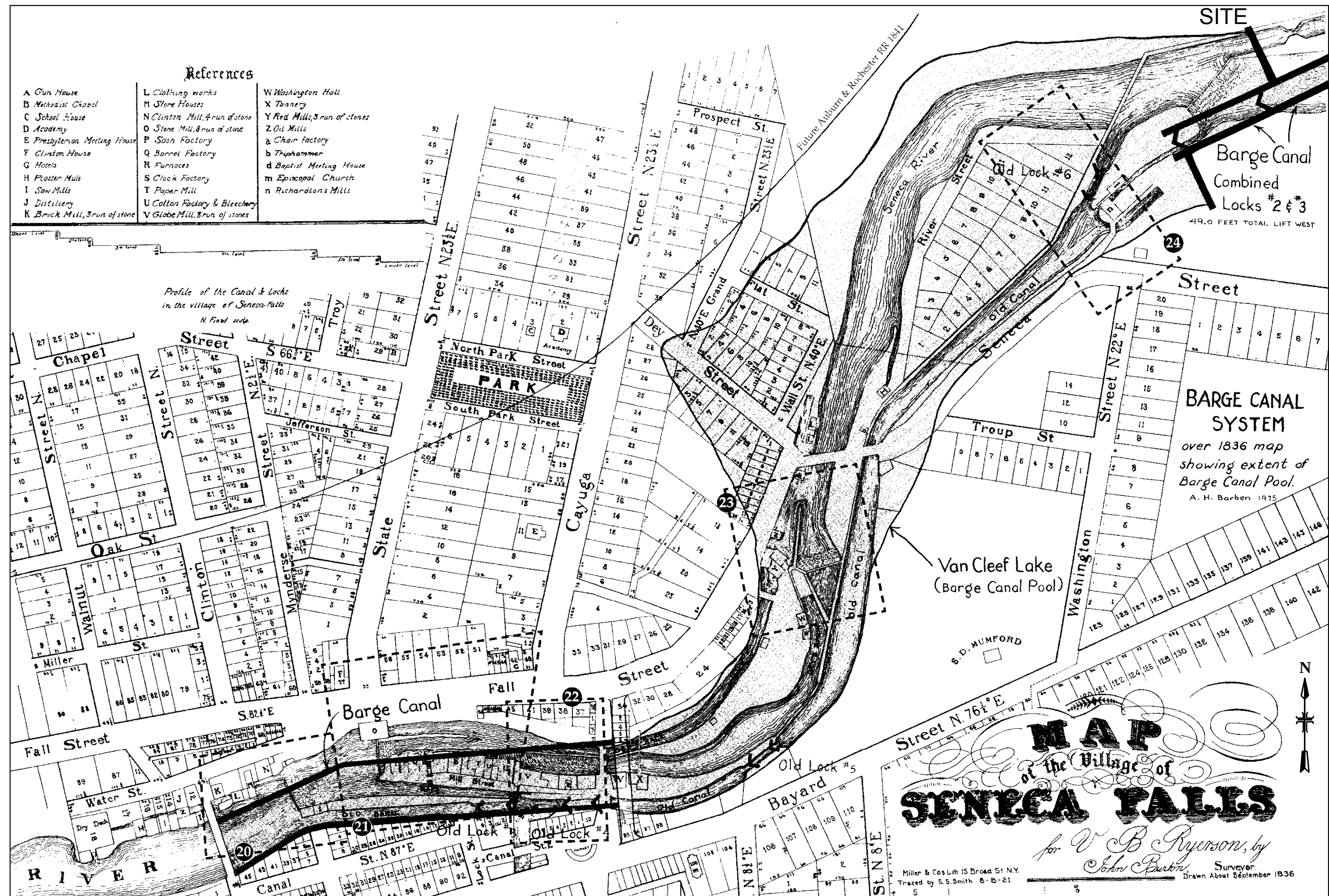
View Looking West Toward Lock 2



Village of Seneca Falls Publicly Owned Treatment Works in Background

Figure 2-3

View Looking East from Lock



SOURCE: THE FLATS INCLUDING THE CANAL AND INDUSTRIES: A COMPILATION OF ARNOLD BARBEN'S ACCOUNTS CONCERNING THE EARLY DAYS OF SENECA FALLS, NY, THE SENECA FALLS HISTORICAL SOCIETY, REVISED 2000





Figure 2-6

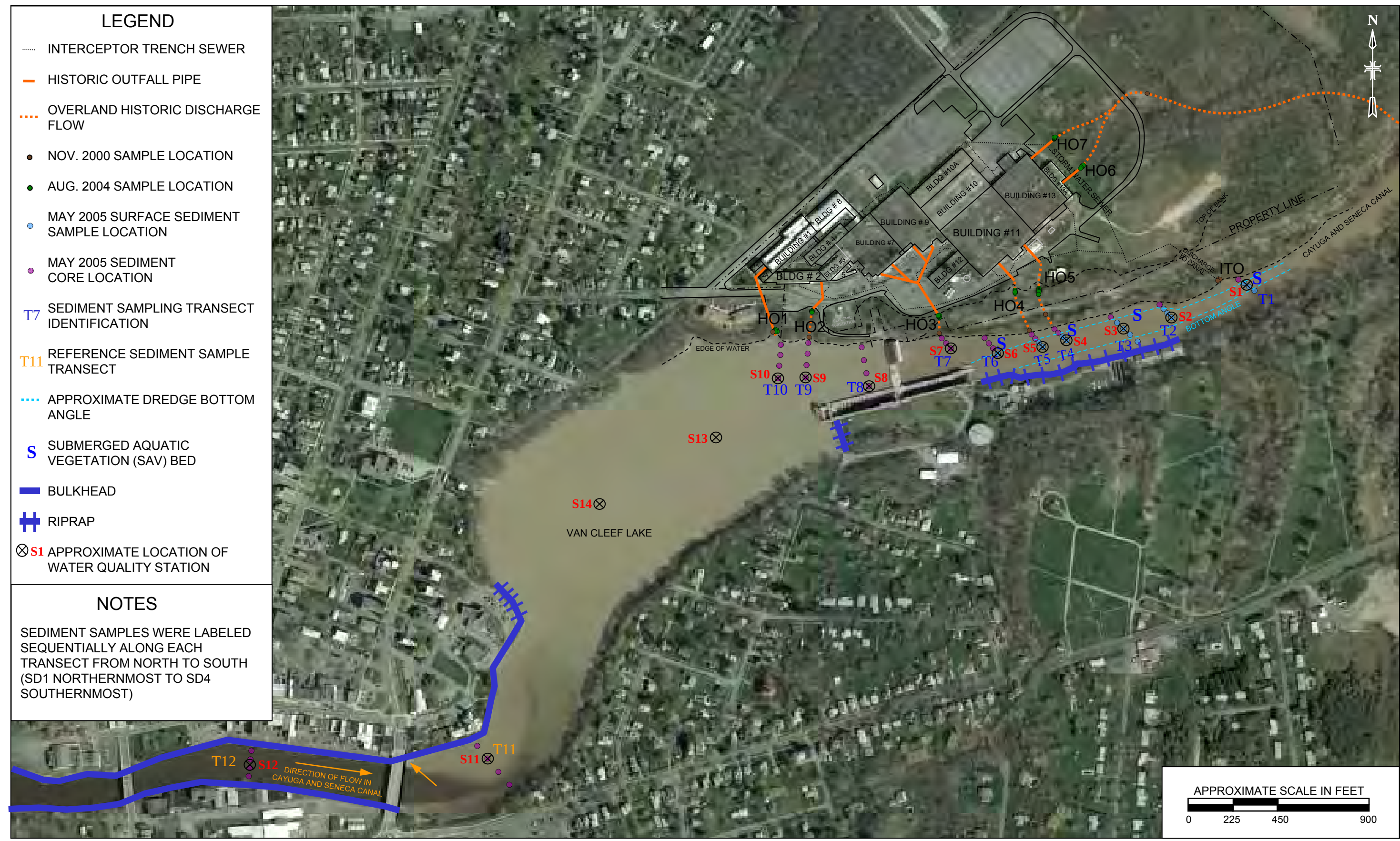
Historical Photograph of Van Cleef Lake at Drawdown Looking at North Shore

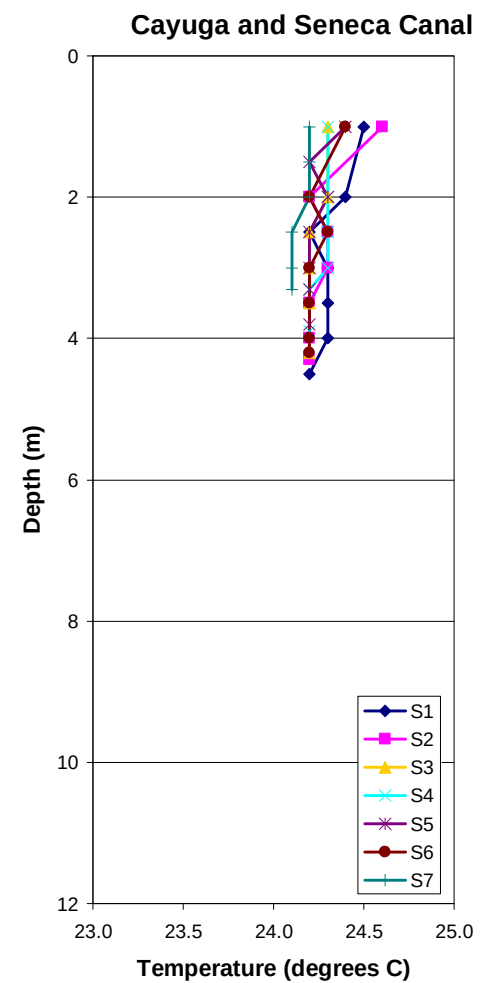
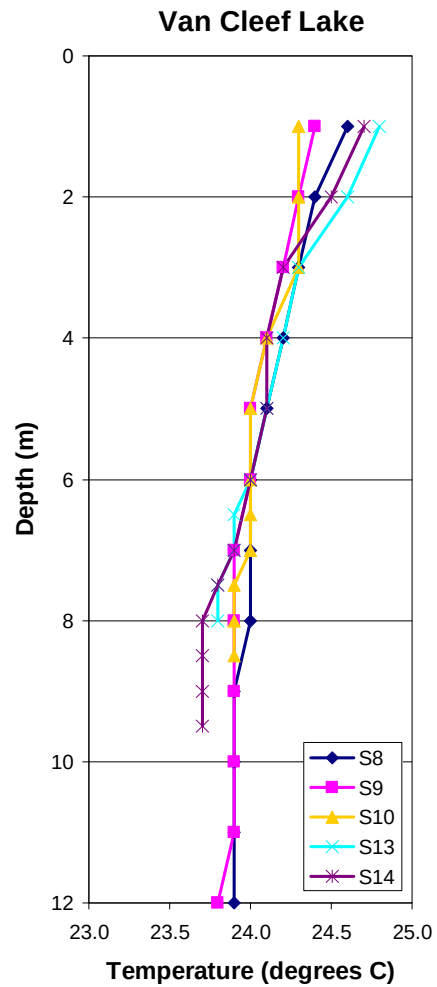
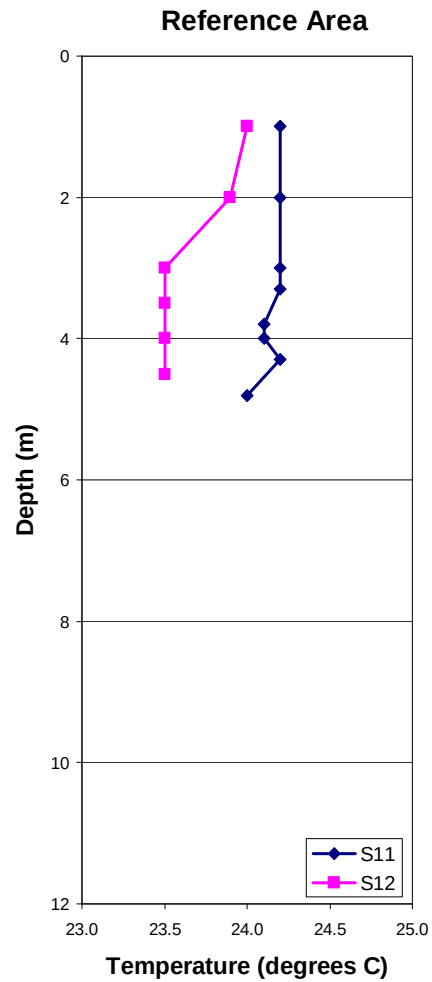


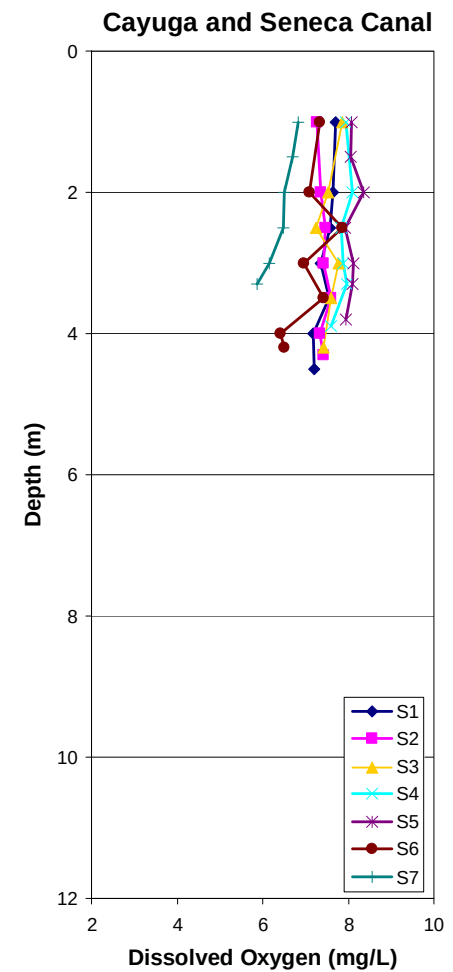
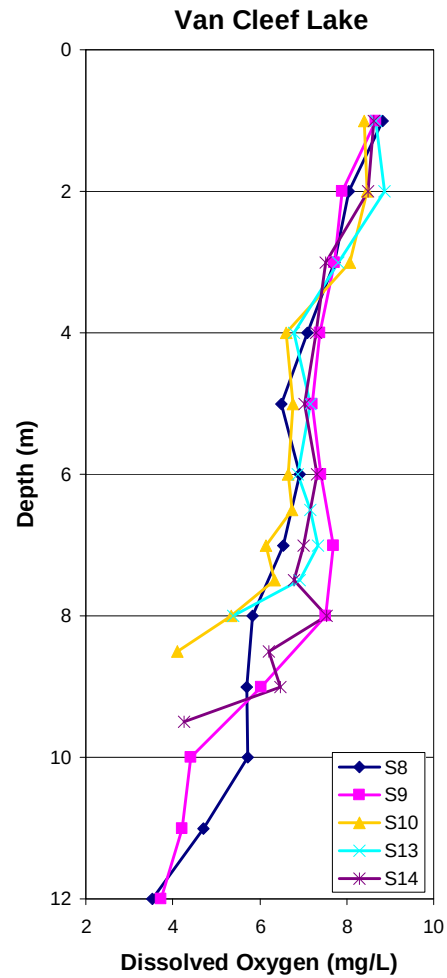
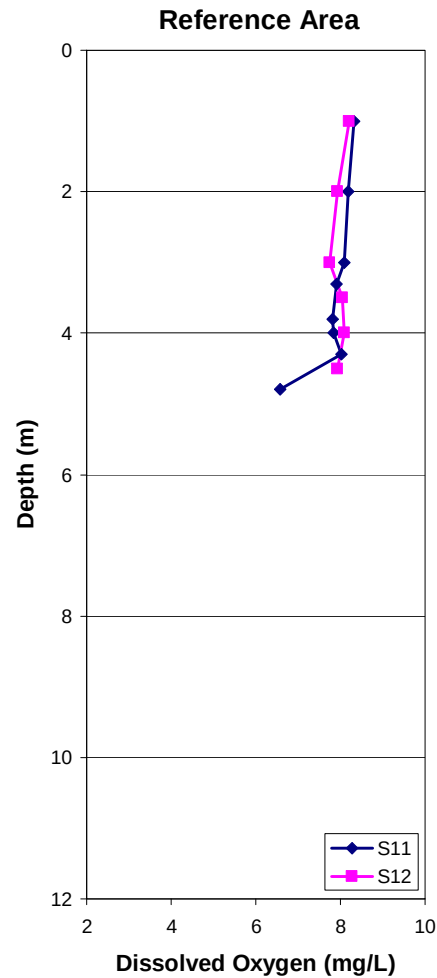
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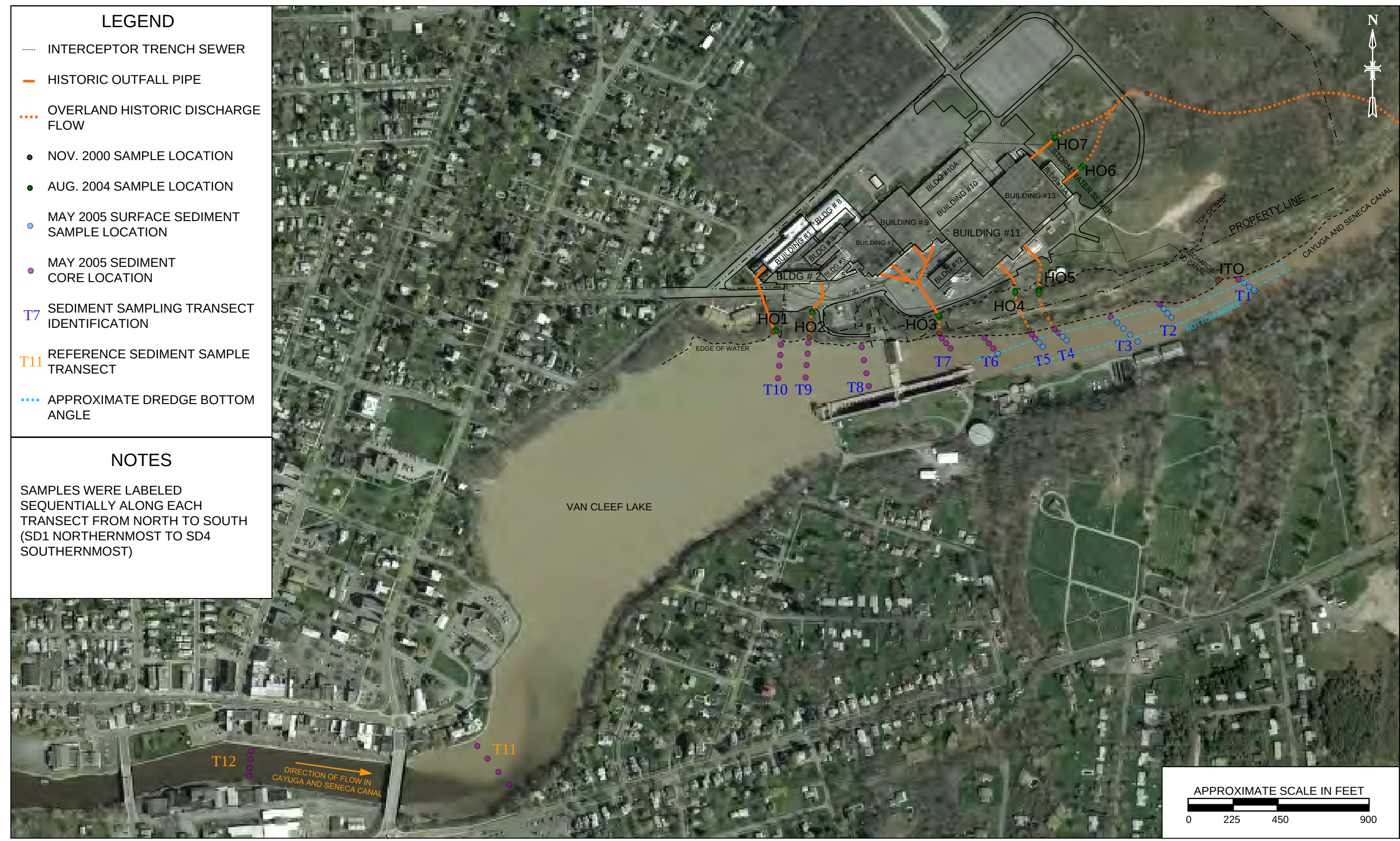
Historical Photograph of Van Cleef Lake at Drawdown Looking at North Shore











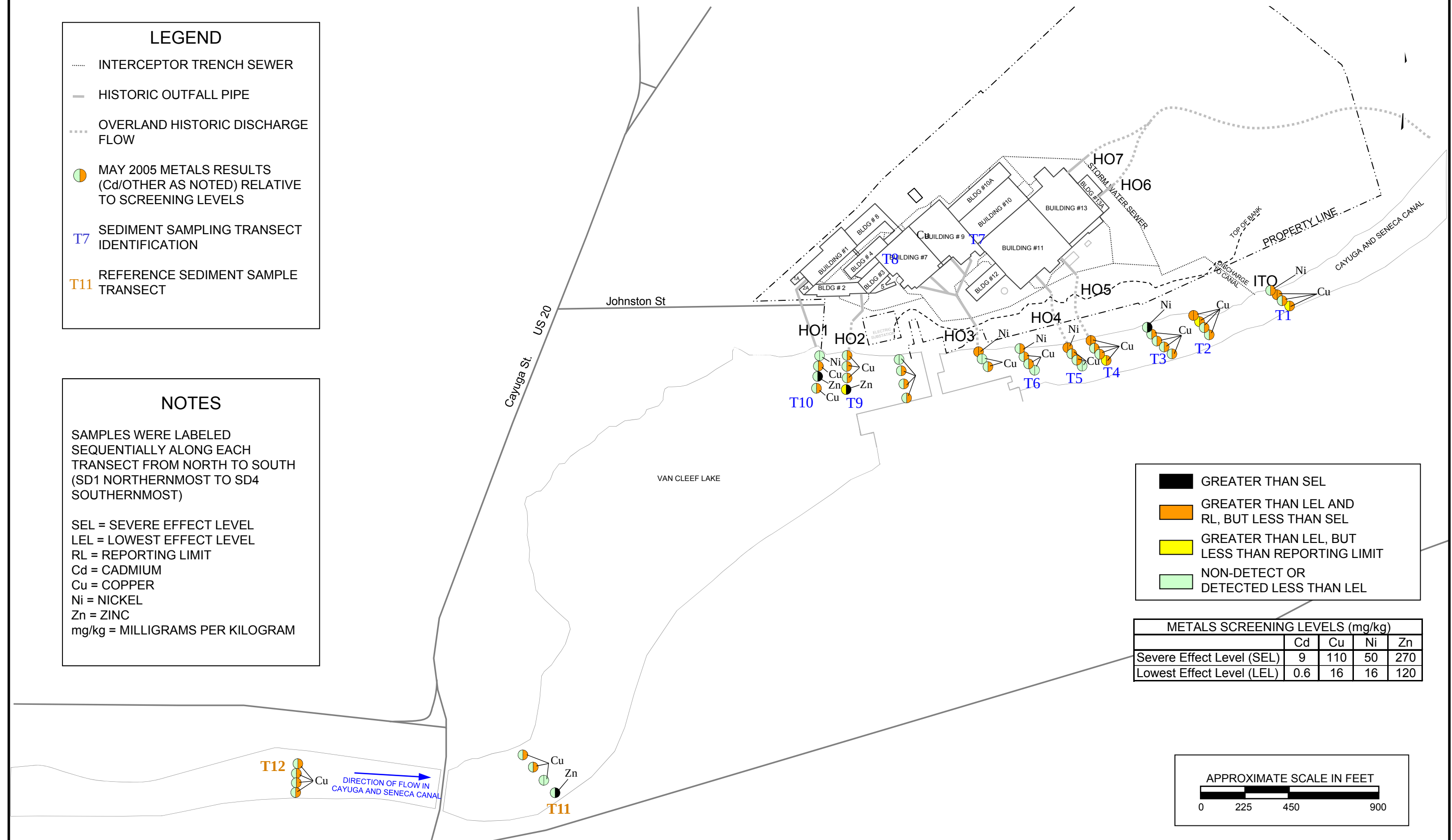
LEGEND

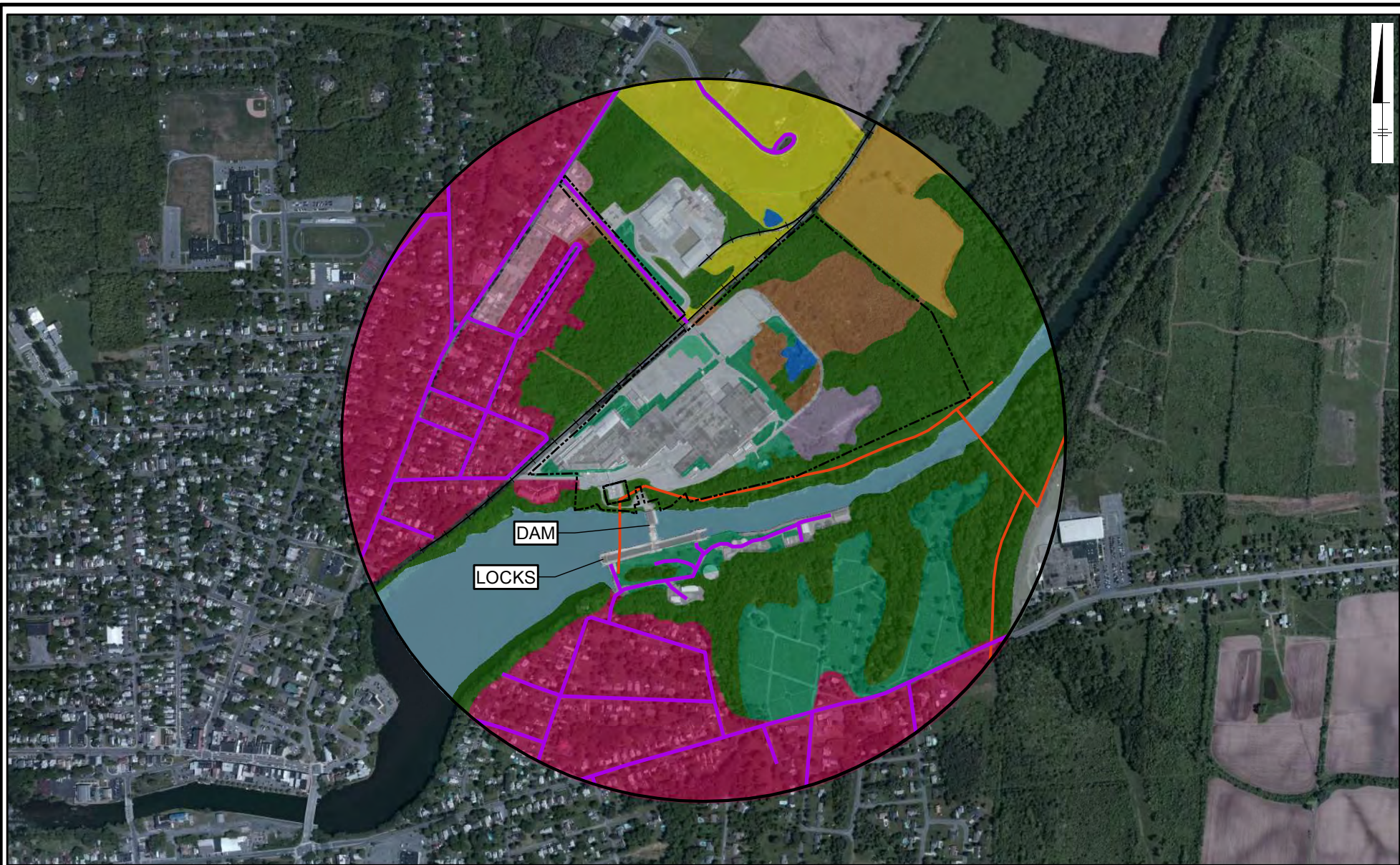
- INTERCEPTOR TRENCH SEWER
- HISTORIC OUTFALL PIPE
- OVERLAND HISTORIC DISCHARGE FLOW
-  MAY 2005 METALS RESULTS (Cd/OTHER AS NOTED) RELATIVE TO SCREENING LEVELS
- T7 SEDIMENT SAMPLING TRANSECT IDENTIFICATION
- T11 REFERENCE SEDIMENT SAMPLE TRANSECT

NOTES

SAMPLES WERE LABELED SEQUENTIALLY ALONG EACH TRANSECT FROM NORTH TO SOUTH (SD1 NORTHERNMOST TO SD4 SOUTHERNMOST)

SEL = SEVERE EFFECT LEVEL
LEL = LOWEST EFFECT LEVEL
RL = REPORTING LIMIT
Cd = CADMIUM
Cu = COPPER
Ni = NICKEL
Zn = ZINC
mg/kg = MILLIGRAMS PER KILOGRAM





LEGEND

FORESTED	LOW LYING	ROADS
LAWN	ASPHALT	POWER LINE
CONSTRUCTION SPOILS	SUCCESSIONAL FIELD	RAILROAD
SCRUB/SHRUB	RESIDENTIAL	PROPERTY BOUNDARY
AGRICULTURE	WATER BODY	HALF-MILE BUFFER
INDUSTRIAL	COMMERCIAL	

0 1,000 2,000
 SCALE IN FEET

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

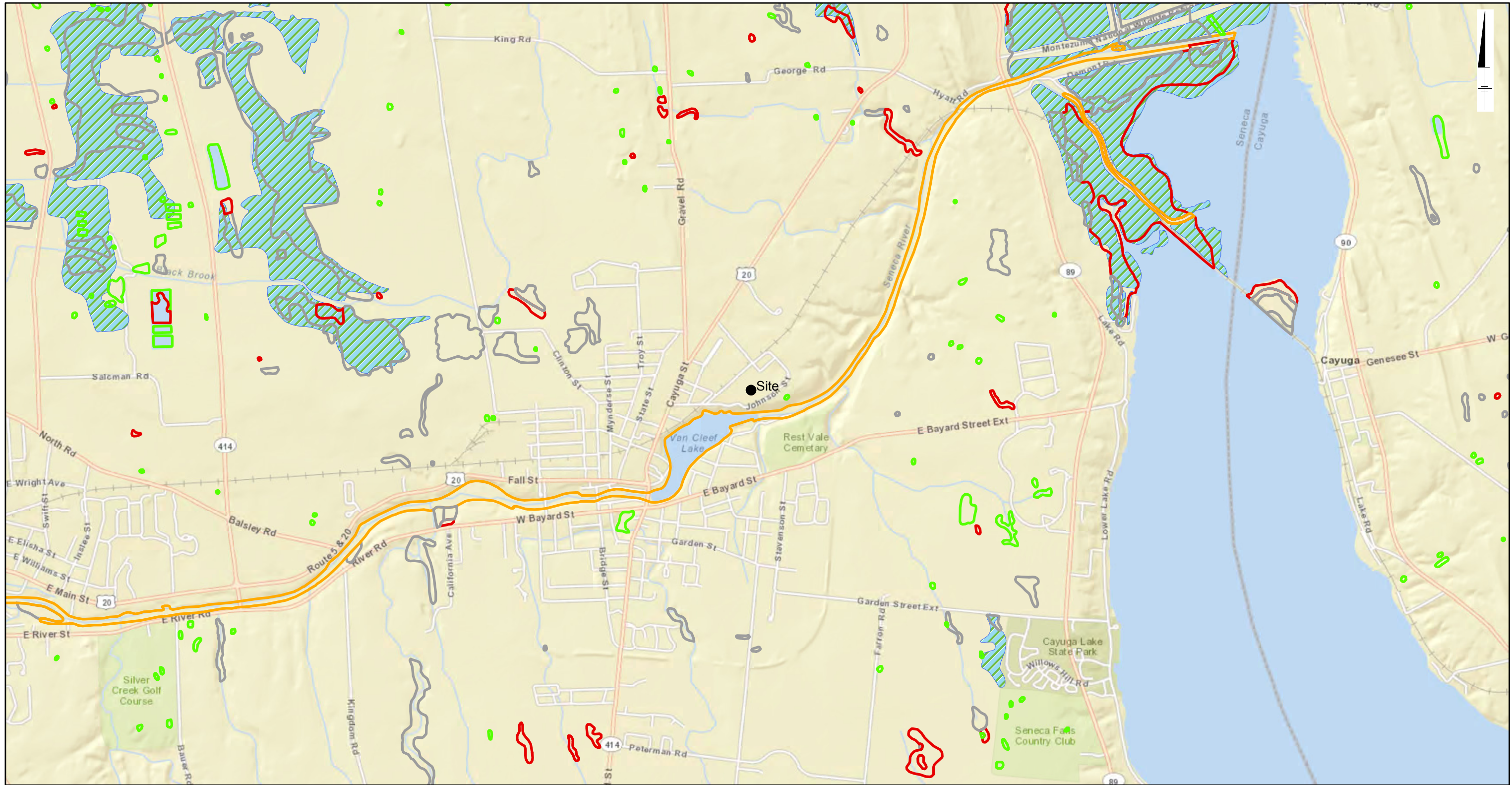
FORMER PHILIPS DISPLAY COMPONENTS FACILITY
 SENECA FALLS, NEW YORK
 CORRECTIVE MEASURES STUDY REPORT

COVER TYPE MAP



FIGURE
5-1

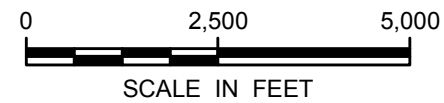
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PROJECT:



LEGEND

US FISH AND WILDLIFE NATIONAL WETLANDS INVENTORY (2012)

- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE
- NEW YORK STATE WETLANDS INVENTORY (2006)



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
SOURCE: US Fish and Wildlife Service NWI Index for New York
Accessed at <http://www.fws.gov/wetlands/Data/State-Downloads.html> on 10/3/2012.
BASEMAP: ARCGIS Online World Streets Layer, Accessed 10/3/2012 via ArcGIS Desktop V10.

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

WETLANDS MAP



FIGURE
5-2



Figure 5-3

South Shore of the Canal near Location S4 showing riprap, August 2005

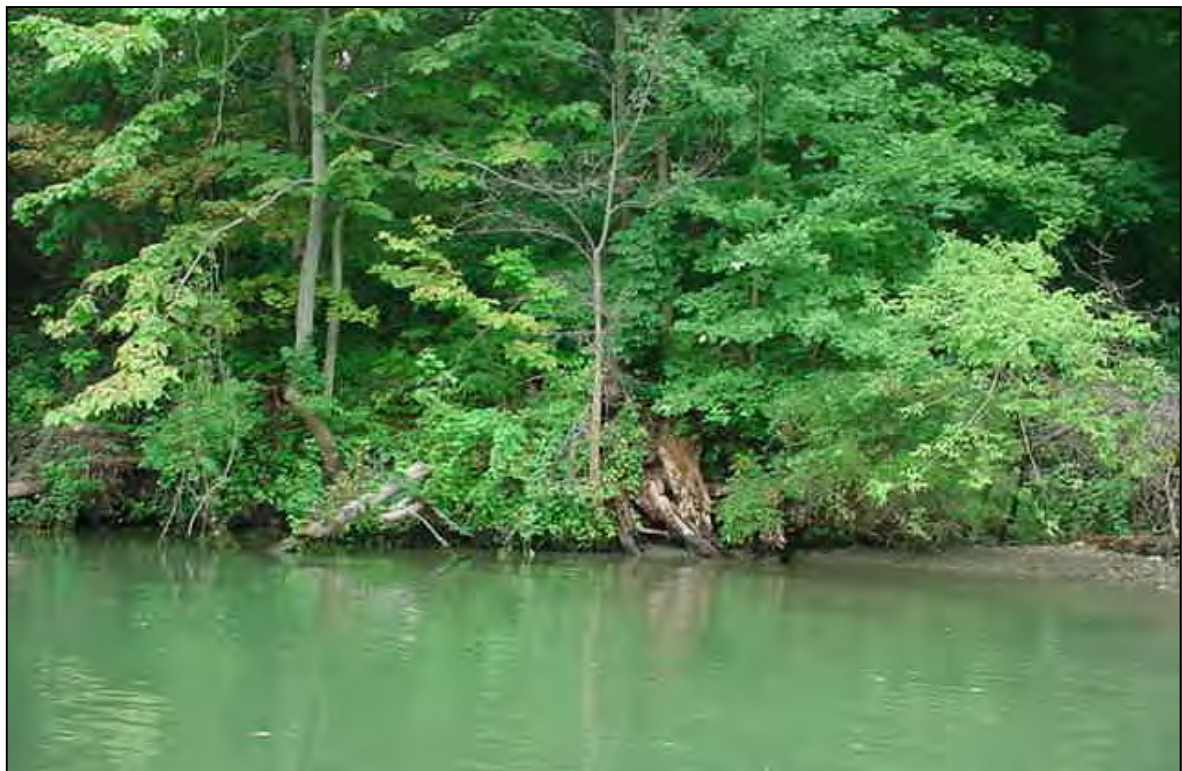


Figure 5-4

North Shore of the Cayuga and Seneca Canal near Location S1, August 2005



Figure 5-5

Vegetated North Shore of Van Cleef Lake near Location S8, August 2005



Figure 5-6

Vegetated South Shore of Van Cleef Lake, August 2005



**Corrective Measures
Study Report**

Appendix A

Tables

Table 1-1
RFI Historical Outfall Soil Sample Analytical Data Summary - November 2000

**Former Philips Display Components Facility
Seneca Falls, NY**

	HO1-SD-01 0-0.5 ft bgs	HO1-SD-02A 0-0.5 ft bgs	HO1-SD-02B 0.5-1.0 ft bgs	HO2-SD-01 0-0.5 ft bgs	HO2-SD-02A 0-0.5 ft bgs	HO2-SD-02B 0.5-1.0 ft bgs	HO3-SS-01 0-0.5 ft bgs	HO4-SS-01 0-0.5 ft bgs	HO5-SS-01 0-0.5 ft bgs	HO6/7-SS-01 0-0.5 ft bgs	ITO-SD-01 0-0.5 ft bgs	ITO-SD-02A 0-0.5 ft bgs	ITO-SD-02B 0.5-1.0 ft bgs
Parameter	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aluminum	6480	10800	9130	6410	7150	10200	9100	15400	12800	17900	11700	11700	12500
Antimony	0.24 J	0.32 J	0.40 J	0.40 U	1.1 J	0.41 J	0.21 U	0.87 J	0.39 J	0.29 U	0.23 U	0.22 U	0.61 J
Arsenic	3.7	4.5	4.2	3	4.3	4.6	2.7	3.5	4.3	4.8	3.0	3.4	2.9
Barium	36.2	95.2	51.1	55.4	56.1	104	94	430	99.8	122	23.5	26.9	21.4
Beryllium	0.47 J	0.47 J	0.47 J	0.33 J	0.37 J	0.45 J	0.44 J	0.67 J	0.64 J	0.91 J	0.64 J	0.64 J	0.65 J
Cadmium	1.4	254	2.4	63.5	3.0	250	27.0	82.8	545	93.2	0.079 J	0.12 J	0.032 U
Calcium	46600	24200	26100	33300	27700	36200	56400	41700	27700	4700	47600	43900	61200
Chromium	8.7	23.0	3.9	11.6	12.1	23.1	14.2	56.5	30.3	23.8	21.7	21.5	22.2
Cobalt	5.5	6.0 J	0.6	3.9 J	5.5 J	6.7 J	5.2 J	7.6	8.2	7.3 J	6.0 J	6.0	5.5 J
Copper	13.8	34.8	30.7	17.6	25.8	35.4	11.6	20.4	21.4	93.9	14.2	13.9	13.5
Iron	17500	16400	17200	11100	14700	15600	13000	17200	17300	22400	16100	16000	15000
Lead	19.1	52.4	36.2	22.8	29.4	57.7	36.5	32.2	18.9	125	35.1	51.0	20.3
Magnesium	16000	8300	10900	8060	10400	8560	23600	31300	15300	4280	33300	30600	40900
Manganese	567	354	391	267	503	322	297	160	436	517	189	200	181
Mercury	0.031 U	0.054 J	0.12 J	0.059 U	0.037 U	0.045 J	0.071 J	0.070 J	0.050 J	0.3	0.035 U	0.033 J	0.033 U
Nickel	8.9	23.1	13.4	11	13.2	24.8	11.2	24.5	16.6	17.4	19.1	18.3	18
Potassium	1330	2690	1490	1760	1360	2620	3150	5390	3820	2430	3820	3990	4290
Selenium	0.4 U	0.52 U	0.48 U	0.77 U	0.49 U	0.70 J	0.40 U	0.44 U	0.46 U	0.59 J	0.46 U	0.43 U	0.43 U
Silver	0.082 U	1.0 J	0.096 U	0.16 U	0.098 U	1.3 J	0.082 U	0.090 U	0.094 U	0.11 U	0.093 U	0.088 U	0.087 U
Sodium	165	166	147	382	174	187	173	249	215	98.9 J	265	260	294
Thallium	0.54 U	0.69 U	0.63 U	1.0 U	0.64 U	0.70 U	0.53 U	0.59 U	0.61 U	0.89 J	0.6 U	0.57 U	0.57 U
Vanadium	20.4	22.2	20.7	14	17.4	21.6	18.6	37.7	67.4	44.8	20	19.8	20.5
Zinc	51.5	900	78.1	207	85.3	792	115	324	1560	511	88.4	80.7	47.9
Total Fluoride	1.4	4.7	1.7	2.1	1.3	6.1	4.9	5.7	5.7	2.7	2.2	2.8	3.3
Percent Solids	91.4	70.8	77.8	47.8	76.2	70.4	91.8	83.2	79.8	83.7	81	85.4	86.3

Notes:

J = Estimated less than the reporting limit
U = Not detected greater than reporting limit

Acronyms and Abbreviations:

ft bgs = feet below ground surface
mg/kg = milligrams per kilogram
RFI = Resource Conservation and Recovery Act Facility Investigation

**Table 1-2
Historical Outfall Soil Sampling VOC Data**

**Former Philips Display Components Facility
Seneca Falls, NY**

Parameter	NYSDEC Industrial Standards [ppb]	NYSDEC Protection of Ecological	Location ID Depth (ft)	Units/Date	HO1-01	HO1-02A	HO1-02B	HO2-01	HO2-02A	HO2-02B	ITO-01	ITO-02A	ITO-02B
					0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1
					11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000
1,1,1-Trichloroethane	1,000,000 ^c	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1,2,2-Tetrachloroethane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1,2-Trichloroethane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1-Dichloroethane	480,000	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1-Dichloroethene	1,000,000 ^c	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,2-Dichloroethane	60,000	10,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,2-Dichloropropane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
2-Butanone (MEK)	1,000,000 ^c	100,000 ^a		µg/kg	11 U	4 J	13 U	21 U	13 U	14 U	12 U	12 U	12 U
2-Hexanone	----	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
4-Methyl-2-Pentanone (MIBK)	----	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Acetone	1,000,000 ^c	2,200		µg/kg	4 J	14 U	3 J	21 U	13 U	14 U	12 U	12 U	12 U
Benzene	89,000	70,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Bromodichloromethane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Tribromomethane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Bromomethane	----	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Carbon Disulfide	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Carbon Tetrachloride	74,000	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chlorobenzene	1,000,000 ^c	40,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chloroethane	----	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Chloroform	700,000	12,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chloromethane	----	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
cis-1,2-Dichloroethene	1,000,000 ^c	----		µg/kg	3 U	4 U	3 U	5 U	3 U	1 J	3 U	3 U	3 U
cis-1,3-Dichloropropene	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chlorodibromomethane	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Ethylbenzene	780,000	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Dichloromethane	----	----		µg/kg	1 J	4 U	1 J	5 U	3 U	4 U	3 U	3 U	3 U
Styrene (Monomer)	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Tetrachloroethene	300,000	2,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Toluene	1,000,000 ^c	36,000		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
trans-1,2-Dichloroethene	1,000,000 ^c	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
trans-1,3-Dichloropropene	----	----		µg/kg	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Trichloroethene	400,000	2,000		µg/kg	3 U	4 U	1 J	5 U	2 J	6	3 U	3 U	3 U
Vinyl Chloride	27,000	----		µg/kg	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Total Xylenes	1,000,000 ^c	260		µg/kg	3 U	4 U	1 J	5 U	3 U	4 U	3 U	3 U	3 U

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

---- Limits not provided for specific COC in the NYSDEC Standards

a = The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm.

c = The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1,000 ppm.

J = Estimated below reporting limit

U = Not Detected

Acronyms and Abbreviations:

µg/kg = micrograms per kilogram

COC = constituent of concern

ft = feet

ppb = parts per billion

ppm = parts per million

VOC = volatile organic compound

**Table 1-3
Historical Outfalls / Sediment Sampling Metals History**

**Former Philips Display Components Facility
Seneca Falls, NY**

			Location ID	HO1-01	HO1-02A	HO1-02B	HO2-01	HO2-02A	HO2-02B	HO3-01	HO4-01	HO5-01	HO6/7-01	ITO-01	ITO-02A	ITO-02B	H01-SS-03
			Depth (ft)	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1	0-0.5
Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Units/Date	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	8/4/2004
Aluminum	----	----	mg/kg	6480	10800	9130	6410	7150	10200	9100	15400	12800	17900	11700	11700	12500	7040
Antimony	----	----	mg/kg	0.24 J	0.32 J	0.4 J	0.4 U	1.1 J	0.41 J	0.21 U	0.87 J	0.39 J	0.29 U	0.23 U	0.22 U	0.61 J	1.7 UNJ
Arsenic	16 ^f	13	mg/kg	3.7	4.5	4.2	3	4.3	4.6	2.7	3.5	4.3	4.8	3	3.4	2.9	4.2 B
Barium	10000 ^d	433	mg/kg	36.2	95.2	51.1	55.4	56.1	104	94	430	99.8	122	23.5	26.9	21.4	55.3
Beryllium	2700	10	mg/kg	0.47 J	0.47 J	0.47 J	0.33 J	0.37 J	0.45 J	0.44 J	0.67 J	0.64 J	0.91 J	0.64 J	0.64 J	0.65 J	0.76 U
Cadmium	60	4	mg/kg	1.4	254	2.4	63.5	3	250	27	82.8	545	93.2	0.079 J	0.12 J	0.032 U	2.4 B
Calcium	***	***	mg/kg	46600	24200	26100	33300	27700	36200	56400	41700	27700	4700	47600	43900	61200	33500
Chromium	800	41	mg/kg	8.7	23	3.9	11.6	12.1	23.1	14.2	56.5	30.3	23.8	21.7	21.5	22.2	11.9 UNJ
Cobalt	----	----	mg/kg	5.5	6 J	0.6	3.9 J	5.5 J	6.7 J	5.2 J	7.6	8.2	7.3 J	6 J	6	5.5 J	6.8
Copper	270	50	mg/kg	13.8	34.8	30.7	17.6	25.8	35.4	11.6	20.4	21.4	93.9	14.2	13.9	13.5	22.8
Fluoride (F-, Anion)	----	----	mg/kg	1.4	4.7	1.7	2.1	1.3	6.1	4.9	5.7	5.7	2.7	2.2	2.8	3.3	--
Iron	***	***	mg/kg	17500	16400	17200	11100	14700	15600	13000	17200	17300	22400	16100	16000	15000	13800
Lead	400	63	mg/kg	19.1	52.4	36.2	22.8	29.4	57.7	36.5	32.2	18.9	125	35.1	51	20.3	49.3
Magnesium	***	***	mg/kg	16000	8300	10900	8060	10400	8560	23600	31300	15300	4280	33300	30600	40900	11800
Manganese	10000 ^d	1600	mg/kg	567	354	391	267	503	322	297	160	436	517	189	200	181	323
Mercury	5.7 ⁱ	0.18	mg/kg	0.031 U	0.054 J	0.12 J	0.059 U	0.037 U	0.045 J	0.071 J	0.07 J	0.05 J	0.3	0.035 U	0.033 J	0.033 U	0.06 B
Nickel	10000 ^d	30	mg/kg	8.9	23.1	13.4	11	13.2	24.8	11.2	24.5	16.6	17.4	19.1	18.3	18	14.8
Percent Solids	----	----	mg/kg							--	--	--	--				--
Potassium	***	***	mg/kg	1330	2690	1490	1760	1360	2620	3150	5390	3820	2430	3820	3990	4290	997
Selenium	6800	3.9	mg/kg	0.4 U	0.52 U	0.48 U	0.77 U	0.49 U	0.7 J	0.4 U	0.44 U	0.46 U	0.59 J	0.46 U	0.43 U	0.43 U	2.4 U
Silver	6800	2	mg/kg	0.082 U	1 J	0.096 U	0.16 U	0.098 U	1.3 J	0.082 U	0.09 U	0.094 U	0.11 U	0.093 U	0.088 U	0.087 U	0.49 U
Sodium	***	***	mg/kg	165	166	147	382	174	187	173	249	215	98.9 J	265	260	294	179 NJ
Thallium	----	----	mg/kg	0.54 U	0.69 U	0.63 U	1 U	0.64 U	0.7 U	0.53 U	0.59 U	0.61 U	0.89 J	0.6 U	0.57 U	0.57 U	3 U
Vanadium	----	----	mg/kg	20.4	22.2	20.7	14	17.4	21.6	18.6	37.7	67.4	44.8	20	19.8	20.5	15.4
Zinc	10000 ^d	109	mg/kg	51.5	900	78.1	207	85.3	792	115	324	1560	511	88.4	80.7	47.9	86.6

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

---- = Limits not provided for specific COC in the NYSDEC Standards

*** = Essential nutrients are categorically eliminated as COPC

d = The SCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j = This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC Industrial Soil Standards

Bold Exceeds the NYSDEC Protection of Ecological Resources Standards

U = Not Detected

E = Estimated

J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

COC = constituent of concern

COPC = constituent of potential concern

ft = feet

mg/kg = milligrams per kilogram

ppm = parts per million

* = Duplicate analysis not within control limits.

**Table 1-3
Historical Outfalls / Sediment Sampling Metals History**

**Former Philips Display Components Facility
Seneca Falls, NY**

			Location ID	H01-SS-04	H01-SS-04	H01-SS-05	H01-SS-05	H01-SS-06	H01-SS-06	H01-SS-07	H02-SS-03	H02-SS-03	H02-SS-04	H02-SS-05	H02-SS-05	H02-SS-06	H02-SS-07
			Depth (ft)	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5
Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	----	mg/kg	4760	7260	6510	5740	10800	5920	5750	5610	5530	5560	5290 EJ	6360	5800	6410
Antimony	----	----	mg/kg	1.4 UNJ	1.8 UNJ	1.6 UNJ	1.6 UNJ	1.7 UNJ	1.8 UNJ	1.4 UNJ	1.9 UNJ	1.9 UNJ	3.1 UNJ	2 UNJ	2.5 UNJ	1.6 UNJ	1.3 UNJ
Arsenic	16 ^f	13	mg/kg	2.6 B	5.5 B	3.6 B	5.3 B	5.7 B	3.1 B	4.3 B	4.2 B	3.5 B	4.1 B	5.2 BJ	4.8 B	4.8 B	3.9 B
Barium	10000 ^d	433	mg/kg	33.4	44.5	52.4	55.5	87.6	46	44.1	85.4	62.3	103	134	124	90.8	51.4
Beryllium	2700	10	mg/kg	0.63 U	0.77 U	0.69 U	0.7 U	0.73 U	0.78 U	0.63 U	0.83 U	0.83 U	1.3 U	0.9 U	1.1 U	0.71 U	0.58 U
Cadmium	60	4	mg/kg	1.4 B	1.7 B	1.4 U	2.6 B	3.9 B	1.7 B	1.4 B	46.6	18.5	60.5	111 *	70.9	89.6	21.6
Calcium	***	***	mg/kg	31500	46700	36000	29700	44400	32500	29600	58200	84400	89200	48400 J	82100	47100	48300
Chromium	800	41	mg/kg	7.7 UNJ	11.4 UNJ	9.4 UNJ	10.8 UNJ	16.1 UNJ	8.8 UNJ	8.5 UNJ	18.9 UNJ	13.2 UNJ	16.2 UNJ	19.5 UJ	16.4 UNJ	17 UNJ	10.2 UNJ
Cobalt	----	----	mg/kg	5.1	7.7	7	7	8.7	6	6.8	6.1	5.8	6	6.6	7.2	6.4	5.9
Copper	270	50	mg/kg	14.5	21.7	19.2	48.7	53.3	20	16.9	52.7	32	49.9	50.3 *J	47.4	35.4	23.4
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	***	***	mg/kg	9390	16800	13000	17500	21100	11200	12100	17000	12400	13100	18200	15400	14600	13300
Lead	400	63	mg/kg	22	25.4	20.3	39	39.6	24.4	23.4	56.4	37.8	51.9	62.1 *J	57.4	64.6	31.8
Magnesium	***	***	mg/kg	9900	15100	13200	12100	16800	13200	12000	14200	16700	13500	11300	13000	12800	15700
Manganese	10000 ^d	1600	mg/kg	259	496	673	468	710	492	510	440	598	780	1490	1150	625	533
Mercury	5.7 ^j	0.18	mg/kg	0.037 B	0.039 B	0.042 B	0.057	0.072	0.052 B	0.04 B	0.063	0.038 B	0.057 B	0.069	0.07 B	0.087	0.044
Nickel	10000 ^d	30	mg/kg	9.8	17	13.4	13.3	20	12.2	11.4	15.6	14.1	24.1	23.7 *NJ	21.2	21.9	14.3
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	***	mg/kg	636	886	928	845	1630	852	672	878	818	975	864	1160	919	1000
Selenium	6800	3.9	mg/kg	2 U	2.5 U	2.2 U	2.2 U	2.3 U	2.5 U	2 U	2.6 U	2.7 U	4.3 U	2.9 U	3.5 U	2.3 U	1.8 U
Silver	6800	2	mg/kg	0.4 U	0.49 U	0.44 U	0.45 U	0.47 U	0.5 U	0.41 U	0.53 U	0.53 U	0.86 U	0.57 U	0.7 U	0.78 B	0.37 U
Sodium	***	***	mg/kg	164 NJ	167 NJ	139 NJ	122 BNJ	185 NJ	111 BNJ	164 NJ	215 NJ	223 NJ	311 NJ	252 NJ	292 NJ	125 BNJ	100 BNJ
Thallium	----	----	mg/kg	2.5 U	3 U	2.7 U	2.8 U	2.9 U	3.1 U	2.5 U	3.3 U	3.3 U	5.3 U	3.6 UNJ	4.3 U	2.8 U	2.3 U
Vanadium	----	----	mg/kg	10.7	16	12.5	14.5	21.2	12.1	12.3	12.9	11.3	13.3	15.4	19	13.4	12.1
Zinc	10000 ^d	109	mg/kg	42.2	62.5	46.4	89.4	111	53.6	44.6	281	133	288	411 *J	321	386	145

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

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*** = Essential nutrients are categorically eliminated as COPC

d = The SCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j = This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

 Exceeds the NYSDEC Industrial Soil Standards

Bold Exceeds the NYSDEC Protection of Ecological Resources Standards

U = Not Detected

E = Estimated

J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

COC = constituent of concern

COPC = constituent of potential concern

ft = feet

mg/kg = milligrams per kilogram

ppm = parts per million

* = Duplicate analysis not within control limits.

**Table 1-3
Historical Outfalls / Sediment Sampling Metals History**

**Former Philips Display Components Facility
Seneca Falls, NY**

			Location ID	H03-SS-02	H03-SS-03	H03-SS-03	H03-SS-04	H03-SS-04	H03-SS-05	H03-SS-06	H04-SS-02	H04-SS-02	H04-SS-03	H04-SS-04	H04-SS-05	H04-SS-06	H04-SS-06	H04-SS-06
			Depth (ft)	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0.5-1.0	0-0.5
Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	----	mg/kg	8610	7790 EJ	6370	10800 EJ	6380	9400 EJ	13600	6110 EJ	7000 EJ	7930 EJ	7650 EJ	12100 EJ	14100	13700 EJ	9310 EJ
Antimony	----	----	mg/kg	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.5 UNJ	1.7 UNJ	1.5 UNJ	1.7 UNJ	1.1 UNJ	1.3 UNJ	1.3 UNJ	1 UNJ	1.5 UNJ	1.7 UNJ	1.2 UNJ	1.3 UNJ
Arsenic	16 ^f	13	mg/kg	7 B	6.1 B	6 B	6.9 B	5.7 B	6.8 B	7.2 B	2.6 B	3.2 B	3.1 B	2.4 B	5.5 B	6.3 B	5.4 B	3.7 B
Barium	10000 ^d	433	mg/kg	98.2	99	81.4	128	83.5	119	763	32.1	208	74.5	198	126	153	148	254
Beryllium	2700	10	mg/kg	0.6 U	0.68 U	0.77 U	0.68 U	0.74 U	0.67 U	0.76 U	0.49 U	0.56 U	0.56 U	0.46 U	0.66 U	0.77 B	0.72 B	0.56 U
Cadmium	60	4	mg/kg	21.3	53.2 *	37.2	43.7 *	34.5	27.4 *	226	15.1 *	682 *	159 *	265 *	163 *	210	217 *	505 *
Calcium	***	***	mg/kg	66600	54000 J	104000	32500	54600	55000	28500	68100 J	60900 J	65700 J	35200 J	12600 J	5870	7540 J	53800 J
Chromium	800	41	mg/kg	31 UNJ	13.3 U	11 UNJ	18.5 U	14.8 UNJ	16.1 U	20.5 UNJ	10.1 U	14.7 U	12.3 U	13.3 U	18.9 U	19.3 UNJ	19 U	15 U
Cobalt	----	----	mg/kg	7.7	6.8	5.2	9.6	6.3	8.2	8.9	5.3	6.8	6.6	5.1	9.5	10.4	11.9	9
Copper	270	50	mg/kg	101	120 *J	70.6	77.3 *	75	63.3 *	83.1	18.7 *J	28.1 *J	20.4 *J	21.7 *J	33.9 *J	32.1	31.2 *J	18.8 *J
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	***	***	mg/kg	25400	18100	14900	24000	17700	21400	25900	11100	12200	13100	12200	23400	25200	23800	16700
Lead	400	63	mg/kg	82	69.9 *J	78.2	102 *J	105	75.2 *J	142	6.5 B*J	46 *J	13.7 *J	22.3 *J	16.5 *J	15.1	17.2 *J	30.1 *J
Magnesium	***	***	mg/kg	27200	12500	10600	13400	11800	14400	9180	26200	19500	23500	13000	9980	5580	5990	21800
Manganese	10000 ^d	1600	mg/kg	614	516	390	757	488	622	588	377	566	399	205	409	406	420	459
Mercury	5.7 ^j	0.18	mg/kg	0.12	0.074	0.079	0.092	0.084	0.069	0.14	0.023 B	0.12	0.041 B	0.055	0.04 B	0.072	0.078	0.54
Nickel	10000 ^d	30	mg/kg	45.8	29.3 *NJ	26.6	40.5 *NJ	32.6	31.8 *NJ	61.6	12 *NJ	14.9 *NJ	14.2 *NJ	13.9 *NJ	23.7 *NJ	24.5	24.6 *NJ	17.3 *NJ
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	***	mg/kg	1540	1320	1270	1770	1190	1590	2040	1490	1460	2040	1240	1630	1640	1650	1720
Selenium	6800	3.9	mg/kg	1.9 U	2.2 U	2.5 U	2.2 U	2.4 U	2.2 U	2.4 U	1.6 U	1.8 U	1.8 U	1.5 U	2.1 U	2.4 U	1.7 U	1.8 U
Silver	6800	2	mg/kg	0.38 U	0.44 U	0.49 U	0.43 U	0.47 U	0.43 U	0.49 U	0.31 U	0.36 U	0.36 U	0.29 U	0.42 U	0.49 U	0.34 U	0.36 U
Sodium	***	***	mg/kg	133 NJ	114 BNJ	155 NJ	97.7 BNJ	106 BNJ	128 NJ	157 NJ	155 NJ	139 NJ	152 NJ	99 NJ	76.3 BNJ	58.3 BNJ	61.4 BNJ	139 NJ
Thallium	----	----	mg/kg	2.4 U	2.7 UNJ	3 U	2.7 UNJ	2.9 U	2.7 UNJ	3 U	1.9 UNJ	2.2 UNJ	2.2 UNJ	1.8 UNJ	2.6 UNJ	3 U	2.1 UNJ	2.2 UNJ
Vanadium	----	----	mg/kg	18.4	19.8	13.3	22.9	15.8	19.5	25.9	11.6	19.7	15.8	15.5	22.5	22.3	22.3	18.7
Zinc	10000 ^d	109	mg/kg	241	223 *J	187	286 *	317	180 *	653	73.9 *J	1830 *J	427 *J	910 *J	731 *J	442	513 *J	1400 *J

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

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---- = Limits not provided for specific COC in the NYSDEC Standards

*** = Essential nutrients are categorically eliminated as COPC

d = The SCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j = This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

 Exceeds the NYSDEC Industrial Soil Standards

Bold Exceeds the NYSDEC Protection of Ecological Resources Standards

U = Not Detected

E = Estimated

J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

COC = constituent of concern

COPC = constituent of potential concern

ft = feet

mg/kg = milligrams per kilogram

ppm = parts per million

* = Duplicate analysis not within control limits.

**Table 1-3
Historical Outfalls / Sediment Sampling Metals History**

**Former Philips Display Components Facility
Seneca Falls, NY**

			Location ID	H05-SS-02	H05-SS-03	H05-SS-04	H05-SS-04	H05-SS-05	H05-SS-06	H05-SS-07	H06-SS-00	H06-SS-01	H06-SS-01	H06-SS-01	H06-SS-02	H06-SS-03	H06-SS-03	H06-SS-04
			Depth (ft)	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5
Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Aluminum	----	----	mg/kg	7110 EJ	9690 EJ	4920 EJ	7100 EJ	7530 EJ	9240 EJ	9190 EJ	5250	6050	5270	6120	7240	7100	7240	8550
Antimony	----	----	mg/kg	1.2 UNJ	1.2 UNJ	1.4 UNJ	1.2 UNJ	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.4 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.3 UJ	1.5 UJ	1.5 UJ
Arsenic	16 ^f	13	mg/kg	6.1 BJ	5.9 BJ	2.4 BJ	3.8 B	5.7 BJ	3.7 BJ	3.7 BJ	3 B	3 B	2.8 B	3.1 B	3.6 B	3.6 B	3.2 B	4.1 B
Barium	10000 ^d	433	mg/kg	67.5	83.9	44.2	85.4	72	68	76	65.6	50.6	43.5	49.8	59.7	62.7	63.8	69.6
Beryllium	2700	10	mg/kg	0.52 U	0.51 B	0.63 U	0.54 U	0.61 U	0.69 U	0.77 U	0.63 U	0.62 U	0.59 U	0.62 U	0.62 U	0.56 U	0.67 U	0.65 U
Cadmium	60	4	mg/kg	65.9 *	56.8 *	49.5 *	115 *	104 *	48 *	59.7 *	13.6 J	1.2 UJ	1.2 UJ	9 J	9.2 J	3.7 J	8.8 J	14.5 J
Calcium	***	***	mg/kg	42900 J	36500 J	53800 J	82500 J	33800 J	33400 J	52100 J	107000	70600	60100	66400	74300	70600	75700	67500
Chromium	800	41	mg/kg	11.7 UJ	15 UJ	7.4 UJ	16.6 U	13.5 UJ	13.8 UJ	16 UJ	8.1 U	8.9 U	8.2 U	9.5 U	12 U	10.4 U	11.4 U	12.7 U
Cobalt	----	----	mg/kg	8.4	8.8	5.6	7.6	8.6	8.6	8.8	4.9	5.7	5.7	5.6	6.5	6.3	6	7
Copper	270	50	mg/kg	21.7 *J	24 *J	16.6 *J	94.3 *J	52.1 *J	24.3 *J	22.7 *J	39.9 J	21.8 J	17.9 J	30.6 J	24.6 J	22.6 J	49.5 J	48 J
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	***	***	mg/kg	13800	18100	10100	13100	19000	17500	17400	10400	12300	11000	12000	13900	13900	13600	15400
Lead	400	63	mg/kg	19.7 *J	12.6 *J	10 B*J	14.4 *J	17.6 *J	14.5 *J	16.4 *J	13	7.4 B	5.8 B	12.7	8 B	8.1 B	17.8	16.9
Magnesium	***	***	mg/kg	11000	12700	19200	8740	7580	17000	17100	20600	24900	21900	26100	22600	25200	28000	27000
Manganese	10000 ^d	1600	mg/kg	414	593	476	424	380	392	439	347	431	364	387	428	394	423	408
Mercury	5.7 ^j	0.18	mg/kg	0.02 B	0.025 B	0.024 B	0.025 B	0.032 B	0.036 B	0.035 B	0.025 BNJ	0.016 UNJ	0.013 BNJ	0.033 BNJ	0.018 BNJ	0.019 BNJ	0.075 NJ	0.029 BNJ
Nickel	10000 ^d	30	mg/kg	14.9 *NJ	18.8 *NJ	9.8 *NJ	13.9 *NJ	16.8 *NJ	18.1 *NJ	19.3 *NJ	11.2	13	12.1	12.7	14.8	15.2	14.5	15.7
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	87.1	--	--	--	--
Potassium	***	***	mg/kg	1010	1300	692	1070	961	1510	1470	1030	1220	968	1120	1350	1370	1440	1620
Selenium	6800	3.9	mg/kg	1.7 U	1.6 U	2 U	1.7 U	2 U	2.2 U	2.5 U	2 UJ	2 UJ	1.9 UJ	2 UJ	2 UJ	1.8 UJ	2.1 UJ	2.1 UJ
Silver	6800	2	mg/kg	0.33 U	0.33 U	0.4 U	0.35 U	0.39 U	0.44 U	0.49 U	0.4 U	0.4 U	0.38 U	0.4 U	0.39 U	0.36 U	0.43 U	0.42 U
Sodium	***	***	mg/kg	93.5 BNJ	96.2 NJ	96.2 BNJ	96.7 BNJ	73.2 BNJ	90.8 BNJ	108 BNJ	145 J	136 J	115 J	131 J	131 J	136 J	139 J	164 J
Thallium	----	----	mg/kg	2.1 UNJ	2 UNJ	2.5 UNJ	2.1 UNJ	2.4 UNJ	2.7 UNJ	3 UNJ	2.5 U	2.4 U	2.4 U	2.5 U	2.4 U	2.2 U	2.6 U	2.6 U
Vanadium	----	----	mg/kg	15.5	18.3	10.2	13.7	19.5	17.8	17.8	11.2	11.8	10.2	13.4	13.6	12.8	15.6	16.7
Zinc	10000 ^d	109	mg/kg	295 *J	244 *J	209 *J	354 *J	423 *J	252 *J	248 *J	178	40.6 J	31	156 J	73.4	57.9	154	187

Notes:

New York State Department of Environmental Conservation (NYSDEC), December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

---- = Limits not provided for specific COC in the NYSDEC Standards

*** = Essential nutrients are categorically eliminated as COPC

d = The SCOs for metals were capped at a maximum value of 10,000 ppm.

f = For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

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Exceeds the NYSDEC Industrial Soil Standards

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B = Compound was detected in blank

N = Spike recovery exceeds control limits

COC = constituent of concern

COPC = constituent of potential concern

ft = feet

mg/kg = milligrams per kilogram

ppm = parts per million

* = Duplicate analysis not within control limits.

**Table 1-3
Historical Outfalls / Sediment Sampling Metals History**

**Former Philips Display Components Facility
Seneca Falls, NY**

			Location ID	H07-SS-01	H07-SS-02	H07-SS-02	H07-SS-03	H07-SS-04	H07-SS-05	H07-SS-05
			Depth (ft)	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5
Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Units/Date	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Aluminum	----	----	mg/kg	10700	6810	19900	10900	8800	6470	6440
Antimony	----	----	mg/kg	1.7 UJ	1.2 UJ	1.8 UJ	1.6 UJ	1.6 UJ	1.2 UJ	1.3 UJ
Arsenic	16 ^f	13	mg/kg	4.3 B	3.9 B	4.7 B	4.1 B	2.7 B	3.2 B	3.2 B
Barium	10000 ^d	433	mg/kg	94.5	67.4	228	122	89.9	46.5	44.5
Beryllium	2700	10	mg/kg	0.76 U	0.54 U	1.2 B	0.68 U	0.69 U	0.54 U	0.56 U
Cadmium	60	4	mg/kg	93.3	1.1 UJ	13.4 J	1.4 UJ	1.4 BJ	1.1 BJ	1.1 UJ
Calcium	***	***	mg/kg	35700 J	73800	15700	80500	71100	71900	76900
Chromium	800	41	mg/kg	15.4 U	10.2 U	24.7 U	14.6 U	12.3 U	9.8 U	9.9 U
Cobalt	----	----	mg/kg	8.9	6.7	12.9	8.1	6.2	5.8	6
Copper	270	50	mg/kg	59.7 J	21.2 J	30 J	28 J	22 J	22.6 J	22.7 J
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--
Iron	***	***	mg/kg	18800	14100	29000	18100	16100	12500	12400
Lead	400	63	mg/kg	36.2	6.8 B	15.4	9 B	7.7 B	6.9 B	8 B
Magnesium	***	***	mg/kg	13700	32800	11100	22500	21900	26200	29100
Manganese	10000 ^d	1600	mg/kg	382	719	972	596	312	415	383
Mercury	5.7 ^j	0.18	mg/kg	1.2 NJ	0.043 BNJ	0.21 NJ	0.041 BNJ	0.034 BNJ	0.065 NJ	0.049 NJ
Nickel	10000 ^d	30	mg/kg	18.6	14.5	29.1	19.7	16.5	14.1	14.1
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--
Potassium	***	***	mg/kg	1300	1140	2110	1690	1530	1290	1200
Selenium	6800	3.9	mg/kg	2.4 UJ	1.7 UJ	2.5 UJ	2.2 UJ	2.2 UJ	1.7 UJ	1.8 UJ
Silver	6800	2	mg/kg	0.49 U	0.34 U	0.51 U	0.44 U	0.44 U	0.35 U	0.36 U
Sodium	***	***	mg/kg	91.1 BJ	143 J	92.2 BJ	147 J	127 BJ	136 J	140 J
Thallium	----	----	mg/kg	3 U	2.1 U	3.1 U	2.7 U	2.7 U	2.2 U	2.2 U
Vanadium	----	----	mg/kg	26.1	13.1	30.1	18	16.4	11.7	11.6
Zinc	10000 ^d	109	mg/kg	692	39.2	156	50.3	44.2	45.7	43.3

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

---- = Limits not provided for specific COC in the NYSDEC Standards

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Exceeds the NYSDEC Industrial Soil Standards

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J = Estimated below reporting limit

B = Compound was detected in blank

N = Spike recovery exceeds control limits

COC = constituent of concern

COPC = constituent of potential concern

ft = feet

mg/kg = milligrams per kilogram

ppm = parts per million

* = Duplicate analysis not within control limits.

**Table 2-1
Summary of August 30, 2005 Field Survey**

**Former Philips Display Components Facility
Seneca Falls, NY**

Sample Location	Specific Conductivity (siemens/cm)	pH	Secchi Depth (m)	Sediment Characteristics	Benthic Organisms Observed
S1	0.759	8.09	1.7	Slightly silty fine grained sand	Bivalves [not zebra mussels (<i>Dreissena polymorpha</i>)] and snails (Gastropoda)
S2	0.755	8.18	1.4	NC	NC
S3	0.755	8.18	1.7	NC	NC
S4	0.755	8.15	1.7	NC	NC
S5	0.754	8.18	1.6	NC	NC
S6	0.759	8.10	1.4	Small pieces of rock, small quantity of sand	Zebra mussels and a few scuds (Amphipoda)
S7	0.762	7.93	1.4	NC	NC
S8	0.754	8.55*	2.2	NC	NC
S9	0.753	8.30	2.3	NC	NC
S10	0.753	8.09	2.4	NC	NC
S11	0.751	8.08	2.65	Mixture of silty clay and a mix of leaf and twig litter	Chironomids and a single flatworm (phylum platyhelminthes)
S12	0.743	7.83	2.9	Mixture of sandy, silty clay and leaf litter	Zebra mussels
S13	0.749	8.53*	2.1	Silty clay	Numerous chironomids
S14	0.749	8.59*	2.4	Silt	Chironomids and oligochaetes

Notes:

cm = centimeters

m = meters

NC = A sediment grab sample was not collected from this location.

* = pH level does not meet New York State Department of Environmental Conservation (NYSDEC) standard (>8.5) for Class C waters (NYSDEC 1999)

Table 4-1
Surface Sediment Metals Results - Non-Reference Samples

Former Philips Display Components Facility
Seneca Falls, NY

Metal	LEL (mg/kg)	SEL (mg/kg)	No. Samples	No. Non-detects	Number of Samples			
					Non-detect or detected < LEL	Detected >LEL, but < RL	Detected >LEL and RL, but <SEL	Detected >SEL
Aluminum	NA	NA	42	0	--	--	--	--
Arsenic	6	33	42	1	35	6	1	0
Cadmium	0.6	9	42	33 ¹	33	4	5	0
Chromium	26	110	42	0	39	0	3	0
Copper	16	110	42	0	7	0	35	0
Iron	20,000	40,000	42	0	32	0	10	0
Manganese	460	1,100	42	0	40	0	2	0
Mercury	0.15	1.3	42	1	25	0	17	0
Nickel	16	50	42	0	17	0	24	1
Zinc	120	270	42	0	17	0	23	2

Notes:

¹ Reporting limits for cadmium were greater than the LEL.

LEL = Lowest Effect Level

mg/kg = milligrams per kilogram

NA = not available

NYSDEC = New York State Department of Environmental Conservation

RL = reporting limit

SEL = Severe Effect Level

**Table 4-2
Surface Sediment Metals Results - Reference Samples**

**Former Philips Display Components Facility
Seneca Falls, NY**

Metal	LEL (mg/kg)	SEL (mg/kg)	No. Samples	No. Non-detects	Number of Samples			
					Non-detect or detected < LEL	Detected >LEL, but < RL	Detected >LEL and RL, but <SEL	Detected >SEL
Aluminum	NA	NA	8	0	--	--	--	--
Arsenic	6	33	8	0	7	1	0	0
Cadmium	0.6	9	8	8 ¹	8	0	0	0
Chromium	26	110	8	0	8	0	0	0
Copper	16	110	8	0	1	0	7	0
Iron	20,000	40,000	8	0	8	0	0	0
Manganese	460	1,100	8	0	8	0	0	0
Mercury	0.15	1.3	8	0	3	0	5	0
Nickel	16	50	8	0	4	0	4	0
Zinc	120	270	8	0	2	0	5	1

Notes:

¹ Reporting limits for cadmium were greater than the LEL.

LEL = Lowest Effect Level

mg/kg = milligrams per kilogram

NA = not available

NYSDEC = New York State Department of Environmental Conservation

RL = reporting limit

SEL = Severe Effect Level

Table 4-3
Subsurface Sediment Metals Results - Non-Reference Samples

Former Philips Display Components Facility
Seneca Falls, NY

Metal	LEL (mg/kg)	SEL (mg/kg)	No. Samples	No. Non-detects	Number of Samples			
					Non-detect or detected < LEL	Detected >LEL, but < RL	Detected >LEL and RL, but <SEL	Detected >SEL
Aluminum	NA	NA	53	0	--	--	--	--
Arsenic	6	33	53	2	34	18	1	0
Cadmium	0.6	9	53	22 ¹	22	13	8	10
Chromium	26	110	53	0	45	0	8	0
Copper	16	110	53	0	6	0	47	0
Iron	20,000	40,000	53	0	35	0	17	1
Manganese	460	1,100	53	0	51	0	2	0
Mercury	0.15	1.3	53	3	22	0	31	0
Nickel	16	50	53	0	13	0	40	0
Zinc	120	270	53	0	20	0	11	22

Notes:

¹ Reporting limits for cadmium were greater than the LEL.

LEL = Lowest Effect Level

mg/kg = milligrams per kilogram

NA = not available

NYSDEC = New York State Department of Environmental Conservation

RL = reporting limit

SEL = Severe Effect Level

**Table 4-4
Sediment Metals Results - Reference Samples**

**Former Philips Display Components Facility
Seneca Falls, NY**

Metal	LEL (mg/kg)	SEL (mg/kg)	No. Samples	No. Non-detects	Number of Samples			
					Non-detect or detected < LEL	Detected >LEL, but < RL	Detected >LEL and RL, but <SEL	Detected >SEL
Aluminum	NA	NA	20	0	--	--	--	--
Arsenic	6	33	20	1	15	0	5	0
Cadmium	0.6	9	20	16 ¹	16	4	0	0
Chromium	26	110	20	0	20	0	0	0
Copper	16	110	20	0	5	0	15	0
Iron	20,000	40,000	20	0	14	0	5	1
Manganese	460	1,100	20	0	20	0	0	0
Mercury	0.15	1.3	20	2	5	0	14	1
Nickel	16	50	20	0	10	0	10	0
Zinc	120	270	20	0	3	0	6	11

Notes:

¹ Reporting limits for cadmium were greater than the LEL.

LEL = Lowest Effect Level

mg/kg = milligrams per kilogram

NA = not available

NYSDEC = New York State Department of Environmental Conservation

RL = reporting limit

SEL = Severe Effect Level

**Table 5-1
Vegetation Observed**

**Former Philips Display Components Facility
Seneca Falls, NY**

Scientific Name	Common Name
Canopy	
<i>Acer negundo</i>	boxelder
<i>Acer platanoides</i>	Norway maple
<i>Acer rubrum</i>	red maple
<i>Acer saccharinum</i>	silver maple
<i>Acer saccharum</i>	sugar maple
<i>Ailanthus altissima</i>	tree of heaven
<i>Carpinus caroliniana</i>	American hornbeam
<i>Carya ovata</i>	shagbark hickory
<i>Carya tomentosa</i>	mockernut hickory
<i>Catalpa speciosa</i>	catalpa
<i>Fraxinus americana</i>	white ash
<i>Juglans cinerea</i>	butternut
<i>Juglans nigra</i>	black walnut
<i>Juniperus virginiana</i>	Eastern red cedar
<i>Liriodendron tulipifera</i>	tulip poplar
<i>Malus</i> sp.	apple
<i>Morus</i> sp.	mulberry
<i>Ostrya virginiana</i>	eastern hophornbeam
<i>Pinus</i> spp.	pinus
<i>Picea</i> spp.	spruce
<i>Populus deltoides</i>	eastern cottonwood
<i>Populus tremuloides</i>	quaking aspen
<i>Prunus serotina</i>	black cherry
<i>Quercus alba</i>	white oak
<i>Quercus bicolor</i>	swamp white oak
<i>Quercus rubra</i>	red oak
<i>Quercus velutina</i>	black oak
<i>Robinia pseudoacacia</i>	black locust
<i>Salix alba</i>	white willow
<i>Salix</i> spp.	willow
<i>Tilia americana</i>	American basswood
<i>Ulmus fulva</i>	slippery elm
<i>Ulmus americana</i>	American elm
Shrub	
<i>Cornus species</i>	gray dogwood
<i>Crataegus</i> sp.	hawthorn
<i>Elaeagnus umbellata</i>	autumn olive
<i>Hamamelis virginiana</i>	witch hazel
<i>Lonicera maackii</i>	amur honeysuckle
<i>Rhamnus cathartica</i>	buckthorn
<i>Rhus glabra</i>	smooth sumac
<i>Rhus typhina</i>	staghorn sumac
<i>Rosa</i> spp.	rose
<i>Rubus occidentalis</i>	raspberry
<i>Salix</i> spp.	willow
<i>Viburnum acerifolium</i>	mapleleaf viburnum
Herbaceous	
<i>Achillea millefolium</i>	yarrow
<i>Agropyron repens</i>	quackgrass
<i>Alliaria officinalis</i>	garlic mustard
<i>Allium textile</i>	white wild onion
<i>Ambrosia artemisiifolia</i>	ragweed
<i>Asclepias syriaca</i>	milkweed
<i>Asclepias tuberosa</i>	butterfly weed

**Table 5-1
Vegetation Observed**

**Former Philips Display Components Facility
Seneca Falls, NY**

Scientific Name	Common Name
Herbaceous	
<i>Aster</i> spp.	asters
<i>Bromus inermis</i>	smooth brome grass
<i>Chrysanthemum leucanthemum</i>	oxeye daisy
<i>Cichorium intybus</i>	coffee plant
<i>Cirsium arvense</i>	Canada thistle
<i>Cirsium</i> spp.	thistle
<i>Convolvulus arvensis</i>	field bindweed
<i>Dactylis glomerata</i>	orchardgrass
<i>Daucus carota</i>	wild carrot
<i>Dianthus barbatus</i>	sweet william or tansy
<i>Dipsacus sylvestris</i>	teasel
<i>Equisetum arvense</i>	horsetail
<i>Equisetum laevigatum</i>	scouring rush
<i>Festuca pratense</i>	meadow fescue
<i>Festuca rubra</i>	red fescue
<i>Gallium</i>	bedstraw
<i>Geranium maculatum</i>	wild geranium
<i>Hieracium</i> spp.	hawkweed
<i>Impatiens</i> spp.	jewelweed
<i>Lathyrus latifolius</i>	everlasting pea
<i>Lotus corniculatus</i>	birdsfoot trefoil
<i>Lythrum salicaria</i>	purple loosestrife
<i>Mentha spicata</i>	spearmint
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Pastinaca sativa</i>	wild parsnip
<i>Phalaris arundinacea</i>	reed canary grass
<i>Phleum pratense</i>	Timothy
<i>Phragmites australis</i>	phragmites
<i>Phytolacca americana</i>	pokeweed
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	common plantain
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Podophyllum peltatum</i>	mayapple
<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Potentilla simplex</i>	common cinquefoil
<i>Ranunculus</i> spp.	buttercup
<i>Rosa multiflora</i>	multiflora rose
<i>Rubia tinctorum</i>	madder
<i>Rumex obtusifolius</i>	bitter dock
<i>Scirpus atrovirens</i>	dark green bulrush
<i>Smilacina racemosa</i>	false solomon's seal
<i>Solidago serotinoidea</i>	tall goldenrod
<i>Solidago</i> spp.	goldenrod
<i>Thalictrum polygamum</i>	tall meadow rue
<i>Toxicodendron radicans</i>	poison ivy
<i>Trifolium agrarium</i>	hop clover
<i>Trifolium pratense</i>	white clover
<i>Trifolium</i> spp.	clover
<i>Typha angustifolia</i>	narrow-leaf cattail
<i>Urticaceae</i>	nettle
<i>Verbascum thapsus</i>	common mullein
<i>Vicia sativa</i>	common vetch
<i>Vicia</i> spp.	vetch w/ purple flower
<i>Vitis</i> spp.	wild grape

Note:

These field surveys were conducted by ARCADIS in June/July 2004 and then confirmed and updated during an October 2012 field survey.

**Table 5-2
Wildlife Observed**

**Former Philips Display Components Facility
Seneca Falls, NY**

Scientific Name	Common Name
Mammals	
<i>Odocoileus virginianus</i>	whitetail deer
<i>Procyon lotor</i>	raccoon
<i>Sciurus carolinensis</i>	eastern gray squirrel
<i>Sylvilagus floridanus</i>	eastern cottontail
<i>Tamias striatus</i>	eastern chipmunk
Reptiles	
<i>Thamnophis sirtalis</i>	eastern garter snake
various spp.	frogs
Birds	
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Archilochus colubris</i>	ruby-throated hummingbird
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Carduelis tristis</i>	American goldfinch
<i>Cathartes aura</i>	turkey vulture
<i>Charadrius vociferus</i>	killdeer
<i>Contopus virens</i>	eastern wood-pewee
<i>Corvus brachyrhynchos</i>	American crow
<i>Cyanocitta cristata</i>	blue jay
<i>Dumetella carolinensis</i>	gray catbird
<i>Hirundo rustica</i>	barn swallow
<i>Hylocichla mustelina</i>	wood thrush
<i>Parus atricapillus</i>	blackcapped chickadee
<i>Passer domesticus</i>	house sparrow
<i>Sturnus vulgaris</i>	European starling
<i>Turdus migratorius</i>	American robin
<i>Zenaidura macroura</i>	mourning dove
<i>Larus argentatus</i>	herring gull
	sparrow

Note:

These field surveys were conducted by ARCADIS in June/July 2004 and then confirmed and updated during an October 2012 field survey.

Table 5-3
Common and Abundant Birds Found in Aquatic Habitats of the Montezuma National Wildlife Refuge
Former Philips Display Components Facility
Seneca Falls, NY

Scientific Name	Common Name	Seasonal Occurrence			
		Spring	Summer	Fall	Winter
<i>Actitis macularia</i>	Spotted Sandpiper*	c	c	c	-
<i>Agelaius phoeniceus</i>	Red-winged Blackbird*	a	a	a	o
<i>Aix sponsa</i>	Wood Duck*	c	c	c	-
<i>Anas acuta</i>	Northern Pintail*	c	o	c	-
<i>Anas americana</i>	American Wigeon*	c	o	c	-
<i>Anas clypeata</i>	Northern Shoveler*	c	o	c	-
<i>Anas crecca</i>	Green-winged Teal*	c	o	c	-
<i>Anas discors</i>	Blue-winged Teal*	c	c	c	-
<i>Anas platyrhynchos</i>	Mallard*	a	c	a	o
<i>Anas rubripes</i>	American Black Duck*	a	c	a	o
<i>Anas strepera</i>	Gadwall*	c	c	c	-
<i>Ardea alba</i>	Great Egret	o	c	o	-
<i>Ardea herodias</i>	Great Blue Heron*	c	c	c	o
<i>Aythya americana</i>	Redhead*	c	o	c	-
<i>Aythya collaris</i>	Ring-necked Duck	c	o	c	-
<i>Aythya marila</i>	Greater Scaup	c	-	c	-
<i>Aythya valisineria</i>	Canvasback*	c	o	c	-
<i>Botaurus lentiginosus</i>	American Bittern*	o	c	c	-
<i>Branta canadensis</i>	Canada Goose*	a	c	c	c
<i>Bucephala albeola</i>	Bufflehead	c	-	c	-
<i>Bucephala clangula</i>	Common Goldeneye	c	-	c	-
<i>Butorides virescens</i>	Green Heron*	o	c	o	-
<i>Calidris alpina</i>	Dunlin	c	-	c	-
<i>Calidris melanotos</i>	Pectoral Sandpiper	c	c	c	-
<i>Calidris minutilla</i>	Least Sandpiper	c	o	c	-
<i>Calidris pusilla</i>	Semipalmated Sandpiper	c	c	c	-
<i>Ceryle alcyon</i>	Belted Kingfisher*	c	c	c	o
<i>Charadrius semipalmatus</i>	Semipalmated Plover	o	c	c	-
<i>Charadrius vociferus</i>	Killdeer*	c	c	c	-
<i>Chen caerulescens</i>	Snow Goose	c	-	o	-
<i>Cistothorus palustris</i>	Marsh Wren*	c	c	c	-
<i>Fulica americana</i>	American Coot*	c	c	c	-
<i>Gallinula chloropus</i>	Common Moorhen*	c	c	c	-
<i>Geothlypis trichas</i>	Common Yellowthroat*	c	c	c	-
<i>Hirundo rustica</i>	Barn Swallow*	c	c	c	-
<i>Larus argentatus</i>	Herring Gull	c	o	c	c
<i>Larus delawarensis</i>	Ring-billed Gull	c	c	c	o

Table 5-3
Common and Abundant Birds Found in Aquatic Habitats of the Montezuma National Wildlife Refuge
Former Philips Display Components Facility
Seneca Falls, NY

Scientific Name	Common Name	Seasonal Occurrence			
		Spring	Summer	Fall	Winter
<i>Limnodromus griseus</i>	Short-billed Dowitcher	c	o	c	-
<i>Limnodromus scolopaceus</i>	Long-billed Dowitcher	-	-	c	-
<i>Lophodytes cucullatus</i>	Hooded Merganser*	c	o	a	o
<i>Melospiza georgiana</i>	Swamp Sparrow*	c	c	c	-
<i>Melospiza melodia</i>	Song Sparrow*	c	c	c	o
<i>Mergus merganser</i>	Common Merganser	a	o	a	c
<i>Micropalama himantopus</i>	Stilt Sandpiper	o	c	c	-
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron*	o	c	c	-
<i>Pandion haliaetus</i>	Osprey*	c	c	c	-
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	o	c	c	-
<i>Podilymbus podiceps</i>	Pied-billed Grebe*	c	c	c	-
<i>Porzana carolina</i>	Sora*	c	c	c	-
<i>Progne subis</i>	Purple Martin*	c	c	-	-
<i>Rallus limicola</i>	Virginia Rail*	c	c	c	r
<i>Riparia riparia</i>	Bank Swallow*	c	c	-	-
<i>Tachycineta bicolor</i>	Tree Swallow*	c	c	c	r
<i>Tringa flavipes</i>	Lesser Yellowlegs	c	c	c	-
<i>Tringa melanoleuca</i>	Greater Yellowlegs	c	c	c	-

Notes:

* = birds known to nest on or near the refuge
 - = not known to be present during this season
 a = abundant: a species which is very numerous
 c = common: likely to be seen or heard in suitable habitat
 o = occasional: seen only a few times during a season
 r = rare: may be present but not every year
 Spring = March to May
 Summer = June to August
 Fall = September to November
 Winter = December to February

Source:

U.S. Fish and Wildlife Service 1991

Table 5-4
Mammals, Amphibians, and Reptiles Found in Aquatic Habitats of the Region

Former Philips Display Components Facility
Seneca Falls, NY

Scientific Name	Common Name
Mammals	
<i>Castor canadensis</i>	American beaver
<i>Mustela vison</i>	Mink
<i>Ondatra zibethicus</i>	Muskrat
<i>Procyon lotor</i>	Raccoon
<i>Sorex palustris</i>	Water Shrew
Amphibians and Reptiles	
<i>Chelydra s. serpentina</i>	Common Snapping Turtle
<i>Chrysemys picta</i>	Painted Turtle
<i>Eurycea bislineata</i>	Northern Two-lined Salamander
<i>Hyla versicolor</i>	Gray Treefrog
<i>Nerodia s. sipedon</i>	Northern Water Snake
<i>Notophthalmus v. viridescens</i>	Red-spotted Newt
<i>Pseudacris c. crucifer</i>	Northern Spring Peeper
<i>Rana catesbeiana</i>	Bullfrog
<i>Rana clamitans melanota</i>	Green Frog
<i>Rana pipiens</i>	Northern Leopard Frog
<i>Thamnophis sirtalis</i>	Common Garter Snake

Sources:

- 1) NYSDEC 2005c
- 2) Bopp and Kays 2005
- 3) Chapman and Feldhamer 1992



Attachment A

Van Cleef Lake and Cayuga and
Seneca Canal Sediment Sample
Analytical Data – May 2005

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 1						Transect 2						Transect 3							
Parameter	Location ID	T1-SD1	T1-SD1	T1-SD1	T1-SD2	T1-SD3	T1-SD4	T2-SD1	T2-SD1	T2-SD1	T2-SD2	T2-SD3	T2-SD4	T3-SD1	T3-SD1	T3-SD1	T3-SD2	T3-SD3	T3-SD4	T3-SD5	
	Depth (feet)	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5
	Units/Date	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/21/05	05/21/05	05/21/05	05/20/05	05/20/05	05/20/05	05/20/05
Aluminum	mg/kg	8450	7590	8760	3910	3620	6130	7000	7510	8220	6370	3640	3370	12900	11200	11900	3520	3380	5830	7040	
Arsenic	mg/kg	3.41 J	3.86 BN	4.08 BN	2.41 BN	2.62 BN	3.82 BN	4.83 BN	3.94 BN	4.46 BN	3.47 BN	2.98 BN	2.69 BN	13.3 N	6.65 BN	9.35 BN	2.03 BN	2.63 BN	2.75 BN	5.36 BN	
Cadmium	mg/kg	1.08 UJ	1.39 U	1.43 U	7.1	1.25 U	2.2 B	5.69	1.83 B	1.18 U	1.5 B	1.24 U	1.27 U	1.14 U	1.11 U	1.25 U	1.31 U	1.26 U	1.62 U	1.83 U	
Chromium	mg/kg	17.8 J	15.7 N	19.7 N	9.48 N	9.09 N	13.4 N	17.8 N	16 N	20.2 N	13.4 N	9.07 N	7.55 N	28.1	25.6	26.5	7.5 N	9.07 N	12 N	15.8 N	
Copper	mg/kg	15.7 J	13.7	36.2	34.1	45	41.7	20.7	17.9	20.1	43.4	27.4	28	35.9	29.3	96.3	23.5	20.9	54.6	37.9	
Iron	mg/kg	15400	16000	16300	8790	8750	12800	15400	15300	16000	13300	12300	8280	26000	20700	25300	7860	7830	14600	15500	
Manganese	mg/kg	314	300	212	165	177	191	192	230	225	208	199	142	258	263	289	144	155	218	236	
Mercury	mg/kg	0.0421	0.0598	0.114	0.0901	0.1	0.253	0.0621	0.0395 B	0.0471	0.186	0.0624 B	0.108	0.218 N	0.0805 N	0.163 N	0.162	0.0936	0.205	0.18	
Nickel	mg/kg	24.7 J	22.6	26.6	12.9	11.3	15.8	19.5	20.9	21.4	18.1	10.5	11.1	56.5	38.9	40.4	11.3	10.1	14.2	20.9	
Zinc	mg/kg	50.2 J	42	22.2 B	156	140	216	214	96.5	84.8	226	179	119	52.4	32.3	29.6	124	117	174	153	
SEM Cadmium	umole/g	0.0026 J			0.011 B	0.0098 B	0.0054 B	0.0077 B			0.0068 B	0.0026 B	0.005 B	0.0033 J			0.0057 B	0.0047 B	0.013 B	0.0065 B	
SEM Copper	umole/g	0.18 J			0.25	0.29	0.34	0.1 B			0.19	0.16 B	0.29	0.14 J			0.14 B	0.14 B	0.52	0.02 U	
SEM Lead	umole/g	0.052 J			0.12	0.17	0.14	0.051			0.1	0.083	0.14	0.044 J			0.12	0.12	0.18	0.18	
SEM Nickel	umole/g	0.066 J			0.15 B	0.092 B	0.095 B	0.065 B			0.058 B	0.063 B	0.078 B	0.11 J			0.065 B	0.07 B	0.12 B	0.11 B	
SEM Zinc	umole/g	0.3 J			2	2.8	2.5	0.85			1.5	1.3	1.9	0.6 J			1.9	2.3	3.5	3.8	
Acid Volatile Sulfide	umole/g	0.58 UJ			22	11.9	31	11			6.1	5.6	21.9	0.75 J			11.7	13.8	46.5	47.4	
SEM/AVS Ratio	unitless	0			0.11	0.29	0.1	0.1			0.31	0.29	0.11	1.2			0.19	0.19	0.092	0.086	
Sulfate	mg/kg	51.1	90.1	56.9	127	151	78	723	466	446	376	28	104	292	130	131	61.3	38.5	129	285	
Total Sulfide	mg/kg	34.4 U	33.2 U	36.2 U	858	51.3	523	41.2 U	89.9	43.5	435	681	923	25.9 J	9.1 U	11.6	294	692	1150	3090	
Ammonia	mg/kg	4.3	4.5	3.5	60	60	150	32	21	23	150	110	97	23	8	5.3	100	140	240	130	
TOC	mg/kg	39600	44600	48000	36800	45500	63300	40300	46700	49400	66000	58100	93200	39500	45600	40300	33000	56700	106000	67800	
Clay	%	0.1		11.1	4.2	4.5	12.2	0.8		4.2	9.3	6.5	8.8	0.4		11	8.5	7.8	14.7	5.1	
Silt	%	4.5		41.6	55.1	22.5	41.4	4.8		14.1	52.1	20.3	10.5	10.2		14.6	18.5	11	29	21.4	
Fine Sand	%	0.4		15	38.8	70.2	34.6	0.8		3.4	35.6	70.8	77.2	0.8		7.2	70.6	77	46.6	6.2	
Medium Sand	%	0.2		22.1	1.7	2.7	3.7	2.1		9.7	2.9	2.2	3.5	2.3		14.3	2.3	4	9.7	7.4	
Coarse Sand	%	0.3		5.3	0.1	0.1	0.6	4.4		14.4	0.1	0.2	0	6.4		13.6	0	0.1	0.1	14.5	
Gravel	%	94.5		4.8	0	0	7.5	87.1		54.3	0	0	0	79.8		39.2	0	0	0	45.3	
% Moisture	%	11.8	11.6	14.1	34	37.2	46.5	14.7	10.8	12.7	48.6	45.2	37.2	17.7	13.6	15.2	36.9	41.8	52.9	37.5	
% Solids	%	88.2	88.4	85.9	66	62.8	53.5	85.3	89.2	87.3	51.4	54.8	62.8	82.3	86.4	84.8	63.1	58.2	47.1	62.5	
Specific Gravity		2.654		2.758	2.648	2.629	2.225	2.712		2.758	2.653	2.616	2.615	2.721		2.772	2.658	2.626	2.647	2.198	

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 4						Transect 5								
Parameter	Location ID	T4-SD1	T4-SD2	T4-SD2	T4-SD2	T4-SD3	T4-SD4	T5-SD1	T5-SD1	T5-SD2	T5-SD2	T5-SD2	T5-SD2	Dup. X-1	T5-SD3	T5-SD4
	Depth (feet)	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0.5-1	0-0.5	0.5-1	1-2	2-2.5	2-2.5	0-0.5	0-0.5
	Units/Date	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05
Aluminum	mg/kg	8330	6710	9280	8870	5940	4940	9140	7160	4540	9770	8300	9090	9050	3330	3010
Arsenic	mg/kg	3.78 BN	4.82 BN	6.29 BN	6.61 BN	6.4 BN	3.35 BN	7.48 BN	5.28 BN	3.84 BN	5.25 BN	5.53 BN	6.96 BN	7.48 BN	3.23 BN	2.81 BN
Cadmium	mg/kg	3.77	1.65 U	2.08 U	9.17	2.04 U	1.48 B	5.58	2.25 B	1.48 U	1.66 U	1.8 U	3.6 B	4.42	1.19 U	1.5 U
Chromium	mg/kg	15.4	14.2	18.7	22.4	15.5	9.41	39.3	15.1	10.3	19	18.2	39.1	32.9	7.86	13.4
Copper	mg/kg	19.7	41.6	51.9	49.7	43.6	26.7	17	13.8	29.9	54.2	61.3	82.9	76.9	18.7	15.9
Iron	mg/kg	13500	14200	19000	18600	15300	10400	21100	14100	10300	19900	18100	18700	19000	8930	7550
Manganese	mg/kg	226	218	272	297	289	253	243	286	177	283	292	306	358	189	163
Mercury	mg/kg	0.0486 BN	0.157 N	0.255 N	0.358 N	0.126 N	0.0682 BN	0.0625 N	0.026 BN	0.147 N	0.225 N	0.19 N	0.457 N	0.388 J	0.0772 N	0.199 N
Nickel	mg/kg	16.4	17.6	24.7	21.8	19.5	12.4	26.7	26.2	13	22.9	23.2	21.5	22.1	10.7	7.31 B
Zinc	mg/kg	94.8	196	243	392	221	91.7	186	37.9	162	250	264	377	383	111	89.4
SEM Cadmium	umole/g	0.043	0.0037 B			0.0063 B	0.0036 B	0.013 B		0.0036 B					0.0049 B	0.0044 B
SEM Copper	umole/g	0.29	0.13 B			0.24	0.18 B	0.21 B		0.15					0.19	0.29
SEM Lead	umole/g	0.078 J	0.097 J			0.11 J	0.065 J	0.054 J		0.12 J					0.11 J	0.19 J
SEM Nickel	umole/g	0.36	0.055 B			0.078 B	0.061 B	0.13 B		0.046 B					0.055 B	0.097 B
SEM Zinc	umole/g	0.86	1.4			1.6	0.91	0.92		0.82					1	1.3
Acid Volatile Sulfide	umole/g	1.2	18.3			8.4	1.2	1.1		0.69 U					5.6	2.2
SEM/AVS Ratio	unitless	1.3	0.093			0.24	1	1.2		0					0.25	0.86
Sulfate	mg/kg	431	107	82.2	417	27.1	106	230	135	285	592	646	593	448	69.4	35.4
Total Sulfide	mg/kg	127	496	500	790	251	57.3	81.5	21.5	48.6	1290	968	400		63.9	16.4 U
Ammonia	mg/kg	240	150	280	140	120	120	51	10	120	260	140	84	120	62	99
TOC	mg/kg	173000	55700	69400	70500	78900	178000	53800	46200	690000	83200	74900	74300	71000	98200	157000
Clay	%	21	12.3	33.5	26.8	9.7	10.9	31.8		6.6		14.9			8.7	16.1
Silt	%	63.2	7.2	49.9	39.6	14.8	8.5	14.6		7.1		24.4			6.9	8.7
Fine Sand	%	4.4	78.4	12.9	20.4	71.2	30.7	11.8		69.1		31.6			72.8	57.7
Medium Sand	%	6.9	2.2	1.3	5.8	4.1	4.6	10.8		15.7		15			10.4	16.2
Coarse Sand	%	0.1	0	0.1	4	0.2	3.2	7.5		0.3		7.6			0.2	0.2
Gravel	%	4.5	0	2.4	3.3	0	42.1	23.5		1.2		6.5			1.1	1
% Moisture	%	54.8	42.7	43.3	31.5	43.3	51.5	20.5	11	40.3	48.8	41	32.1	32.6	37.6	42.1
% Solids	%	45.2	57.3	56.7	68.5	56.7	48.5	79.5	89	59.7	51.2	59	67.9	67.4	62.4	57.9
Specific Gravity		2.692	2.66	2.617	2.668	2.654	2.6	2.706		2.693		2.673			2.637	2.287

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 6								Transect 7			
Parameter	Location ID	T6-SD1	T6-SD1	T6-SD2	T6-SD2	T6-SD2	T6-SD3	T6-SD3	T6-SD4	T7-SD1	T7-SD1	T7-SD2	T7-SD3
	Depth (feet)	0-0.5	0.5-1	0-0.5	0.5-1	1-2	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5
	Units/Date	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/21/05	05/22/05	05/22/05	05/22/05	05/22/05
Aluminum	mg/kg	10700	10800	6510	7330	7410	7110	5550	4720	12700	8620	737	5080
Arsenic	mg/kg	5.28 BN	5.09 BN	4.22 BN	17.6 N	4.77 BN	4.56 BN	5.19 BN	3.22 BN	3.97 BN	3.4 BN	2.12 UN	3.27 BN
Cadmium	mg/kg	1.3 U	1.26 U	1.2 U	1.42 B	2.4 B	1.69 U	1.31 B	2.34 U	8.36	3.48	1.74 U	1.15 U
Chromium	mg/kg	21.7 U	22.6 U	15.1 U	18.1 U	17.3 U	14.7 U	13.1 U	8.29	28.8 N	21.1 N	1.01 U	9.83 U
Copper	mg/kg	12.2	15.5	49	83.7	24	19.8	43.5	15	17.1	33	4.64 B	26.2
Iron	mg/kg	19100	19000	16400	16100	14800	15600	13900	9030	15600	14300	1460 U	10300
Manganese	mg/kg	349	864	275	264	223	302	248	228	221	237	167	237
Mercury	mg/kg	0.0199 B	0.0228 B	0.0521	0.122	0.147	0.0461 B	0.0585	0.0377 BN	0.043	0.0546	0.0195 U	0.0249 B
Nickel	mg/kg	26.3	28.2	28.7	19.9 U	19.7 U	19.8 U	31.6	10.6 B	20.4	19.2	2.62 U	20.3
Zinc	mg/kg	30.7	28	143	147	190	87.8	133	62.9	57.9	28.7	14.6 B	92.8
SEM Cadmium	umole/g	0.0022 U		0.0079 B			0.0038 U		0.0028 U	0.13		0.008 U	0.0023 U
SEM Copper	umole/g	0.083 B		0.26			0.11 B		0.17 B	0.13		0.11 B	0.033 B
SEM Lead	umole/g	0.012		0.13			0.01 U		0.064 J	0.11		0.021 U	0.0058 U
SEM Nickel	umole/g	0.049 B		0.089 B			0.036 U		0.07 B	0.21		0.077 U	0.022 U
SEM Zinc	umole/g	0.15		1.3			0.41		0.65	0.79		0.47	0.13 B
Acid Volatile Sulfide	umole/g	0.84 U		2.1			5.3		2.9	0.75		3 U	0.85 U
SEM/AVS Ratio	unitless	0		0.86			0.098		0.33	1.9		0	0
Sulfate	mg/kg	72.7	98	135	317	250	92.8	73.3	85.3	124	141	42.1	30.6
Total Sulfide	mg/kg	14.3 U	9.2 U	69.1	39.6	200	35	17.7	16.8 U	8.6 U	13.7	46.4 U	14.4 U
Ammonia	mg/kg	9.6	4.1	13	43	27	86	16	190	5.9	7.3	300	59
TOC	mg/kg	37700	42300	62500	44800	70200	99100	56100	158000	58100	59900	179000	82000
Clay	%	0.8		6.1		14.6	13.8		10.3	1.8		5	4.6
Silt	%	2.2		8.4		31.4	21.7		16.2	7.9		41.6	17.4
Fine Sand	%	1.3		14		19.9	16.3		15	6.1		10.7	15.2
Medium Sand	%	2.9		10.1		9.4	21.9		24.5	12		20.5	15.7
Coarse Sand	%	5.7		3.9		7	6.8		9.5	10.6		15.5	6.5
Gravel	%	87.1		57.6		17.7	19.5		24.6	61.6		6.7	40.5
% Moisture	%	11	14.2	16.2	21.5	24.1	39	11.5	54.7	12.1	14.2	34.1	14.1
% Solids	%	89	85.8	83.8	78.5	75.9	61	88.5	45.3	87.9	85.8	65.9	85.9
Specific Gravity		2.788		2.693		2.748	2.365		2.702	2.772		2.732	2.741

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Milligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 8															
Parameter	Location ID	T8-SD1	T8-SD1	T8-SD1	T8-SD1	T8-SD2	Dup. X-2	T8-SD2	T8-SD2	Dup. X-6	T8-SD3	T8-SD3	T8-SD3	T8-SD4	T8-SD4	T8-SD4	Dup. X-5
	Depth (feet)	0-0.5	0.5-1	1-2	2-2.5	0-0.5	0-0.5	0.5-1	1-2	1-2	0-0.5	0.5-1	1-1.5	0-0.5	0.5-1	1-2	1-2
	Units/Date	05/22/05	05/23/05	05/23/05	05/23/05	05/22/05	05/22/05	05/25/05	05/25/05	05/25/05	05/22/05	05/25/05	05/25/05	05/22/05	05/25/05	05/25/05	05/25/05
Aluminum	mg/kg	4260	5050	5240	6820	11200	9470	8330	11000	13200	13300	12600	8340	12900	12300	8360	7370
Arsenic	mg/kg	3.76 BN	5.84 BN	3.79 BN	4.14 BN	5.71 BN	3.98 BN	7.23 BN	10.2 J	8.24 BN	4.62 BN	6.18 BN	6.27 BN	4.97 J	6.64 BN	7.67 BN	7.84 BN
Cadmium	mg/kg	1.64 U	1 B	1.2 U	1.14 U	1.93 U	1.88 U	9.15	30.5	48.3	2.08 U	15.2	13.5	2.04 U	1.64 B	1.97 B	1.94 B
Chromium	mg/kg	7.58 U	13.3	8.62	9.2	19.1 U	17.3 U	18.7	30.8	27.1	22.7 U	25.4	18.5	21.5 UJ	23.2	17.9	16.3
Copper	mg/kg	15.9	94.9	50.3	21.5	44.3	43.3	51.9	64.2	68.2	49.6	77	60	46.7	65.8	55.6	53.9
Iron	mg/kg	11500	37700	15400	13800	19500	18000	22900	74800	25400	22800	30400	16000	22000	24300	27500	25800
Manganese	mg/kg	224	378	337	421	296	287	195	419	219	331	326	231	329	325	269	248
Mercury	mg/kg	0.0371 B	0.0127 U	0.174	0.0144 B	0.176	0.153	0.429 N	0.606 J	0.976 N	0.177	0.581 N	0.675 N	0.174	0.39 N	0.374 N	0.459 N
Nickel	mg/kg	9.39 U	13.6	10.8	13.3	24.1 U	22.8 U	19.8	27	27.2	28.4 U	28.4	17.8 U	27.4 U	28.5	19.5 U	17.8 U
Zinc	mg/kg	57.9	95.5	61.4	41	176	172	938	1410	2210	192	1440	1200	193	469	1060	1010
SEM Cadmium	umole/g	0.0018 U				0.0032 U					0.0038 U			0.0026 U			
SEM Copper	umole/g	0.082 B				0.29					0.35			0.29			
SEM Lead	umole/g	0.023				0.064					0.08			0.066			
SEM Nickel	umole/g	0.043 B				0.14 B					0.18 B			0.11 B			
SEM Zinc	umole/g	0.28				1					1.2			1.1			
Acid Volatile Sulfide	umole/g	0.67 U				1.2					1.4 U			0.95 U			
SEM/AVS Ratio	unitless	0				1.2					0			0			
Sulfate	mg/kg	33.9	18.3	9.5 B	6.9 B	49.2		39.9 U	59.1 U		131	29.1 U	270 U	42.1	56.3 U	183 U	
Total Sulfide	mg/kg	10.5 U	43.8 U	34.7 U	34.4 U	445		2590	1740		428	49.7	1190	501	85	1630	
Ammonia	mg/kg	57	11	19	19	190		150	220		150	160	150	210	210	160	
TOC	mg/kg	59500	50600	34500	30700	101000	94300	57100	65300	55800	122000	52000	69100	107000	61200	52600	54500
Clay	%	1.7		13.7		46.6		18.7	41.4		56.6	42	42	50.4	28.9	17.5	
Silt	%	3.5		18.6		47.1		51.4	50.7		40.7	36.3	34.8	40.8	57.5	56.5	
Fine Sand	%	8.1		20.7		5.3		25.1	6.5		2	18.4	20	8.1	10.4	25.7	
Medium Sand	%	6.4		9.1		0.8		4.2	1		0.6	2.9	2.2	0.7	2.8	0.2	
Coarse Sand	%	4.6		6.8		0.2		0.2	0		0.1	0.4	0.3	0	0.4	0.2	
Gravel	%	75.8		31.1		0		0.3	0.5		0	0	0.7	0	0	0	
% Moisture	%	26.9	16.8	13.9	13.4	127.4	54.4	41.6	41.4	39.8	64.4	37	38.1	58.6	42.4	40.3	37.8
% Solids	%	73.1	83.2	86.1	86.6	39.9	45.6	58.4	58.6	60.2	35.6	63	61.9	41.4	57.6	59.7	62.2
Specific Gravity		2.733		2.75		2.631		2.605	2.636		2.63	2.619	2.602	2.64	2.604	2.647	

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Milligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 9																
Parameter	Location ID	T9-SD1	T9-SD1	T9-SD1	T9-SD1	T9-SD2	T9-SD2	T9-SD2	T9-SD2	T9-SD2	T9-SD3	T9-SD3	T9-SD3	T9-SD3	T9-SD3	T9-SD4	T9-SD4	T9-SD4
	Depth (feet)	0-0.5	0.5-1	1-2	2-3	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-1.5
	Units/Date	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05	05/24/05	05/24/05	05/24/05	05/24/05	05/23/05	05/25/05	05/25/05	05/25/05	05/25/05	05/23/05	05/25/05	05/25/05
Aluminum	mg/kg	5340	4700	5680	7960	12500	8870	5210	6560	3700	14700	6460	5080	3130	3260	8750	5950	14100
Arsenic	mg/kg	5.62 BN	3.57 BN	3.87 BN	4.61 BN	6.35 BN	3.53 BN	2.37 BN	5.33 BN	2.03 BN	7.19 BN	2.84 BN	2.47 BN	2.28 BN	1.44 BN	5.34 BN	4.66 BN	7.95 BN
Cadmium	mg/kg	1.06 U	4.87	78.4	15.9	2.27 U	2.06 U	1.65 U	6.08	6.98	2.01 U	1.09 U	1.12 U	1.38 U	1.07 U	2.63 B	1.08 U	1.76 B
Chromium	mg/kg	11	7.39	16.1	16.8	21.3	14.9	9.45	13.1	6.61	23.2	9.27	7.6	4.43 U	4.67	17.5	26	40.5
Copper	mg/kg	19.5	17.5	23.3	19.3	47.4	33.5	21.6	35.2	12.9	44.6	23.6	35.8	15.2	15.3	49.1	34	66.3
Iron	mg/kg	12300	11000	10900	14500	22200	15800	9550	16800	7700	25700	13700	10200	7930	7840	15400	11800	25200
Manganese	mg/kg	284	241	222	242	343	242	143	219	219	509	536	333	349	346	232	181	398
Mercury	mg/kg	0.0161 B	0.0401 B	0.116	0.192	0.171	0.173 N	0.162 N	0.224 N	0.123 N	0.121	0.0211 BN	0.0149 UN	0.127	0.0151 U	0.655	0.113 N	0.297 N
Nickel	mg/kg	15.1	11	14.7	19.8	26	19.1	12.2	15.7	7.66	28.9	13.9	10.1 U	8.33 U	8.12 U	18	12 U	28.8
Zinc	mg/kg	48.1	113	499	374	183	129	95.1	711	56.4	174	37.1	28.4	26.3 B	27.8	1430	113	238
SEM Cadmium	umole/g	0.0024 U				0.0064 B					0.006 U					0.0058 U		
SEM Copper	umole/g	0.049 B				0.39					0.4					0.36		
SEM Lead	umole/g	0.02 J				0.091 J					0.099 J					0.091 J		
SEM Nickel	umole/g	0.1 B				0.16 B					0.18 B					0.26 B		
SEM Zinc	umole/g	0.25				1.4					1.4					1.3		
Acid Volatile Sulfide	umole/g	0.68 U				1.5 U					2.5					2.4		
SEM/AVS Ratio	unitless	0				0					0.84					0.83		
Sulfate	mg/kg	30.2	70.7	32.2	76.7	41.9	617	273	203	7.8 U	31.9	23.3 U	25.4 U	26.9 U	25.2 U	16.2 B	523 U	6.9 U
Total Sulfide	mg/kg	39.1 U	44.2 U	65.4	94.5	508	355	355	384	104	96	34.5 U	33.9 U	33.8 U	34.1 U	131	1250	852
Ammonia	mg/kg	14	43	36	36	300	260	220	190	81	250	26	22	9.2	6.7	160	150	140
TOC	mg/kg	75800	40900	43000	41700	120000	95900	85500	61800	32600	117000	30600	39000	27600	28000	69800	46100	57300
Clay	%	4.3		8.3	8.7	42.6		20.5	28.5	18.1	22.8	18.2	24.8	22.6	22.1	28.7	28.3	46.3
Silt	%	13.9		15.4	27.1	53.9		63.6	64.3	28.7	37.7	21.8	31.8	26.6	27.9	55.9	68.8	48.8
Fine Sand	%	15.4		23.3	18.9	2.1		14.1	6.5	23.6	3.6	21.4	24.1	24.8	23.1	13.1	2.7	4.7
Medium Sand	%	6.9		9.8	10.9	1.4		1.5	0.7	6.3	1.7	7.7	7.7	8.7	9.8	2	0.1	0.2
Coarse Sand	%	9.5		12.3	9.6	0		0.3	0.1	8	1.1	5.5	4.9	5.3	7.5	0.3	0	0
Gravel	%	50		31	24.9	0		0	0	15.2	33.1	25.3	6.7	11.9	9.7	0	0	0
% Moisture	%	12.9	28.6	31.5	20.3	63.6	56.7	49.6	42.2	18.8	65.9	10.7	10.9	12	10.9	49.1	28	33.1
% Solids	%	87.1	71.4	68.5	79.7	36.4	43.3	50.4	57.8	81.2	34.1	89.3	89.1	88	89.1	50.9	72	66.9
Specific Gravity		2.725		2.708	2.833	2.686		2.605	2.628	2.688	2.718	2.846	2.625	2.47	2.527	2.556	2.191	2.158

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 10															
Parameter	Location ID	T10-SD1	T10-SD1	T10-SD2	Dup X-3	T10-SD2	T10-SD2	T10-SD3	T10-SD3	T10-SD3	T10-SD3	T10-SD3	T10-SD4	T10-SD4	T10-SD4	T10-SD4	T10-SD4
	Depth (feet)	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	1-1.2	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	2-3	3-4
	Units/Date	05/23/05	05/23/05	05/23/05	05/23/05	05/25/05	05/25/05	05/23/05	05/26/05	05/26/05	05/26/05	05/26/05	05/23/05	05/26/05	05/26/05	05/26/05	05/26/05
Aluminum	mg/kg	8200	8220	13600	15900	10200	12300	13000	8220	10700	8510	8870	14000	8670	9840	10400	11400
Arsenic	mg/kg	4.91 BN	5.02 BN	4.14 BN	6.98 BN	5.53 BN	4.86 BN	4.95 BN	3.15 UN	9.3 J	7.83 BN	4.59 BN	6.94 J	3.61 BN	6.96 BN	2.44 BN	2.24 UN
Cadmium	mg/kg	1.07 U	1.19 U	3.39 U	2.26 U	6.92	2.03 U	1.91 U	2.58 U	6.5	9.99	1.9 B	3.33 U	1.92 U	6.51	5.17 B	18
Chromium	mg/kg	14.5	18.5	22.3	25.9	26.8	52.4	23	16.3	25	20	22.4	22.7	19.1	23.4	22.4	25.6
Copper	mg/kg	14.1	18.9	46.6	54.1	52.7	57.1	46.2	44.9	89.9	60.3	61.1	46.2	62.8	91.3	60.2	70.4
Iron	mg/kg	15400	24200	24100	27200	24600	25900	23700	17400	39800	18000	18300	25200	19100	32600	22100	22300
Manganese	mg/kg	482	342	364	408	268	285	384	275	275	202	222	425	285	293	250	255
Mercury	mg/kg	0.0803	0.0788	0.153	0.205	0.484	0.603	0.335	0.163	0.545	0.689	1.01	0.147	0.281	0.531	1.24	0.53
Nickel	mg/kg	15.3	17.2	26.7 U	32.3	24 U	26.6	25.8	21.4	27.5	21.9	20.2	28.4 U	24.6	25.3	23.9	25.4
Zinc	mg/kg	58.5	246	177	202	539	247	384	190	1410	2700	406	171	320	1130	1870	1310
SEM Cadmium	umole/g	0.0022 U		0.0051 U				0.0055 U					0.0052 U				
SEM Copper	umole/g	0.14		0.37				0.34					0.32				
SEM Lead	umole/g	0.027 J		0.087 J				0.091 J					0.09 J				
SEM Nickel	umole/g	0.28		0.2 B				0.18 B					0.18 B				
SEM Zinc	umole/g	0.36		1.3				1.3					1.3				
Acid Volatile Sulfide	umole/g	0.63 U		2.1				3.1					2.9				
SEM/AVS Ratio	unitless	0		0.95				0.61					0.66				
Sulfate	mg/kg	16.7	16.8	28 B		7.3 U	13.5 U	20.3 B	233	59.4	24.3	8.9 B	34.6	16.6 B	29.5	16.3 B	12.9 B
Total Sulfide	mg/kg	36.3 U	38.5 U	210		185	45.3	414	478	538	452	772	195	42.2	180	1020	75.2
Ammonia	mg/kg	30	15	330		300	310	260	290	290	330	330	340	310	220	260	320
TOC	mg/kg	59800	56800	129000	122000	60300	65200	105000	84300	76200	61900	64800	144000	73800	70500	61900	63500
Clay	%	16.9		50.2		33.4		50.8		31.8	43.6	48.4	45.4		36.3	43.5	53.6
Silt	%	21.9		45.6		65.1		35.3		49.5	51.7	48.3	52.3		28.5	44.8	44.8
Fine Sand	%	9.5		3		1.5		10		14.7	3.9	1.2	1.2		4.3	4.2	1.6
Medium Sand	%	6.3		1.2		0.1		3.6		4	0.9	0.2	1.2		2.4	4.6	0
Coarse Sand	%	4.2		0		0		0.3		0.1	0	0.9	0		1.1	1.9	0
Gravel	%	41.1		0		0		0		0	0	1	0		27.4	1	0
% Moisture	%	25.9	26.2	64.5	66	40.3	44.4	59.7	56	44.6	38.1	39	67.4	45.7	46.2	40.3	38.6
% Solids	%	74.1	73.8	35.5	34	59.7	55.6	40.3	44	55.4	61.9	61	32.6	54.3	53.8	59.7	61.4
Specific Gravity		2.739		2.627		2.626		2.618		2.678	2.192	2.446	2.646		2.67	2.652	2.656

Notes:

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TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 11														
Parameter	Location ID	T11-SD1	T11-SD2	T11-SD2	T11-SD2	T11-SD2	T11-SD2	T11-SD3	T11-SD3	T11-SD3	Dup. X-4	T11-SD4	T11-SD4	T11-SD4	T11-SD4	T11-SD4
	Depth (feet)	0-0.5	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	1-2	0-0.5	0.5-1	1-2	2-3	3-4
	Units/Date	05/24/05	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05	05/24/05	05/24/05	05/24/05	05/24/05	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05
Aluminum	mg/kg	5980	8830	8040	9040	8660	8570	2380	4040	2500	3290	6070	7400	7990	9670	7680
Arsenic	mg/kg	2.31 BN	4.87 BN	5.16 BN	10.5 BN	8.59 BN	8.01 BN	2.51 UJ	3.43 BN	2.35 BN	3.61 BN	4.06 BN	6.51 BN	4.97 BN	5.36 BN	4.13 BN
Cadmium	mg/kg	1.87 U	2.65 U	1.43 U	1.85 B	1.74 B	2.32 B	2.06 UJ	2.03 UN	1.46 U	1.28 U	1.62 UN	1.98 UN	2.55 BN	1.91 UN	1.48 UN
Chromium	mg/kg	9.42	18	17.9	19.7	15.8	20.3	5.68 J	9.74 N	4.72	6.9	13.4 N	17.4 N	17.7 N	23 N	24.7 N
Copper	mg/kg	16.6	43.4	49.7	69.5	56.9	69	13.6	27.8	13.4	13.4	39.9	53	50.9	48.2	33.7
Iron	mg/kg	10200	17000	15500	40900	33300	25600	5250	10100	6450	8600	15000	21300	14800	17300	13800
Manganese	mg/kg	166	257	220	298	224	224	82.5 J	139 N	137	217	189 N	181 N	208 N	233 N	225 N
Mercury	mg/kg	0.103 N	0.166	0.315	0.488	0.697	0.618	0.383 N	0.278 N	0.0499 BN	0.087 N	0.534 N	0.546 N	1.05 N	1.78 N	0.54 N
Nickel	mg/kg	12.3	27	26	24	17.8	20.6	7.84 J	12.6 N	6.46 B	7.96	16.6 N	17.4 N	17.5 N	19.8 N	16.1 N
Zinc	mg/kg	67.1	181	210	2240	1250	1040	98.4 J	281 N	107	183	420 N	1050 N	2030 N	615 N	161 N
SEM Cadmium	umole/g	0.0029 U	0.0044 U					0.0042 U				0.0036 UJ				
SEM Copper	umole/g	0.28 J	0.36					0.28				0.28 J				
SEM Lead	umole/g	0.078 J	0.095 J					0.078				0.098 J				
SEM Nickel	umole/g	0.14 B	0.16 B					0.13 B				0.13 J				
SEM Zinc	umole/g	1.1	1.5					1.4				1.2 J				
Acid Volatile Sulfide	umole/g	3.8	8.5					8.2				2 J				
SEM/AVS Ratio	unitless	0.42	0.25					0.23				0.85				
Sulfate	mg/kg	133	66.2	26.3	34	13.5 B	6.5 B	26	16 B	15.1 U		50.9	23.7	18.1	14.5 B	6.4 B
Total Sulfide	mg/kg	21.8	600	120	392	689	310	241	393	58.6		196	13.1 U	283	433	173 J
Ammonia	mg/kg	210	280	230	270	300	400	190	250	180		150	200	230	390	380
TOC	mg/kg	82800	104000	67400	79000	73700	78400	59400	77600	70500	57200	63400	62600	55900	71400	72400
Clay	%	36.2	25.4		18.3	9.7	19.8	20.4		23.4		14.3	18.4	20.8	35.3	27.5
Silt	%	20.7	60.8		68	71.2	69.7	51.9		40.2		60.5	54.3	55.6	61.2	67.4
Fine Sand	%	11.4	11.1		10.1	17.8	9.2	26.4		14.9		23.4	25	22.1	3	4.8
Medium Sand	%	6.7	2.7		1.6	1.3	1.2	1.2		3.7		1.7	2.1	1.5	0.5	0.3
Coarse Sand	%	12.9	0		0.3	0	0	0		4.8		0	0.2	0	0	0
Gravel	%	12.1	0		1.7	0	0	0		13.1		0	0	0	0	0
% Moisture	%	53	58.7	44.1	46.4	45.4	44.1	42.1	45.1	41.7	23.5	40.8	41	37.5	39.9	36.7
% Solids	%	47	41.3	55.9	53.6	54.6	55.9	57.9	54.9	58.3	76.5	59.2	59	62.5	60.1	63.3
Specific Gravity		2.668	2.596		2.676	2.665	2.66			2.741		2.646	2.659	2.62	2.534	2.681

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Milligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Attachment A
Van Cleef Lake and Cayuga and Seneca Canal Sediment Sample Analytical Data - May 2005

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 12												
Parameter	Location ID	T12-SD1	T12-SD1	T12-SD1	T12-SD1	T12-SD2	T12-SD2	T12-SD2	T12-SD3	T12-SD3	T12-SD3	T12-SD4	T12-SD4	T12-SD4
	Depth (feet)	0-0.5	0.5-1	1-2	2-3	0-0.5	0.5-1	1-2	0-0.5	0.5-1	1-2	0-0.5	0.5-1	1-1.5
	Units/Date	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05
Aluminum	mg/kg	10600	7990	2150	1500	4370	5060	4760	4750	3980	3280	7520	8480	5040
Arsenic	mg/kg	6.13 BN	4.45 BN	2.2 BN	1.59 UN	3.48 BN	5.17 BN	3.77 BN	3.1 BN	2.8 BN	2.56 BN	3.3 BN	7.39 BN	5.59 BN
Cadmium	mg/kg	2.46 UN	1.87 UN	1.42 UN	1.3 UN	1.42 UN	1.46 UN	1.3 UN	1.37 UN	1.19 UN	1.21 UN	1.83 UN	1.55 UN	1.35 UN
Chromium	mg/kg	19.3 N	14.9 N	3.91 BN	3.2 BN	9.58 N	12 N	16.5 N	9.79 N	8.18 N	5.28 N	15.3 N	19.4 N	10.9 N
Copper	mg/kg	39.1	30.1	5.39 B	5.92 B	26.4	38.2	28	36.3	17.3	7.45	39	54.8	34.6
Iron	mg/kg	19000	17300	5210	3600	9800	14900	10100	9670	8710	7980	14700	24900	21300
Manganese	mg/kg	389 N	349 N	186 N	113 N	162 N	198 N	266 N	178 N	278 N	319 N	170 N	236 N	143 N
Mercury	mg/kg	0.164 N	0.126 N	0.0142 UN	0.0167 UN	0.153 N	0.453 N	0.163 N	0.103 N	0.193 N	0.19 N	0.131 N	0.337 N	0.23 N
Nickel	mg/kg	25 N	21.5 N	5.36 BN	3.64 BN	14 N	13.8 N	10.9 N	14 N	10 N	7.93 N	19.6 N	22.6 N	13.1 N
Zinc	mg/kg	171 N	149 N	37.5 N	51.9 N	190 N	794 N	165 N	150 N	210 N	289 N	224 N	1260 N	810 N
SEM Cadmium	umole/g	0.0046 U				0.0029 U			0.0029 U			0.0036 U		
SEM Copper	umole/g	0.3				0.18			0.23			0.35		
SEM Lead	umole/g	0.086				0.082			0.19			0.097		
SEM Nickel	umole/g	0.17 B				0.09 B			0.089 B			0.18 B		
SEM Zinc	umole/g	1.3				1.1			2.2			1.4		
Acid Volatile Sulfide	umole/g	3.3				2.7			2.4			7.1		
SEM/AVS Ratio	unitless	0.58				0.56			1.1			0.28		
Sulfate	mg/kg	36.3	65.4	8.5 B	5.9 U	36.3	9.9 U	6.5 U	48.8	66.9	5.2 U	121	113	49.6
Total Sulfide	mg/kg	382	414	11.3	12.2	79.2	443	122	102	239	54.7	216	178	300
Ammonia	mg/kg	260	270	30	34	110	160	220	110	110	67	220	190	110
TOC	mg/kg	132000	91300	17600	16600	57600	85800	93300	45500	45600	128000	146000	62900	58500
Clay	%	27.6		2.3	2.3	11.1		10.9	9.3		8.6	43.5		
Silt	%	51.4		4.1	24.6	36.1		27.9	48.7		11.1	46.4		
Fine Sand	%	19.5		37.4	72	50.1		34.3	36.4		8.3	8.5		
Medium Sand	%	1.6		4	1	2		4.7	2.2		2.9	1.5		
Coarse Sand	%	0		3.7	0.1	0.4		3.3	1.4		5.6	0		
Gravel	%	0		48.5	0	0.3		19	2.1		63.5	0		
% Moisture	%	65.7	51.9	16.8	17.3	34.3	40.9	32.6	34.9	25	17.7	42	39.9	33.1
% Solids	%	34.3	48.1	83.2	82.7	65.7	59.1	67.4	65.1	75	82.3	58	60.1	66.9
Specific Gravity		2.622		2.683	2.664	2.614		2.559	2.328		2.392	2.73		

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Milligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

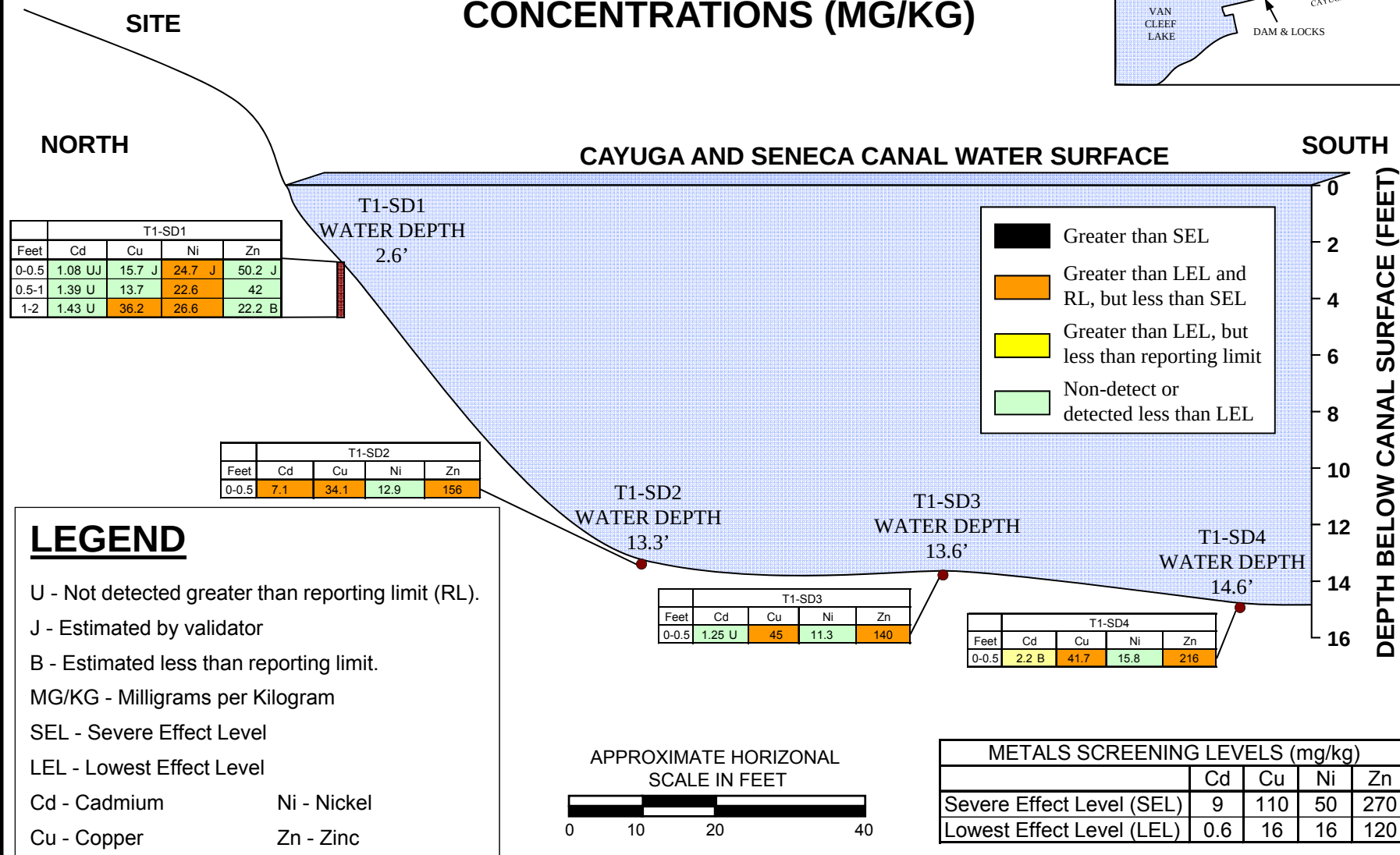
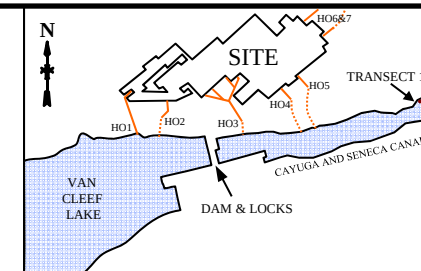
TOC - Total Organic Carbon



Attachment B

Cross Sections of Selected
Metals Results

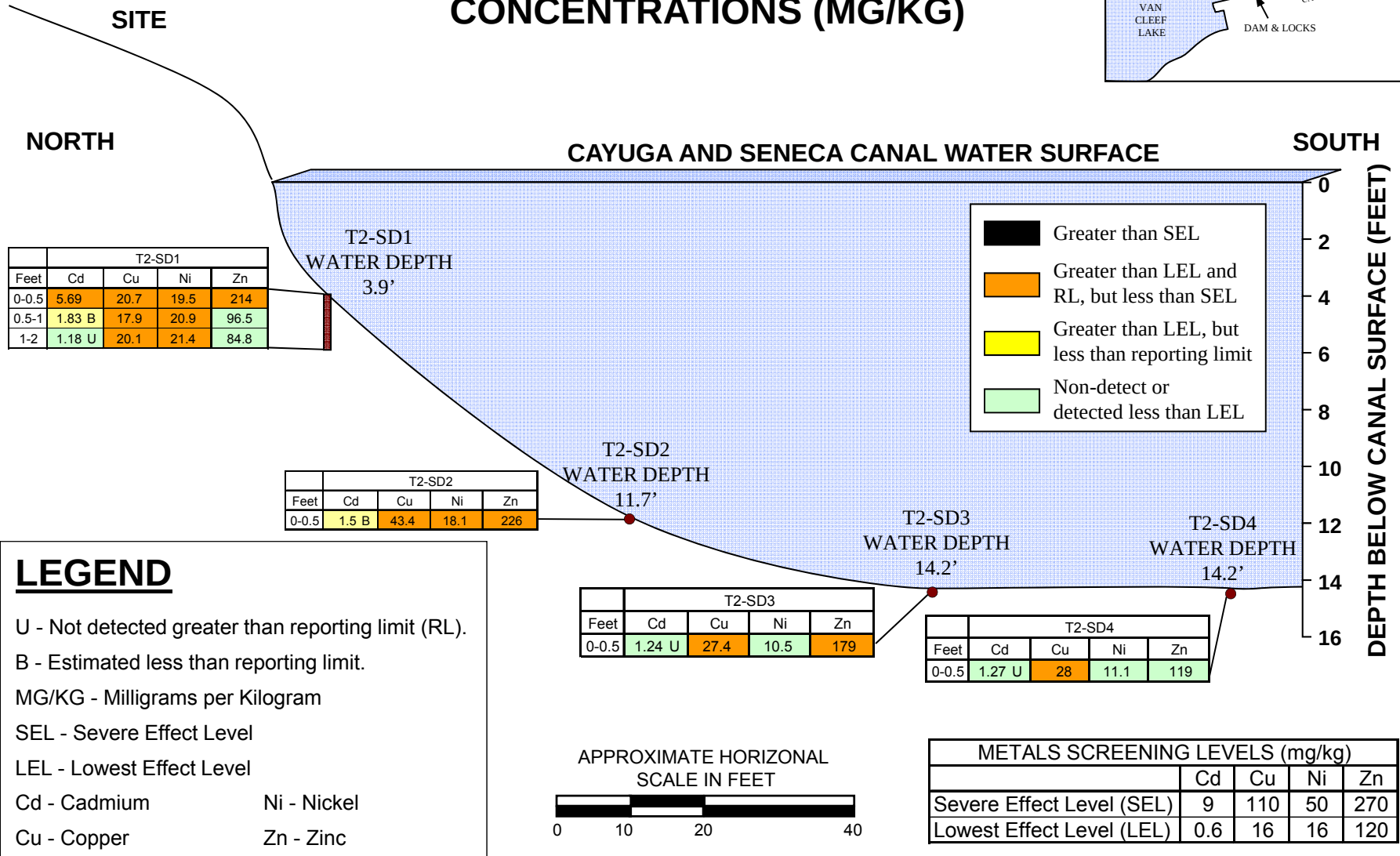
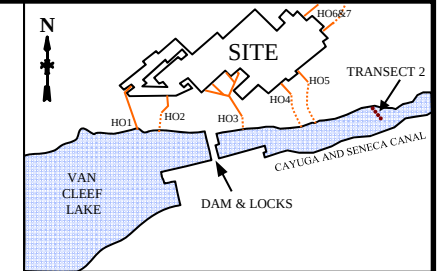
TRANSECT 1 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 1 SELECTED METALS RESULTS

FIGURE B1

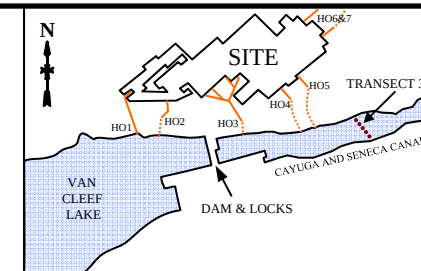
TRANSECT 2 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 2 SELECT METALS RESULTS

FIGURE B2

TRANSECT 3 SELECTED METALS CONCENTRATIONS (MG/KG)



SITE

NORTH

CAYUGA AND SENECA CANAL WATER SURFACE

SOUTH

DEPTH BELOW CANAL SURFACE (FEET)

T3-SD1
WATER DEPTH
3.3'

T3-SD1					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.14 U	35.9	56.5	52.4	
0.5-1	1.11 U	29.3	38.9	32.3	
1-2	1.25 U	96.3	40.4	29.6	

	Greater than SEL
	Greater than LEL and RL, but less than SEL
	Greater than LEL, but less than reporting limit
	Non-detect or detected less than LEL

T3-SD2					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.31 U	23.5	11.3	124	

T3-SD2
WATER DEPTH
13.7'

T3-SD3
WATER DEPTH
13.8'

T3-SD3					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.26 U	20.9	10.1	117	

T3-SD4
WATER DEPTH
14.3'

T3-SD4					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.62 U	54.6	14.2	174	

T3-SD5
WATER DEPTH
13.1'

T3-SD5					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.83 U	37.9	20.9	153	

LEGEND

U - Not detected greater than reporting limit (RL).

MG/KG - Milligrams per Kilogram

SEL - Severe Effect Level

LEL - Lowest Effect Level

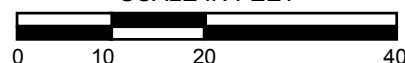
Cd - Cadmium

Ni - Nickel

Cu - Copper

Zn - Zinc

APPROXIMATE HORIZONTAL
SCALE IN FEET



METALS SCREENING LEVELS (mg/kg)				
	Cd	Cu	Ni	Zn
Severe Effect Level (SEL)	9	110	50	270
Lowest Effect Level (LEL)	0.6	16	16	120

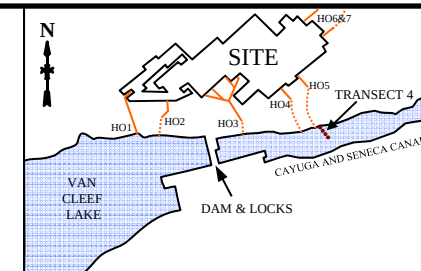


FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

TRANSECT 3 SELECTED METALS RESULTS

FIGURE B3

TRANSECT 4 SELECTED METALS CONCENTRATIONS (MG/KG)



NORTH

CAYUGA AND SENECA CANAL WATER SURFACE

SOUTH

T4-SD1				
Feet	Cd	Cu	Ni	Zn
0-0.5	3.77	19.7	16.4	94.8

T4-SD1
WATER DEPTH
5.8'

T4-SD2				
Feet	Cd	Cu	Ni	Zn
0-0.5	1.65 U	41.6	17.6	196
0.5-1	2.08 U	51.9	24.7	243
1-2	9.17	49.7	21.8	392

T4-SD2
WATER DEPTH
13'

T4-SD3
WATER DEPTH
12.9'

T4-SD4
WATER DEPTH
12.2'

T4-SD3				
Feet	Cd	Cu	Ni	Zn
0-0.5	2.04 U	43.6	19.5	221

T4-SD4				
Feet	Cd	Cu	Ni	Zn
0-0.5	1.48 B	26.7	12.4	91.7

Greater than SEL
Greater than LEL and RL, but less than SEL
Greater than LEL, but less than reporting limit
Non-detect or detected less than LEL

LEGEND

U - Not detected greater than reporting limit (RL).

B - Estimated less than reporting limit.

MG/KG - Milligrams per Kilogram

SEL - Severe Effect Level

LEL - Lowest Effect Level

Cd - Cadmium

Ni - Nickel

Cu - Copper

Zn - Zinc

APPROXIMATE HORIZONTAL
SCALE IN FEET



METALS SCREENING LEVELS (mg/kg)				
	Cd	Cu	Ni	Zn
Severe Effect Level (SEL)	9	110	50	270
Lowest Effect Level (LEL)	0.6	16	16	120

DEPTH BELOW CANAL SURFACE (FEET)

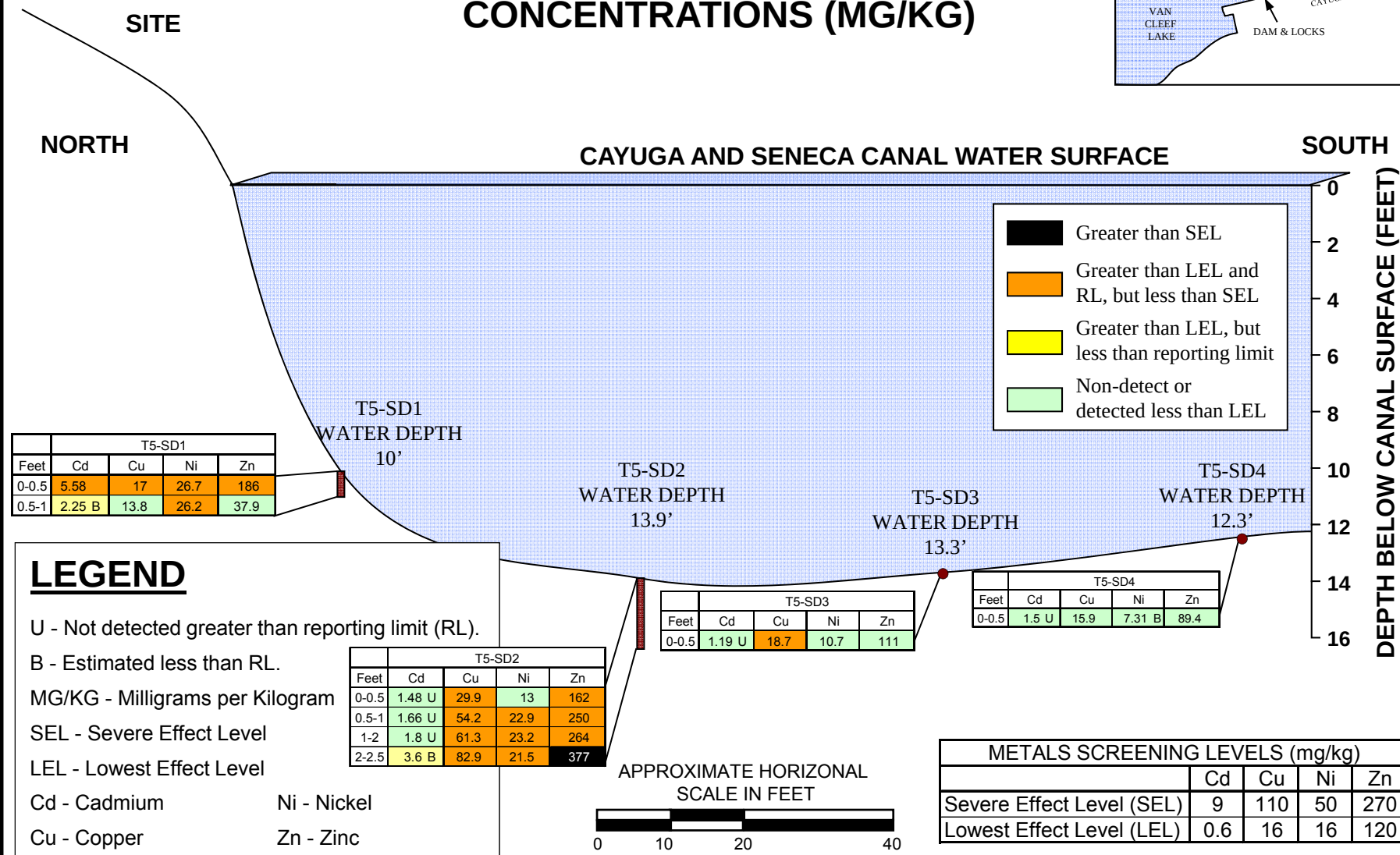
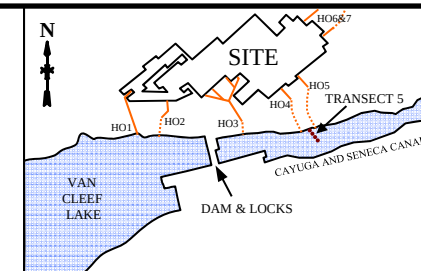


FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

TRANSECT 4 SELECTED METALS RESULTS

FIGURE B4

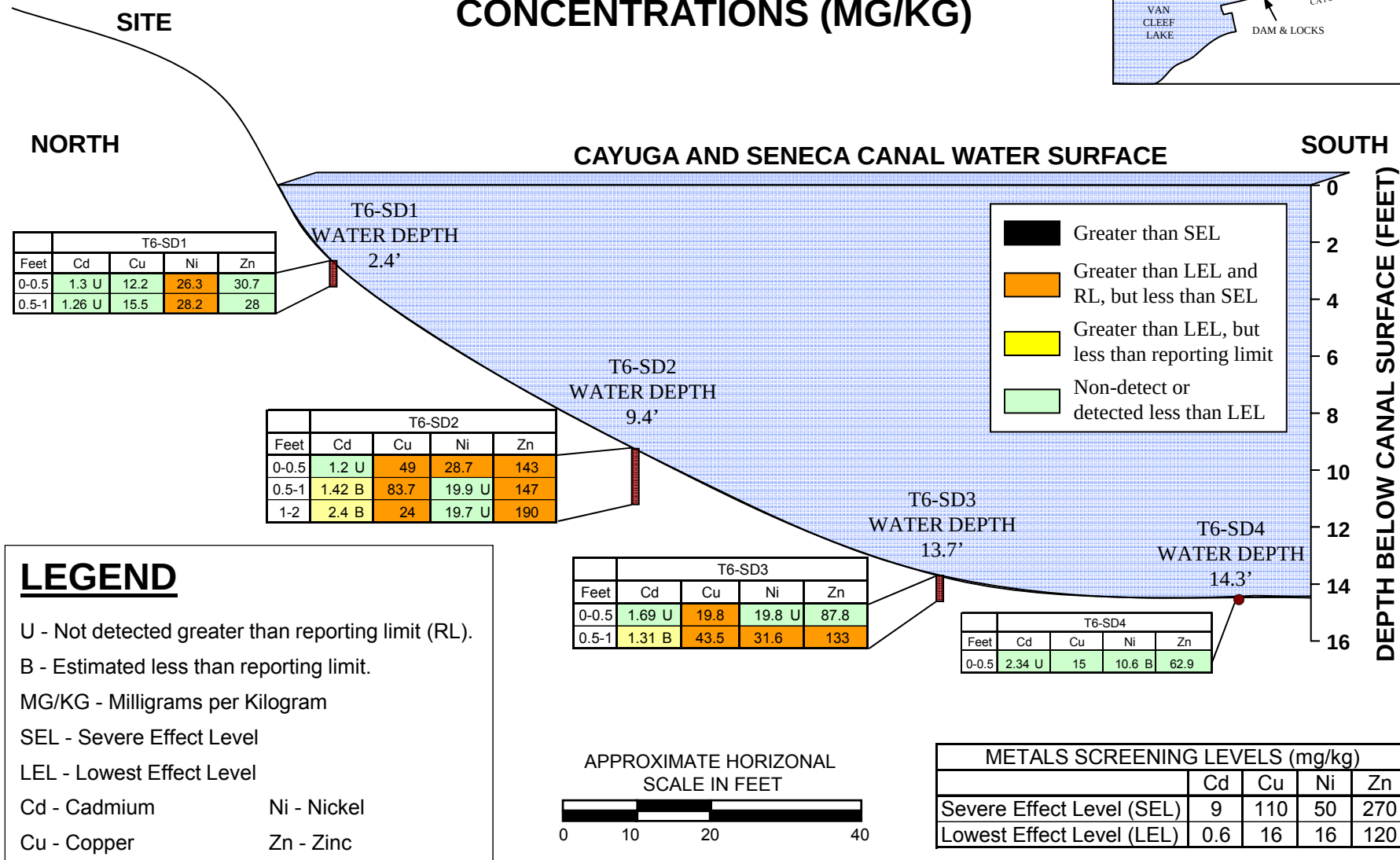
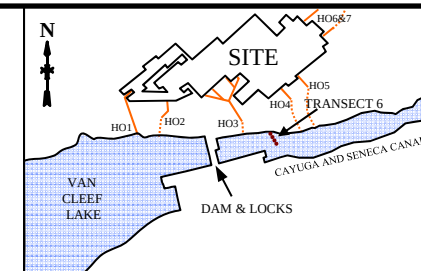
TRANSECT 5 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 5 SELECTED METALS RESULTS

FIGURE B5

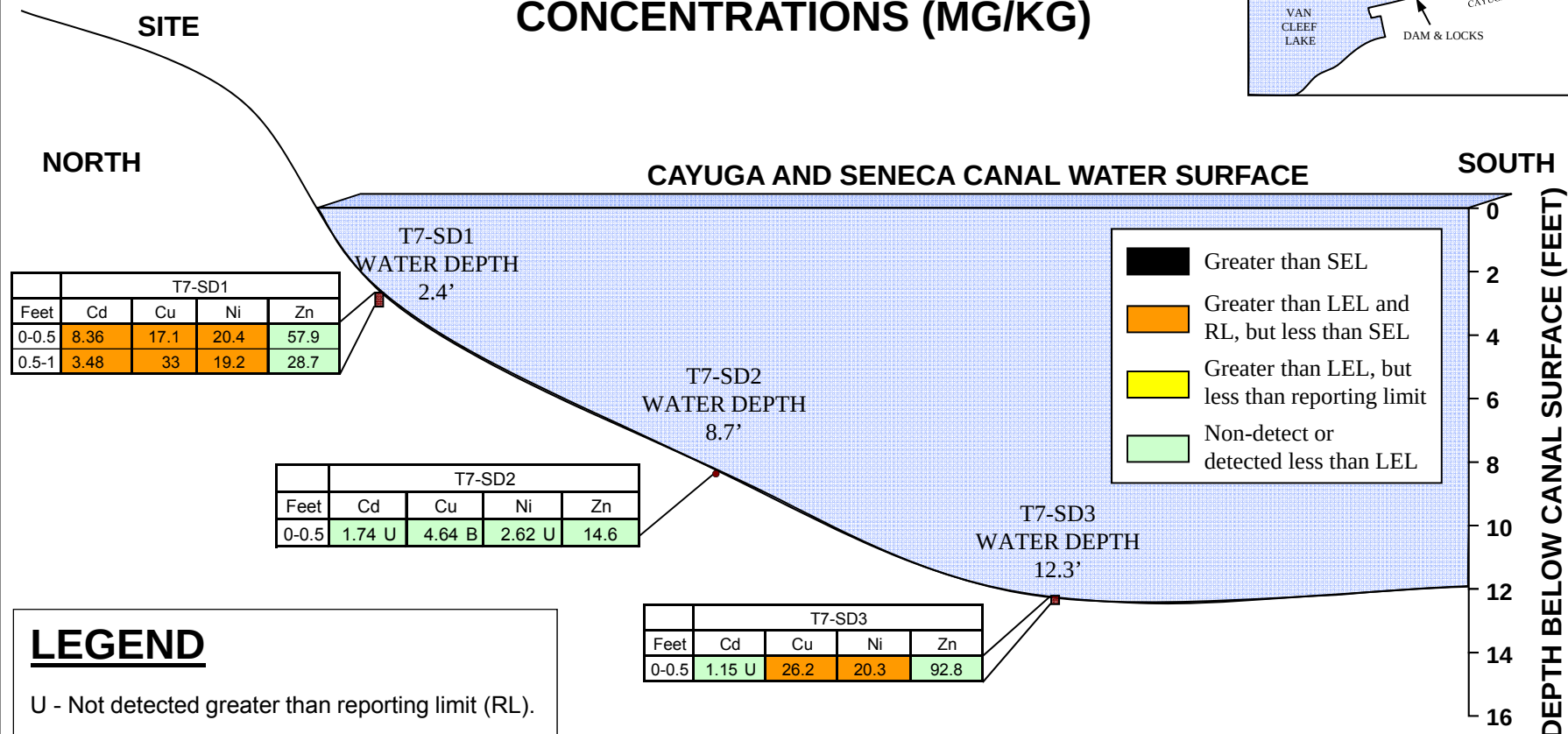
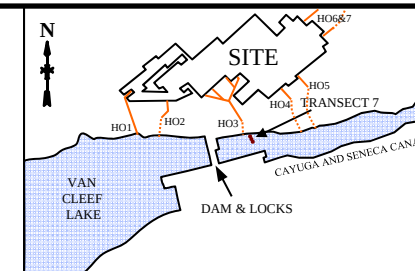
TRANSECT 6 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 6 SELECTED METALS RESULTS

FIGURE B6

TRANSECT 7 SELECTED METALS CONCENTRATIONS (MG/KG)



T7-SD1				
Feet	Cd	Cu	Ni	Zn
0-0.5	8.36	17.1	20.4	57.9
0.5-1	3.48	33	19.2	28.7

T7-SD2				
Feet	Cd	Cu	Ni	Zn
0-0.5	1.74 U	4.64 B	2.62 U	14.6

T7-SD3				
Feet	Cd	Cu	Ni	Zn
0-0.5	1.15 U	26.2	20.3	92.8

LEGEND

U - Not detected greater than reporting limit (RL).

B - Estimated less than reporting limit.

MG/KG - Milligrams per Kilogram

SEL - Severe Effect Level

LEL - Lowest Effect Level

Cd - Cadmium

Ni - Nickel

Cu - Copper

Zn - Zinc

APPROXIMATE HORIZONTAL
SCALE IN FEET



METALS SCREENING LEVELS (mg/kg)				
	Cd	Cu	Ni	Zn
Severe Effect Level (SEL)	9	110	50	270
Lowest Effect Level (LEL)	0.6	16	16	120

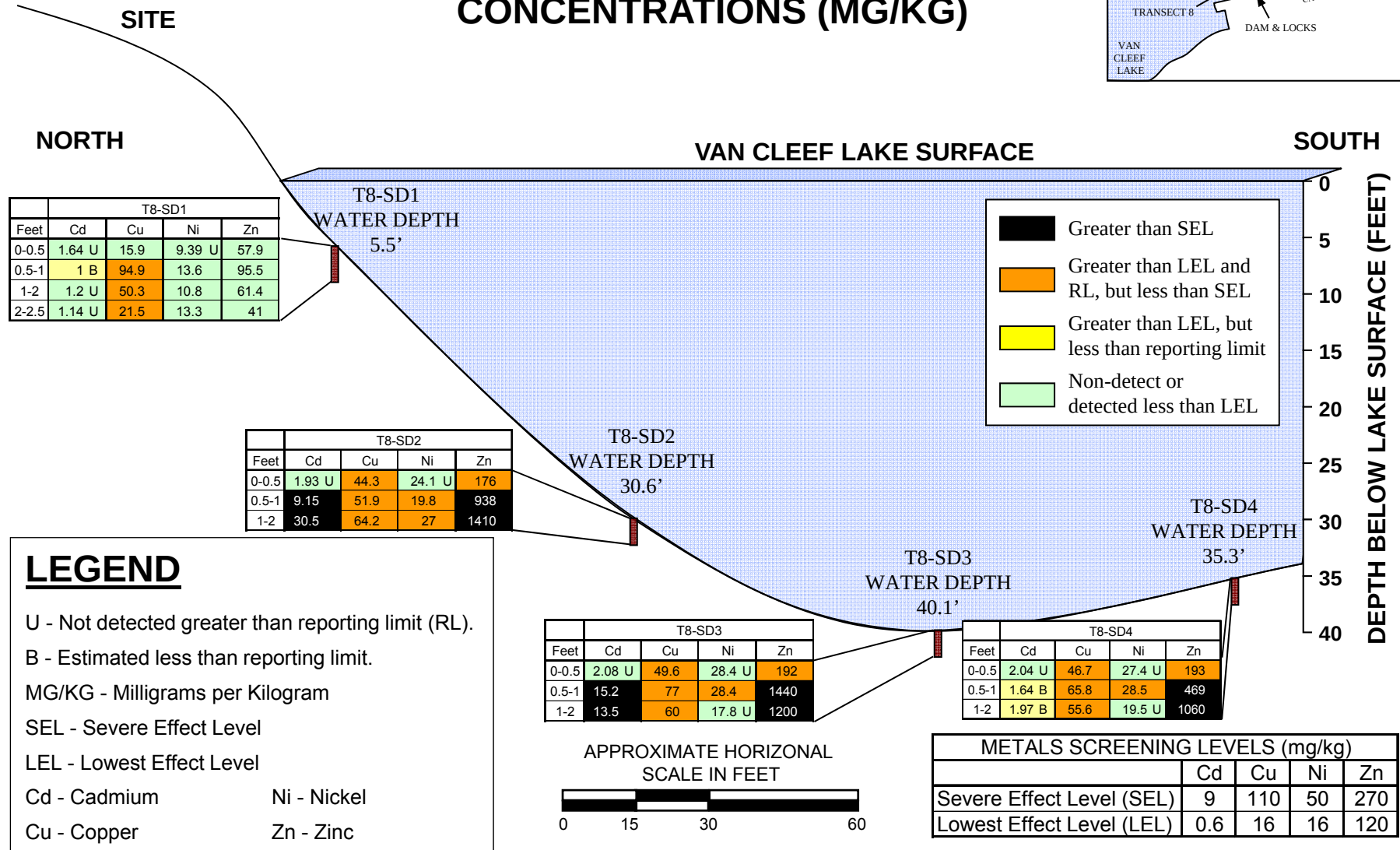
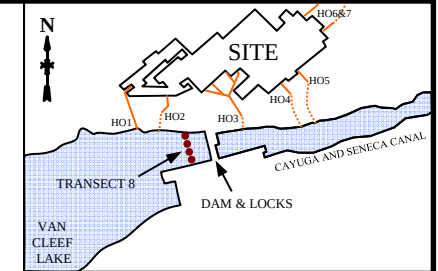


FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

TRANSECT 7 SELECTED METALS RESULTS

FIGURE B7

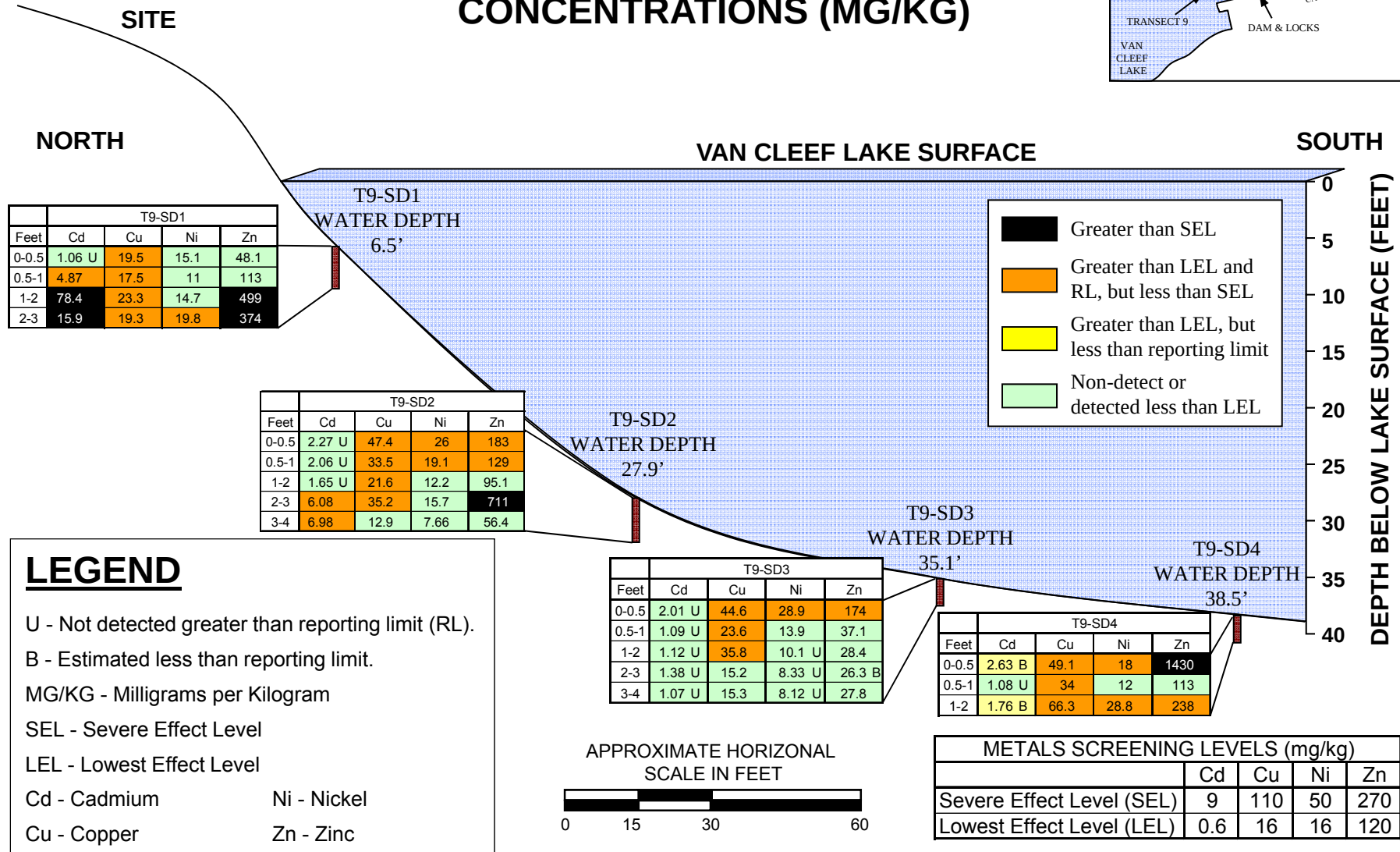
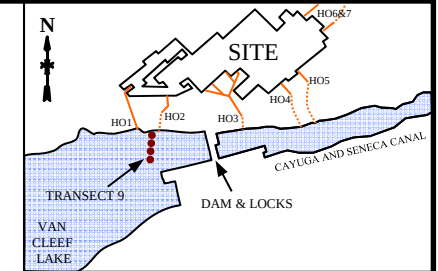
TRANSECT 8 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 8 SELECTED METALS RESULTS

FIGURE B8

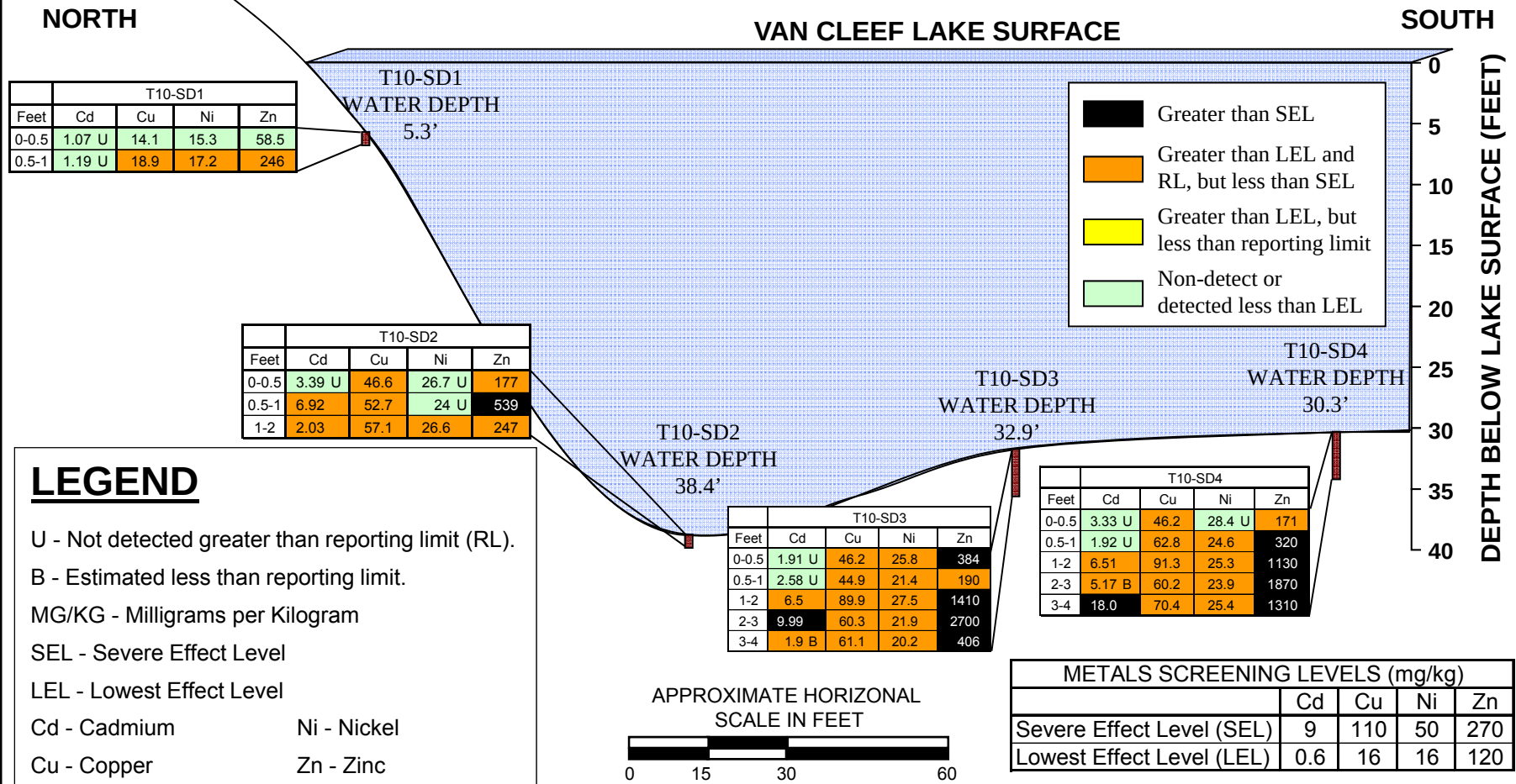
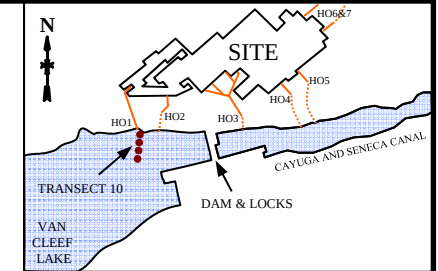
TRANSECT 9 SELECTED METALS CONCENTRATIONS (MG/KG)



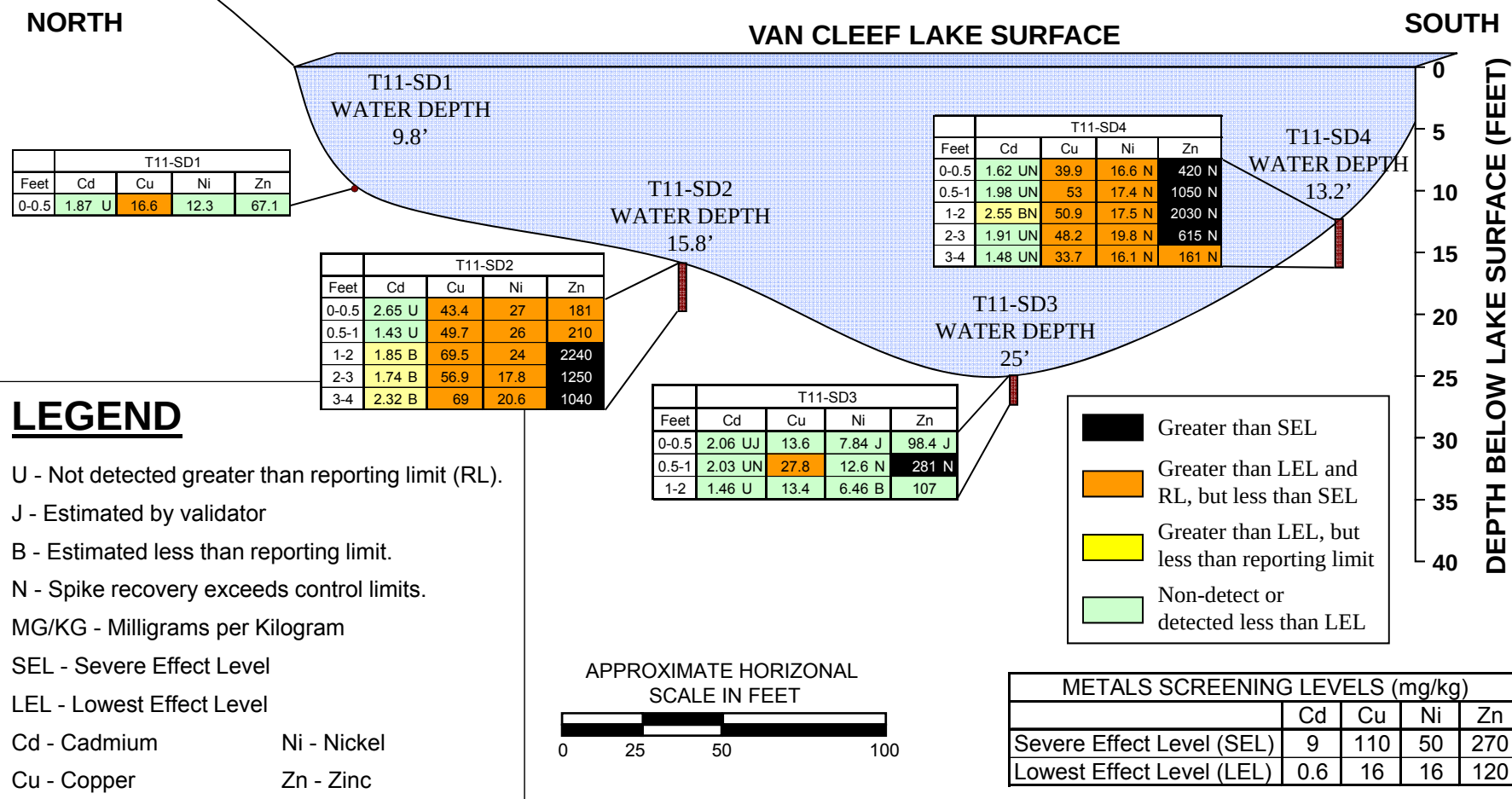
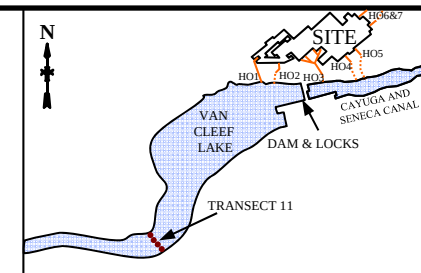
FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 9 SELECTED METALS RESULTS

FIGURE B9

TRANSECT 10 SELECTED METALS CONCENTRATIONS (MG/KG)



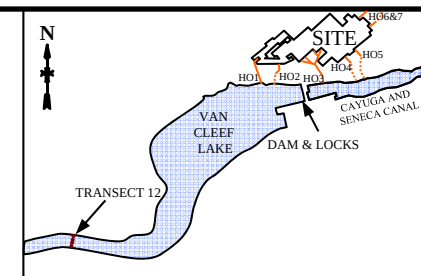
TRANSECT 11 SELECTED METALS CONCENTRATIONS (MG/KG)



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
TRANSECT 11 SELECTED METALS RESULTS

FIGURE B11

TRANSECT 12 SELECTED METALS CONCENTRATIONS (MG/KG)



NORTH

VAN CLEEF LAKE SURFACE

SOUTH

LEGEND

U - Not detected greater than reporting limit (RL).

N - Spike recovery exceeds control limits.

MG/KG - Milligrams per Kilogram

SEL - Severe Effect Level

LEL - Lowest Effect Level

Cd - Cadmium

Ni - Nickel

Cu - Copper

Zn - Zinc

T12-SD1					
Feet	Cd	Cu	Ni	Zn	
0-0.5	2.46 UN	39.1	25 N	171 N	
0.5-1	1.87 UN	30.1	21.5 N	149 N	
1-2	1.42 UN	5.39 B	5.36 BN	37.5 N	
2-3	1.3 UN	5.92 B	3.64 BN	51.9 N	

T12-SD1
WATER DEPTH
14.8'

T12-SD2
WATER DEPTH
15.5'

T12-SD2					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.42 UN	26.4	14 N	190 N	
0.5-1	1.46 UN	38.2	13.8 N	794 N	
1-2	1.3 UN	28	10.9 N	165 N	

T12-SD3
WATER DEPTH
14.2'

T12-SD3					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.37 UN	36.3	14 N	150 N	
0.5-1	1.19 UN	17.3	10 N	210 N	
1-2	1.21 UN	7.45	7.93 N	289 N	

T12-SD4
WATER DEPTH
7.3'

T12-SD4					
Feet	Cd	Cu	Ni	Zn	
0-0.5	1.83 UN	39	19.6 N	224 N	
0.5-1	1.55 UN	54.8	22.6 N	1280 N	
1-2	1.35 UN	34.6	13.1 N	810 N	

DEPTH BELOW CANAL SURFACE (FEET)

METALS SCREENING LEVELS (mg/kg)					
	Cd	Cu	Ni	Zn	
Severe Effect Level (SEL)	9	110	50	270	
Lowest Effect Level (LEL)	0.6	16	16	120	

APPROXIMATE HORIZONTAL
SCALE IN FEET



	Greater than SEL
	Greater than LEL and RL, but less than SEL
	Greater than LEL, but less than reporting limit
	Non-detect or detected less than LEL



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

TRANSECT 12 SELECTED METALS RESULTS

FIGURE B12



Attachment C

Graphs of Mean Metals
Concentrations

Figure C1. Mean Sediment Concentrations of Arsenic

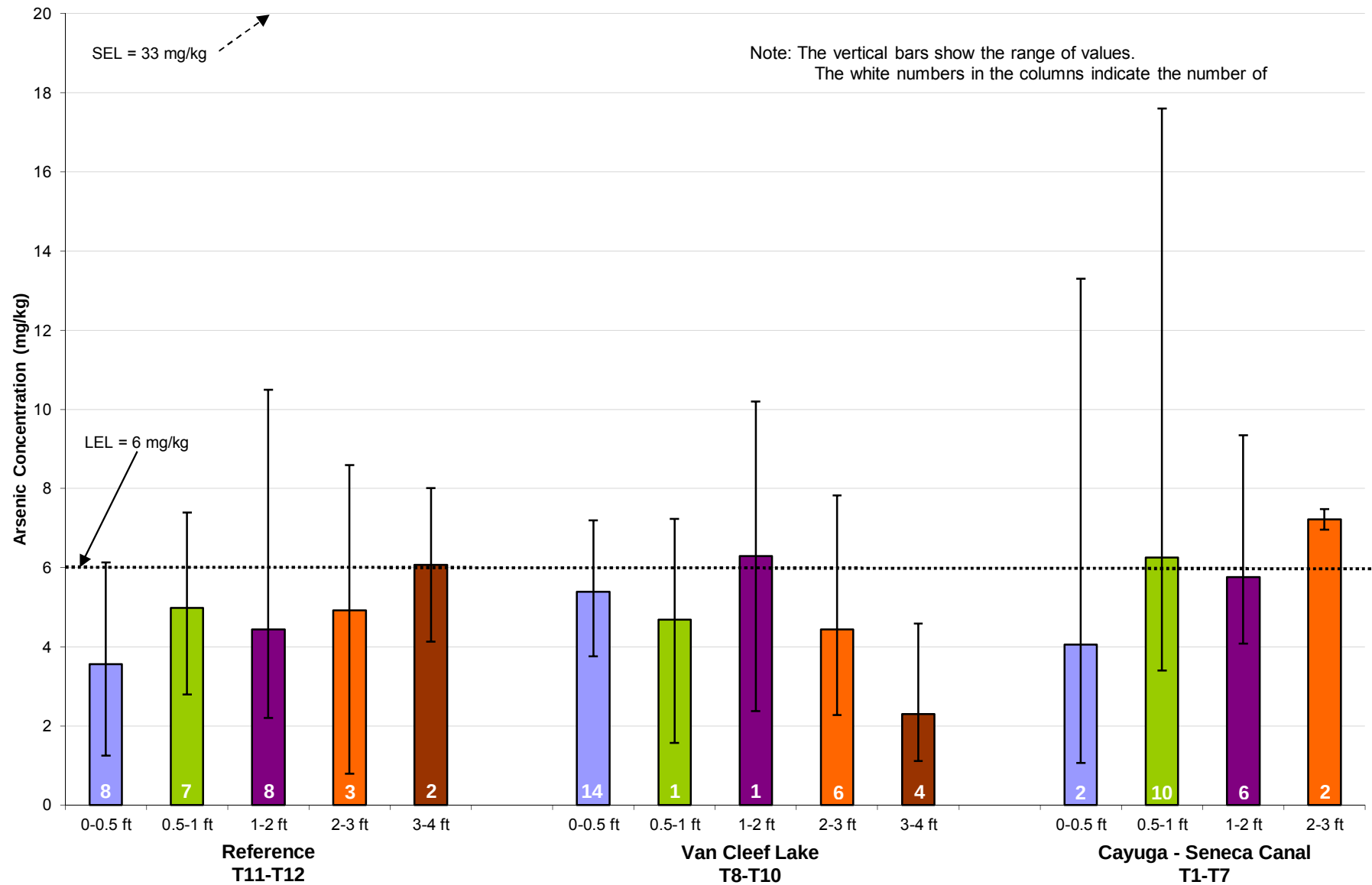


Figure C2. Mean Sediment Concentrations of Cadmium

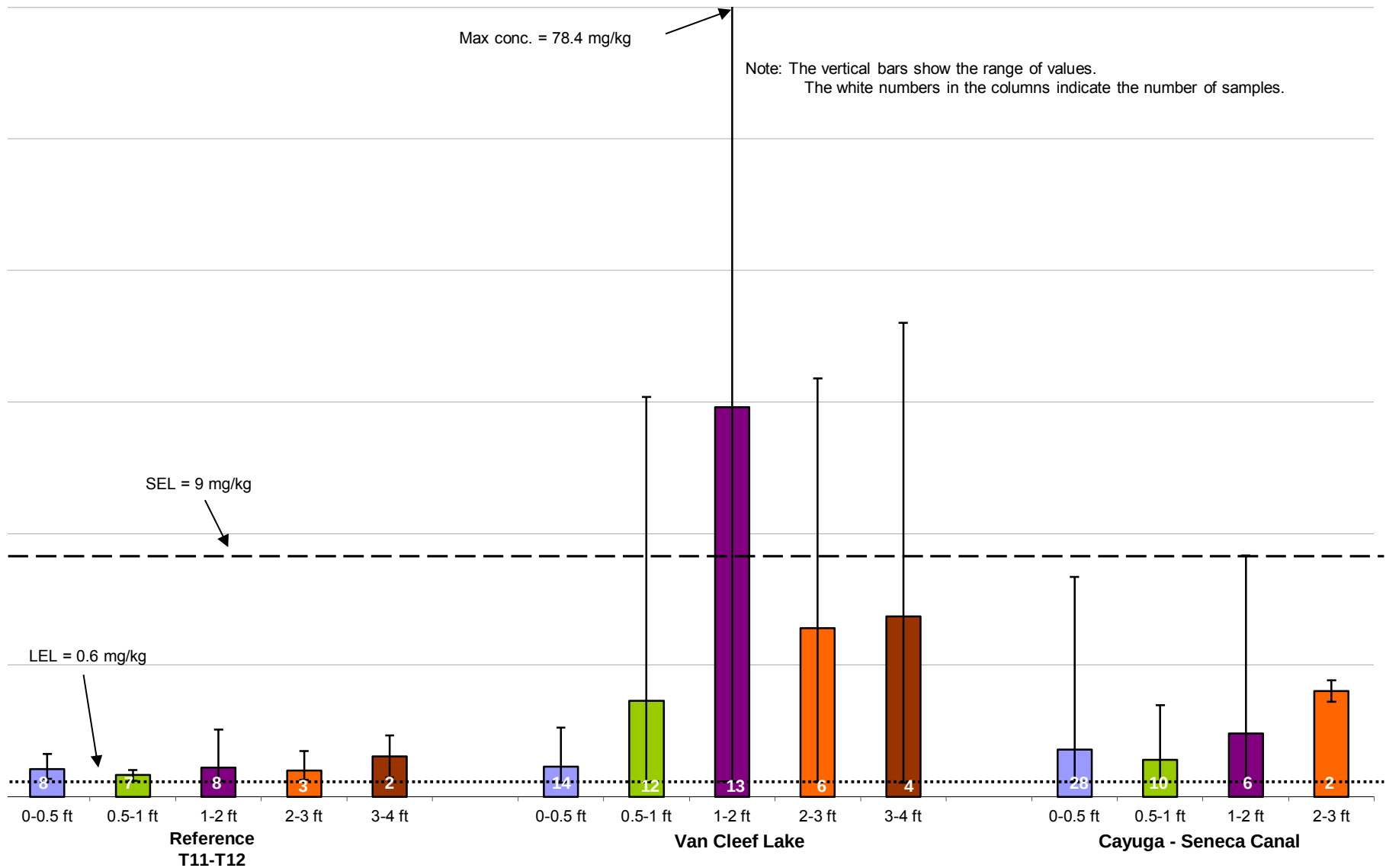


Figure C3. Mean Sediment Concentrations of Chromium

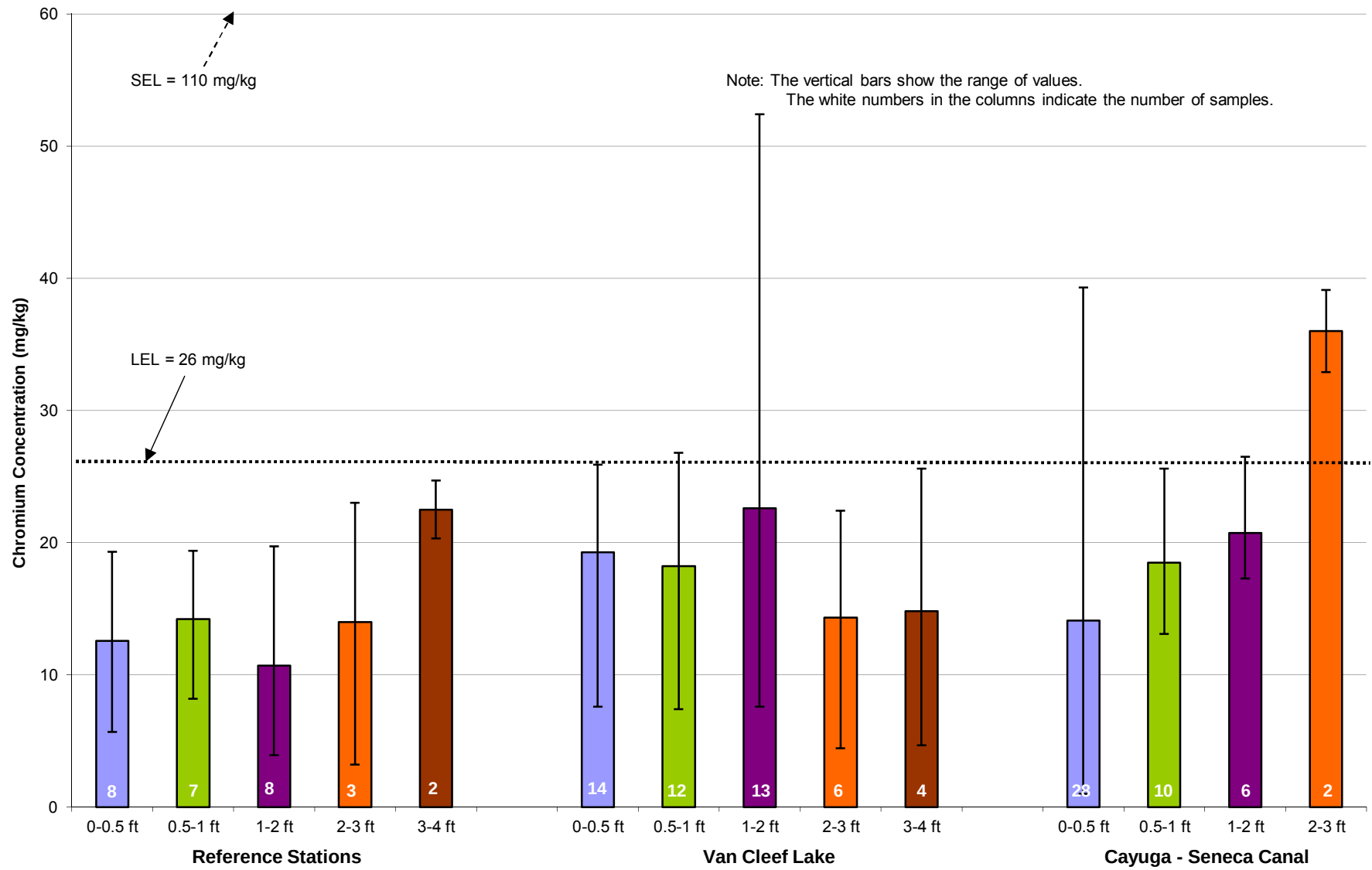


Figure C4. Mean Sediment Concentrations of Copper

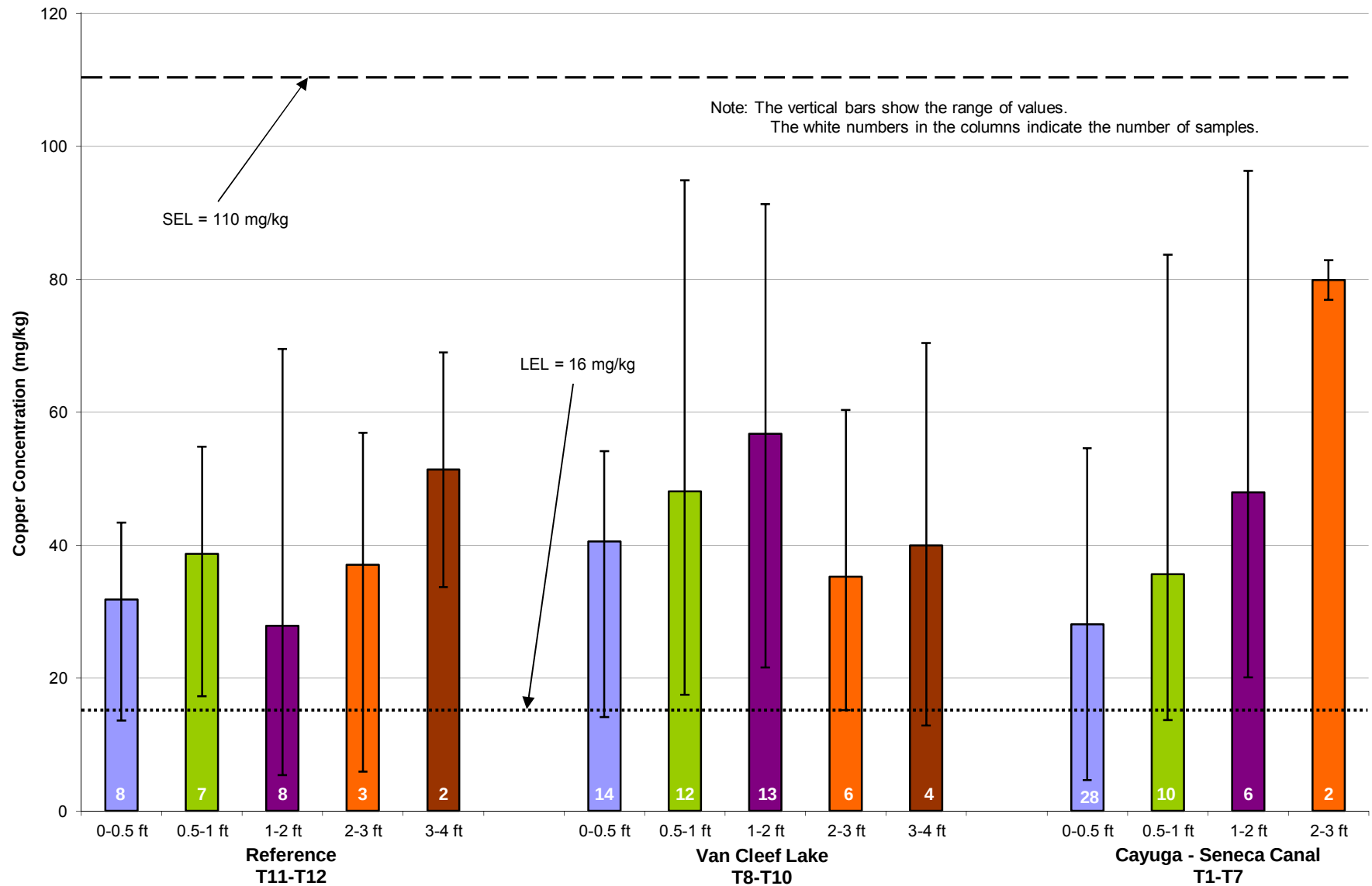


Figure C5. Mean Sediment Concentrations of Iron

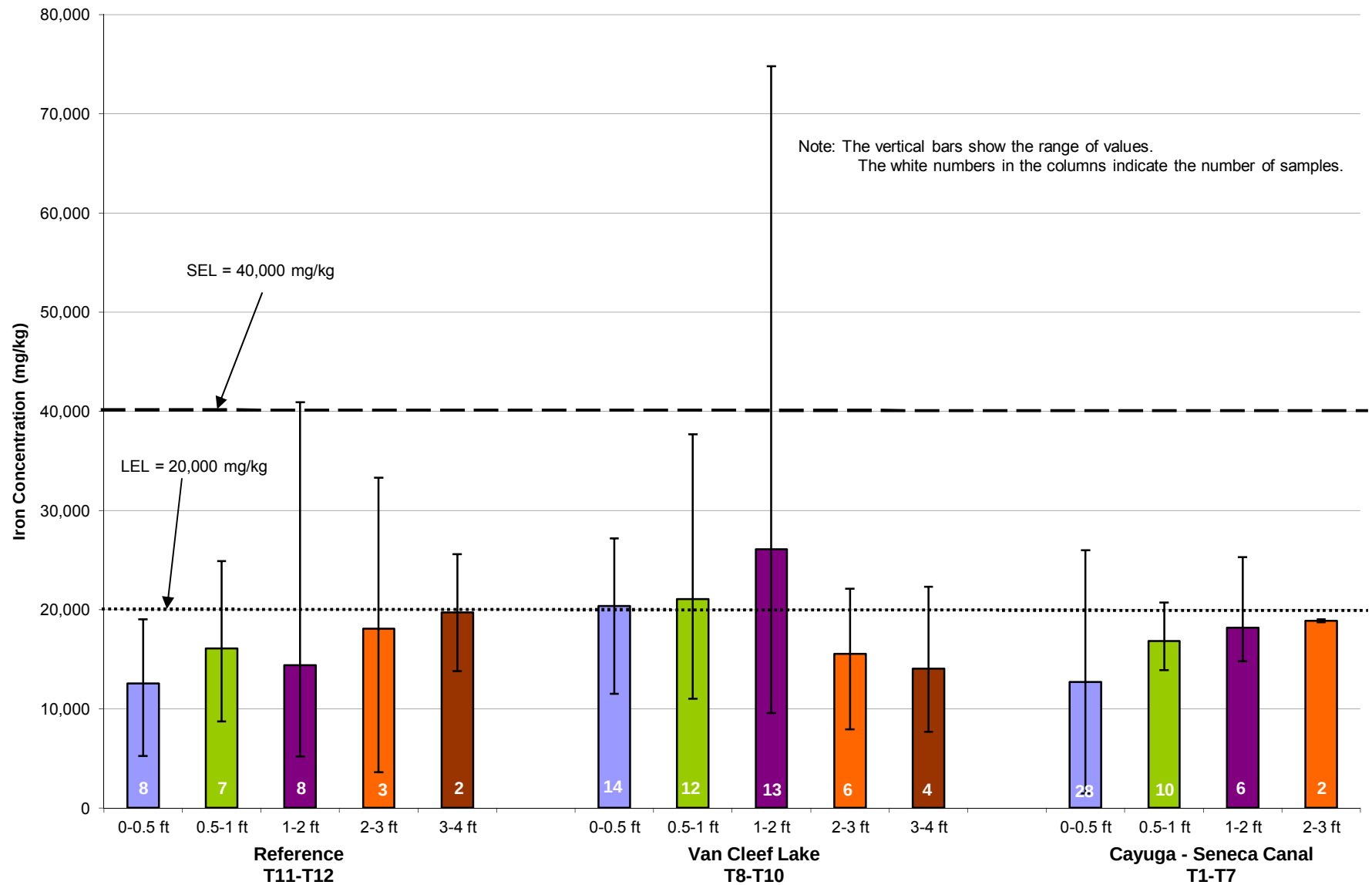


Figure C6. Mean Sediment Concentrations of Manganese

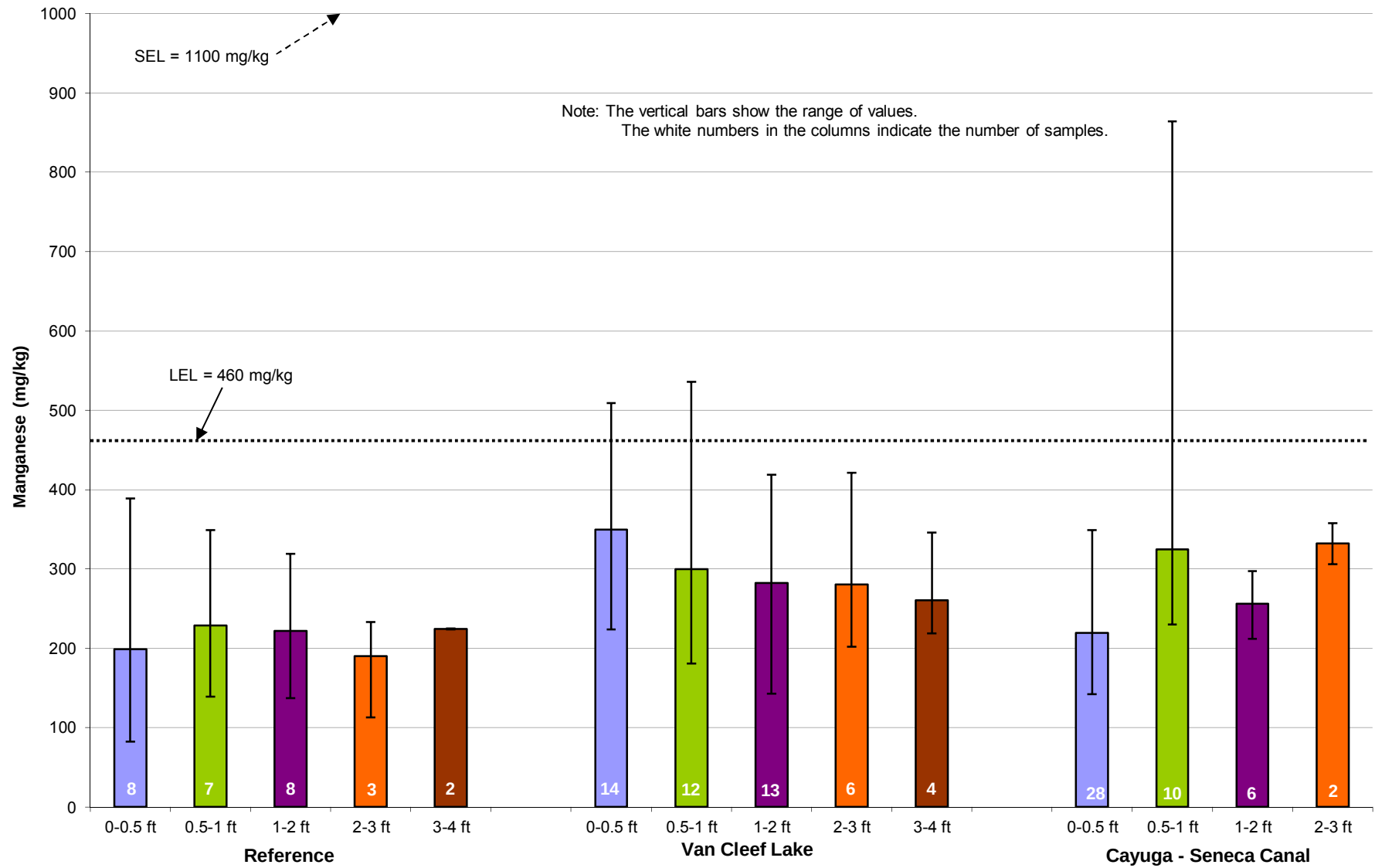


Figure C7. Mean Sediment Concentrations of Mercury

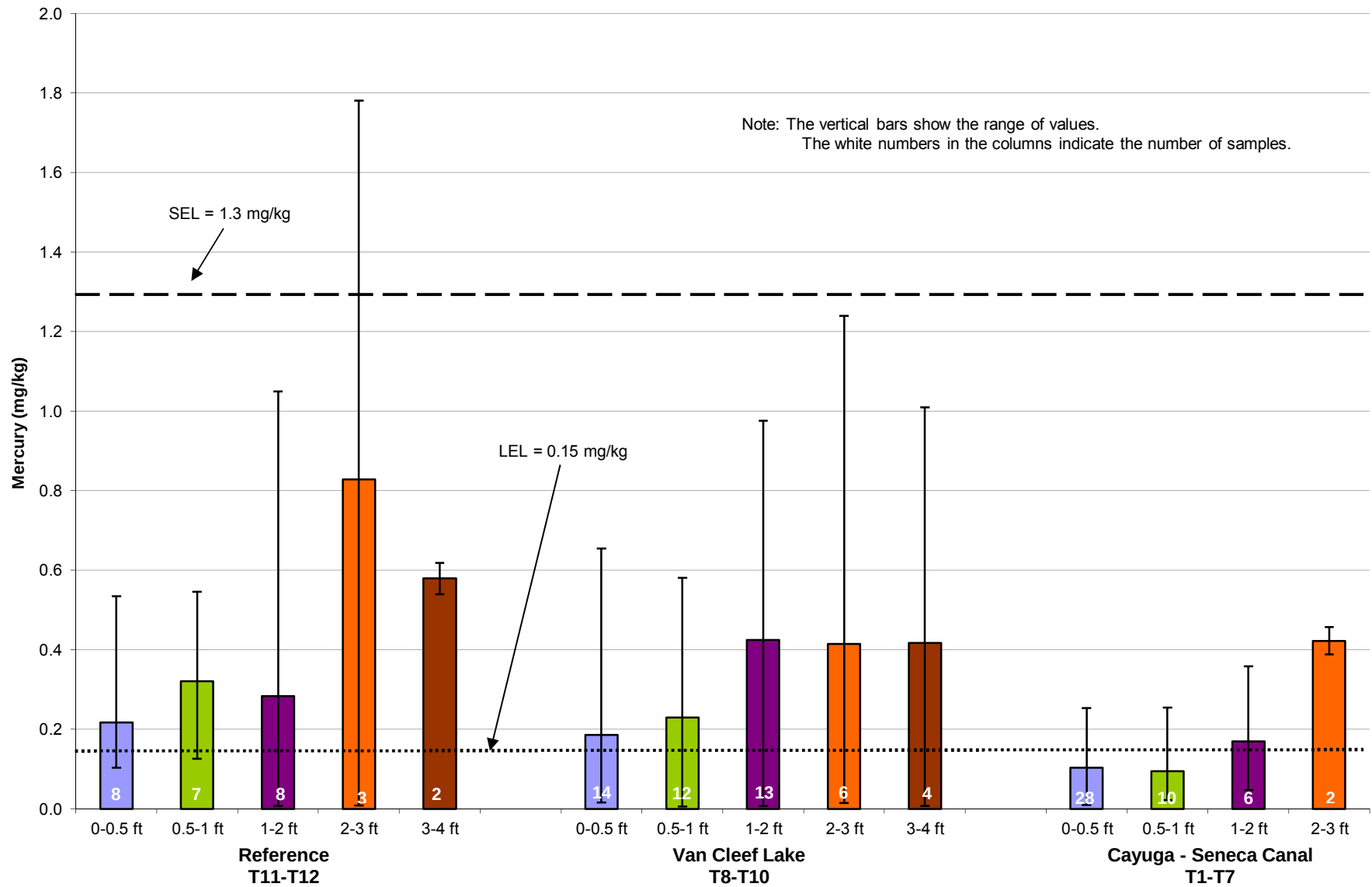


Figure C8. Mean Sediment Concentrations of Nickel

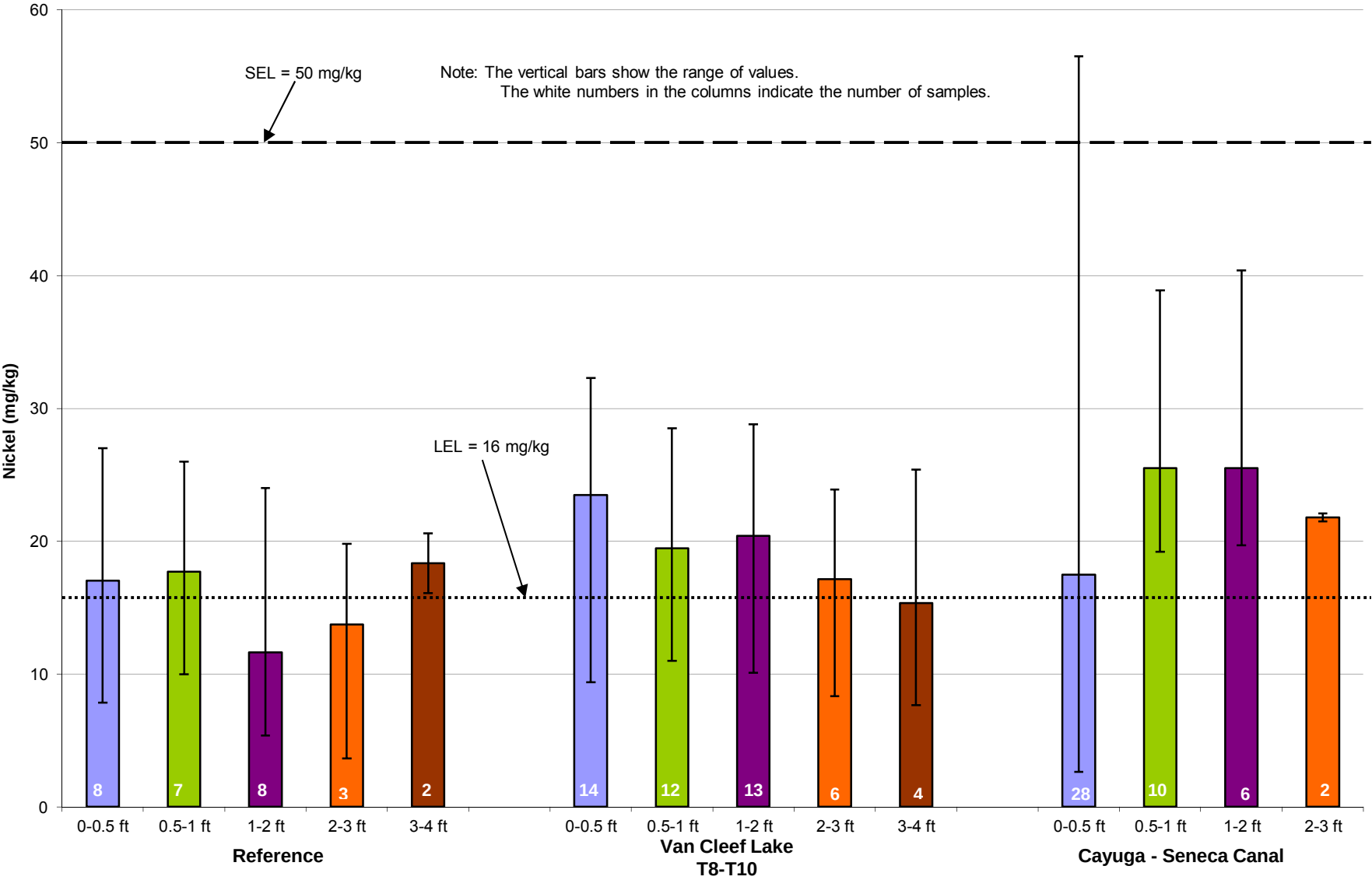
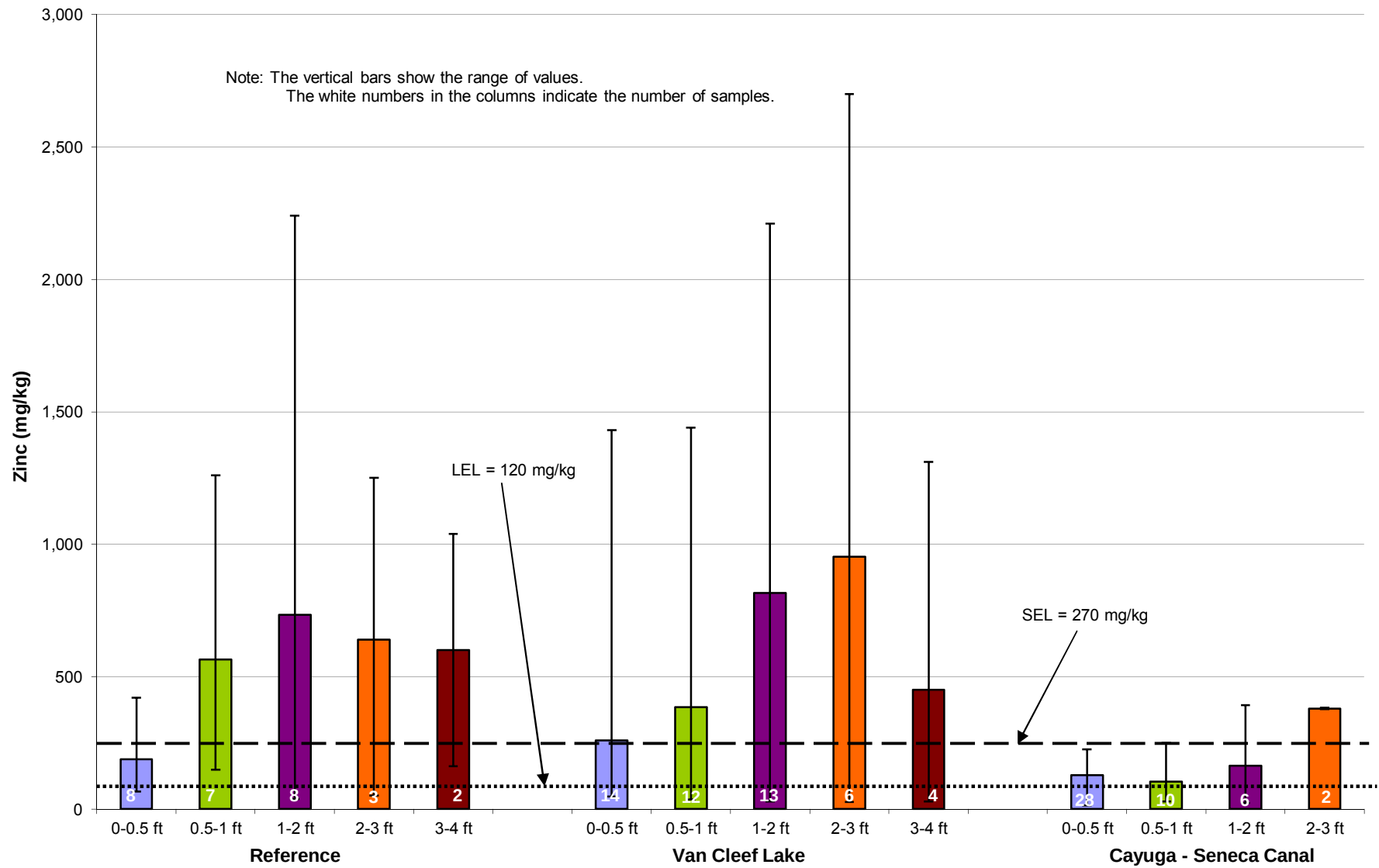


Figure C9. Mean Sediment Concentrations of Zinc





Attachment D

Graphs of Surface Sediment
Results

Figure D1. Concentrations of Arsenic in Surface Sediments

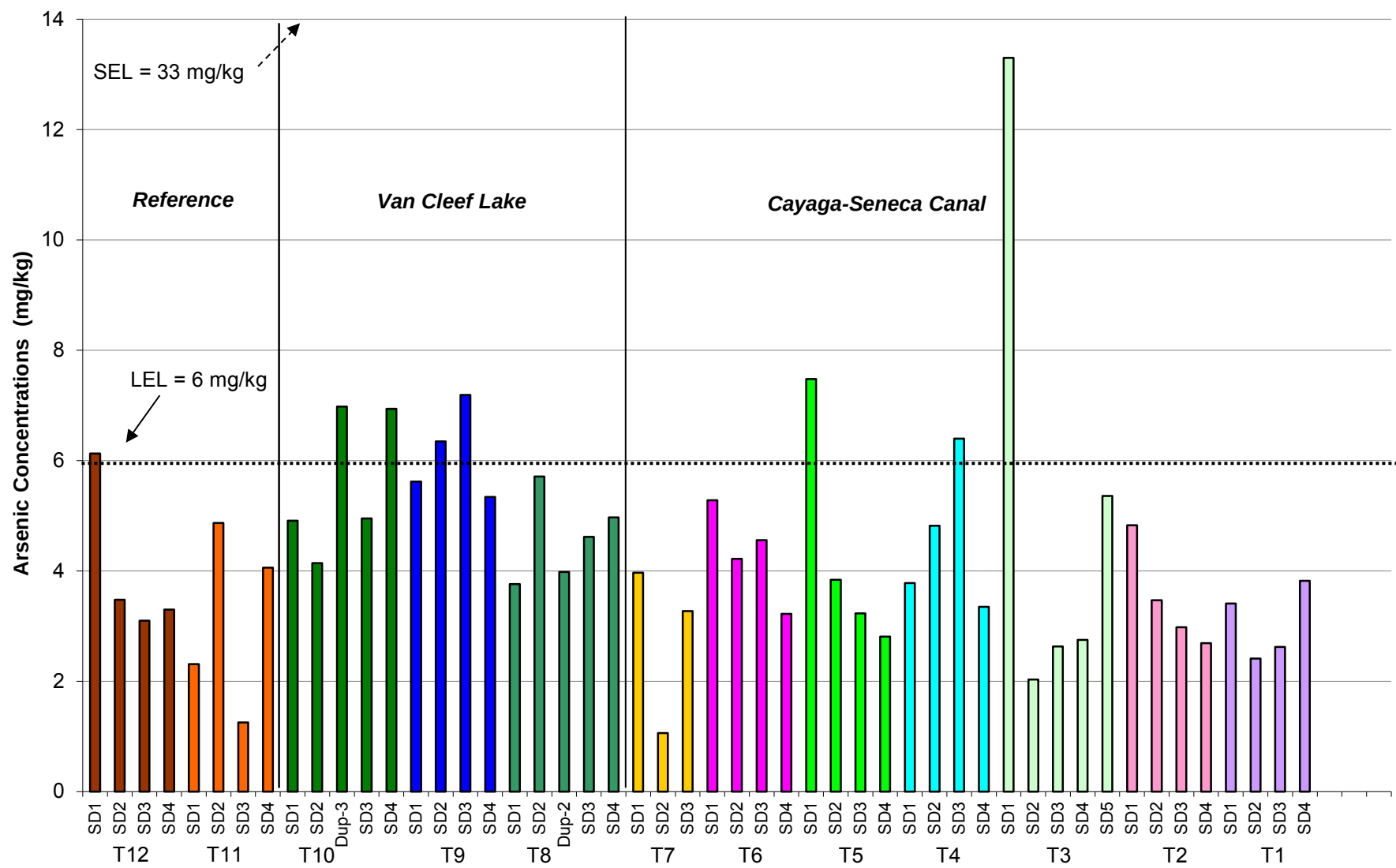


Figure D2. Concentrations of Cadmium in Surface Sediments

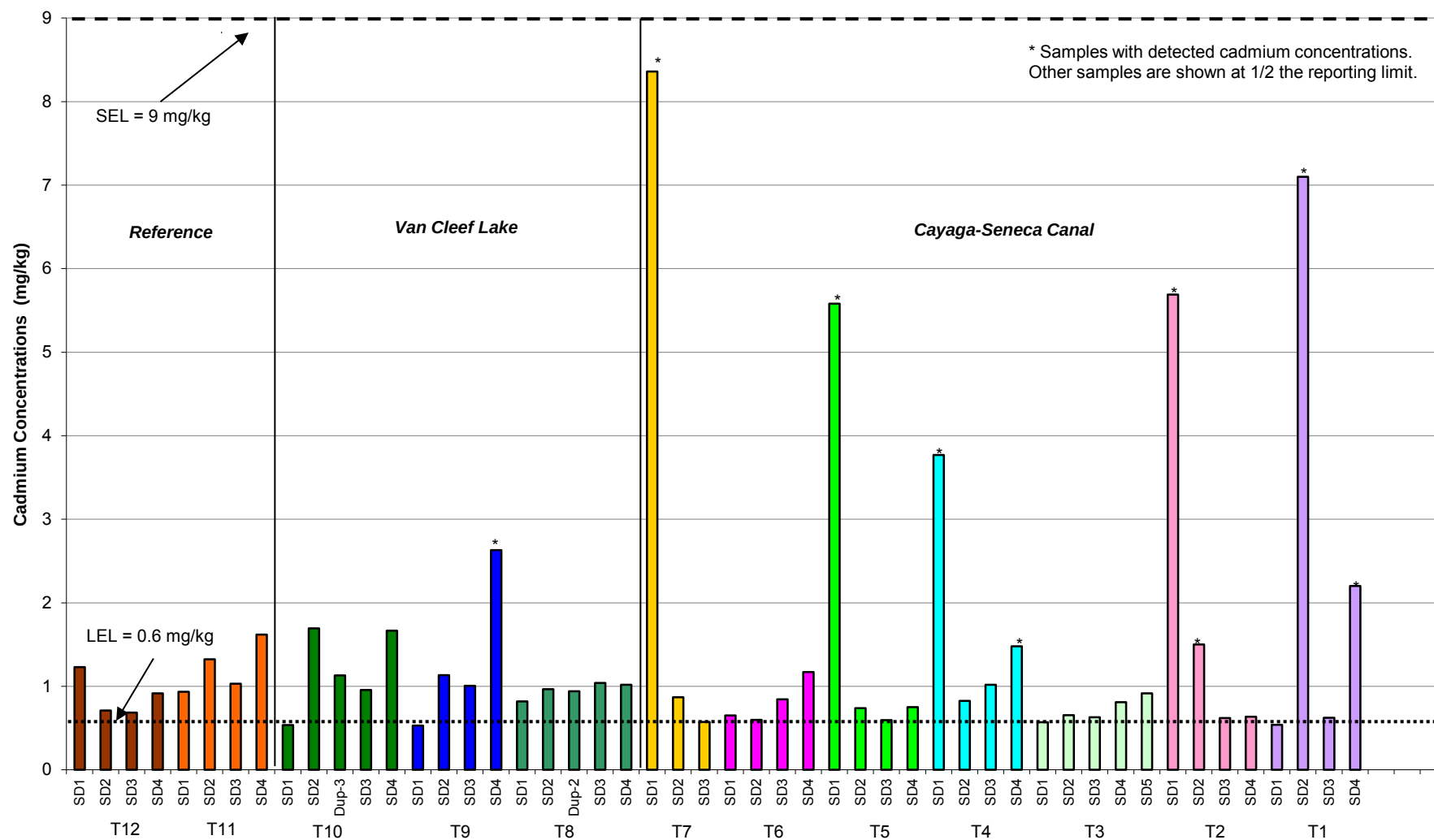


Figure D3. Concentrations of Chromium in Surface Sediments

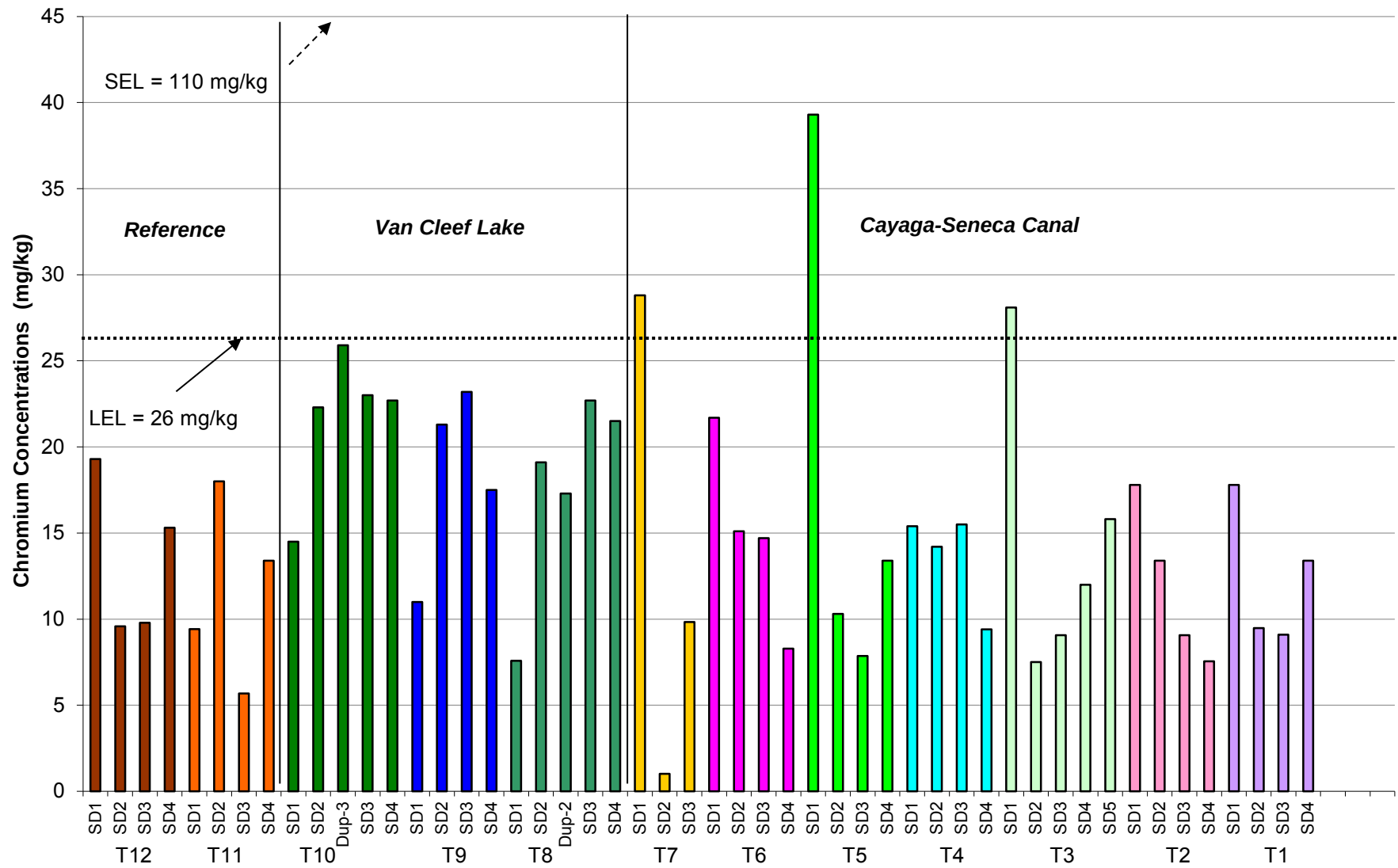


Figure D4. Concentrations of Copper in Surface Sediments

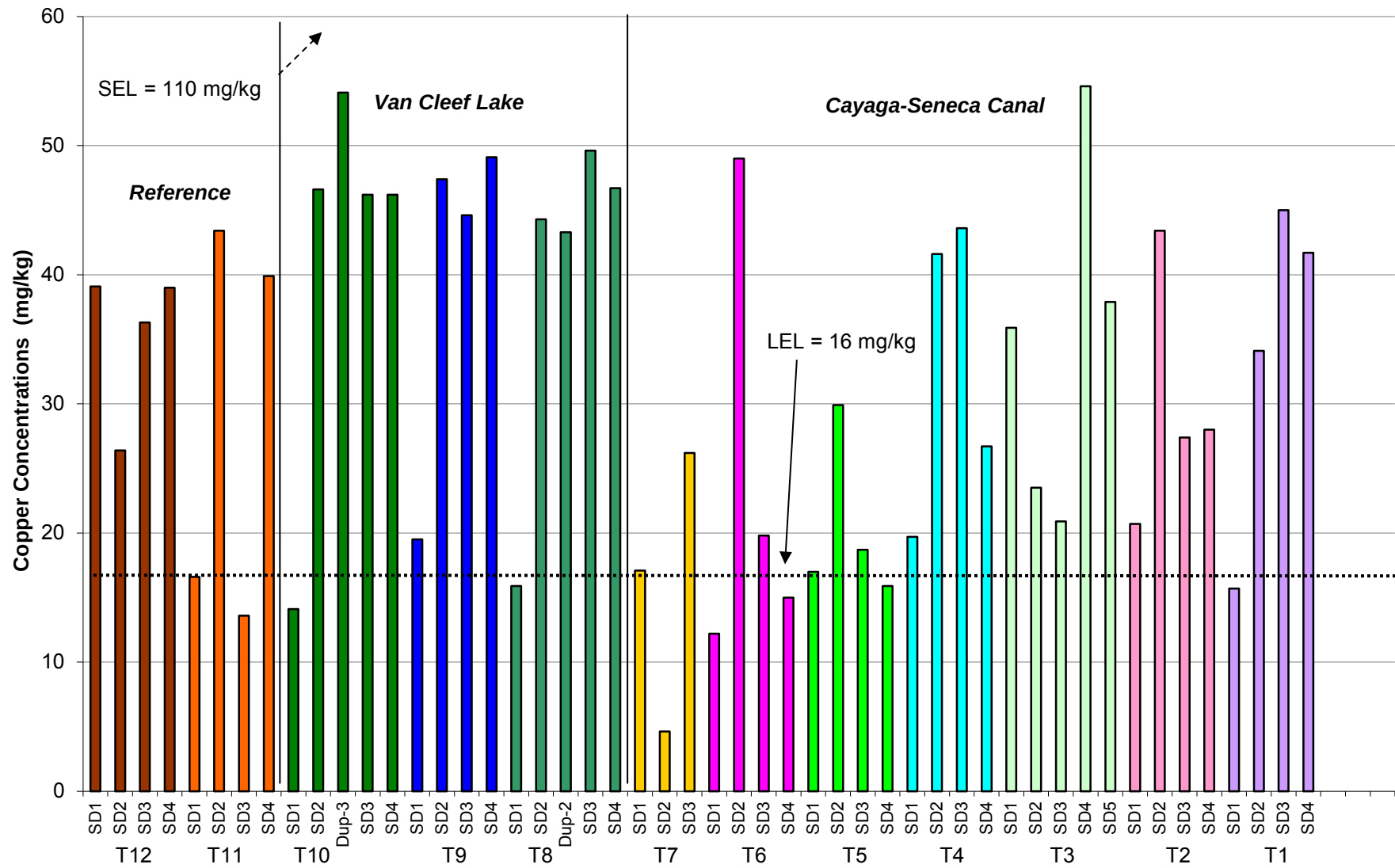


Figure D5. Concentrations of Iron in Surface Sediments

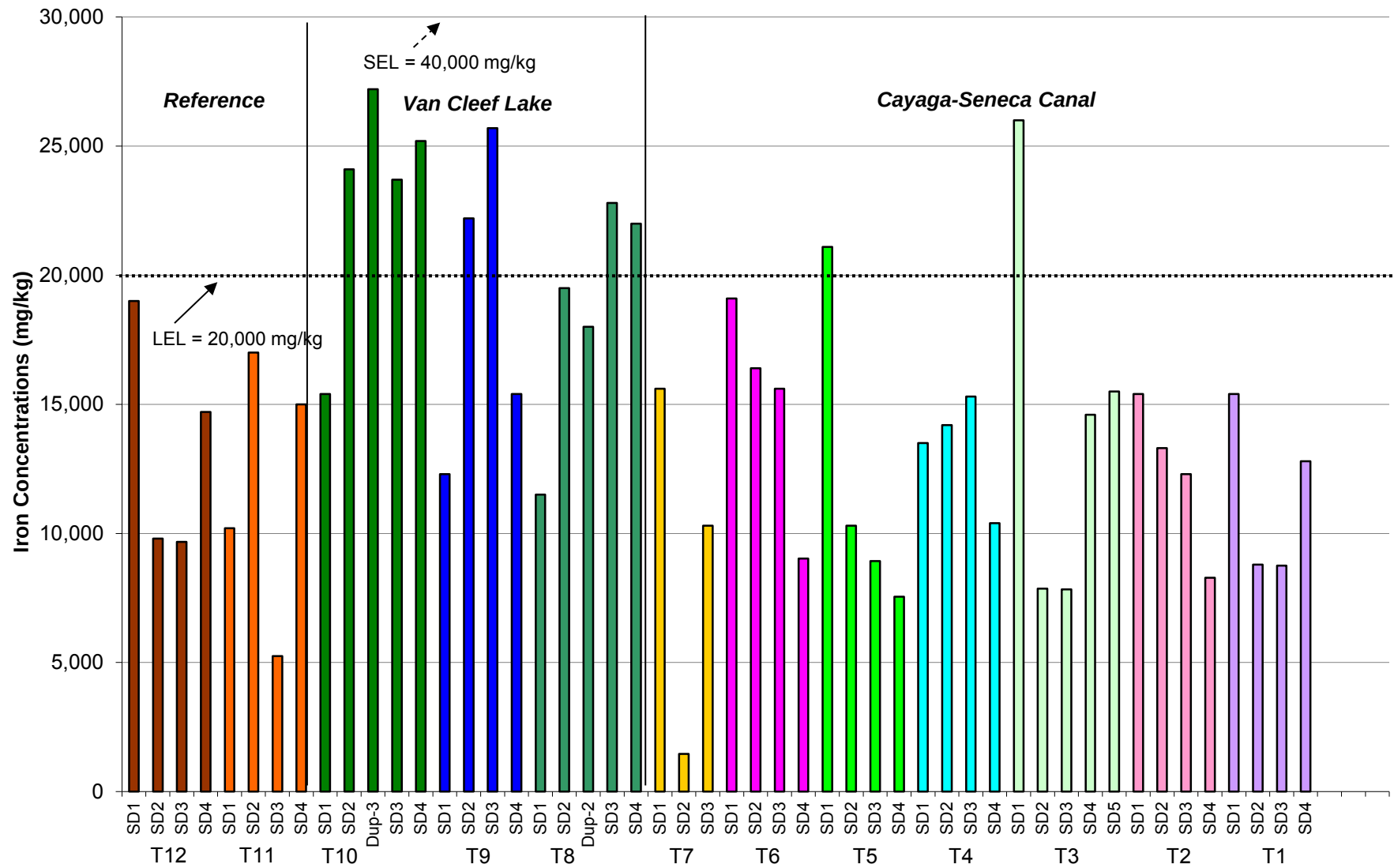


Figure D6. Concentrations of Manganese in Surface Sediments

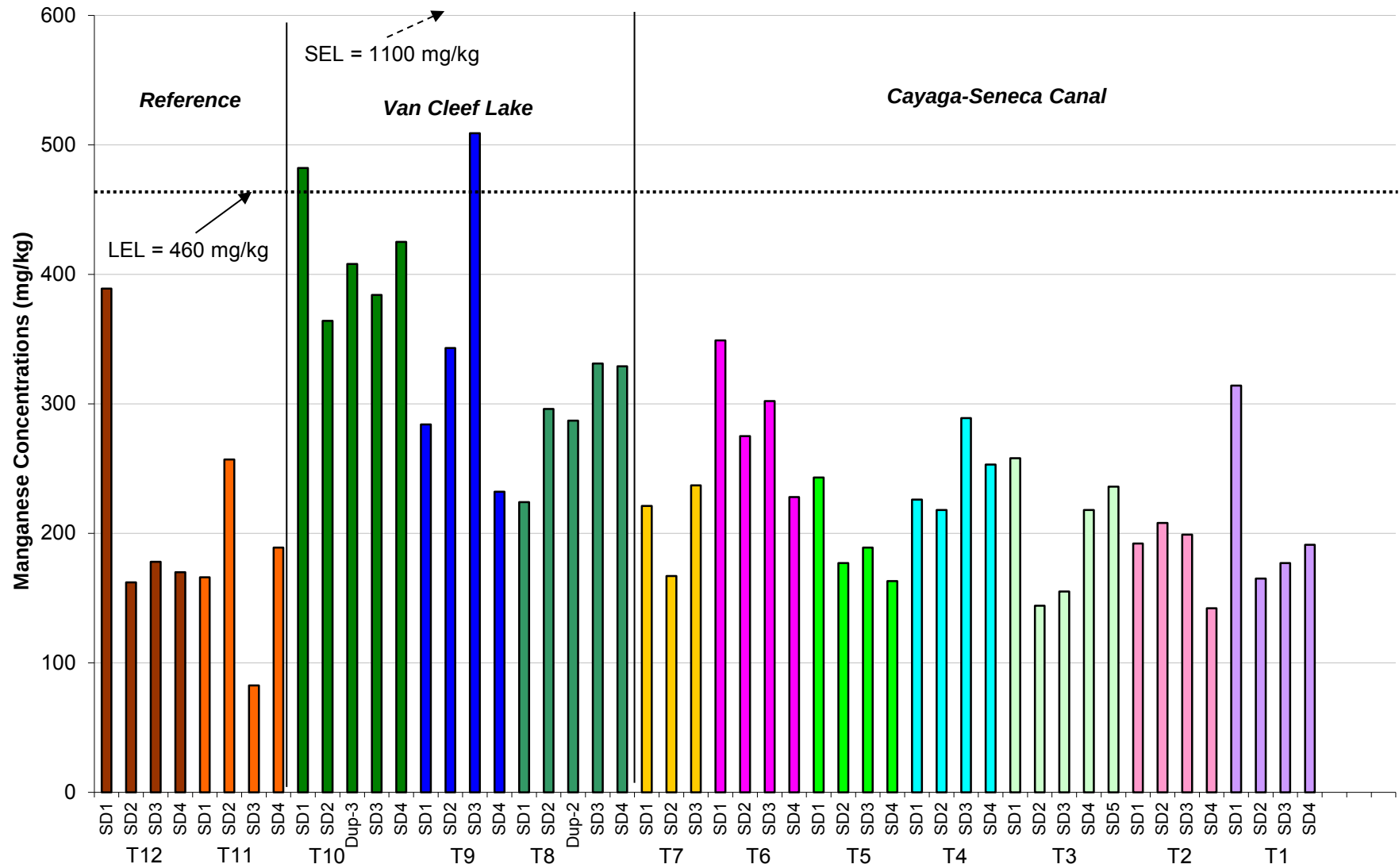


Figure D7. Concentrations of Mercury in Surface Sediments

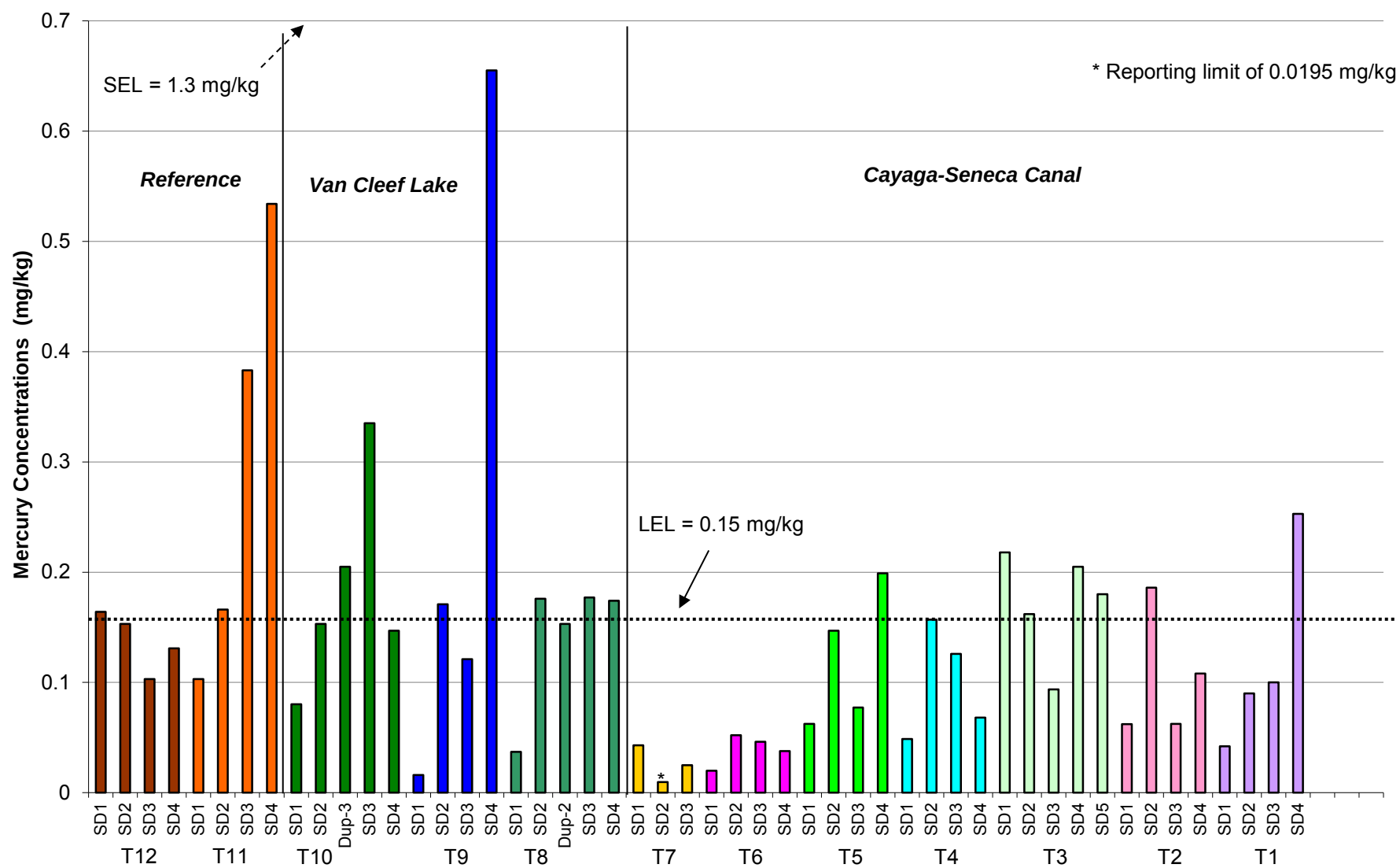


Figure D8. Concentrations of Nickel in Surface Sediments

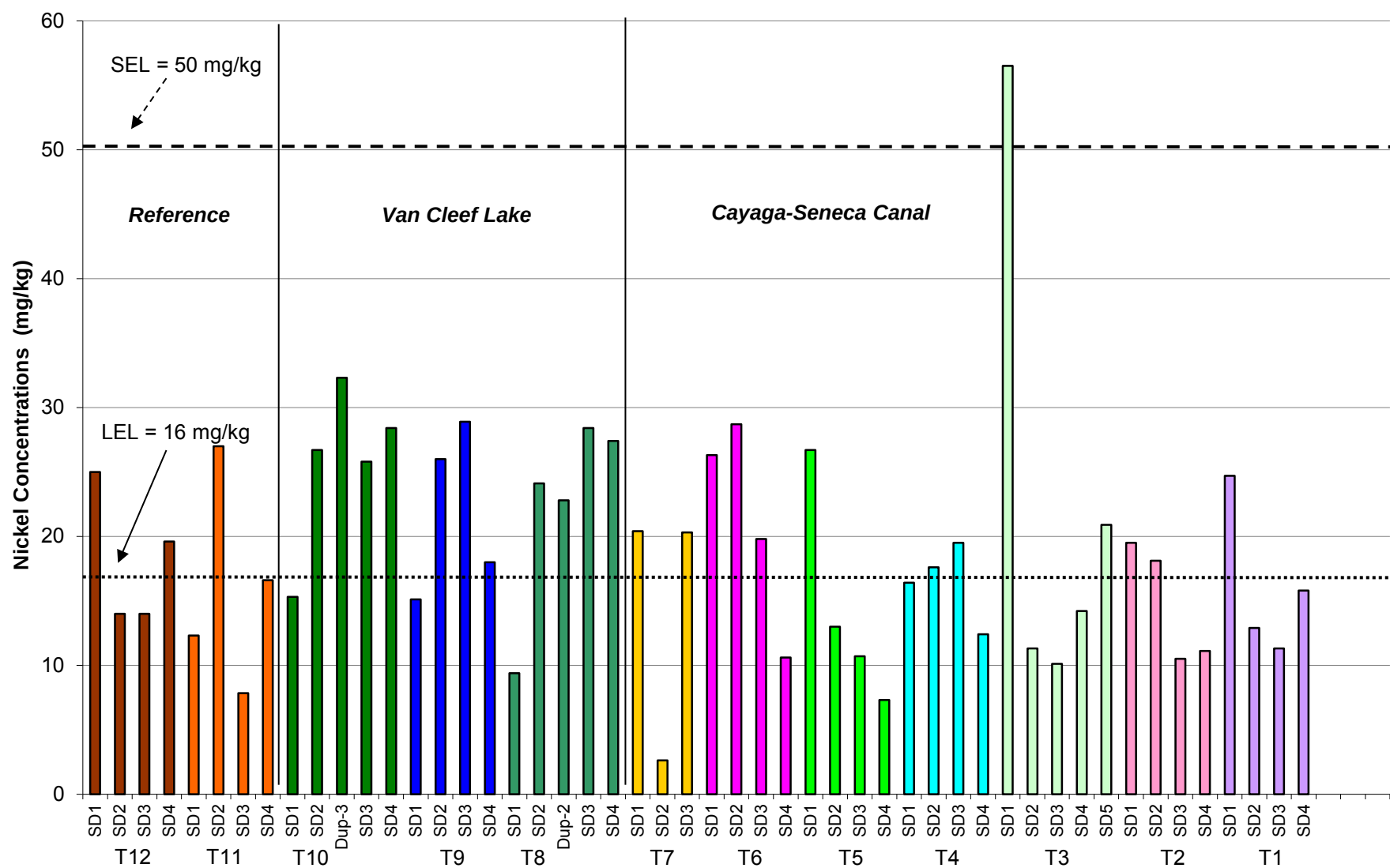
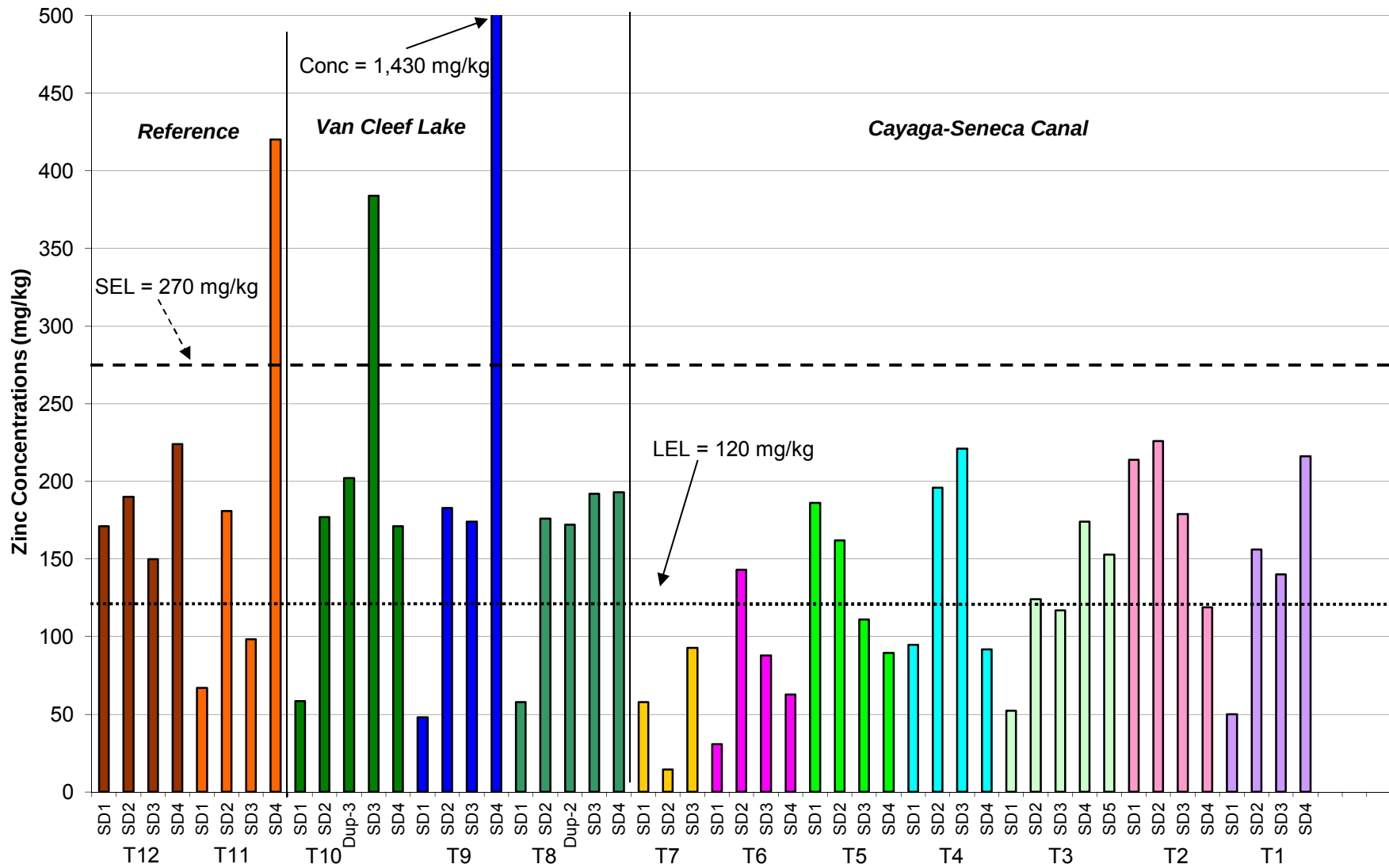


Figure D9. Concentrations of Zinc in Surface Sediments





Attachment **E**

Graphs of Correlated Sediment
Results

Figure E1. Comparison of Cadmium and Zinc Concentrations

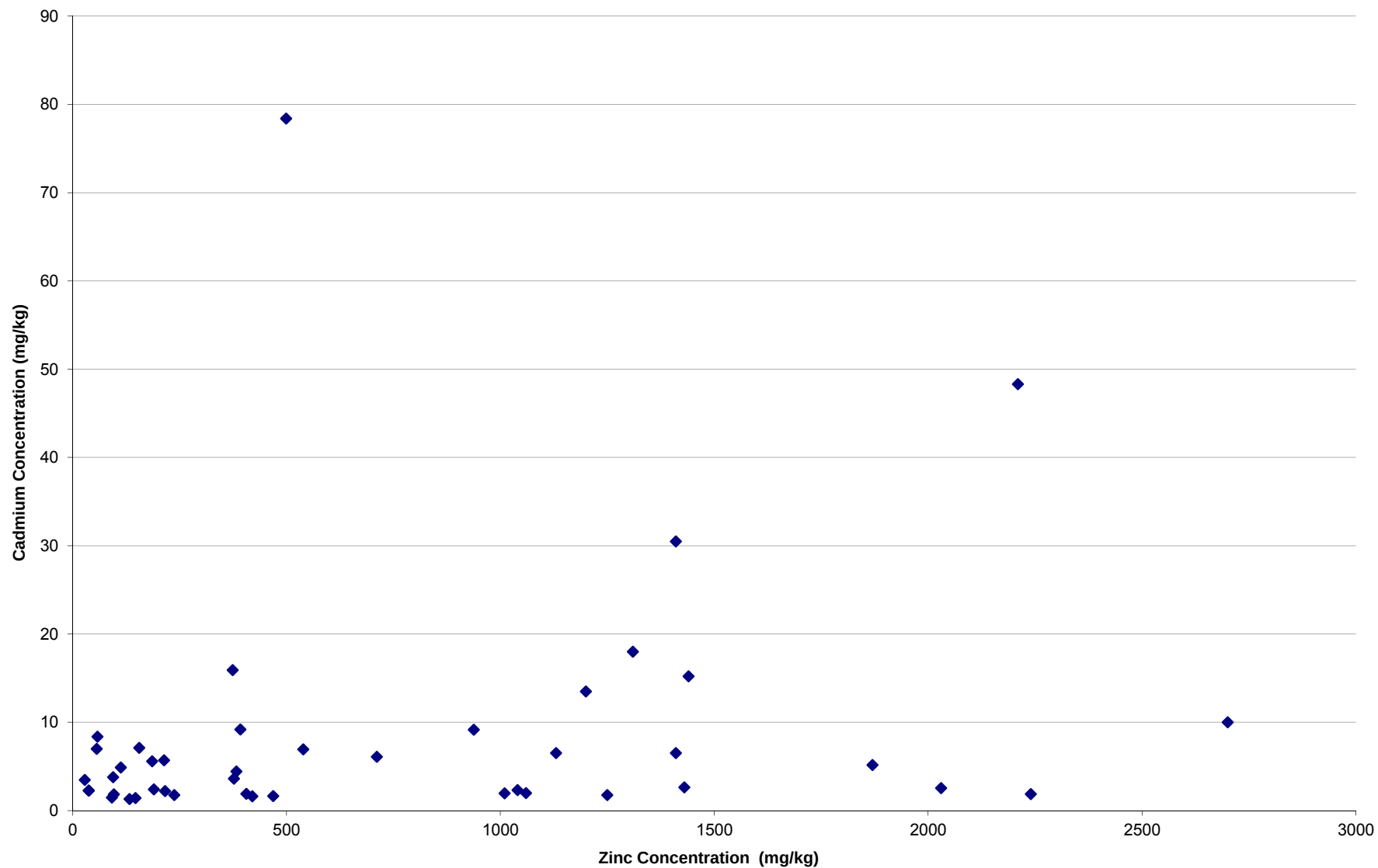


Figure E2. Comparision of Cadmium and Mercury Concentrations

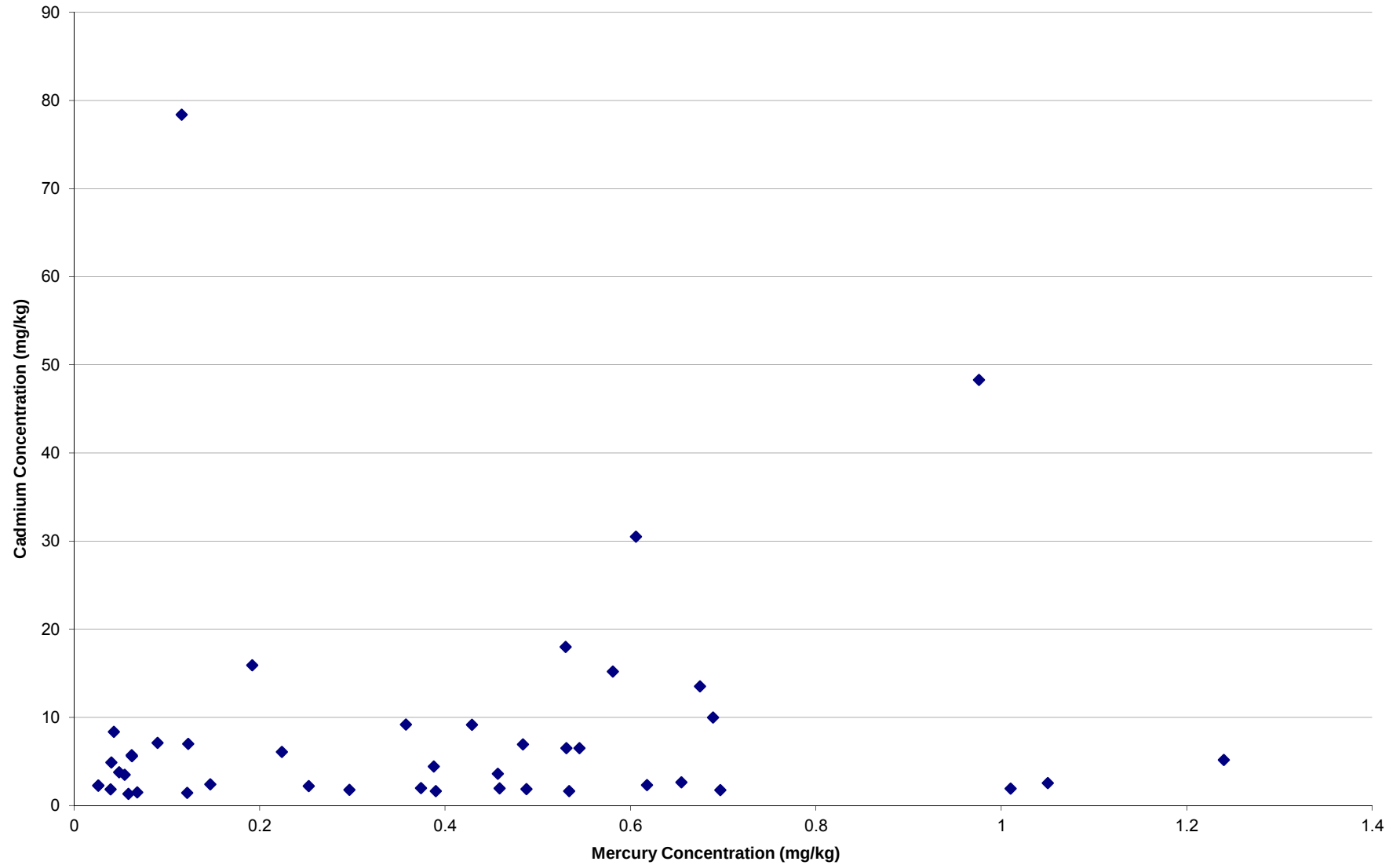
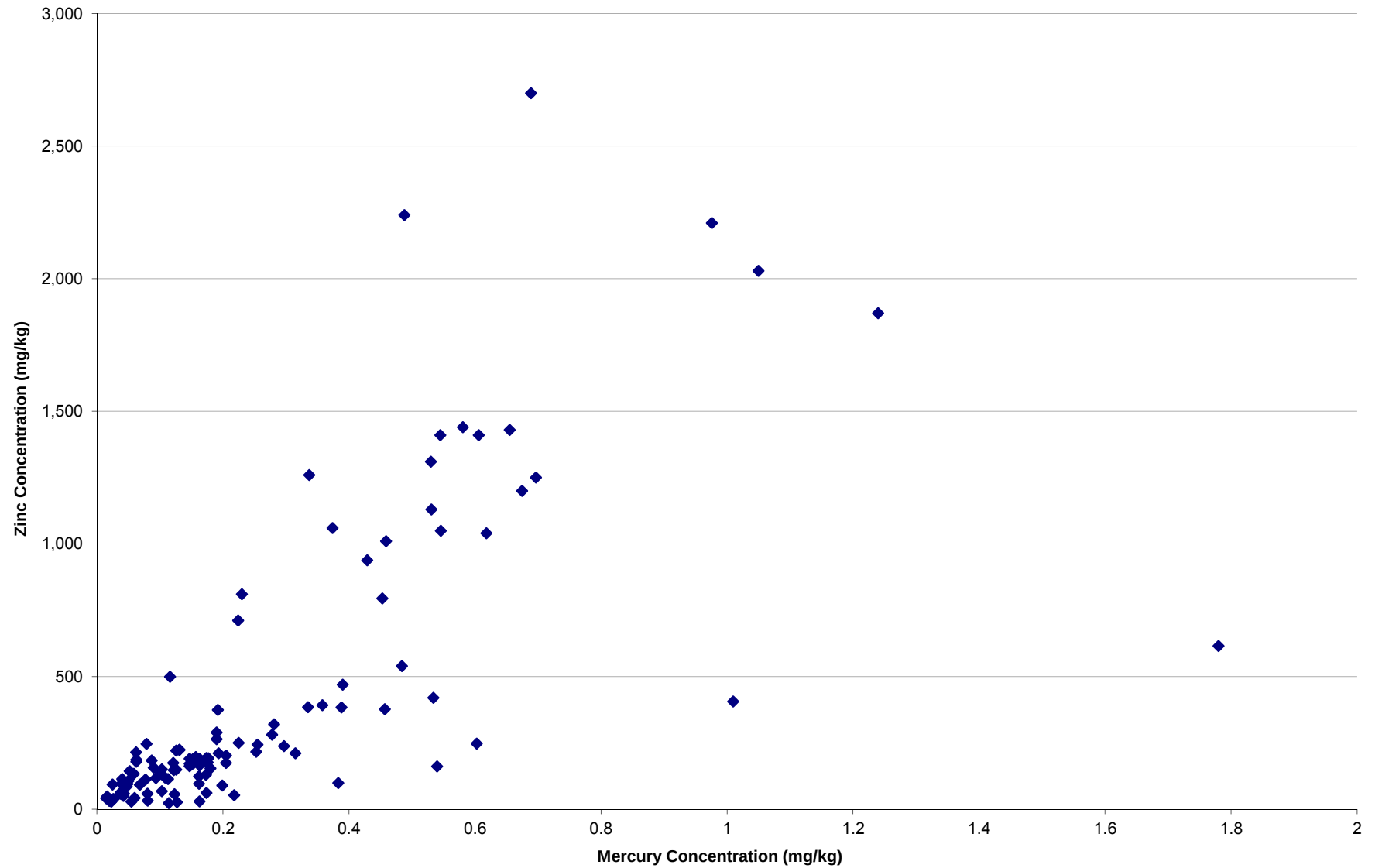


Figure E3. Comparision Zinc and Mercury Concentrations





Appendix **B**

Corrective Measures Study Investigations

Corrective Measures Study Report

Appendix B

Table of Contents

Technical Memorandum 1: Monitored Natural Attenuation Assessment

Technical Memorandum 2: Buildings 2, 7, and 11 Investigation

Technical Memorandum 3: Building 10 Investigation

Technical Memorandum 4: 2012 Sub-Slab Vapor Investigation

Technical Memorandum 5: Multi-Phase Extraction Investigation

Appendix B

Technical Memorandum 1

Monitored Natural Attenuation Assessment

Introduction

A monitored natural attenuation (MNA) assessment was conducted in 2005 in accordance with the *Corrective Measures Study (CMS) Work Plan* (Malcolm Pirnie 2005). As part of this assessment, first-order decay and geochemical evaluations were performed to assess the applicability of MNA as a corrective measures alternative. MNA relies on natural attenuation processes (biodegradation, dispersion, dilution, sorption, volatilization, chemical or biological stabilization, transformation, or destruction of contaminants) to reduce the mass, toxicity, mobility, volume, or concentration of contaminants to achieve site-specific corrective action objectives.

Summary

Concentrations of volatile organic compounds (VOCs) are decreasing at most monitoring wells; however, because the groundwater VOC concentration trend data exhibit poor correlations at all but two monitoring wells, VOC attenuation rates and a timeframe to achieve compliance with standards and guidance values (SGVs) could not be calculated with statistical confidence. Therefore, MNA was not retained in the *CMS Report* as a stand-alone remedy. The data and evaluation summarized below provide the basis for this conclusion.

Data Collection

Natural attenuation was evaluated as described below using the monitoring data from approximately 384 groundwater samples collected from 11 monitoring wells listed in Table B1-1 and shown on Figure B1-1 between June 1993 and October 2011. As part of the natural attenuation assessment, groundwater samples from 11 monitoring wells during four quarterly monitoring events in 2005 were analyzed for the following biogeochemical parameters:

- Dissolved Oxygen (DO)
- Nitrate
- Nitrite
- Ferrous, ferric and total iron
- Sulfate
- Sulfide
- Oxidation-reduction potential (ORP)
- Methane
- Ethane
- Ethene
- Carbon dioxide
- Alkalinity
- Chloride
- Total organic carbon (TOC)

Data Evaluation

Both TCE and reductive dechlorination byproducts [cis-1,2- dichloroethene (cis-1,2-DCE) and vinyl chloride (VC)] were reported in most wells. Elevated reductive dechlorination end products (e.g., chloride, ethene, and ethane) and strongly reducing indicator parameters (e.g., alkalinity, methane, and hydrogen) were observed in select wells (Tables B1-2 to B1-5). However, the presence of reductive dechlorination end products and strongly reducing conditions are not characteristic of site-wide conditions; ethane and ethene were reported only at MW-24, chloride greater than 100 mg/L was reported only at MW-23, MW-26, and MW-BR-06; methane greater than 10 µg/L was reported at MW-20, MW-24, and MW-29.

A chemical of potential concern (COPC) concentration trend analysis was conducted to estimate the rate of attenuation and the time required to achieve groundwater SGVs. The trend analysis was conducted by calculating the first-order rate constants, K_{point} , based on groundwater concentration data using an USEPA method (USEPA 2002) of fitting of an exponential line to the time-series concentration data (or a straight line on a natural log plot). Concentration versus time rate constants were calculated using the molecular weight of chlorinated ethenes. Trend graphs of individual VOCs and the graphs of molecular concentrations of chlorinated compounds are attached.

The trend analysis shows that natural attenuation via reductive dechlorination is occurring, as evidenced by the contaminant mass reductions and byproducts (cis-1,2-DCE and VC). A decreasing concentration trend was observed in 8 of 11 monitoring locations. Exponential regressions of individual chlorinated VOC concentrations and total molecular concentrations over time were evaluated. Only 2 of the 11 groundwater monitoring wells (MW-23 and MW-25) have a decreasing trend with a correlation coefficient (R^2) greater than 0.7. Therefore, the equation of the line can be used to predict the continued decreasing trend of COPCs at MW-23 and MW-25. Although a downward trend appears in six wells as evidenced by the comparison of current to previous concentrations, those data exhibit a poor correlation with a R^2 less than 0.5, indicating that the data should not be used to predict future concentrations at these six wells. Because of the poor correlation of trend data and the lack of consistency across the site, a first-order rate constant could not be used to predict future concentrations.



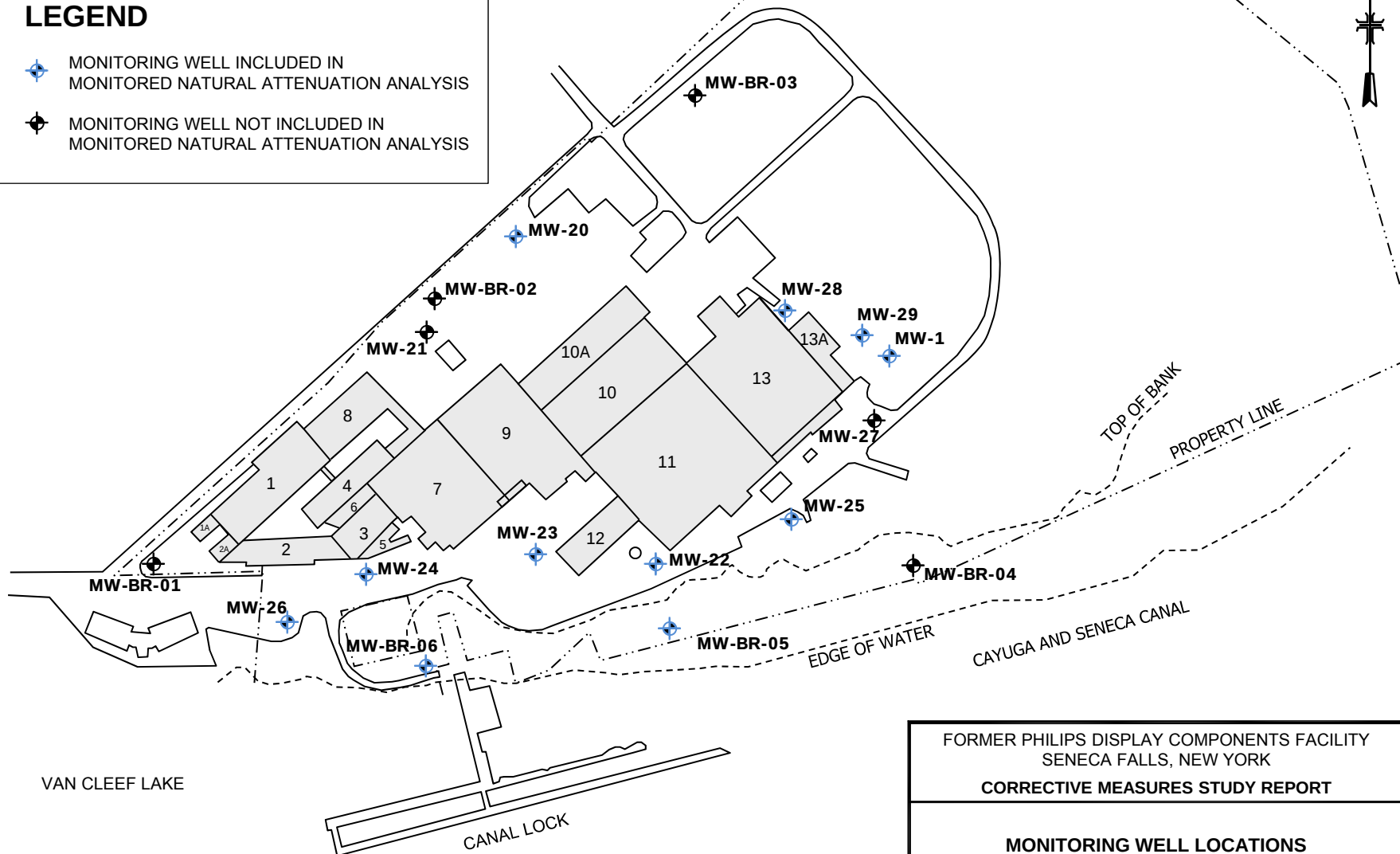
Appendix B

Technical Memorandum 1

Attachments

LEGEND

-  MONITORING WELL INCLUDED IN MONITORED NATURAL ATTENUATION ANALYSIS
-  MONITORING WELL NOT INCLUDED IN MONITORED NATURAL ATTENUATION ANALYSIS



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

MONITORING WELL LOCATIONS



FIGURE

B1-1

Table B1-1
Monitoring Wells Included in Monitored Natural Attenuation Analysis
Former Philips Display Components Facility
Seneca Falls, New York

Well	AOC	Location
MW-1	3	Downgradient
MW-20	3	Upgradient
MW-22	3	Downgradient
MW-23	2	Downgradient
MW-24	1	Downgradient
MW-25	3	Downgradient
MW-26	1	Downgradient
MW-28	3	Cross Gradient
MW-29	3	Downgradient
MW-BR-05	3	Downgradient
MW-BR-06	1	Downgradient

Notes:

AOC 1 - Building 2 Area

AOC 2 - Building 7 Area

AOC 3 - Building 11 Area

Table B1-2
March 2005 MNA Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	Units	MW-1	MW-20	MW-21	MW-22	MW-23	MW-24	MW-X (Duplicate of MW-24)	MW-25	MW-26	MW-28	MW-29	MW-BR-06*
Total Alkalinity	mg/L	462	480	91.6	306	374	567	566	272	346	318	543	137
Chloride	mg/L	2.49	11.9	49.5	12	202	92.5	92.6	11.6	164	5.06	24.4	125
Nitrate	mg/L	3.84	0.002 U	0.413	0.135	0.382	0.002 U	0.002 U	0.042 B	0.309	1.84	0.002 U	0.567
Nitrite	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.1 U	0.002 U	0.002 U	0.574
Sulfate	mg/L	47.6	25.5	79	25.2	95.8	18.8	18.7	179	31.6	30.6	37.1	325
Ferric Iron Fe+3 (Calc.)	mg/L	0.5 U	0.534	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ferrous Iron Fe+2	mg/L	0.5 U	0.866	0.5 U	0.5 U	0.5 U	1.1	1.09	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron	ug/L	54 U	1400	341	264	223	1400	1310	66.8 B	252	54 U	54 U	54 U
Dissolved Organic Carbon	mg/L	6	3.6	2	1.5	2.8	3.9	3.9	1.5	1	1.5	1.7	0.84 B
Sulfide	mg/L	0.48 U	1 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	1 U	0.48 U	0.48 U	0.48 U
Methane	ug/L	2 U	62 J	2 U	6.4	2 U	290	280	2 U	8.6	2 U	3.6	2 U
Ethane	ug/L	4 U	4 U	4 U	4 U	4 U	32	37	4 U	4 U	4 U	4 U	4 U
Ethene	ug/L	3 U	3 U	3 U	3 U	3 U	100	110	3 U	3 U	3 U	3 U	3 U
Carbon Dioxide	ug/L	644	665	500 U	500 U	500 U	681	638	500 U	506	500 U	500 U	500 U
Conductivity	mohm/cm	0.907	0.95	0.504	0.72	1.4	1.29	1.29	0.948	1.17	0.738	1.01	1.23
Dissolved Oxygen	mg/L	6.27	0.01	1.56	0.73	0	0.19	0.19	3.03	0	6.47	1	2.67
REDOX	mV	129	-31	47.3	156	68	-48	-48	90	114	124	252	1
pH	SU	5.52	6.93	8.74	7.45	7.02	6.72	6.72	6.82	6.34	6.65	7.15	5.47
Temperature	°C	9.3	7.6	9.21	9.49	8.87	12.56	12.56	8.45	7.51	7.62	6.78	7
Turbidity	NTU	8.9	7.1	106	0	45.4	22.8	22.8	13	52.0	0	0	18
Salinity	%	0	0	0.02	0	0.06	0.1	0.1	0.04	0.05	0.03	0	0.1
Total Dissolved Solids	mg/L	0.58	0.6	0.324	0.46	0.9	0.8	0.8	0.607	0.75	0.473	0.6	0.8

Notes:

*MW-BR-06 is screened in weathered bedrock

U - Not detected. Reporting limit shown.

B - Result is less than reporting limit but greater than or equal to the method detection limit

mg/L - milligrams per liter

ug/L - micrograms per liter

NTU - nephelometric turbidity units

mohm/cm - milliohm per centimeter

mV - millivolts

Table B1-3
June 2005 MNA Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	Units	MW-1	MW-20	MW-21	MW-22	MW-23	MW-24	MW-X (Duplicate of MW-24)	MW-25	MW-26	MW-28	MW-29	MW-BR-06*
Total Alkalinity	mg/L	636	496	119	309	298	550	552	267	406	291	540	132
Chloride	mg/L	7.89	13.2	44.6	13	141	89	87.7	10.2	139	6.9	19.7	126
Nitrate	mg/L	3.24	0.008 U	0.368	0.083 B	0.442	0.01 U	0.008 U	0.076 B	0.142	2.86	0.008 U	0.34
Nitrite	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0 U	0.002 U	0.002 U	0.1 U	0.002 U	0.002 U	0.002 U
Sulfate	mg/L	74.2	32	82	26.1	81.1	20.4	20.3	185	47.4	22.5	41.8	238
Ferric Iron Fe ⁺³ (Calc.)	mg/L	0.5 U	1.47	0.5 U	0.5 U	0.5 U	0.6	0.611	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ferrous Iron Fe ⁺²	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron	ug/L	54 U	1510	449	54 U	54 U	642	660	54 U	54 U	54 U	54 U	54 U
Dissolved Organic Carbon	mg/L	4.4	4.4	2.1	2	1.6	5.2	4.9	2.1	1.8	1.5	1.6	2.2
Sulfide	mg/L	1 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	1 U	0.48 U
Hydrogen-Dissolved	nM	0.86 J	1.2	1.7	1.1	0.93 J	1.1		0.84 J	1.1	0.75 J	2.7	1.2
Methane	ug/L	2 U	230	2 U	6.4	2 U	380	290	2 U	3.8	2 U	73	2 U
Ethane	ug/L	4 U	4 U	4 U	4 U	4 U	59	56	4 U	4 U	4 U	4 U	4 U
Ethene	ug/L	3 U	3 U	3 U	3 U	3 U	170	150	3 U	3 U	3 U	3 U	3 U
Carbon Dioxide	ug/L	799	662	500 U	500 U	500 U	851	819	500 U	637	500 U	500 U	500 U
Conductivity	mohm/cm	1.59	1.15	0.401	0.482	1.49	1.34	1.34	0.726	1.23	0.535	0.739	1.38
Dissolved Oxygen	mg/L	0	0	5.54	0.68	2.75	0.14	0.14	8	0	6.11	0	0.83
REDOX	mV	98	-32	92	39	115	-183	-183	135	-151	135	21	75
pH	SU	6.87	6.37	8.43	6.36	7.18	7.03	7.03	7.27	6.95	7.23	4.98	7.53
Temperature	°C	11.46	19.56	15.15	16.88	18.23	19.5	19.48	16.56	20.19	14.55	11.53	18.71
Turbidity	NTU	9.7	30.2	88	7.5	31.5	126	126.0	24.3	7.6	1	308	6.1
Salinity	%	0.07	0.05	0.02	0.02	0.07	0.1	0.1	0	0.1	0	0.03	0.06
Total Dissolved Solids	mg/L	1.01	0.47	0.261	0.31	0.95	0.9	0.9	0.46	0.8	0.34	0.47	0.88

Notes:

*MW-BR-06 is screened in weathered bedrock

U - Not detected. Reporting limit shown.

J - Estimated less than the reporting limit

B - Result is less than reporting limit but greater than or equal to the method detection limit

mg/L - milligrams per liter

ug/L - micrograms per liter

NTU - nephelometric turbidity units

mohm/cm - milliohm per centimeter

mV - millivolts

Table B1-4
September 2005 MNA Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	Units	MW-1	MW-20	MW-21	MW-22	MW-23	MW-24	MW-X (Duplicate of MW-24)	MW-25	MW-26	MW-28	MW-29	MW-BR-06*
Total Alkalinity	mg/L	617	513	134	317	363	565	565	291	425	292	538	112
Chloride	mg/L	8.46	15.6	41.4	15.3	194	82.8	82.5	15.1	174	17.8	29.5	126
Nitrate	mg/L	1.98	0.081 B	0.38	0.1	0.12	0.1 U	0.1 U	0.084 B	0.252	8.88	0.11	0.455
Nitrite	mg/L	0.1 U	0.1 U	0.1 U	0.053 B	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Sulfate	mg/L	77.6	26.4	97.6	28.2	99.5	18.6	18.6	200	47.1	40.3	37.7	209
Ferric Iron Fe ⁺³ (Calc.)	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.677	0.5 U	0.5 U	0.5 U	0.756	0.5 U	0.5 U	0.5 U
Ferrous Iron Fe ⁺²	mg/L	0.5 U	1.99	0.5 U	0.5 U	0.5 U	0.79	0.553	0.533	0.5 U	0.5 U	0.5 U	0.5 U
Iron	ug/L	54 U	2080	54 U	268	677	613	671	54 U	756	434	54 U	313
Dissolved Organic Carbon	mg/L	6.1	3.7	1.1	0.98 B	1 U	3.8	5.2	1	0.2 B	0.45 B	1.6	0.89 B
Sulfide	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methane	ug/L	2 U	260	2 U	4.2	2 U	250	210	2 U	2 U	2 U	6.2	2 U
Ethane	ug/L	4 U	4 U	4 U	4 U	4 U	23	19	4 U	4 U	4 U	4 U	4 U
Ethene	ug/L	3 U	3 U	3 U	3 U	3 U	100	88	3 U	3 U	3 U	3 U	3 U
Carbon Dioxide	ug/L	554	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Conductivity	mohm/cm	0.73	0.616	0.351	0.4	0.866	0.81	0.811	0.541	1.25	0.445	0.95	0.73
Dissolved Oxygen	mg/L	7.01	0	2.24	10.12	0.37	3.73	3.73	4.72	8	2.24	0.84	0.56
REDOX	mV	120	-94	135	129	16	-6	-6	141	144	152	56	30
pH	SU	7.8	7.16	8.78	8.44	7.53	7.33	7.33	7.67	7.76	7.65	6.79	8.62
Temperature	°C	16.65	22.9	19.3	20.96	18.23	16.8	16.8	16.93	19.10	19	16.93	23.13
Turbidity	NTU	83	6.5	6.4	355	95.2	59.7	59.7	0	93.3	95	56.6	5.1
Salinity	%	0	0.03	0.01	0	0.04	0.04	0.04	0.02	0.06	0.02	0.04	0
Total Dissolved Solids	mg/L	0.47	0.39	0.23	0.26	0.56	0.52	0.52	0.35	0.8	0.29	0.6	0.47

Notes:

*MW-BR-06 is screened in weathered bedrock

U - Not detected. Reporting limit shown.

B - Result is less than reporting limit but greater than or equal to the method detection limit

mg/L - milligrams per liter

ug/L - micrograms per liter

NTU - nephelometric turbidity units

mohm/cm - milliohm per centimeter

mV - millivolts

Table B1-5
November 2005 MNA Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	Units	MW-1	MW-20	MW-21	MW-22	MW-23	MW-24	MW-X (Duplicate of MW-24)	MW-25	MW-26	MW-28	MW-29	MW-BR-06*
Total Alkalinity	mg/L	568	496	162	315	372	562	560	276	414	308	555	136
Chloride	mg/L	4.62	13.9	35.2	14.7	195	83.2	81.3	13.6	152	10.3	21.9	128
Nitrate	mg/L	0.982 J	0.1 UJ	0.372 J	0.109	0.295	0.1 U	0.1 U	0.128	0.258	3.77 J	0.035 BJ	0.084 B
Nitrite	mg/L	0.1 UJ	0.1 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1
Sulfate	mg/L	60.5	21.6	92.4	21.7	98.7	18.8	18.4	173	45.7	28	38.8	317
Ferric Iron Fe ⁺³ (Calc.)	mg/L	0.5 U	1.01	0.5 U	0.5 U	0.969	0.5 U	0.5 U	0.5 U	0.5 U	2.43	0.5 U	0.5 U
Ferrous Iron Fe ⁺²	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.58	0.76	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron	ug/L	54 U	1010	227	54 U	969	524	520	54 U	54 U	2430	54 U	54 U
Dissolved Organic Carbon	mg/L	5.5	3.5	1.2	1.8	0.19 B	2	4.4	2.1	1	1.4	1.4	0.97 B
Sulfide	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methane	ug/L	2 U	38	2 U	5.1	2 U	87	100	2 U	4.4	2 U	27	3
Ethane	ug/L	4 U	4 U	4 U	4 U	4 U	11	13	4 U	4 U	4 U	4 U	4 U
Ethene	ug/L	3 U	3 U	3 U	3 U	3 U	51	61	3 U	3 U	3 U	3 U	3 U
Carbon Dioxide	ug/L	590	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Conductivity	mohm/cm	0.12	0.976	60	0.551	1.24	4.53	4.53	89	0.13	0.515	0.863	3.16
Dissolved Oxygen	mg/L	3	3.99	8.9	1.91	6.55	2.76	2.76	9.9	2	7.06	0.41	2.95
REDOX	mV	219	1	208	158	-10	-67	-67	231	143	159	17	56
pH	SU	6.9	7.15	8	7.35	7.86	6.89	6.89	7.4	6.90	7.51	7.29	7.99
Temperature	°C	12.6	16.6	17.1	17.38	17.7	17	17	14.1	14.60	14.91	12.43	16.8
Turbidity	NTU	14	16.8	27	13.4	39	34.9	34.9	680	76.0	179	1.8	0
Salinity	%	0.1	0	0	NS	0.1	0.2	0.2	0	0.1	NS	NS	0.2
Total Dissolved Solids	mg/L	0.8	0.6	0.39	NS	0.8	2.7	2.7	0.57	0.8	NS	NS	2.3

Notes:

*MW-BR-06 is screened in weathered bedrock

U - Not detected. Reporting limit shown.

J - Estimated less than the reporting limit

B - Result is less than reporting limit but greater than or equal to the method detection limit

mg/L - milligrams per liter

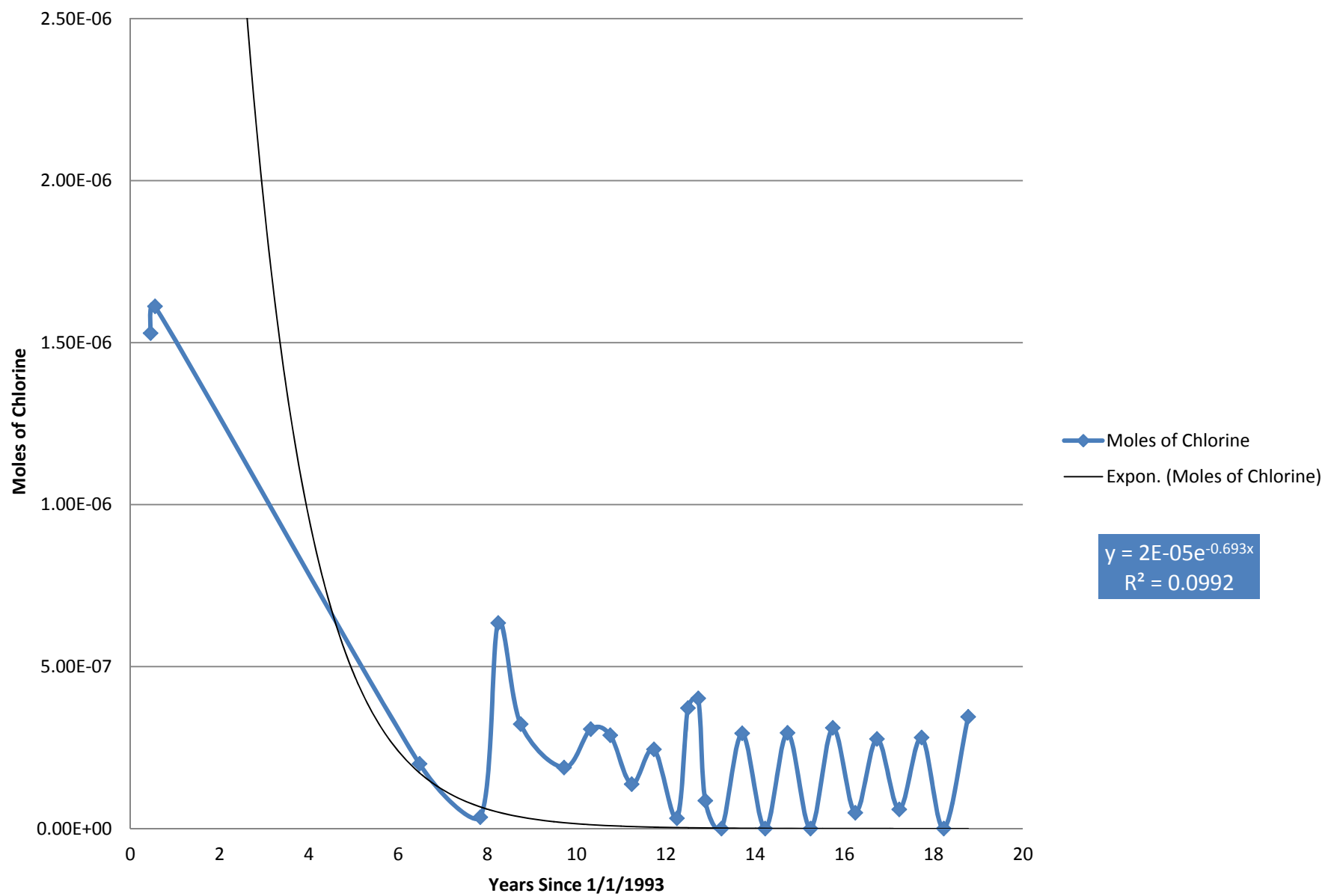
ug/L - micrograms per liter

NTU - nephelometric turbidity units

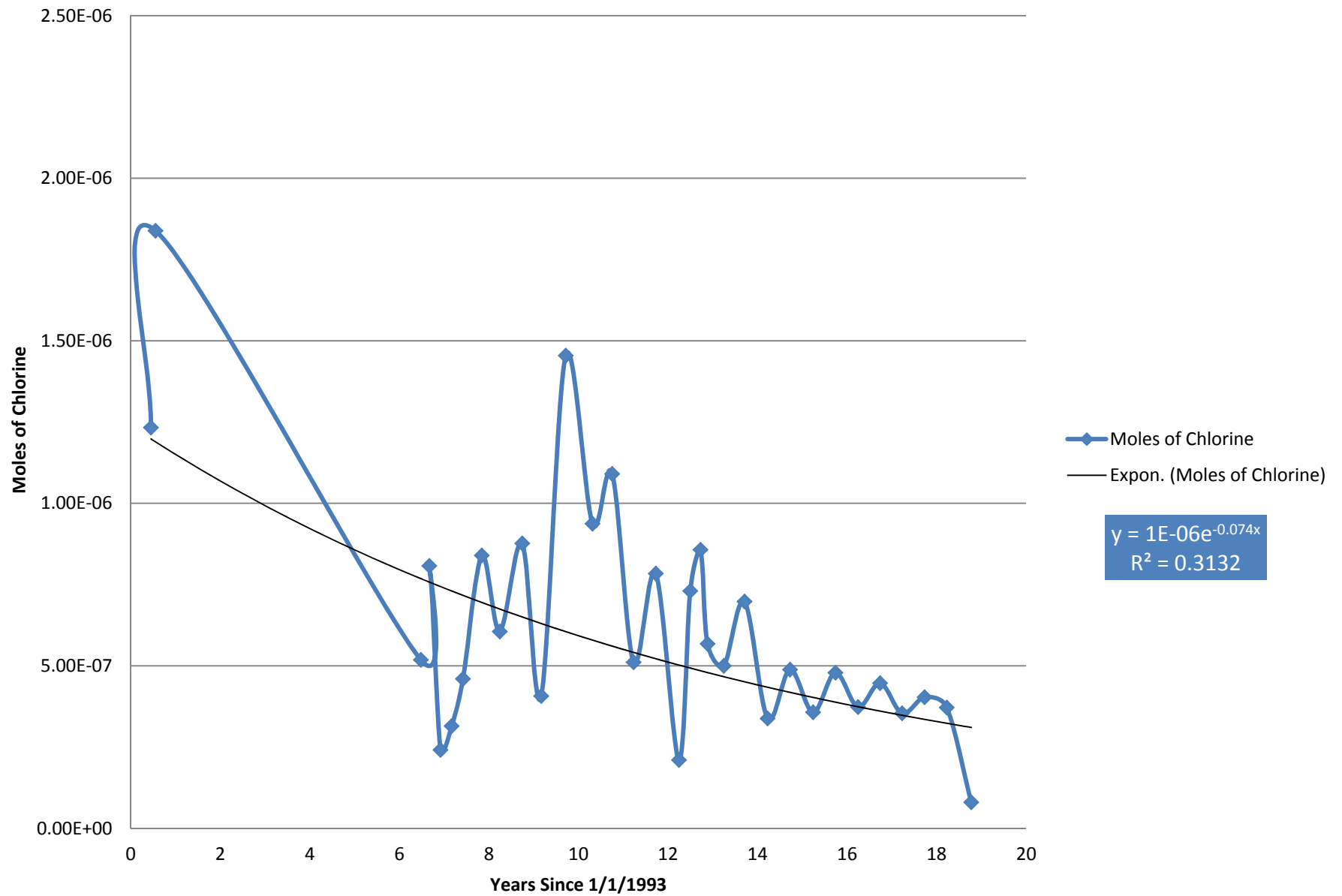
mohm/cm - milliohm per centimeter

mV - millivolts

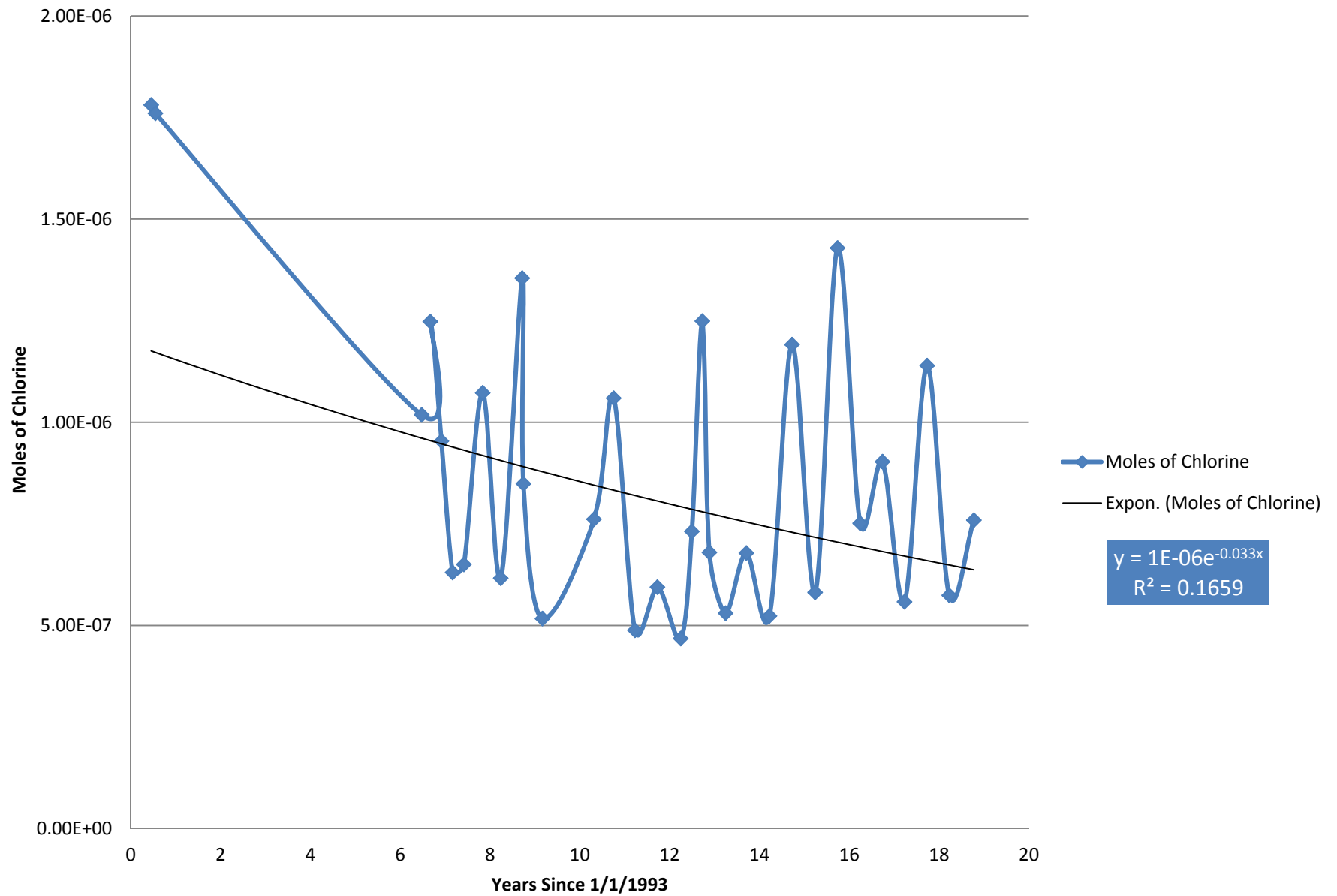
MW-1



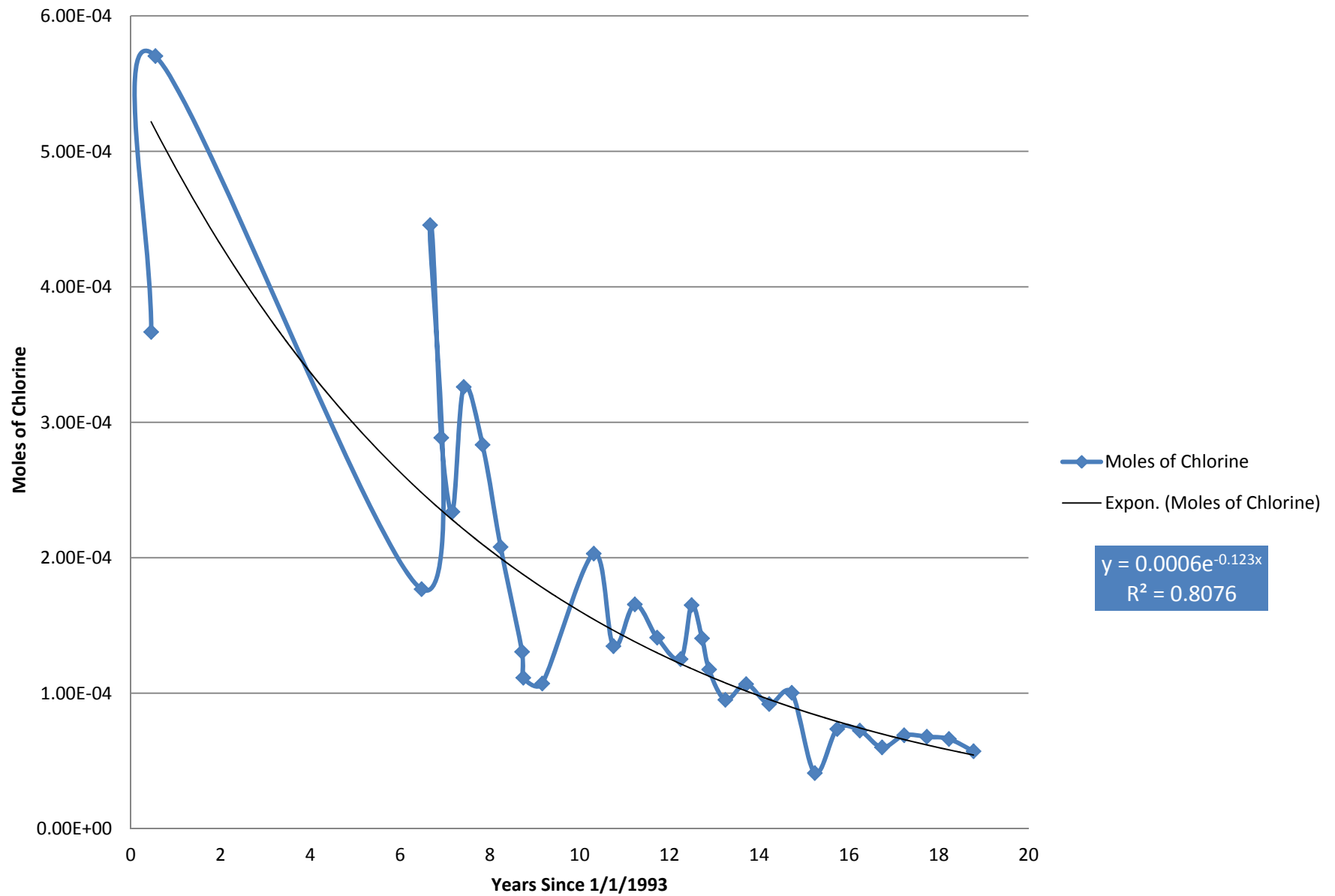
MW-20



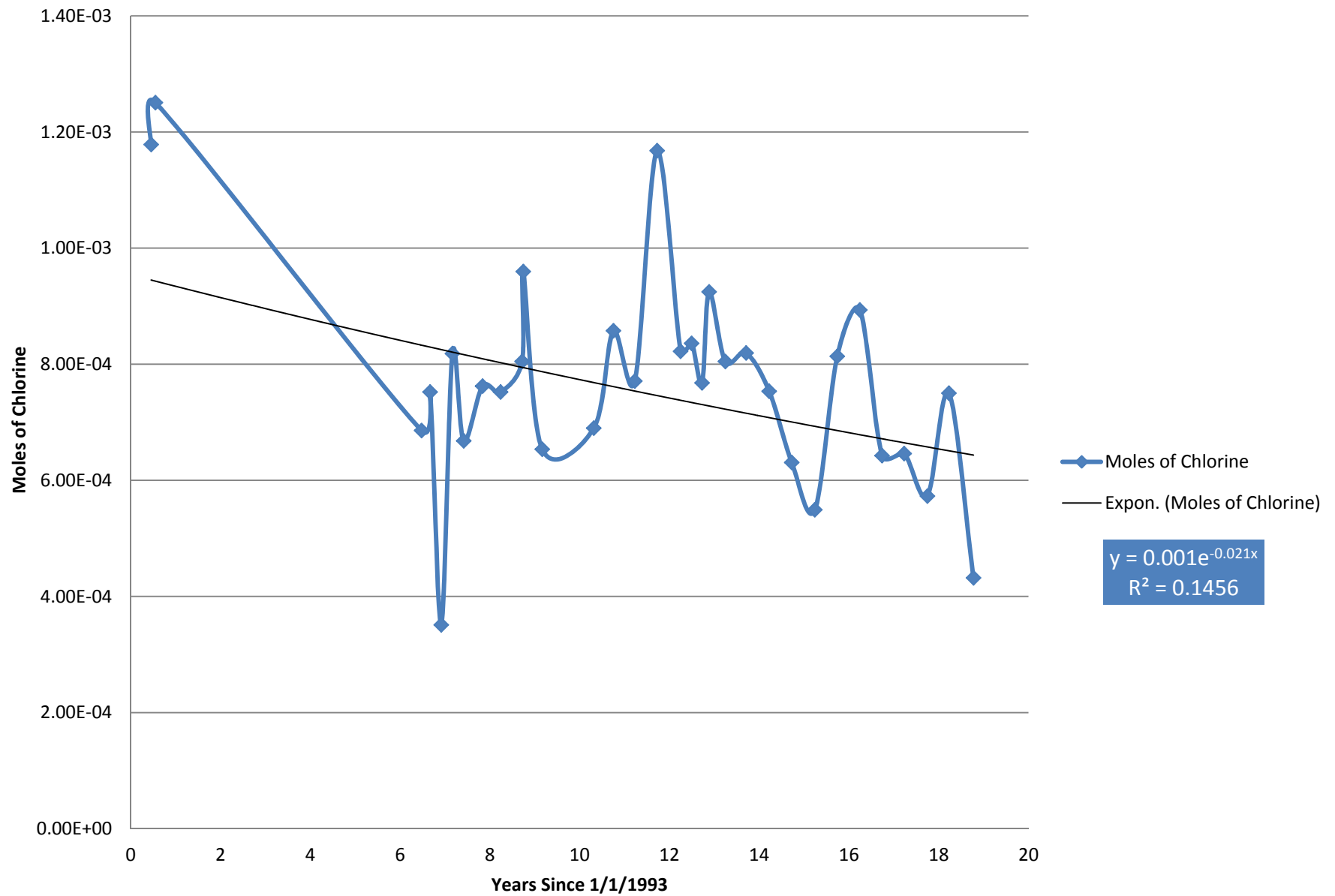
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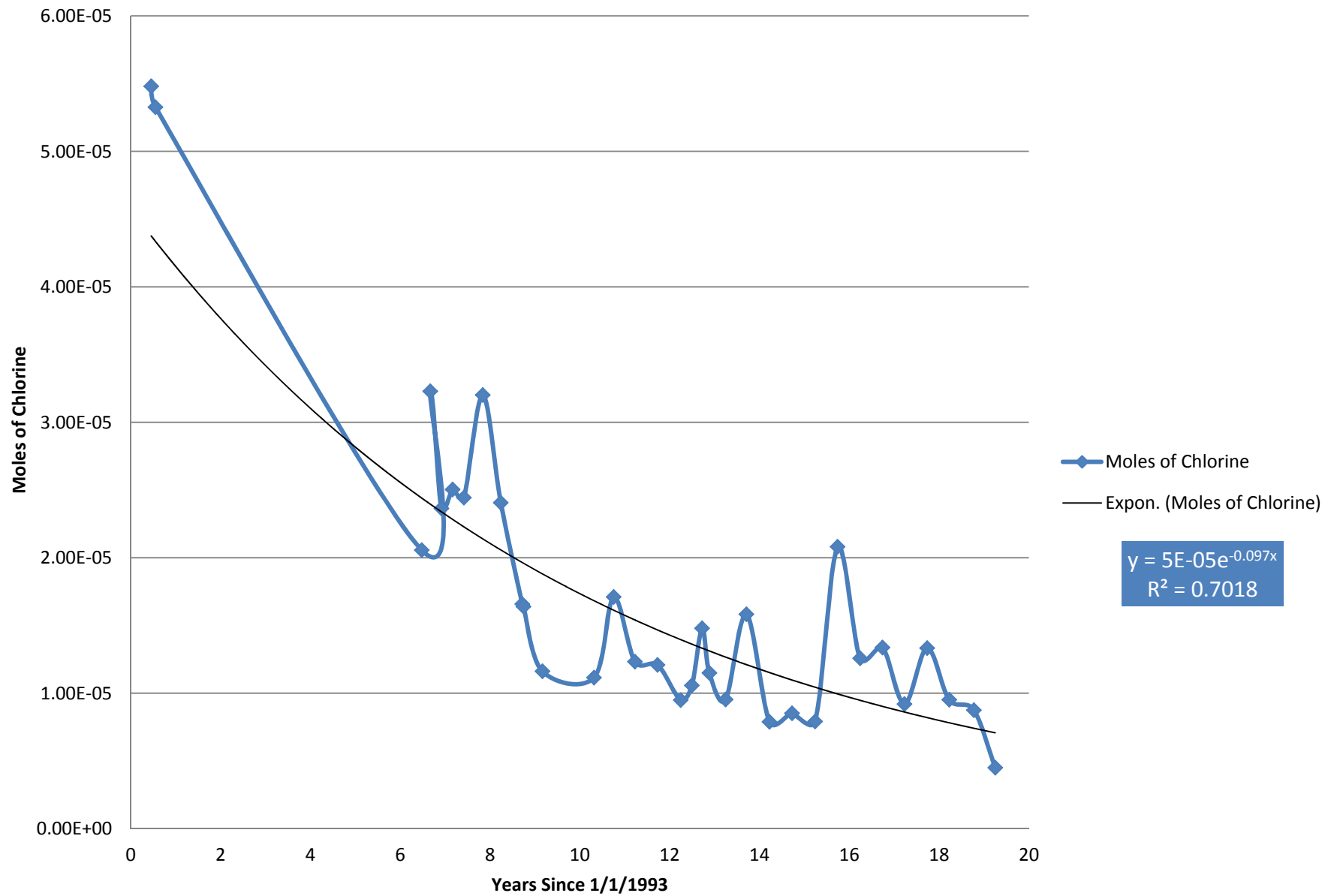
MW-23



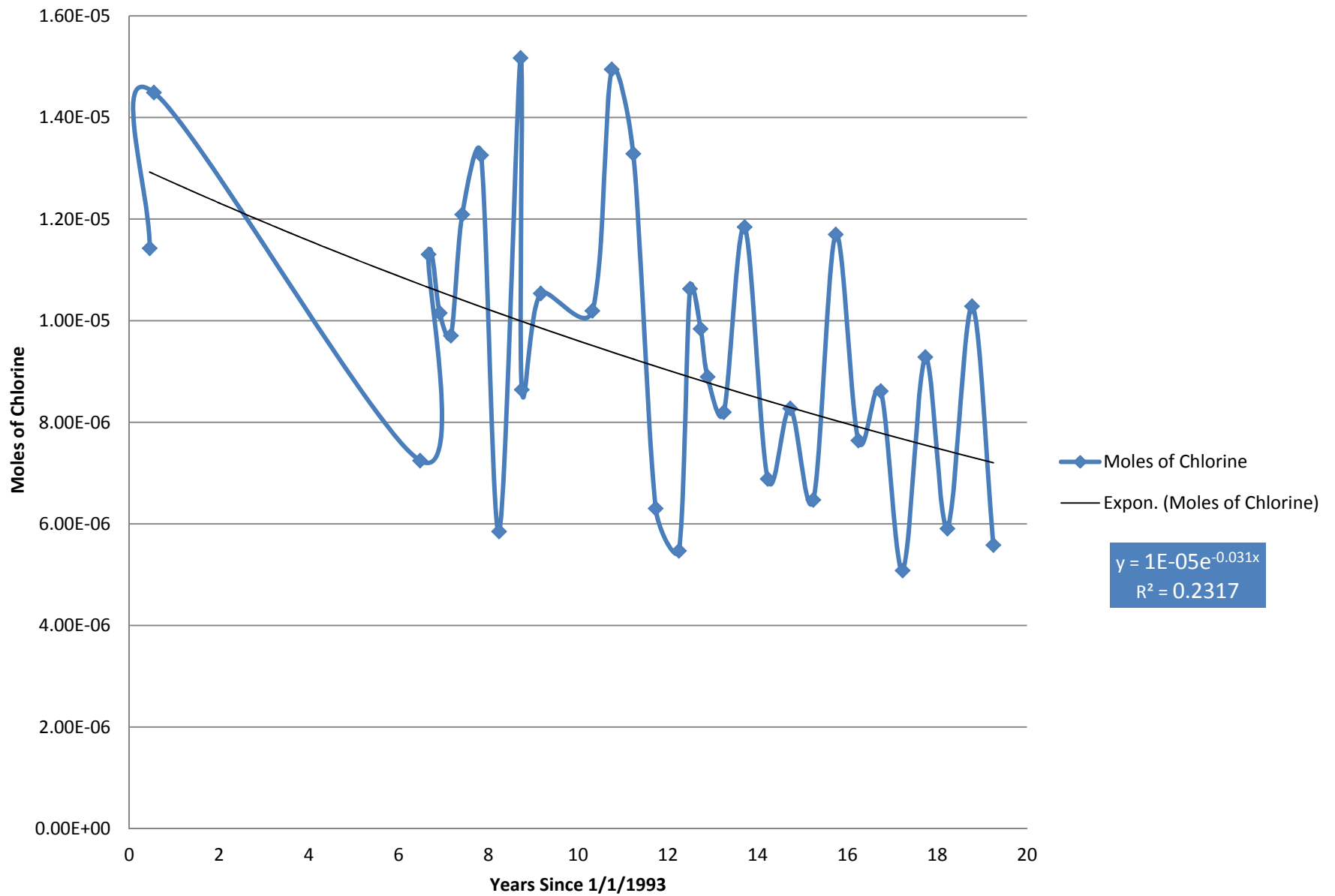
MW-24



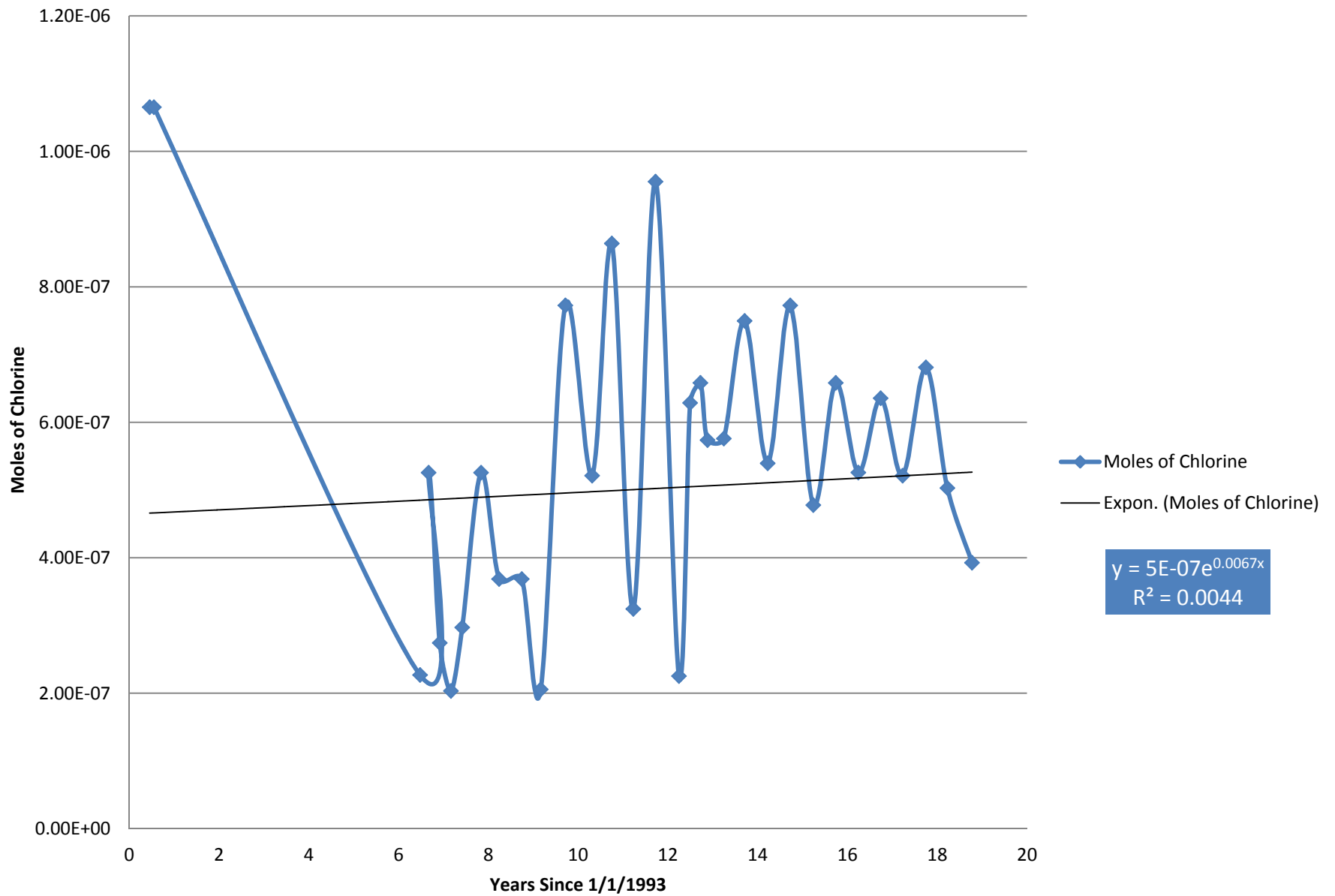
MW-25



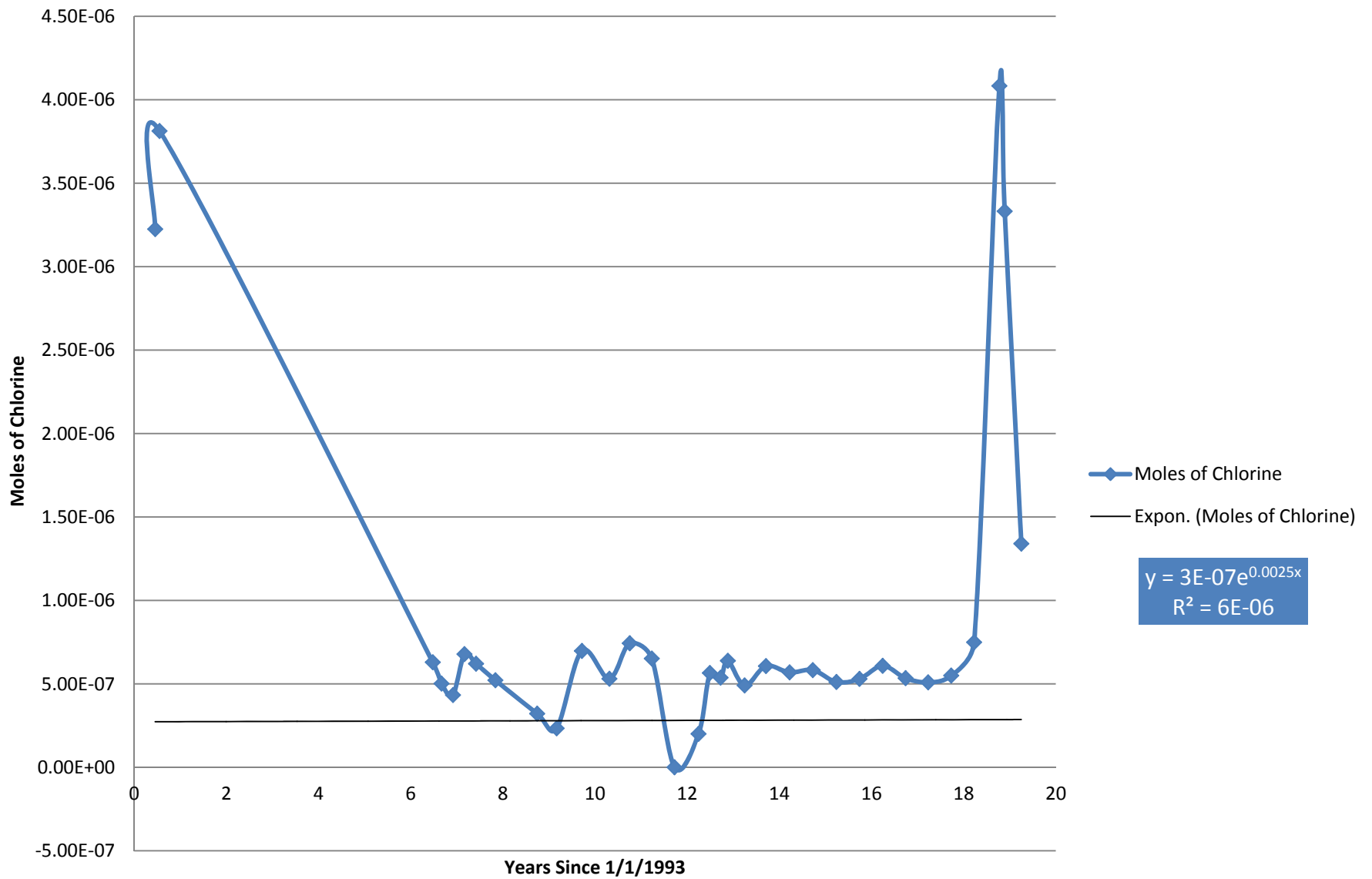
MW-26



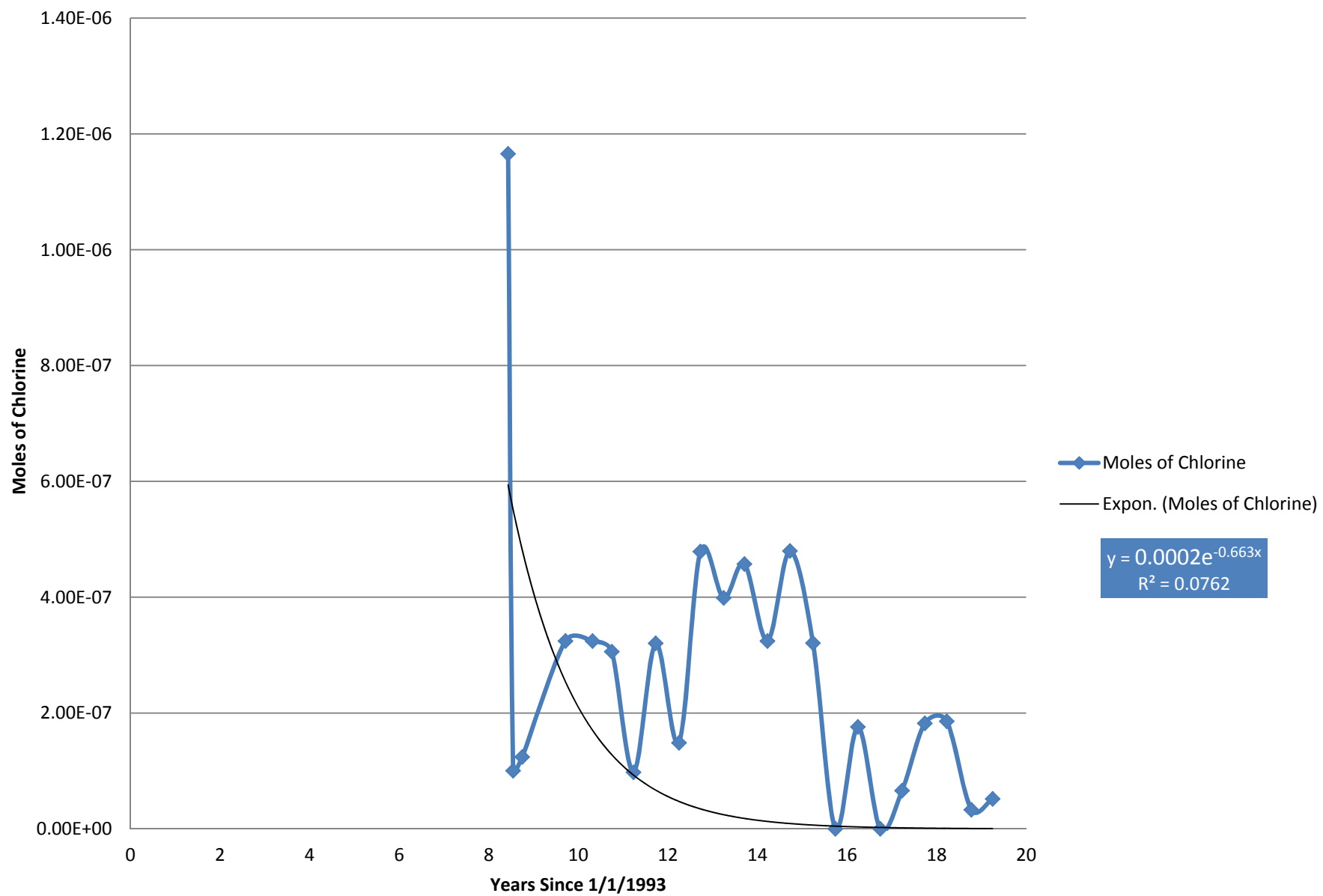
MW-28



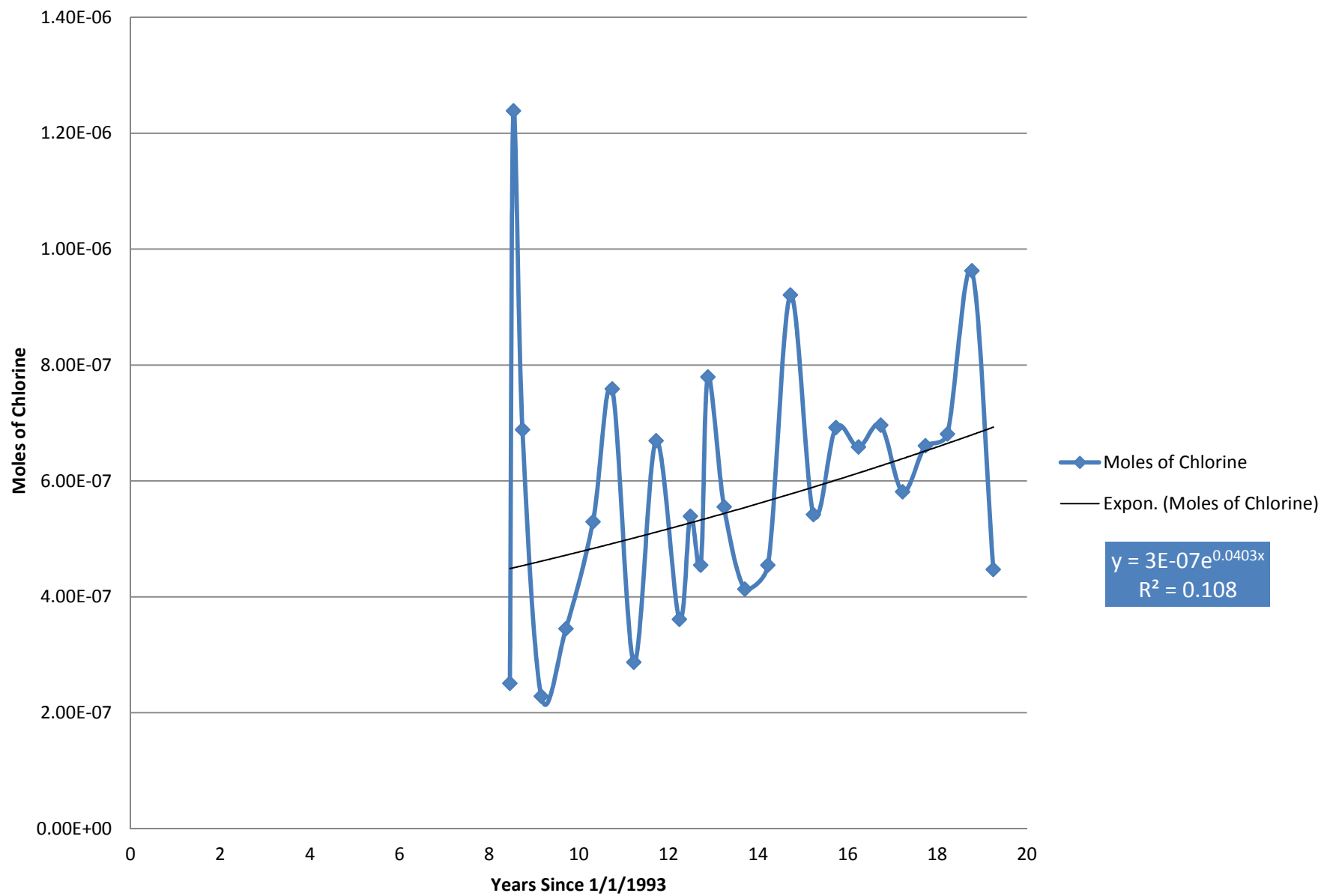
MW-29



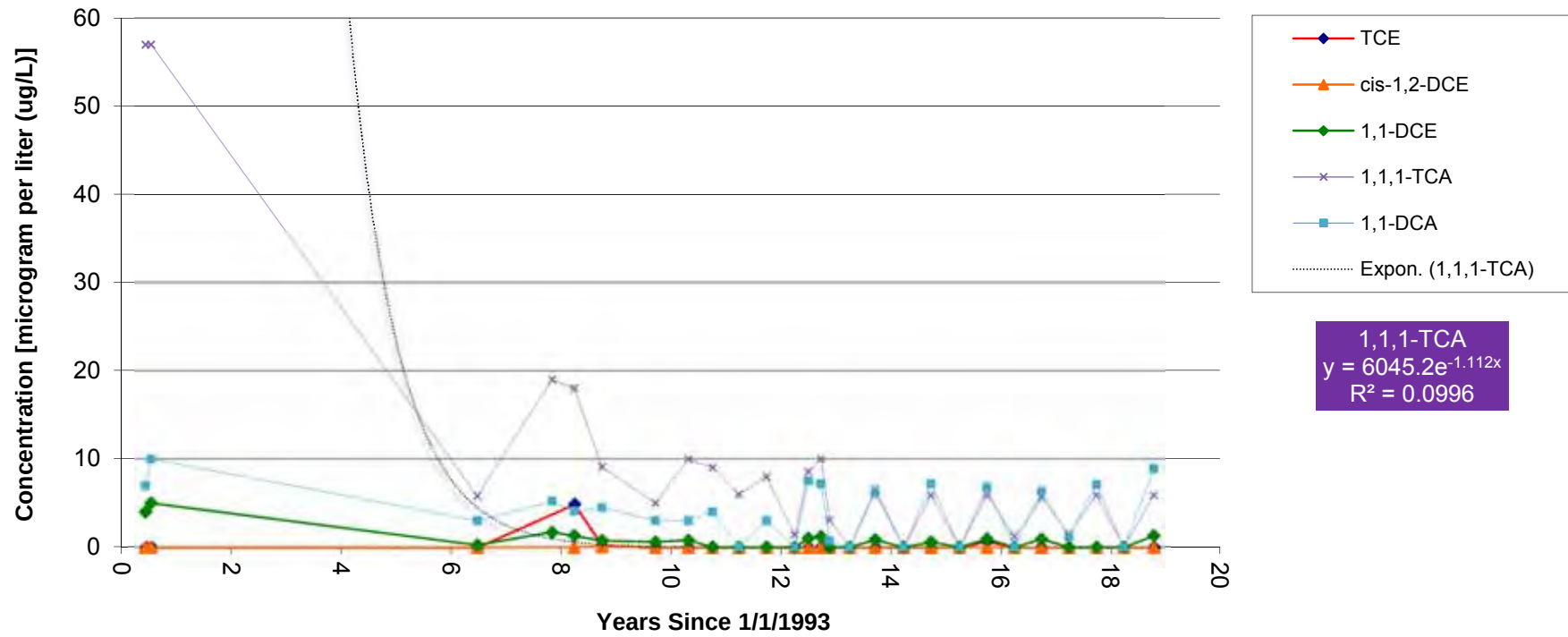
MW-BR-05



MW-BR-06



MW-1



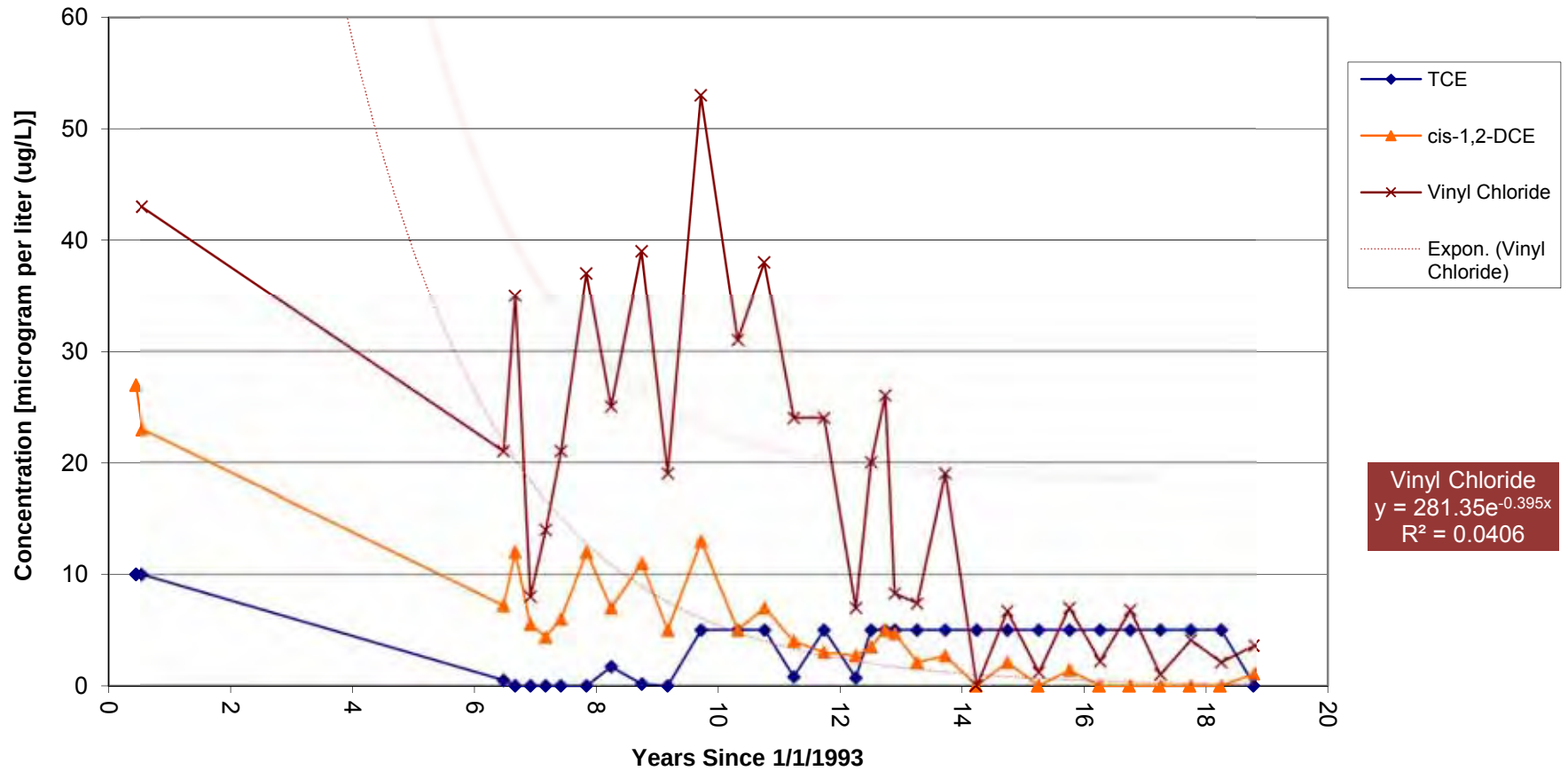
Notes:

ND - Not detected.

Reporting limit is 5 ug/L.

Results less than the reporting limit are estimated.

MW-20



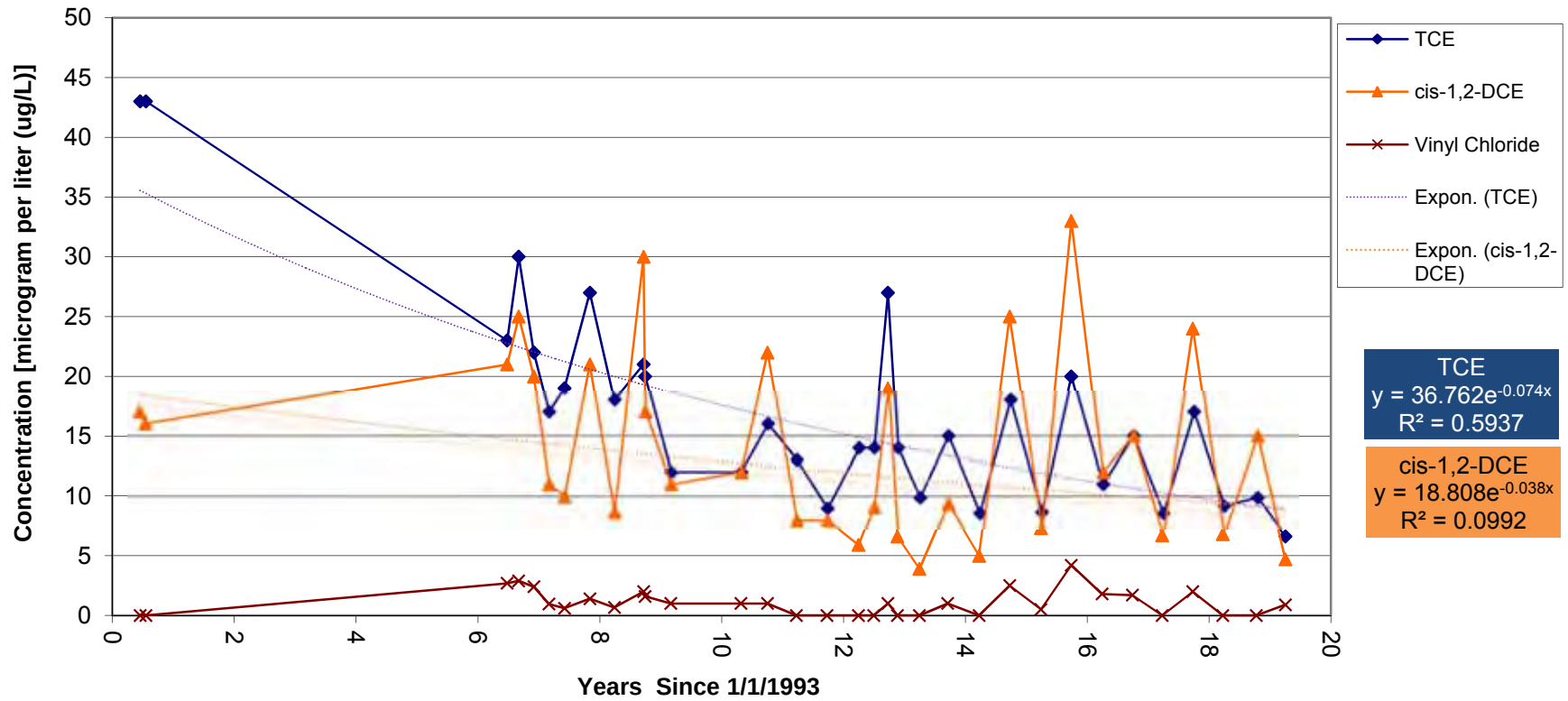
Notes:

ND - Not detected.

Reporting limit is 5 ug/L.

Results less than the reporting limit are estimated.

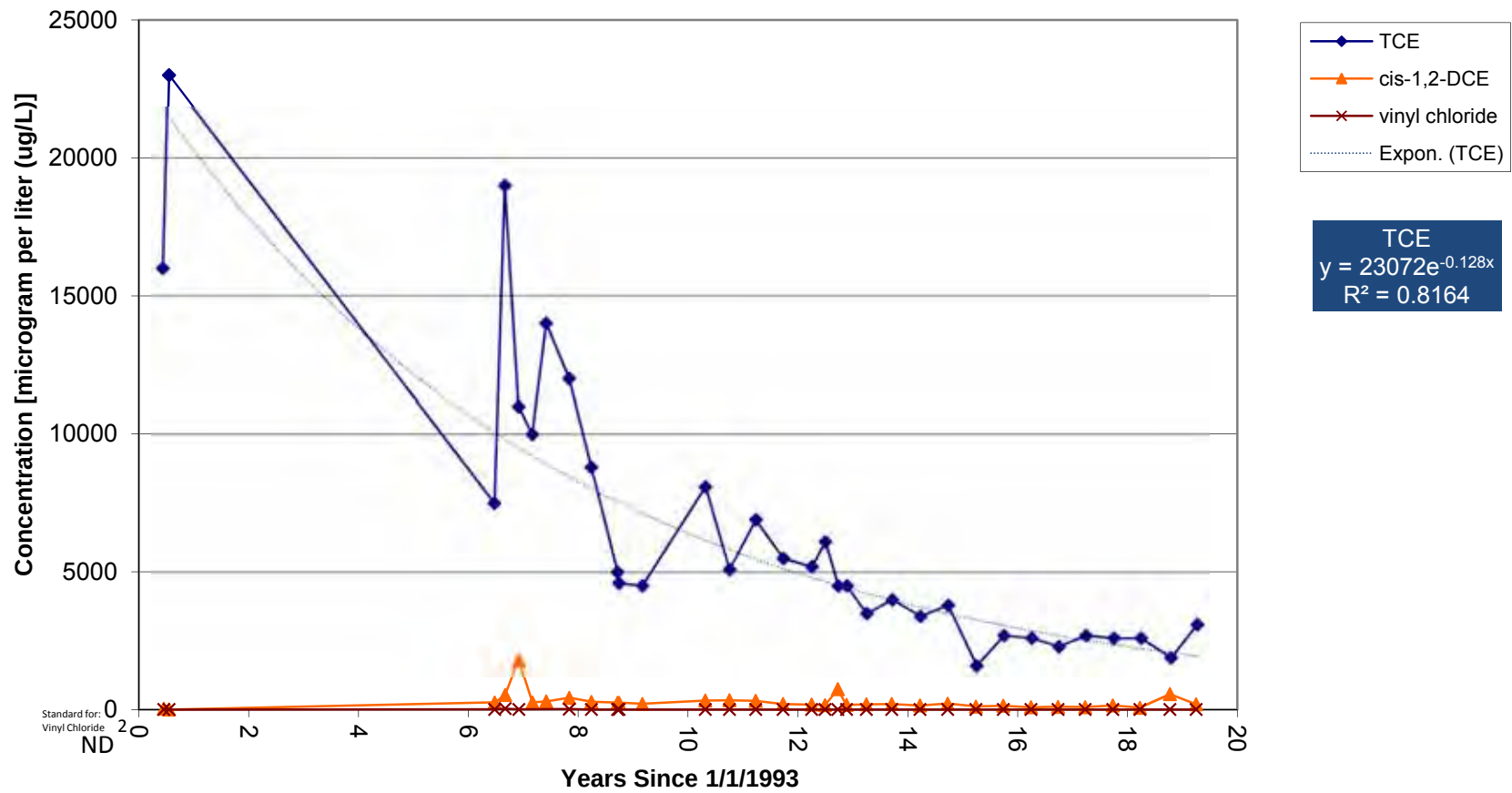
MW-22



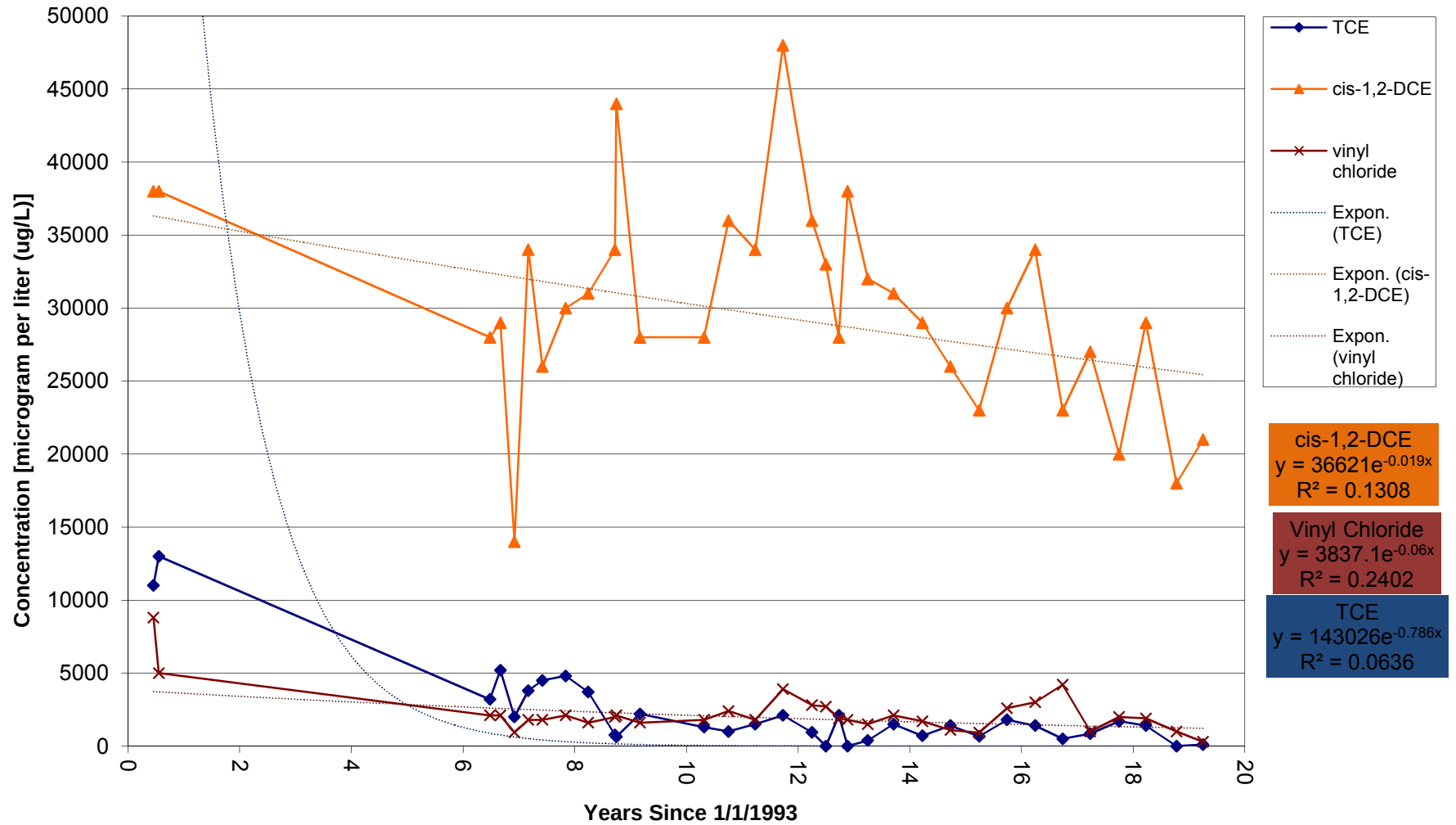
ND

Notes:
Results less than the reporting limit are estimated.

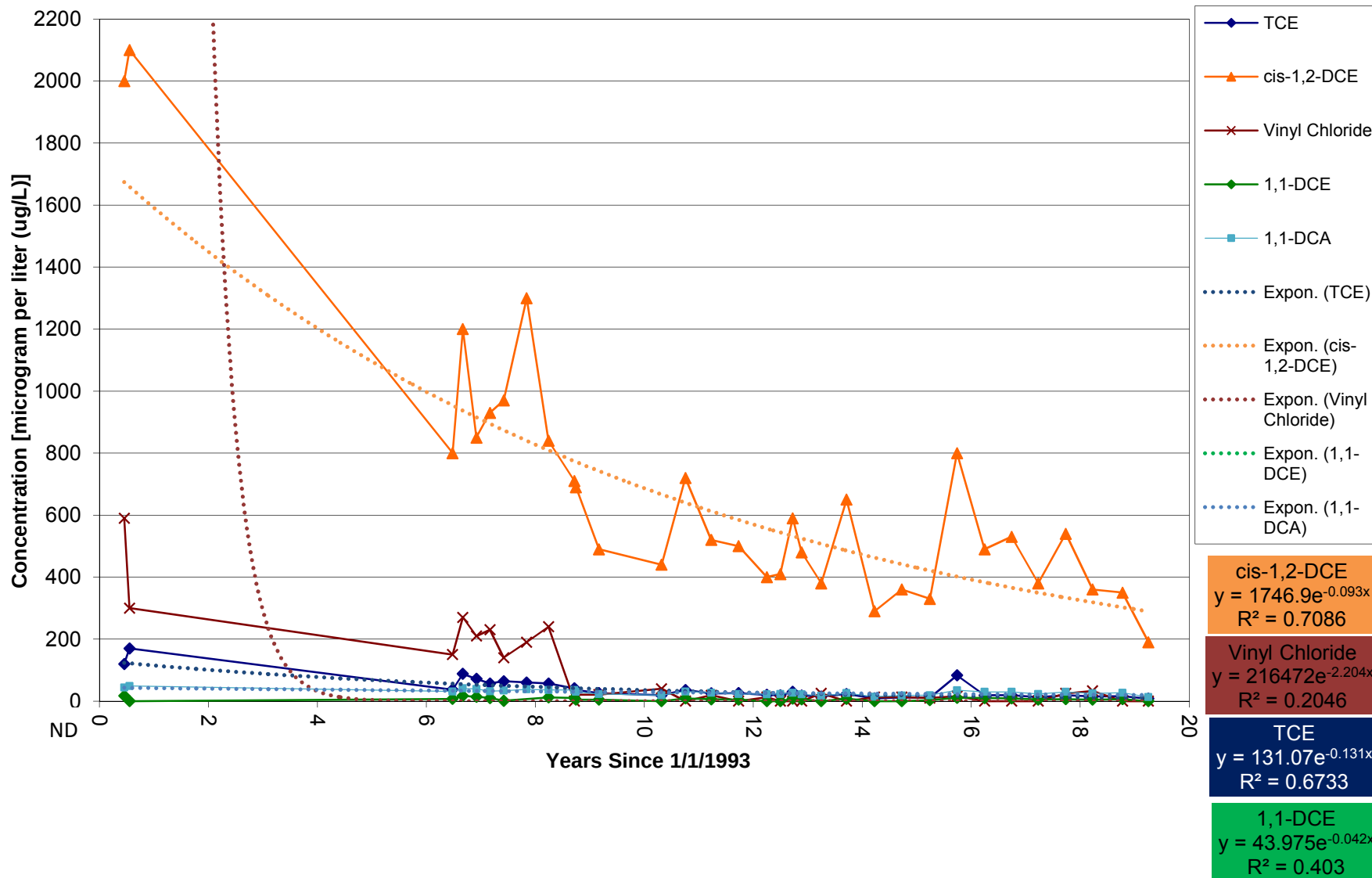
MW-23



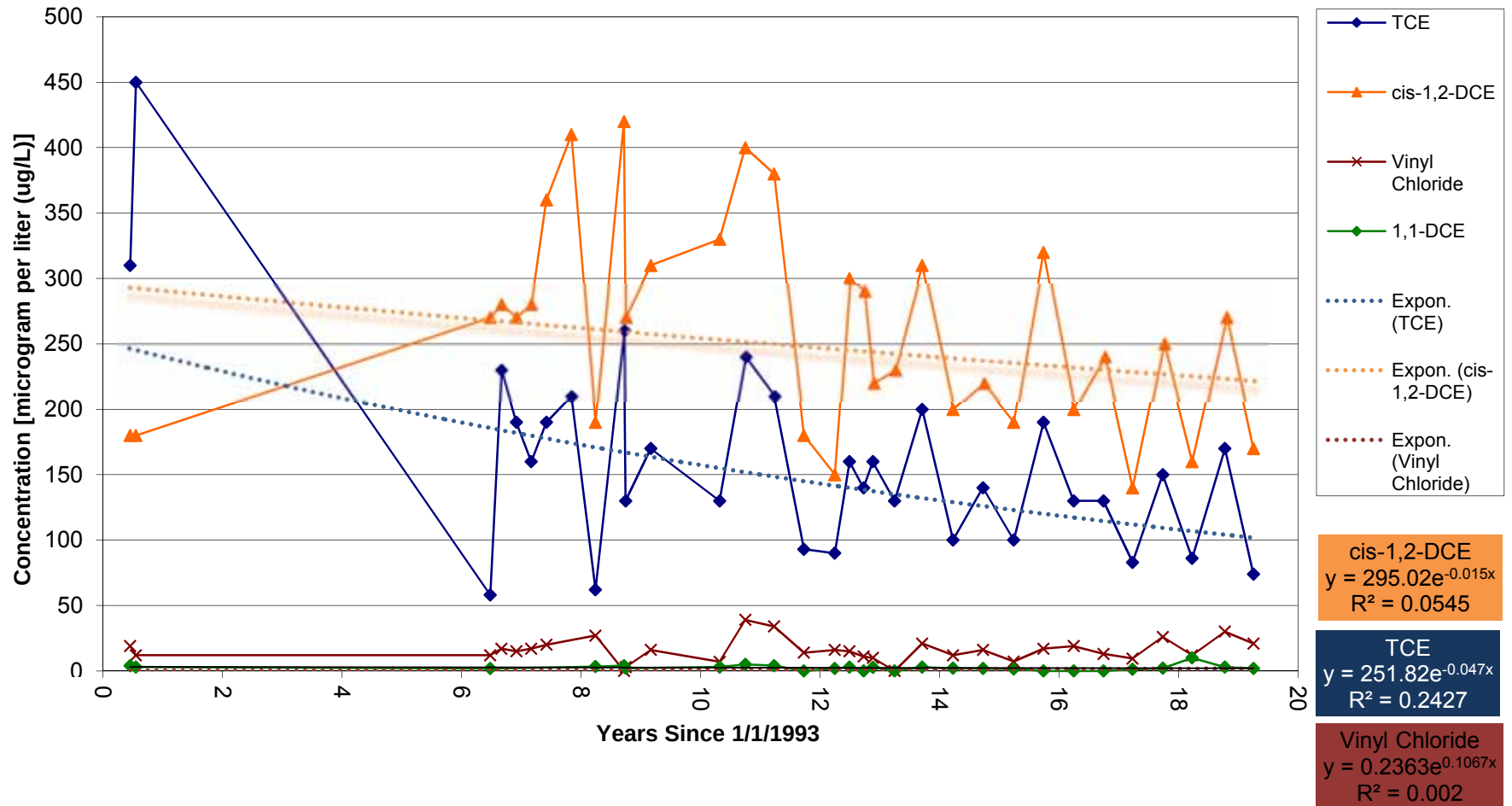
MW-24



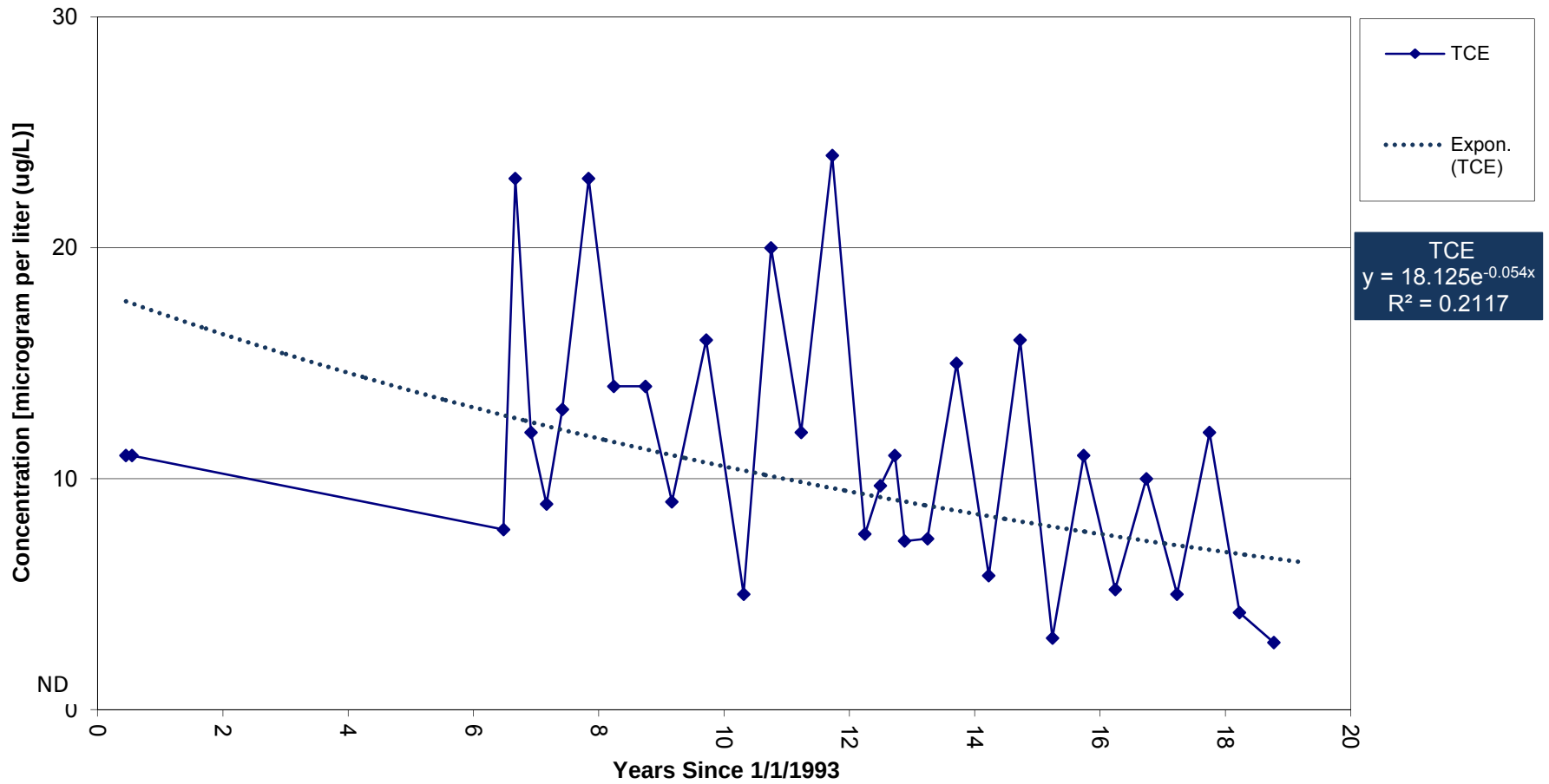
MW-25



MW-26



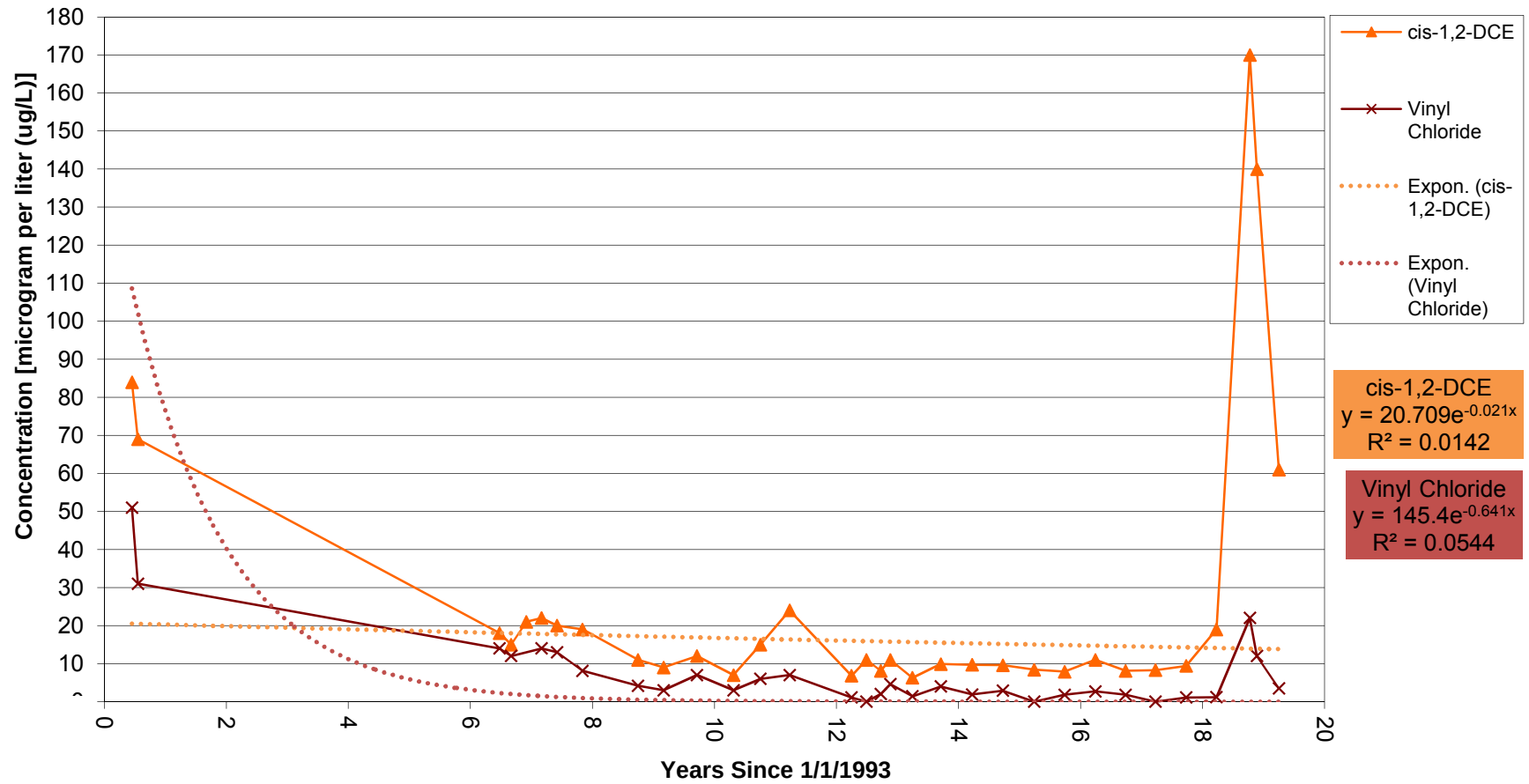
MW-28



Notes:

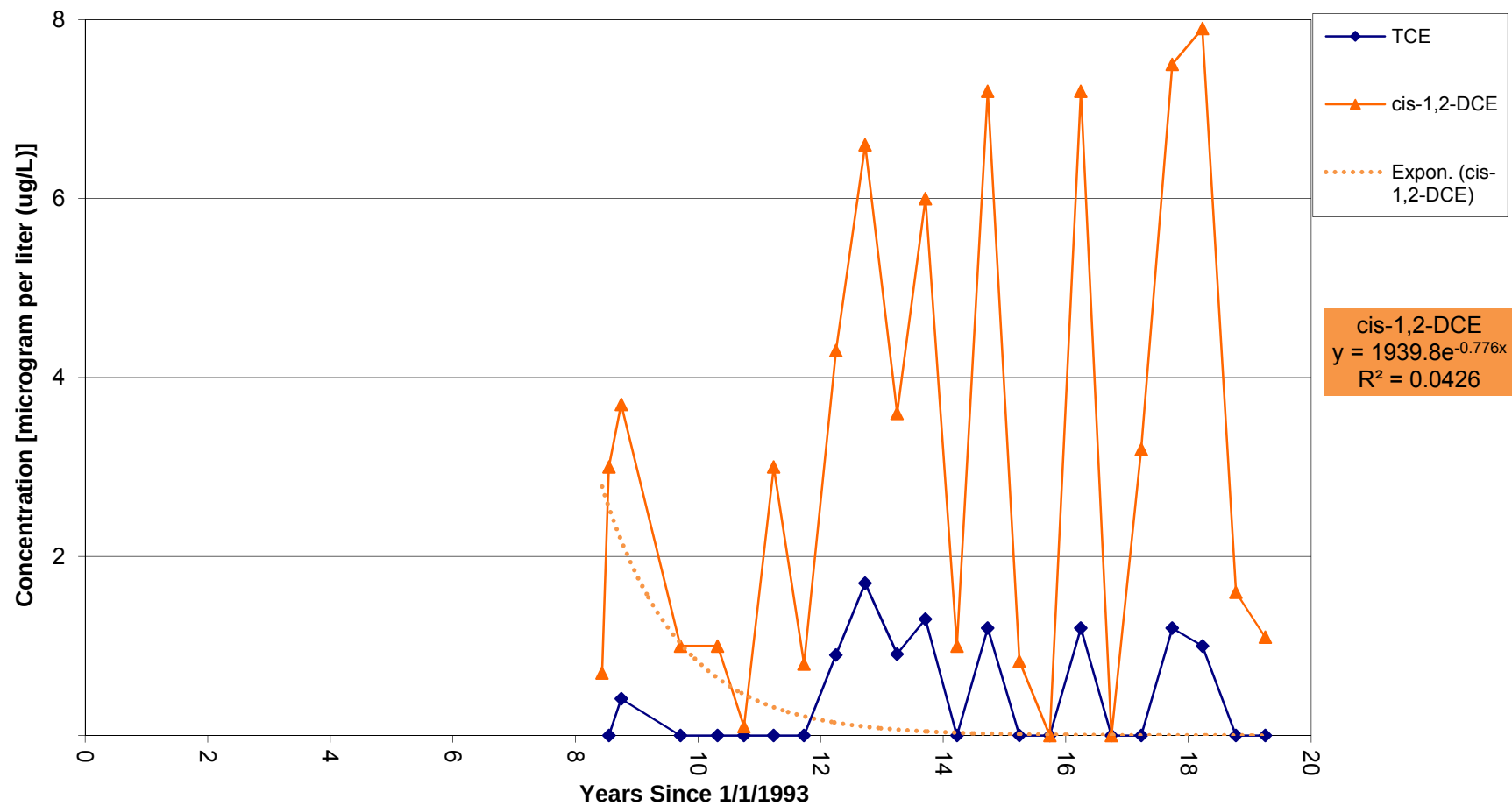
Results less than the reporting limit are estimated.

MW-29



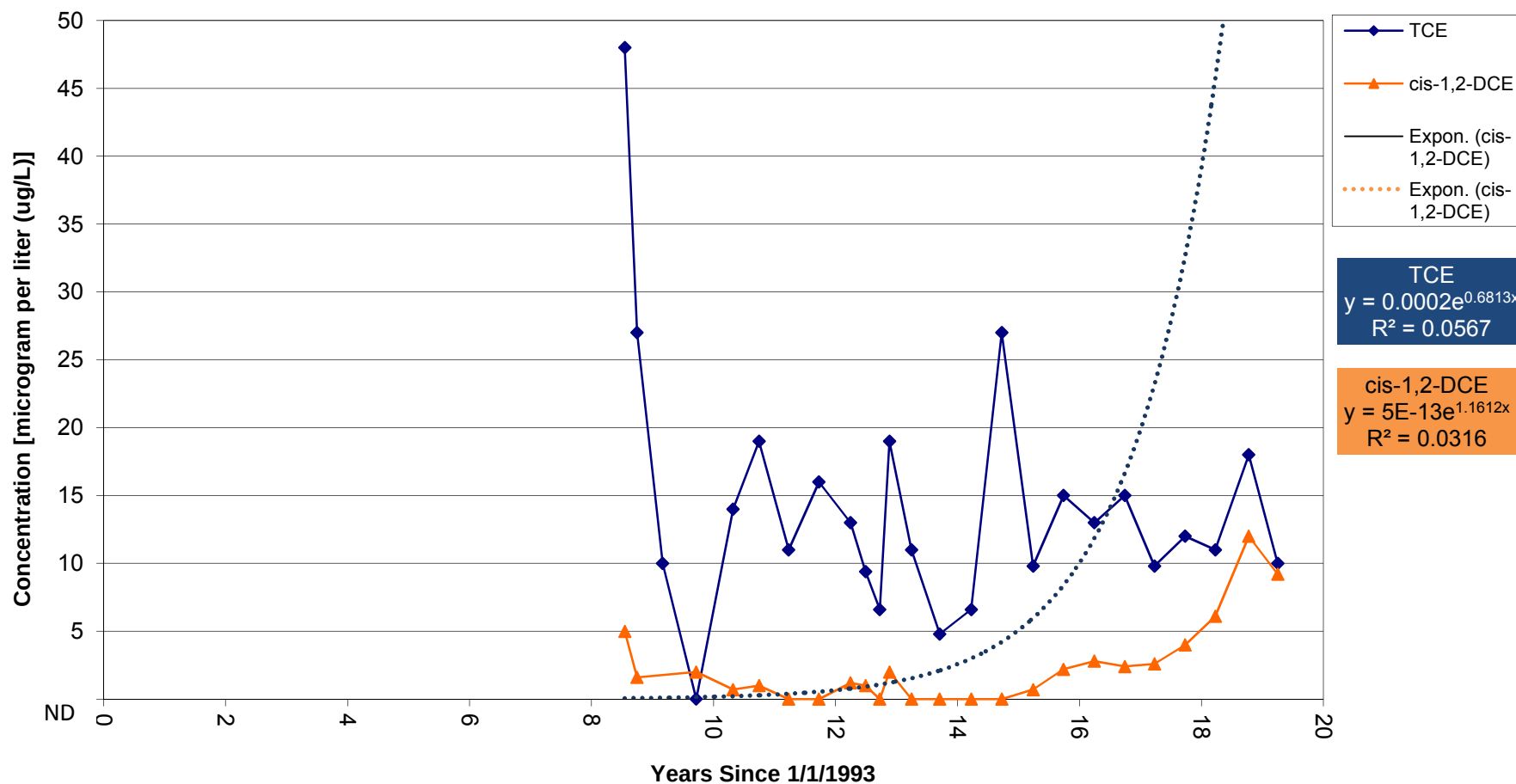
Notes:
Results less than the reporting limit are estimated.

MW-BR-05



Notes:
Results less than the reporting limit are estimated.

MW-BR-06



Notes:

ND - Not detected.

Reporting limit is 5 ug/L.

Results less than the reporting limit are estimated.

Appendix B

Technical Memorandum 2

Buildings 2, 7, and 11 Investigation

Introduction

A soil and groundwater investigation was conducted in the Building 2, 7, and 11 areas in 2005 in accordance with the *Corrective Measures Study (CMS) Work Plan* (Malcolm Pirnie 2005). The purpose of the investigation was to gather information on physical and geochemical characteristics and to further delineate VOC concentrations in the Building 2, 7, and 11 areas.

Summary

The 2005 investigation results support the RFI (URS 2002) conclusion that no VOC sources exist in the Building 7 area. Evidence of dense non-aqueous phase liquid (DNAPL) was observed in the Building 2 and 11 areas. Concentrations of trichloroethene (TCE), cis-1,2-dichloroethene, and/or vinyl chloride exceeded NYSDEC Class GA Groundwater Standards in each of the groundwater samples collected and analyzed. The soil and groundwater sampling data from the 2005 investigation, combined with previous data from the RFI, were used to evaluate corrective measures alternatives for the Building 2, 7, and 11 areas.

Data Collection

In July and August 2005, 28 direct-push soil borings were advanced in the Building 2, 7, and 11 areas with a Geoprobe® rig (Figure B2-1). A total of 103 soil and 19 groundwater samples were collected and analyzed for VOCs.

Two-inch diameter Geoprobe® Macrocores® were collected continuously until refusal. Soils were screened with a photoionization detector to select samples for laboratory analysis and logged using the Unified Soil Classification System (USCS). Ten borings were advanced in each of the Building 2 and 11 areas (B2-PH01 through B2-PH10 and B11-PH01 through B11-PH10, respectively) and 8 borings were advanced in the Building 7 area (B7-PH01 through B7-PH08). A minimum of one sample from each boring was selected for VOC laboratory analysis. Additional samples were selected for analysis based on photoionization detector screening and visual observations (i.e., staining). Select soil samples were also analyzed for alkalinity, iron, manganese, pH, sodium, sulfate, total organic carbon (TOC) and grain size.

Depth-discrete groundwater samples were collected using a Geoprobe® Screen Point Sampler. Temporary monitoring wells were installed in direct-push borings where insufficient groundwater was available for collection because of low hydraulic conductivity. Groundwater was sampled from temporary wells that yielded sufficient water.

Groundwater samples were collected from 14 boreholes (five temporary monitoring wells in the Building 2 area, two temporary monitoring wells and two depth discrete intervals in the Building 7 area and six temporary monitoring wells and four depth discrete intervals in the Building 11 area). Analytical data tables and the corresponding data validation report are attached.

Data Evaluation - Soil

TCE was the primary VOC reported in the soil samples collected and analyzed from the Building 2, 7, and 11 areas. Cis-1,2-DCE was reported in approximately half of the soil samples but typically at concentrations one to two orders of magnitude lower than the TCE concentrations. Acetone and methylene chloride, common laboratory contaminants, were estimated at concentrations lower than the reporting limit in a couple of the samples. The Buildings 2, 7, and 11 Investigation soil analytical results are provided in Tables B2-1 through B2-3 and summarized below by area.

Building 2 Area

TCE was reported in 31 of 33 Building 2 area soil samples. TCE concentrations ranged from 0.0022 to 1,500 milligrams per kilogram (mg/kg). One soil sample, collected at 29.5 feet below ground surface (bgs) at B2-PH05, contained dark liquid globules (evidence of DNAPL). Evidence of DNAPL was also observed during the RFI in the Building 2 Area within several feet of bedrock at MW-BI-01. TCE concentrations (ranging from 0.094 to 7 mg/kg), but no evidence of DNAPL, were reported at B2-PH07, between B2-PH05 and MW-BI-01. The highest TCE concentrations in borings next to Buildings 2 and 5 (230 and 130 mg/kg at B2-PH04 and B2-PH06, respectively) were in the shallow (1.5 feet bgs) samples. The highest TCE concentrations were reported at increasing depths in borings extending south from Building 2.

Building 7 Area

Borings B7-PH01 through B7-PH03 were advanced inside Building 7, and B7-PH04 through B7-PH08 were advanced to the south of Building 7. No DNAPL was observed in these soil borings. TCE was reported in 26 of the 33 soil samples collected in 2005 in the Building 7 area ranging from 0.0023 to 48 mg/kg. The highest TCE concentration in the Building 7 area (48 mg/kg) was present at 13.5 feet bgs at B7-PH07, approximately 50 feet southeast of Building 7. The maximum TCE concentration reported in samples from beneath Building 7 was 3 mg/kg collected from 13.2 to 13.4 feet bgs at B7-PH02.

Building 11 Area

TCE, ranging in concentrations from 0.0047 to 8,100 mg/kg, was reported in 36 of 37 Building 11 area soil samples. Globules of DNAPL were observed from 21 to 25 feet bgs in boring B11-PH08. The soil sample from 22.0 to 22.3 feet bgs in boring B11-PH08 contained 8,100 mg/kg of TCE.

Data Evaluation - Groundwater

TCE was the primary VOC reported in the groundwater samples from the Building 2, 7, and 11 areas. The Building 2, 7, and 11 Investigation groundwater analytical results are provided in Table B2-4 and summarized below by area.

Building 2 Area

TCE concentrations in the Building 2 area groundwater samples ranged from 10 micrograms per liter ($\mu\text{g/L}$) in the sample at B2-PH02 to 29,000 $\mu\text{g/L}$ at B2-PH04. Concentrations of TCE, cis-1,2-dichloroethene, and/or vinyl chloride exceeded NYSDEC Class GA Groundwater Standards in each of the five groundwater samples collected and analyzed.

Building 7 Area

Groundwater TCE concentrations in Building 7 area samples ranged from 170 $\mu\text{g/L}$ to 1,000 $\mu\text{g/L}$. Concentrations of TCE, cis-1,2-dichloroethene, 1,2-dichloroethane, and/or vinyl chloride exceeded NYSDEC Class GA Groundwater Standards in each of the four groundwater samples collected and analyzed. The 2005 investigation results support the RFI (URS 2002) conclusions that no VOC sources exist in the Building 7 area. VOC concentrations in groundwater are generally more than one order of magnitude greater than in soil, indicating that groundwater containing VOCs migrated into the Building 7 area from an area of higher concentrations.

Building 11 Area

Groundwater TCE concentrations ranged from 810 $\mu\text{g/L}$ at 11 feet bgs at B11-PH08 to 100,000,000 $\mu\text{g/L}$ at 16 feet bgs at B11-PH07. The three samples collected and analyzed from B11-PH08 contained TCE concentrations that increased with depth (810 $\mu\text{g/L}$ at 11 feet bgs to 1,700 $\mu\text{g/L}$ at 15 feet bgs, and 17,000 $\mu\text{g/L}$ at 19 feet bgs). A DNAPL sample was collected from temporary monitoring well B11-PH08 screened from 22.5 to 32.5 feet bgs. The sample was analyzed for specific gravity (1.4566), viscosity (0.5073 mm^2/s [centistokes]), surface tension (29.0 dynes/centimeter), and VOCs (1,200,000,000 $\mu\text{g/L}$ of TCE) for physical and chemical characterization and to facilitate the evaluation of corrective measures.



Appendix B

Technical Memorandum 2

Attachments

LEGEND

PROPERTY BOUNDARY

STORMWATER SEWER

TOP OF BANK

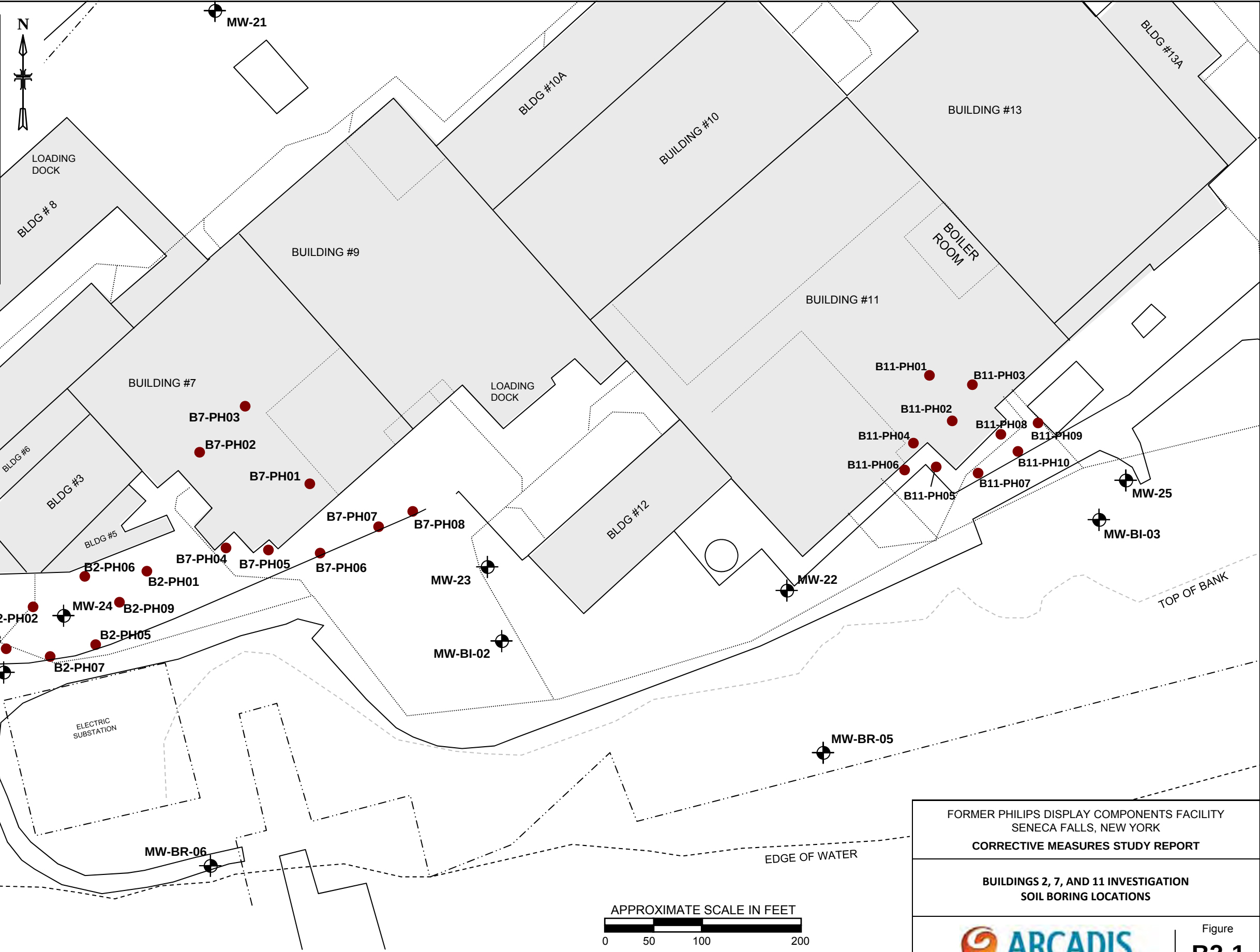
EDGE OF WATER

●

SOIL BORING

⊕

MONITORING WELL



FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

BUILDINGS 2, 7, AND 11 INVESTIGATION
SOIL BORING LOCATIONS

ARCADIS

Figure

B2-1

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 2 Area							
		B2-PH01	B2-PH01	B2-PH01	B2-PH01	B2-PH02	B2-PH02	B2-PH02	B2-PH02
		2.0-2.4	13	25.2-25.6	33.6-33.8	2.5	12	25-26	32
		Units\Date	07/21/05	07/21/05	07/21/05	07/21/05	07/22/05	07/22/05	07/22/05
% Moisture	%	20.5	9.5	11.9	21.6	14.9	9.3	9.6	17.2
% Solids	%	79.5	90.5	88.1	78.4	85.1	90.7	90.4	82.8
1,1,1-Trichloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
1,1,2,2-Tetrachloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 UJ	550 U	11000 U	2400 U
1,1,2-Trichloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
1,1-Dichloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
1,1-Dichloroethene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
1,2-Dichloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 UJ	550 U	11000 U	2400 U
1,2-Dichloropropane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
2-Butanone (MEK)	µg/Kg	1300 U	11 U	11 U	13 U	24 U	550 U	11000 U	2400 U
2-Hexanone	µg/Kg	1300 U	11 U	11 U	13 U	24 UJ	550 U	11000 U	2400 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	1300 U	11 U	11 U	13 U	24 UJ	550 U	11000 U	2400 U
Acetone	µg/Kg	1500 UB	5.8 UB	7.2 UB	13 UB	260 B	950 U	28000 UB	2000 J
Benzene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Bromodichloromethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Bromoform	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 UJ	550 U	11000 U	2400 U
Bromomethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Carbon disulfide	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	17	550 U	11000 U	2400 U
Carbon tetrachloride	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Chlorobenzene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Chloroethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Chloroform	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Chloromethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
cis-1,2-Dichloroethene	µg/Kg	5400	4.8 J	5.7 U	6.4 U	25	180 J	11000 U	2400 U
cis-1,3-Dichloropropene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Dibromochloromethane	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Ethylbenzene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Methylene chloride	µg/Kg	450 UB	8.1 UB	12 UB	9.1 UB	24 UB	160 UB	3600 UB	620 UB
Styrene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Tetrachloroethene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Toluene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
trans-1,2-Dichloroethene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	3.5 J	550 U	11000 U	2400 U
trans-1,3-Dichloropropene	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U
Trichloroethene	µg/Kg	31000	84	12	7.1	54	4500	250000	45000
Vinyl chloride	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	17	550 U	11000 U	2400 U
Xylenes (total)	µg/Kg	1300 U	5.5 U	5.7 U	6.4 U	12 U	550 U	11000 U	2400 U

Notes:

U - Not detected above reporting limit.
 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 2 Area					
		B2-PH03	B2-PH03	B2-PH03	B2-PH04	B2-PH04	B2-PH04
		3.5	18.5	32.5	1.5	23	32.5
		08/01/05	08/01/05	08/01/05	08/01/05	08/01/05	08/01/05
% Moisture	%	13.7	9.2	16.2	25.1	9.4	17.1
% Solids	%	86.3	90.8	83.8	74.9	90.6	82.9
1,1,1-Trichloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,1,2,2-Tetrachloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,1,2-Trichloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,1-Dichloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,1-Dichloroethene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,2-Dichloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
1,2-Dichloropropane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
2-Butanone (MEK)	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
2-Hexanone	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Acetone	µg/Kg	1100 UB	1600 UB	9800 UB	10000 UB	3600 U	1100 UB
Benzene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Bromodichloromethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Bromoform	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Bromomethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Carbon disulfide	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Carbon tetrachloride	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Chlorobenzene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Chloroethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Chloroform	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Chloromethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
cis-1,2-Dichloroethene	µg/Kg	580 J	1100 U	12000 U	5200 J	1100 U	220 J
cis-1,3-Dichloropropene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Dibromochloromethane	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Ethylbenzene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Methylene chloride	µg/Kg	270 UB	500 UB	6700 UB	3800 UB	750 UB	250 UB
Styrene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Tetrachloroethene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Toluene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
trans-1,2-Dichloroethene	µg/Kg	150 J	1100 U	12000 U	6700 U	1100 U	600 U
trans-1,3-Dichloropropene	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U
Trichloroethene	µg/Kg	1800	17000	220000	230000	36000	15000
Vinyl chloride	µg/Kg	110 J	1100 U	12000 U	6700 U	1100 U	600 U
Xylenes (total)	µg/Kg	580 U	1100 U	12000 U	6700 U	1100 U	600 U

Notes:

U - Not detected above reporting limit.
 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 2 Area						
		B2-PH05	B2-PH05	B2-PH05	B2-PH05	B2-PH06	B2-PH06	B2-PH06
		1.5	23	29.5	33	1.5	23	30
	Depth (feet)	1.5	23	29.5	33	1.5	23	30
Units	Date	08/02/05	08/02/05	08/02/05	08/02/05	08/02/05	08/02/05	08/02/05
% Moisture	%	15.1	16	12.6	9.6	23.2	8.9	12.5
% Solids	%	84.9	84	87.4	90.4	76.8	91.1	87.5
1,1,1-Trichloroethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
1,1,2,2-Tetrachloroethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
1,1,2-Trichloroethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
1,1-Dichloroethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
1,1-Dichloroethene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
1,2-Dichloroethane	µg/Kg	590 U	1200 U	57000 U	1900	3300 U	2300	2700 H
1,2-Dichloropropane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
2-Butanone (MEK)	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
2-Hexanone	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Acetone	µg/Kg	1100 UB	1800 UB	37000 UB	1100 UB	3900 UB	1500 UB	1700 UB
Benzene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Bromodichloromethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Bromoform	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Bromomethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Carbon disulfide	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Carbon tetrachloride	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 UJB
Chlorobenzene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Chloroethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Chloroform	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Chloromethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
cis-1,2-Dichloroethene	µg/Kg	210 J	5300	20000 J	550 U	14000	2500	2200
cis-1,3-Dichloropropene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Dibromochloromethane	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Ethylbenzene	µg/Kg	590 U	440 J	57000 U	550 U	3300 U	1100 U	1100 U
Methylene chloride	µg/Kg	390 UB	670 UB	32000 UB	250 UB	1700 UB	600 UB	610 UJB
Styrene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Tetrachloroethene	µg/Kg	150 J	1200 U	57000 U	550 U	1300 J	1100 U	1100 U
Toluene	µg/Kg	590 U	1200 U	52000 J	170 J	570 J	1100	1300
trans-1,2-Dichloroethene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
trans-1,3-Dichloropropene	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Trichloroethene	µg/Kg	16000	30000	1500000	8400	130000	40000	36000
Vinyl chloride	µg/Kg	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U
Xylenes (total)	µg/Kg	590 U	2500	57000 U	550 U	3300 U	1100 U	1100 U

Notes:

U - Not detected above reporting limit.

B - Compound was detected in the blank.

H - Alternate peak selection upon review.

N - Spike recovery exceeds control limits.

J - Estimated below reporting limit.

R - Rejected by validator.

µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 2 Area						
	Location ID	B2-PH07	B2-PH07	B2-PH07	B2-PH08	B2-PH08	B2-PH08
	Depth (feet)	2	19	32.5	4.5	18	32
	Units/Date	08/03/05	08/03/05	08/03/05	08/03/05	08/03/05	08/03/05
% Moisture	%	15.3	10.1	17.5	10.1	10.6	14.7
% Solids	%	84.7	89.9	82.5	89.9	89.4	85.3
1,1,1-Trichloroethane	µg/Kg	590 U	5.6 UJ	30 U	560 UJ	11 U	5.9 U
1,1,2,2-Tetrachloroethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 UJ
1,1,2-Trichloroethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
1,1-Dichloroethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
1,1-Dichloroethene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
1,2-Dichloroethane	µg/Kg	590 U	29	30 U	560 U	11 U	5.9 U
1,2-Dichloropropane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
2-Butanone (MEK)	µg/Kg	590 U	11 U	61 U	560 U	22 U	12 U
2-Hexanone	µg/Kg	590 U	11 U	61 U	560 U	22 U	12 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	590 U	11 U	61 U	560 U	22 U	12 U
Acetone	µg/Kg	1100 UB	6.6 UB	37 UB	920 UB	20 UB	8 UB
Benzene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Bromodichloromethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Bromoform	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Bromomethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Carbon disulfide	µg/Kg	590 U	5.6 U	72 UB	560 U	5.7 JH	7.7 J
Carbon tetrachloride	µg/Kg	590 U	5.6 UJ	30 U	560 UJB	11 U	5.9 U
Chlorobenzene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Chloroethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Chloroform	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Chloromethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
cis-1,2-Dichloroethene	µg/Kg	110 J	75	87	560 U	2.7 J	1.9 J
cis-1,3-Dichloropropene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Dibromochloromethane	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Ethylbenzene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Methylene chloride	µg/Kg	330 UB	8.5 UJB	49 UB	230 UJB	20 UB	8.4 UB
Styrene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Tetrachloroethene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Toluene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
trans-1,2-Dichloroethene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
trans-1,3-Dichloropropene	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Trichloroethene	µg/Kg	7000	94	590	480 J	10 J	23
Vinyl chloride	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U
Xylenes (total)	µg/Kg	590 U	5.6 U	30 U	560 U	11 U	5.9 U

Notes:

U - Not detected above reporting limit.
 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 2 Area						
	Location ID	B2-PH09	B2-PH09	B2-PH09	B2-PH10	B2-PH10	B2-PH10
	Depth (feet)	2.5	22	31	3.5	17.5	33
	Units\Date	08/04/05	08/04/05	08/04/05	08/04/05	08/04/05	08/04/05
% Moisture	%	17.8	9.3	10.2	10.2	10.3	18.5
% Solids	%	82.2	90.7	89.8	89.8	89.7	81.5
1,1,1-Trichloroethane	µg/Kg	6.1 U	1100 UJ	560 U	5.6 U	5.6 U	6.1 U
1,1,2,2-Tetrachloroethane	µg/Kg	6.1 UJ	1100 U	560 U	5.6 U	5.6 UJ	6.1 U
1,1,2-Trichloroethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
1,1-Dichloroethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
1,1-Dichloroethene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
1,2-Dichloroethane	µg/Kg	6.1 U	1100 U	22 J	5.6 U	5.6 U	6.1 U
1,2-Dichloropropane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
2-Butanone (MEK)	µg/Kg	12 U	1100 U	560 U	11 U	11 U	12 U
2-Hexanone	µg/Kg	12 U	1100 U	560 U	11 U	11 U	12 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	12 U	1100 U	560 U	11 U	11 U	12 U
Acetone	µg/Kg	88 UB	1600 UB	1200 JB	21 UB	6.2 UB	7.3 UB
Benzene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Bromodichloromethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Bromoform	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Bromomethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Carbon disulfide	µg/Kg	10 J	1100 U	23 JB	4.3 J	8.3 J	6.1 UB
Carbon tetrachloride	µg/Kg	6.1 U	1100 UJ	560 UJ	5.6 U	5.6 U	6.1 U
Chlorobenzene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Chloroethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Chloroform	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Chloromethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
cis-1,2-Dichloroethene	µg/Kg	6.1 U	1300	26 J	5.6 U	5.6 U	6.1 U
cis-1,3-Dichloropropene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Dibromochloromethane	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Ethylbenzene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Methylene chloride	µg/Kg	8.3 UB	500 UJB	330 JB	7.7 UB	6.8 UB	8.7 UB
Styrene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Tetrachloroethene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Toluene	µg/Kg	6.1 U	450 J	560 U	5.6 U	5.6 U	6.1 U
trans-1,2-Dichloroethene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
trans-1,3-Dichloropropene	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Trichloroethene	µg/Kg	2.2 J	30000	350 J	5.6 U	5.6 U	2.5 J
Vinyl chloride	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U
Xylenes (total)	µg/Kg	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U

Notes:

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 B - Compound was detected in the blank.
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 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 7 Area								
	Location ID	B7-PH01	B7-PH01	B7-PH01	B7-PH01	B7-PH02	B7-PH02	B7-PH02	B7-PH02
	Depth (feet)	1.5	13	25.5-26	28.3	2	13.2-13.4	23.5-23.8	27.5-28
	Units\Date	07/12/05	07/12/05	07/12/05	07/12/05	07/14/05	07/14/05	07/14/05	07/14/05
% Moisture	%	3.8	10.4	16.3	7.6	16.1	8.6	13.9	10.2
% Solids	%	96.2	89.6	83.7	92.4	83.9	91.4	86.1	89.8
1,1,1-Trichloroethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.2 U	5.6 U	6 UJ	5.4 U	600 U	550 U	5.8 UJ	5.6 UJ
1,1,2-Trichloroethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
1,1-Dichloroethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
1,1-Dichloroethene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
1,2-Dichloroethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
1,2-Dichloropropane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
2-Butanone (MEK)	µg/Kg	10 U	11 U	12 U	11 U	600 U	550 U	12 U	11 U
2-Hexanone	µg/Kg	10 U	11 U	12 U	11 U	600 U	550 U	12 U	11 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	10 U	11 U	12 U	11 U	600 U	550 U	12 U	11 U
Acetone	µg/Kg	13 UB	9 UB	14 UB	11 UB	610 UB	1400 UB	12 UB	17 UB
Benzene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Bromodichloromethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Bromoform	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Bromomethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Carbon disulfide	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	4.1 J
Carbon tetrachloride	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Chlorobenzene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Chloroethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Chloroform	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Chloromethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
cis-1,2-Dichloroethene	µg/Kg	5.2 U	5.3 J	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
cis-1,3-Dichloropropene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Dibromochloromethane	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Ethylbenzene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Methylene chloride	µg/Kg	4.8 UB	5.8 UB	6.3 UB	6.4 UB	100 UB	72 UB	12 UB	11 UB
Styrene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Tetrachloroethene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Toluene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
trans-1,2-Dichloroethene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
trans-1,3-Dichloropropene	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Trichloroethene	µg/Kg	5.2 U	5.6 U	6 U	3.3 J	1200	3000	27	8.1
Vinyl chloride	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U
Xylenes (total)	µg/Kg	5.2 U	5.6 U	6 U	5.4 U	600 U	550 U	5.8 U	5.6 U

Notes:

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 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 7 Area								
	Location ID	B7-PH03	B7-PH03	B7-PH03	B7-PH04	B7-PH04	B7-PH04	B7-PH04	B7-PH04
	Depth (feet)	0.6-0.8	10.5	12.5	1.6-1.8	2.5	5	12	21.8-22
	Units\Date	07/21/05	07/21/05	07/21/05	07/20/05	07/20/05	07/20/05	07/20/05	07/20/05
% Moisture	%	5.1	10.1	9.5	21.9	21.3	11.4	11.5	11.8
% Solids	%	94.9	89.9	90.5	78.1	78.7	88.6	88.5	88.2
1,1,1-Trichloroethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
1,1,2-Trichloroethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
1,1-Dichloroethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
1,1-Dichloroethene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
1,2-Dichloroethane	µg/Kg	5.3 U	6.8	11	6.4 U	640 U	560 U	5.6 U	3.7 J
1,2-Dichloropropane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
2-Butanone (MEK)	µg/Kg	11 U	11 U	11 U	13 U	640 U	560 U	11 U	11 U
2-Hexanone	µg/Kg	11 U	11 U	11 U	13 U	640 U	560 U	11 U	11 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	11 U	11 U	13 U	640 U	560 U	11 U	11 U
Acetone	µg/Kg	7.9 UB	8.2 UB	6.8 UB	14 UB	1500 U	1300 U	9.8 UB	16 U
Benzene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Bromodichloromethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Bromoform	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Bromomethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Carbon disulfide	µg/Kg	5.3 U	5.6 U	5.5 U	17 J	640 U	560 U	5.6 U	5.7 U
Carbon tetrachloride	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Chlorobenzene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Chloroethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Chloroform	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Chloromethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
cis-1,2-Dichloroethene	µg/Kg	5.3 U	82	40	5.6 J	640 U	560 U	14	15
cis-1,3-Dichloropropene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Dibromochloromethane	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Ethylbenzene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 UH	640 U	560 U	5.6 U	5.7 U
Methylene chloride	µg/Kg	7.3 UB	7 UB	6.7 UB	22 UB	130 UB	130 UB	8.4 UB	8.5 UB
Styrene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Tetrachloroethene	µg/Kg	5.3 U	5.6 U	5.5 U	2.6 J	640 U	560 U	5.6 U	5.7 U
Toluene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
trans-1,2-Dichloroethene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
trans-1,3-Dichloropropene	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Trichloroethene	µg/Kg	13	33	2.3 J	220	640 U	560 U	13	170
Vinyl chloride	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U
Xylenes (total)	µg/Kg	5.3 U	5.6 U	5.5 U	6.4 U	640 U	560 U	5.6 U	5.7 U

Notes:

U - Not detected above reporting limit.
 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 7 Area						
	Location ID	B7-PH05	B7-PH05	B7-PH05	B7-PH06	B7-PH06	B7-PH06
	Depth (feet)	3-3.5	12.5-13	39.5	0.8-1.0	11.0-11.2	38.3-38.5
	Units/Date	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05
% Moisture	%	12.2	11.4	18	11.7	9.3	5.7
% Solids	%	87.8	88.6	82	88.3	90.7	94.3
1,1,1-Trichloroethane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
1,1,2,2-Tetrachloroethane	µg/Kg	5.7 U	560 U	R	5.7 U	5.5 U	R
1,1,2-Trichloroethane	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
1,1-Dichloroethane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
1,1-Dichloroethene	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
1,2-Dichloroethane	µg/Kg	5.7 U	360 J	6.1 UJ	5.7 U	5.5 U	5.3 UJ
1,2-Dichloropropane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
2-Butanone (MEK)	µg/Kg	11 U	560 U	12 UJ	11 U	11 U	11 UJ
2-Hexanone	µg/Kg	11 U	560 U	12 U	11 U	11 U	11 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	560 U	12 U	11 U	11 U	11 U
Acetone	µg/Kg	10 UB	360 U	8.3 UBJ	8.7 UB	9.4 UB	14 UBJ
Benzene	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Bromodichloromethane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Bromoform	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Bromomethane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Carbon disulfide	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Carbon tetrachloride	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Chlorobenzene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Chloroethane	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Chloroform	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Chloromethane	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
cis-1,2-Dichloroethene	µg/Kg	6.3	310 J	2.6 J	5.7 U	5.6	3.2 J
cis-1,3-Dichloropropene	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Dibromochloromethane	µg/Kg	5.7 UJ	560 U	6.1 UJ	5.7 UJ	5.5 UJ	5.3 UJ
Ethylbenzene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Methylene chloride	µg/Kg	6.2 UB	110 UB	8.1 UBJ	5.7 UB	5.7 UB	7.6 UBJ
Styrene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Tetrachloroethene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Toluene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
trans-1,2-Dichloroethene	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
trans-1,3-Dichloropropene	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U
Trichloroethene	µg/Kg	11	2900	3 J	7.3	22	5.3 J
Vinyl chloride	µg/Kg	5.7 U	560 U	6.1 UJ	5.7 U	5.5 U	5.3 UJ
Xylenes (total)	µg/Kg	5.7 U	560 U	6.1 U	5.7 U	5.5 U	5.3 U

Notes:

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 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 7 Area						
	Location ID	B7-PH07	B7-PH07	B7-PH07	B7-PH07	B7-PH07	B7-PH07
	Depth (feet)	2-2.5	10.5	13.5	22-22.5	23-23.2	35-35.2
	Units/Date	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05
% Moisture	%	5.2	9.8	10.7	9.1	11.8	14.1
% Solids	%	94.8	90.2	89.3	90.9	88.2	85.9
1,1,1-Trichloroethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.3 UJ	550 U	2200 U	11 U	570 U	5.8 UJ
1,1,2-Trichloroethane	µg/Kg	5.3 U	550 U	2200 U	11 UJ	570 U	5.8 U
1,1-Dichloroethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
1,1-Dichloroethene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
1,2-Dichloroethane	µg/Kg	5.3 U	550 U	2200 U	320	570 U	8.4
1,2-Dichloropropane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
2-Butanone (MEK)	µg/Kg	11 U	550 U	2200 U	22 U	570 U	12 U
2-Hexanone	µg/Kg	11 U	550 U	2200 U	22 U	570 U	12 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	550 U	2200 U	22 U	570 U	12 U
Acetone	µg/Kg	11 UB	360 UJ	5600 U	13 UB	1400 U	10 UB
Benzene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Bromodichloromethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Bromoform	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Bromomethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Carbon disulfide	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Carbon tetrachloride	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Chlorobenzene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Chloroethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Chloroform	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Chloromethane	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
cis-1,2-Dichloroethene	µg/Kg	5.3 U	130 J	2200 U	38	570 U	1.5 J
cis-1,3-Dichloropropene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Dibromochloromethane	µg/Kg	5.3 UJ	550 U	2200 U	11 U	570 U	5.8 U
Ethylbenzene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Methylene chloride	µg/Kg	8.7 UB	96 UB	300 UB	17 UB	100 UB	7.8 UB
Styrene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Tetrachloroethene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Toluene	µg/Kg	2.8 J	550 U	140 J	11 U	570 U	5.8 U
trans-1,2-Dichloroethene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
trans-1,3-Dichloropropene	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Trichloroethene	µg/Kg	22	9900	48000	330	2900	45
Vinyl chloride	µg/Kg	5.3 U	550 U	2200 U	11 U	570 U	5.8 U
Xylenes (total)	µg/Kg	5.3 U	210 J	2200 U	11 U	570 U	5.8 U

Notes:

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- N - Spike recovery exceeds control limits.
- J - Estimated below reporting limit.
- R - Rejected by validator.
- µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 7 Area					Building 11 Area		
		B7-PH08	B7-PH08	B7-PH08	B7-PH08	B7-PH08	B11-PH01	B11-PH01	B11-PH01
		2.5-3	9.8-10	14.5-15	25.8	35.6-35.9	3-4	22	37
		Units\Date	07/19/05	07/19/05	07/19/05	07/19/05	07/07/05	07/07/05	07/07/05
% Moisture	%	11.7	10	10.8	9.3	16.4	11.3	12	13.9
% Solids	%	88.3	90	89.2	90.7	83.6	88.7	88	86.1
1,1,1-Trichloroethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 UJ	6 UJ	5.6 U	570 U	580 U
1,1,2-Trichloroethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
1,1-Dichloroethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
1,1-Dichloroethene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
1,2-Dichloroethane	µg/Kg	5.7 U	4.6 J	560 U	5.5 U	6 U	5.6 U	570 U	580 U
1,2-Dichloropropane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
2-Butanone (MEK)	µg/Kg	11 U	11 U	560 U	11 U	12 U	11 U	570 U	580 U
2-Hexanone	µg/Kg	11 U	11 U	560 U	11 U	12 U	11 U	570 U	580 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	11 U	560 U	11 U	12 U	11 U	570 U	580 U
Acetone	µg/Kg	10 UB	8.8 UB	1400 U	20 UB	15 UB	8.4 UB	420 UB	410 UB
Benzene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Bromodichloromethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Bromoform	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Bromomethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Carbon disulfide	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Carbon tetrachloride	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Chlorobenzene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Chloroethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Chloroform	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Chloromethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
cis-1,2-Dichloroethene	µg/Kg	2 J	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
cis-1,3-Dichloropropene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Dibromochloromethane	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 UJ	570 U	580 U
Ethylbenzene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Methylene chloride	µg/Kg	9 UB	9 UB	110 UB	7.4 UB	7.8 UB	4.8 UB	370 UB	350 UB
Styrene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Tetrachloroethene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Toluene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
trans-1,2-Dichloroethene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
trans-1,3-Dichloropropene	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Trichloroethene	µg/Kg	13	85	7500	5.2 J	6 U	32	7800	650
Vinyl chloride	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U
Xylenes (total)	µg/Kg	5.7 U	5.6 U	560 U	5.5 U	6 U	5.6 U	570 U	580 U

Notes:

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 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 11 Area					
		B11-PH02	B11-PH02	B11-PH02	B11-PH03	B11-PH03	B11-PH03
		0.5-1	19	35	1.3	13	31.5
		Units\Date	07/07/05	07/07/05	07/07/05	07/08/05	07/08/05
% Moisture	%	15.1	10.7	12.3	15	10.8	12.6
% Solids	%	84.9	89.3	87.7	85	89.2	87.4
1,1,1-Trichloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
1,1,2,2-Tetrachloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 UJ
1,1,2-Trichloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
1,1-Dichloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
1,1-Dichloroethene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
1,2-Dichloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
1,2-Dichloropropane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
2-Butanone (MEK)	µg/Kg	590 U	560 U	2900 U	12 U	560 U	11 U
2-Hexanone	µg/Kg	590 U	560 U	2900 U	12 U	560 U	11 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	590 U	560 U	2900 U	12 U	560 U	11 U
Acetone	µg/Kg	540 UB	1400 UB	1300 UB	13 UB	1100 UB	12 UB
Benzene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Bromodichloromethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Bromoform	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Bromomethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Carbon disulfide	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Carbon tetrachloride	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Chlorobenzene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Chloroethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Chloroform	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Chloromethane	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
cis-1,2-Dichloroethene	µg/Kg	590 U	560 U	2900 U	5.9 U	3300	6.6
cis-1,3-Dichloropropene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Dibromochloromethane	µg/Kg	590 U	560 U	2900 U	5.9 UJ	560 U	5.7 UJ
Ethylbenzene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Methylene chloride	µg/Kg	420 UB	190 UB	950 UB	8.4 UB	190 UB	6.3 UB
Styrene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Tetrachloroethene	µg/Kg	4100	560 U	1200 J	5.9 U	560 U	5.7 U
Toluene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
trans-1,2-Dichloroethene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
trans-1,3-Dichloropropene	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U
Trichloroethene	µg/Kg	17000	13000	83000	33	3400	7.4
Vinyl chloride	µg/Kg	590 U	560 U	2900 U	5.9 U	160 J	5.7 U
Xylenes (total)	µg/Kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U

Notes:

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 B - Compound was detected in the blank.
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 µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 11 Area						
		B11-PH04	B11-PH04	B11-PH04	B11-PH05	B11-PH05	B11-PH05	B11-PH05
		1	12.7	36.5	1.1	12.9	25.4	34.8-35.0
		07/08/05	07/08/05	07/08/05	07/11/05	07/11/05	07/11/05	07/11/05
% Moisture	%	16.2	11.7	20.8	8.5	10	5.2	20.4
% Solids	%	83.8	88.3	79.2	91.5	90	94.8	79.6
1,1,1-Trichloroethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
1,1,2,2-Tetrachloroethane	µg/Kg	6 U	570 U	6.3 UJ	27 U	2800 U	530 U	6.3 U
1,1,2-Trichloroethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
1,1-Dichloroethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
1,1-Dichloroethene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
1,2-Dichloroethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
1,2-Dichloropropane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
2-Butanone (MEK)	µg/Kg	12 U	570 U	13 U	55 U	2800 U	530 U	13 U
2-Hexanone	µg/Kg	12 U	570 U	13 U	55 U	2800 U	530 U	13 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	12 U	570 U	13 U	55 U	2800 U	530 U	13 U
Acetone	µg/Kg	13 UB	420 UB	14 UB	40 UB	6900 UB	1300 UB	11 UB
Benzene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Bromodichloromethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Bromoform	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Bromomethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Carbon disulfide	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	3.6 J
Carbon tetrachloride	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Chlorobenzene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Chloroethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Chloroform	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Chloromethane	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
cis-1,2-Dichloroethene	µg/Kg	6 U	570 U	6.3 U	140	2800 U	530 U	6.3 U
cis-1,3-Dichloropropene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Dibromochloromethane	µg/Kg	6 UJ	570 UJ	6.3 UJ	27 U	2800 U	530 U	6.3 U
Ethylbenzene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Methylene chloride	µg/Kg	7.4 UB	210 UB	7.2 UB	26 UB	1700 UB	350 UB	6.3 UB
Styrene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Tetrachloroethene	µg/Kg	6 U	570 U	6.3 U	36	2800 U	530 U	6.3 U
Toluene	µg/Kg	6 U	570 U	6.3 U	27 U	190 J	530 U	6.3 U
trans-1,2-Dichloroethene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
trans-1,3-Dichloropropene	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Trichloroethene	µg/Kg	6 U	1600	120	920	110000	2900	120
Vinyl chloride	µg/Kg	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U
Xylenes (total)	µg/Kg	6 U	570 U	6.3 U	27 U	1400 J	590	6.3 U

Notes:

U - Not detected above reporting limit.

B - Compound was detected in the blank.

H - Alternate peak selection upon review.

N - Spike recovery exceeds control limits.

J - Estimated below reporting limit.

R - Rejected by validator.

µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 11 Area								
	Location ID	B11-PH06	B11-PH06	B11-PH06	B11-PH06	B11-PH07	B11-PH07	B11-PH07	B11-PH07
	Depth (feet)	1.6	12.6	16.8-17.0	35.6	3	13.4	25	31.4-31.6
	Units/Date	07/11/05	07/11/05	07/11/05	07/11/05	07/12/05	07/12/05	07/12/05	07/12/05
% Moisture	%	14.3	10.6	9	17.3	15.1	13.4	12.2	14.9
% Solids	%	85.7	89.4	91	82.7	84.9	86.6	87.8	85.1
1,1,1-Trichloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,1,2-Trichloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,1-Dichloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,1-Dichloroethene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,2-Dichloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
1,2-Dichloropropane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
2-Butanone (MEK)	µg/Kg	12 U	200 J	550 U	24 U	12 U	5800 U	2800 U	590 U
2-Hexanone	µg/Kg	12 U	560 U	550 U	24 U	12 U	5800 U	2800 U	590 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	12 U	560 U	550 U	24 U	12 U	5800 U	2800 U	590 U
Acetone	µg/Kg	53 UB	370 UB	360 UB	24 UB	35 UB	1800 UB	7100 UB	1500 UB
Benzene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Bromodichloromethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Bromoform	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Bromomethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Carbon disulfide	µg/Kg	5.8 U	560 U	550 U	7.8 J	5.9 U	5800 U	2800 U	590 U
Carbon tetrachloride	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Chlorobenzene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Chloroethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Chloroform	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Chloromethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
cis-1,2-Dichloroethene	µg/Kg	17	130 J	270 JH	12 J	5.9 U	5800 U	2800 U	590 U
cis-1,3-Dichloropropene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Dibromochloromethane	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Ethylbenzene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Methylene chloride	µg/Kg	7.9 UB	340 UB	340 UB	19 UB	6.3 UB	980 UB	1800 UB	390 UB
Styrene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Tetrachloroethene	µg/Kg	5.8 U	1900	65 J	12 U	5.9 U	5800 U	2800 U	590 U
Toluene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
trans-1,2-Dichloroethene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
trans-1,3-Dichloropropene	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Trichloroethene	µg/Kg	7	11000	17000	460	4.7 J	110000	110000	9100
Vinyl chloride	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U
Xylenes (total)	µg/Kg	5.8 U	560 U	550 U	12 U	5.9 U	5800 U	2800 U	590 U

Notes:

U - Not detected above reporting limit.

B - Compound was detected in the blank.

H - Alternate peak selection upon review.

N - Spike recovery exceeds control limits.

J - Estimated below reporting limit.

R - Rejected by validator.

µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 11 Area					
	Location ID	B11-PH08	B11-PH08	B11-PH08	B11-PH08	B11-PH08
	Depth (feet)	2.9	13	20.8-21.0	22.0-22.3	24.5-24.7
	Units/Date	07/13/05	07/13/05	07/13/05	07/13/05	07/13/05
% Moisture	%	12.2	9.8	10.6	17.6	12.8
% Solids	%	87.8	90.2	89.4	82.4	87.2
1,1,1-Trichloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,1,2-Trichloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,1-Dichloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,1-Dichloroethene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,2-Dichloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
1,2-Dichloropropane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
2-Butanone (MEK)	µg/Kg	11 U	550 U	1100 U	610000 U	2900 U
2-Hexanone	µg/Kg	11 U	550 U	1100 U	610000 U	2900 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	550 U	1100 U	610000 U	2900 U
Acetone	µg/Kg	5.5 UB	1400 UB	2800 UB	1500000 UB	7200 UB
Benzene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Bromodichloromethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Bromoform	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Bromomethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Carbon disulfide	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Carbon tetrachloride	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Chlorobenzene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Chloroethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Chloroform	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Chloromethane	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
cis-1,2-Dichloroethene	µg/Kg	5.7 U	93 J	1100 U	610000 U	2900 U
cis-1,3-Dichloropropene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Dibromochloromethane	µg/Kg	5.7 U	550 UJ	1100 U	610000 U	2900 U
Ethylbenzene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Methylene chloride	µg/Kg	5.8 UB	180 UB	95 U	57000 UB	2900 U
Styrene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Tetrachloroethene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Toluene	µg/Kg	5.7 U	550 U	200 J	73000 J	660 J
trans-1,2-Dichloroethene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
trans-1,3-Dichloropropene	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Trichloroethene	µg/Kg	9.4	1300	37000	8100000	100000
Vinyl chloride	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U
Xylenes (total)	µg/Kg	5.7 U	550 U	1100 U	610000 U	2900 U

Notes:

U - Not detected above reporting limit.

B - Compound was detected in the blank.

H - Alternate peak selection upon review.

N - Spike recovery exceeds control limits.

J - Estimated below reporting limit.

R - Rejected by validator.

µg/Kg - micrograms per kilogram

Table B2-1
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 11 Area								
	Location ID	B11-PH09	B11-PH09	B11-PH09	B11-PH09	B11-PH10	B11-PH10	B11-PH10	B11-PH10
	Depth (feet)	1.5-2.0	11.5	15.5	32.5-32.8	0.6-0.8	11.5	21	30
	Units\Date	07/14/05	07/14/05	07/14/05	07/14/05	07/15/05	07/15/05	07/15/05	07/15/05
% Moisture	%	9.8	14.7	9.3	16.2	7.8	15.9	8.8	22.3
% Solids	%	90.2	85.3	90.7	83.8	92.2	84.1	91.2	77.7
1,1,1-Trichloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,1,2,2-Tetrachloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,1,2-Trichloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,1-Dichloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,1-Dichloroethene	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,2-Dichloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
1,2-Dichloropropane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
2-Butanone (MEK)	µg/Kg	11 U	59 U	28000 U	600 U	540 U	59 U	1100 U	3200 U
2-Hexanone	µg/Kg	11 U	59 U	28000 U	600 U	540 U	59 U	1100 U	3200 U
4-Methyl-2-pentanone (MIBK)	µg/Kg	11 U	59 U	28000 U	600 U	540 U	59 U	1100 U	3200 U
Acetone	µg/Kg	12 UB	60 UB	69000 UB	440 UB	300 UB	49 UB	2700 UB	8000 UB
Benzene	µg/Kg	5.5 U	29 U	3800 J	600 U	540 U	30 U	1100 U	3200 U
Bromodichloromethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Bromoform	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Bromomethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Carbon disulfide	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Carbon tetrachloride	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Chlorobenzene	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Chloroethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Chloroform	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Chloromethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
cis-1,2-Dichloroethene	µg/Kg	12	29 U	28000 U	600 U	540 U	58	410 J	3200 U
cis-1,3-Dichloropropene	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Dibromochloromethane	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Ethylbenzene	µg/Kg	5.5 U	29 U	28000 UH	600 U	540 U	30 U	1100 U	3200 U
Methylene chloride	µg/Kg	11 UB	33 UB	2900 UB	160 UB	84 UB	33 UB	140 UB	350 UB
Styrene	µg/Kg	5.5 U	29 U	4900 J	600 U	540 U	30 U	1100 U	3200 U
Tetrachloroethene	µg/Kg	5.5 U	29 U	28000 U	600 U	760	30 U	1100 U	3200 U
Toluene	µg/Kg	5.5 U	29 UH	10000 J	90 J	540 U	30 U	1100 U	2500 J
trans-1,2-Dichloroethene	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
trans-1,3-Dichloropropene	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Trichloroethene	µg/Kg	72	250	470000	7100	1200	260	24000	100000
Vinyl chloride	µg/Kg	5.5 U	29 U	28000 U	600 U	540 U	30 U	1100 U	3200 U
Xylenes (total)	µg/Kg	5.5 U	29 U	8200 J	600 U	540 U	30 U	1100 U	3200 U

Notes:

U - Not detected above reporting limit.
 B - Compound was detected in the blank.
 H - Alternate peak selection upon review.
 N - Spike recovery exceeds control limits.
 J - Estimated below reporting limit.
 R - Rejected by validator.
 µg/Kg - micrograms per kilogram

Table B2-2
July/August 2005 Geoprobe Soil Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	B2-PH07	B2-PH09	B7-PH03	B11-PH02
	Depth (feet)	22.5	20-23	11.5-12.5	35
	Units\Date	08/04/05	08/04/05	07/21/05	07/07/05
% Moisture	%	9.4	7.7	10.2	12.3
% Solids	%	90.6	92.3	89.8	87.7
Total Alkalinity	mg/Kg	4900	6140	9720	7050
Iron	ug/Kg	17000000 *	14200000 *	11800000 *	14600000
Manganese	ug/Kg	626000	464000	394000	388000
pH	pH Units	9	9.17	9.14	8.5
Sodium	ug/Kg	147000	139000	122000 B	183000
Sulfate	mg/Kg	23.8	9.9 B	5.9 B	11.2 B
Total Organic Carbon	mg/Kg	31400	31000	31800	2450

Notes:

B - Estimated less than reporting limit.

µg/Kg - micrograms per kilogram

mg/Kg - milligram per kilogram

* - Batch QC exceeds upper or lower control limits

Table B2-3
July/August 2005 Geoprobe Soil Grain Size Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	B2-PH09	B2-PH07	B7-PH04	B7-PH04	B7-PH03	B11-PH02
	Depth (feet)	20-23	21-22	4-7	12-16	9.5-13	34-36
	Units\Date	08/04/2005	08/03/2005	07/20/05	07/20/2005	07/21/05	07/07/05
75000 microns	% retained	0	0	0	0	0	0
50000 microns	% retained	0	0	0	0	0	0
37500 microns	% retained	0	0	0	0	0	0
25000 microns	% retained	0	0	0	0	0	0
19000 microns	% retained	0	0	0	0	0	0
9500 microns	% retained	11.6	7.3	0	0	0	0
4750 microns	% retained	1.8	2.5	0.2	1.2	4.1	1.8
2000 microns	% retained	5	4.7	1.2	3	3.5	3.1
850 microns	% retained	2.9	3.8	1.2	3.1	3.3	2.7
425 microns	% retained	2.9	3.3	1.1	3.1	3.3	2.7
250 microns	% retained	3.4	4	0.6	3.7	3.9	3.2
180 microns	% retained	3	3.6	0.3	3.6	3.7	2.8
150 microns	% retained	2.4	2.8	0.2	2.8	2.9	2.1
75 microns	% retained	10.8	11.4	0.5	22.8	12	9.1
30 microns	% retained	12.9	11.7	0	0.7	12.5	10.1
19 microns	% retained	3.7	5.7	4.6	5.6	7.4	5.8
11.6 microns	% retained	4.9	5.7	7.5	6.9	6.2	8.6
8.4 microns	% retained	4.9	2.9	6.2	4.2	3.7	4.3
6.1 microns	% retained	3.7	2.9	6.2	4.2	3.5	4.3
3.0 microns	% retained	4.7	5.5	12.1	5.3	6.2	8.6
1.3 microns	% retained	3.9	4.6	11.3	5.8	6.4	6
Gravel	%	13.4	9.8	0.2	1.2	4.1	1.8
Coarse Sand	%	5	4.7	1.2	3	3.5	3.1
Medium Sand	%	5.7	7.1	2.2	6.2	6.5	5.3
Fine Sand	%	19.6	21.7	1.7	32.9	22.4	17.2
Silt	%	30	29	24.4	21.5	33.2	33.1
Clay	%	26.2	27.8	70.2	35.2	30.2	39.5

Table B2-4
July/August 2005 Geoprobe Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Building 2 Area						Building 7 Area		
	Location ID	B2-PH01	B2-PH02	B2-PH03	B2-PH04	B2-PH08	B7-PH04	B7-PH04	B7-PH06
	Depth (feet)	*	0-10	*	*	*	25	32-36	*
	Units/Date	07/22/05	07/22/05	08/01/05	08/02/05	08/04/05	07/20/05	07/20/05	07/19/05
1,1,1-Trichloroethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
1,1,2,2-Tetrachloroethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
1,1,2-Trichloroethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
1,1-Dichloroethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
1,1-Dichloroethene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
1,2-Dichloroethane	ug/L	5 U	5.6	500 U	1200 U	20 U	76 H	62	44 H
1,2-Dichloropropane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
2-Butanone (MEK)	ug/L	10 U	10 U	1000 U	2500 U	40 U	100 U	12 J	40 U
2-Hexanone	ug/L	10 U	10 U	1000 U	2500 U	40 U	100 U	50 U	40 U
4-Methyl-2-pentanone (MIBK)	ug/L	10 U	10 U	1000 U	2500 U	40 U	100 U	50 U	40 U
Acetone	ug/L	12	30	370 UB	1100 UB	9 UB	45 J	33 J	13 J
Benzene	ug/L	5 U	3.6 J	500 U	1200 U	20 U	50 U	25 U	20 U
Bromodichloromethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Bromoform	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Bromomethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Carbon disulfide	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Carbon tetrachloride	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Chlorobenzene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Chloroethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Chloroform	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Chloromethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
cis-1,2-Dichloroethene	ug/L	19	150	1800	920 J	27	450	380	340
cis-1,3-Dichloropropene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Dibromochloromethane	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Dichlorodifluoromethane	ug/L	5 U	5 U				50 U	25 U	20 U
Ethylbenzene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Methylene chloride	ug/L	5 U	0.48 U	260 UB	660 UB	6.7 UB	6.8 U	3.1 U	3.5 UB
Styrene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Tetrachloroethene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Toluene	ug/L	5 U	1 J	500 U	1200 U	20 U	50 U	25 U	20 U
trans-1,2-Dichloroethene	ug/L	5 U	2 J	500 U	1200 U	20 U	50 U	25 U	20 U
trans-1,3-Dichloropropene	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Trichloroethene	ug/L	18	10	11000	29000	310	1000	470	170
Trichlorofluoromethane	ug/L	5 U	5 U				50 U	25 U	20 U
Vinyl acetate	ug/L	5 U	5 U				50 U	25 U	20 U
Vinyl chloride	ug/L	3.8 J	120	180 J	1200 U	9.6 J	41 JH	24 J	5.2 JH
Xylenes (total)	ug/L	5 U	5 U	500 U	1200 U	20 U	50 U	25 U	20 U
Calcium	ug/L								
Iron	ug/L								
Manganese	ug/L								
Potassium	ug/L								
Sodium	ug/L								
Total Alkalinity	mg/L								
Bromide	mg/L								
Chloride	mg/L								
Total Hardness	mg/L								
Nitrate	mg/L								
Nitrite	mg/L								
Sulfate	mg/L								
Total Dissolved Solids	mg/L								
Total Organic Carbon	mg/L								
pH	pH units								
Ammonia	mg/L								

Notes:

U - Not detected above reporting limit.

B - Compound was found in the blank.

H - Alternate peak selection upon review.

J - Estimated below reporting limit.

* - Sample collected from temporary well installed at total depth of boring.

mg/L - milligrams per liter

ug/L - micrograms per liter

Table B2-4
July/August 2005 Geoprobe Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID Depth (feet) Units/Date	Building 7 Area		Building 11 Area					
		B7-PH08	B11-PH03	B11-PH04	B11-PH06	B11-PH07	B11-PH07	B11-PH08	B11-PH08
		*	*	*	*	*	16	*	11
		07/22/05	07/11/05	07/11/05	07/15/05	07/15/05	07/12/05	07/19/05	07/13/05
1,1,1-Trichloroethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,1,2,2-Tetrachloroethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,1,2-Trichloroethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,1-Dichloroethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,1-Dichloroethene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,2-Dichloroethane	ug/L	34	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
1,2-Dichloropropane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
2-Butanone (MEK)	ug/L	40 U	5000 U	4000 U	4000 U	100000 U	10000000 U	100000000 UJ	100 U
2-Hexanone	ug/L	40 U	5000 U	4000 U	4000 U	100000 U	10000000 U	100000000 UJ	100 U
4-Methyl-2-pentanone (MIBK)	ug/L	40 U	5000 U	4000 U	4000 U	100000 U	10000000 U	100000000 UJ	100 U
Acetone	ug/L	22 J	2800 UB	4000 U	4000 U	100000 UB	2200000 J	100000000 UJ	100 UB
Benzene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Bromodichloromethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Bromoform	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Bromomethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Carbon disulfide	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Carbon tetrachloride	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Chlorobenzene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Chloroethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Chloroform	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Chloromethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
cis-1,2-Dichloroethene	ug/L	13 J	63000	2000 U	2500	50000 U	1300000 J	50000000 UJ	540
cis-1,3-Dichloropropene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Dibromochloromethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Dichlorodifluoromethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U		50 U
Ethylbenzene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Methylene chloride	ug/L	2.5 U	2500 UB	200 UB	170 UB	50000 UB	1200000 U	14000000 UBJ	50 UB
Styrene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Tetrachloroethene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Toluene	ug/L	20 U	490 J	2000 U	2000 U	50000 U	5000000 U	6800000 J	50 U
trans-1,2-Dichloroethene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
trans-1,3-Dichloropropene	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Trichloroethene	ug/L	380	65000 B	65000	61000	1000000 B	100000000	1200000000 J	810 B
Trichlorofluoromethane	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U		50 U
Vinyl acetate	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U		50 U
Vinyl chloride	ug/L	20 U	5600	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	14 J
Xylenes (total)	ug/L	20 U	2500 U	2000 U	2000 U	50000 U	5000000 U	50000000 UJ	50 U
Calcium	ug/L				129000				
Iron	ug/L				3720				
Manganese	ug/L				216				
Potassium	ug/L				3290				
Sodium	ug/L				23700				
Total Alkalinity	mg/L	296			345				
Bromide	mg/L	0.265			0.121				
Chloride	mg/L	77.7			95.1				
Total Hardness	mg/L				619				
Nitrate	mg/L	0.1 U			1.08				
Nitrite	mg/L	0.1 U			0.1 U				
Sulfate	mg/L	83.4			70.8				
Total Dissolved Solids	mg/L	370			550				
Total Organic Carbon	mg/L	2.5			2.3				
pH	pH units	7.28			7.66				
Ammonia	mg/L	2.2							

Notes:

U - Not detected above reporting limit.

B - Compound was found in the blank.

H - Alternate peak selection upon review.

J - Estimated below reporting limit.

* - Sample collected from temporary well installed at total depth of boring.

mg/L - milligrams per liter

ug/L - micrograms per liter

Table B2-4
July/August 2005 Geoprobe Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, NY

Parameter	Location ID	Building 11 Area			Quality Control Samples				
		B11-PH08	B11-PH08	B11-PH09	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
		15	19	*					
	Depth (feet)	15	19	*					
	Units/Date	07/13/05	07/13/05	07/18/05	07/11/05	07/15/05	07/18/05	08/01/05	08/04/05
1,1,1-Trichloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	ug/L	120 U	30 J	250 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
2-Butanone (MEK)	ug/L	250 U	400 U	500 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	250 U	400 U	500 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone (MIBK)	ug/L	250 U	400 U	500 U	10 U	10 U	10 U	10 U	10 U
Acetone	ug/L	250 U	90 UB	190 J	10 U	10 U	10 U	2.7 JB	4.4 UB
Benzene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Bromoform	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloroform	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	ug/L	880	1200	100 J	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U		
Ethylbenzene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	ug/L	12 UB	200 UB	32 UB	67	63	66	67 B	13 UB
Styrene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	120 U	200 U	35 J	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	ug/L	1700	17000	6400	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	ug/L	120 U	200 U	250 U	5 U	5 U	5 U		
Vinyl acetate	ug/L	120 U	200 U	250 U	5 U	5 U	5 U		
Vinyl chloride	ug/L	120 U	35 J	250 U	5 U	5 U	5 U	5 U	5 U
Xylenes (total)	ug/L	120 U	200 U	250 U	5 U	5 U	5 U	5 U	5 U
Calcium	ug/L	6440000							
Iron	ug/L	1700000							
Manganese	ug/L	46200							
Potassium	ug/L	115000							
Sodium	ug/L	28600							
Total Alkalinity	mg/L	192							
Bromide	mg/L	0.1 U							
Chloride	mg/L	16.8							
Total Hardness	mg/L	25100							
Nitrate	mg/L	1.65							
Nitrite	mg/L	0.1 U							
Sulfate	mg/L	60.3							
Total Dissolved Solids	mg/L	310							
Total Organic Carbon	mg/L	1.8							
pH	pH units	7.89							
Ammonia	mg/L								

Notes:

U - Not detected above reporting limit.

B - Compound was found in the blank.

H - Alternate peak selection upon review.

J - Estimated below reporting limit.

* - Sample collected from temporary well installed at total depth of boring.

mg/L - milligrams per liter

ug/L - micrograms per liter

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

April 14, 2006

**Mark Flusche
Malcolm Pirnie, Inc.
43 British American Blvd.
Latham, NY 12110**

**RE: Validation of Seneca Falls site Data Packages-Soil Borings and Groundwaters
STL-CT SDG Nos. 210133, 210204, 210205, 210215, 210296, 210366, 210392, and 210476**

Dear Mr. Flusche:

Review has been completed for the data packages generated by Severn Trent Laboratories (STL-CT) that pertain to samples collected between 7/07/05 and 8/04/05 at the Seneca Falls site. One hundred and two soil samples, seventeen aqueous samples, and one NAPL sample were analyzed for volatiles by USEPA method 8260B. Many of the samples were also processed for other analytes, data for which have not undergone validation review. Data for certain of the samples reported in the data packages were also not reviewed.

Data validation was performed with guidance from the USEPA Region II validation SOP HW-6, the USEPA National Functional Guidelines for Organic Data Review, and the specific requirements of the analytical methodologies. The data packages were reviewed for the following items, as pertains to the volatile analyses.

- * Data Completeness
- * Case Narrative
- * Custody Documentation
- * Holding Times
- * Surrogate Standard Recoveries
- * Matrix Spike Evaluations
- * Blank Contamination
- * Laboratory Control Samples (LCSs)
- * Calibration Standard Responses
- * Internal Standard Responses
- * Method Compliance
- * Sample Results Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results of validated sample analytes are substantiated by the raw data, and generated in compliance with project requirements.

In summary, samples were generally processed in compliance with stated protocols. Most of the sample results are usable as reported, or usable with minor qualification of reported values as estimated due to typical matrix or processing effects. Some of the volatile detections are considered as external contamination, and are edited to reflect non-detection. One compound is rejected in two samples due to matrix effect.

Copies of the sample identifications and laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report.

Chain-of-Custody

In some instances, samples were not shipped to the laboratory until several days after sample receipt. Holding times to analysis are evaluated based upon date of collection.

Some custody entries and analysis requests were clarified after sample receipt. No laboratory receipt signature is present on one of the custodies related to samples received 7/25/05 (that was faxed to the laboratory after sample receipt). The laboratory log-in page associated with those samples was present and signed.

Some of the soil boring samples are incorrectly referenced in the data package (including on sample report forms) as being sediments.

VOA Analyses by EPA 8260B

The "RL" values on the sample report forms are to be used as reporting limits.

The oil/NAPL sample B11-PH08 was received at an elevated temperature of 14°C. All results for this sample (which appears to be neat trichloroethene-reported as 1.2 billion ppb) are therefore qualified as estimated. This sample was also processed at 35 days from collection. Although no specific holding time for oil samples is required, losses may have occurred during this interim.

Due to apparent matrix effects, numerous samples produced low response of internal standard d4-1,4-dichlorobenzene. Therefore, results for the associated analyte 1,1,2,2-tetrachloroethane have been qualified as estimated. The affected samples are B11-PH03(31.5), B11-PH04(36.5), B7-PH07(2.0-2.5), B7-PH07(35-35.2), B7-PH07(22.0-22.5), B11-PH01(25.5-26), B11-PH02(23.5-23.8), B7-PH02(27.5-28), B7-PH08(25.8), B7-PH08(35.6-35.9), B2-PH02(2.5), B2-PH08(32), B2-PH09(2.5), and B2-PH10(17.5).

Samples B7-PH05(39.5) and B7-PH06(38.3-38.5) produced such a low response for that internal standard (5% and 8%, respectively) that the results for 1,1,2,2-tetrachloroethane are not usable, and have been rejected.

Samples B7-PH05(39.5) and B7-PH06(38.3-38.5) also show low response for internal standard fluorobenzene, and results for the twenty two associated compounds are also qualified as estimated in those two samples. B7-PH05(39.5) also shows elevated response for surrogate bromofluoromethane; detected values in that sample are already estimated due to values below the CRDLs.

Due to presence in associated method or trip blanks, results for acetone and methylene chloride in the samples are considered as external contamination. Those detections have been edited to reflect non-detection, with the exception of the acetone result for B2-PH0-2(2.5), the result for which is above the action level.

The detection of carbon disulfide in B2-PH07(32.5) is similarly considered contamination and edited to non-detection due to presence in the associated method blank.

Matrix spikes (MS and MSD) of B2-PH04(32.5) (medium level) and B2-PH07(19) (low level) show acceptable accuracy and precision (within limits, or elevated recoveries for analytes not detected in the parent sample).

Results for dibromochloromethane in samples reported in SDGs 210133 that are processed by the low level are qualified as estimated due to low recoveries (63% to 66%, below 68%) in associated LCSs.

Detections of carbon disulfide in the samples B7-PH04(1.6-1.8), B2-PH08(32), B2-PH09(2.5), and B2-PH10(17.5) due to elevated recoveries in the associated LCSs (164% to 312%, above 149%).

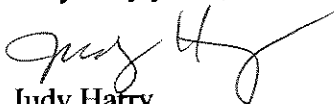
The calibration standard responses associated with the validated samples were acceptable, with the following exception, results for which are qualified as estimated in the indicated samples:

- Bromoform, 1,2-dichloroethane, 4-methyl-2-pentanone, and 2-hexanone (28%D to 31%D) in B2-PH02(2.5)
- Carbon tetrachloride, methylene chloride, and 1,1,1-trichloroethane (28%D to 37%D) in B2-PH07(19) and the samples analyzed 8/11/05 at the medium level in SDG 210392
- Methylene chloride and carbon tetrachloride (34%D and 37%D) in B2-PH07(32.5) and the samples analyzed 8/11/05 at the medium level in SDG 210392

Some samples were processed at dilution due to elevated concentrations of target or non-target analytes.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

VALIDATION QUALIFIER DEFINITIONS

DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

- U** - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J** - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N** - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ** - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ** - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R** - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

LABORATORY SAMPLE IDs AND CASE NARRATIVES

SAMPLE INFORMATION
Date: 08/16/2005

Job Number.: 210133
Customer....: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20001517
Customer Project ID....: SENECA FALLS SEDIMEN
Project Description....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210133-1	B11-PH01(3-4)	Sediment	07/07/2005	10:00	07/09/2005	10:00
210133-2	B11-PH01(22)	Sediment	07/07/2005	11:20	07/09/2005	10:00
210133-3	B11-PH01(37)	Sediment	07/07/2005	12:30	07/09/2005	10:00
210133-4	B11-PH02(0.5-1)	Sediment	07/07/2005	14:15	07/09/2005	10:00
210133-5	B11-PH02(19)	Sediment	07/07/2005	15:30	07/09/2005	10:00
210133-6	B11-PH02(35)	Sediment	07/07/2005	16:45	07/09/2005	10:00
210133-7	B11-PH03(1.3)	Sediment	07/08/2005	08:55	07/09/2005	10:00
210133-8	B11-PH03(13.0)	Sediment	07/08/2005	09:30	07/09/2005	10:00
210133-9	B11-PH03(31.5)	Sediment	07/08/2005	11:20	07/09/2005	10:00
210133-10	B11-PH04(1.0)	Sediment	07/08/2005	12:30	07/09/2005	10:00
210133-11	B11-PH04(12.7)	Sediment	07/08/2005	13:00	07/09/2005	10:00
210133-12	B11-PH04(36.5)	Sediment	07/08/2005	15:30	07/09/2005	10:00
210133-13	B11-PH08(13.0)	Sediment	07/13/2005	12:20	07/16/2005	10:25
210133-14	B7-PH05(3.0-3.5)	Sediment	07/18/2005	09:45	07/23/2005	10:00
210133-15	B7-PH05(12.5-13)	Sediment	07/18/2005	10:20	07/23/2005	10:00
210133-16	B7-PH05(39.5)	Sediment	07/18/2005	12:30	07/23/2005	10:00
210133-17	B7-PH06(0.8-1.0)	Sediment	07/18/2005	14:30	07/23/2005	10:00
210133-18	B7-PH06(11.0-11.2)	Sediment	07/18/2005	14:45	07/23/2005	10:00
210133-19	B7-PH06(38.3-38.5)	Sediment	07/18/2005	17:05	07/23/2005	10:00
210133-20	B7-PH07(2.0-2.5)	Sediment	07/19/2005	08:50	07/23/2005	10:00

S A M P L E I N F O R M A T I O N
Date: 08/16/2005

Job Number.: 210204
Customer...: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20000781
Customer Project ID....: GTE SENECA FALLS, NY
Project Description....: GTE Seneca Falls, NY

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210204-1	TRIP BLANK	Groundwater	07/11/2005	00:00	07/14/2005	09:20
210204-2	B11-PH03	Groundwater	07/11/2005	16:25	07/14/2005	09:20
210204-3	B11-PH04	Groundwater	07/11/2005	14:33	07/14/2005	09:20
210204-4	B11-PH06	Groundwater	07/12/2005	16:20	07/14/2005	09:20
210204-5	B11-PH07(16.D)	Groundwater	07/12/2005	11:15	07/14/2005	09:20
210204-6	B11-PH08(11)	Groundwater	07/13/2005	12:00	07/16/2005	10:25
210204-7	B11-PH08(19)	Groundwater	07/13/2005	13:40	07/16/2005	10:25
210204-8	B11-PH08(15)	Groundwater	07/13/2005	12:55	07/16/2005	10:25
210204-9	B11-PH07	Groundwater	07/15/2005	10:05	07/16/2005	10:25
210204-10	B11-PH06	Groundwater	07/15/2005	09:30	07/16/2005	10:25
210204-11	TRIP BLANK	Groundwater	07/15/2005	00:00	07/16/2005	10:25
210204-12	B11-PH09	Groundwater	07/18/2005	16:45	07/23/2005	10:00
210204-13	TRIP BLANK	Groundwater	07/18/2005	00:00	07/23/2005	10:00
210204-14	B7-PH06	Groundwater	07/19/2005	14:00	07/23/2005	10:00
210204-15	B7-PH04(25)	Groundwater	07/20/2005	12:00	07/23/2005	10:00
210204-16	B7-PH04(32-36)	Groundwater	07/20/2005	13:30	07/23/2005	10:00
210204-17	B7-PH08	Groundwater	07/20/2005	15:20	07/23/2005	10:00
210204-18	B7-PH08	Groundwater	07/22/2005	13:30	07/23/2005	10:00
210204-19	B2-PH01	Groundwater	07/22/2005	13:30	07/23/2005	10:00
210204-20	B2-PH02(0-10)	Groundwater	07/22/2005	10:45	07/23/2005	10:00

S A M P L E I N F O R M A T I O N

Date: 08/09/2005

Job Number.: 210205

Customer...: MALCOLM PIRNIE, INC

Attn.....: Dan Lang

Project Number.....: 20001517

Customer Project ID....: SENECA FALLS SEDIMEN

Project Description....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210205-1	B11-PH07(3.0)	Sediment	07/12/2005	08:55	07/14/2005	09:20
210205-2	B11-PH07(13.4)	Sediment	07/12/2005	10:45	07/14/2005	09:20
210205-3	B11-PH07(25)	Sediment	07/12/2005	13:24	07/14/2005	09:20
210205-4	B11-PH07(31.4-31.6)	Sediment	07/12/2005	14:15	07/14/2005	09:20
210205-5	B11-PH06(1.6)	Sediment	07/11/2005	13:50	07/14/2005	09:20
210205-6	B11-PH06(12.6)	Sediment	07/11/2005	14:25	07/14/2005	09:20
210205-7	B11-PH06(16.8-17.0)	Sediment	07/11/2005	14:40	07/14/2005	09:20
210205-8	B11-PH06(35.6)	Sediment	07/11/2005	16:45	07/14/2005	09:20
210205-9	B11-PH05(1.1)	Sediment	07/11/2005	09:20	07/14/2005	09:20
210205-10	B11-PH05(12.9)_	Sediment	07/11/2005	10:40	07/14/2005	09:20
210205-11	B11-PH05(25.4)	Sediment	07/11/2005	12:15	07/14/2005	09:20
210205-12	B11-PH05(34.8-35)	Sediment	07/11/2005	13:01	07/14/2005	09:20
210205-13	B7-PH07(10.5)	Sediment	07/19/2005	09:05	07/23/2005	10:00
210205-14	B7-PH07(13.5)	Sediment	07/19/2005	09:10	07/23/2005	10:00
210205-15	B7-PH07(22.0-22.5)	Sediment	07/19/2005	09:45	07/23/2005	10:00
210205-16	B7-PH07(23.0-23.2)	Sediment	07/19/2005	09:55	07/23/2005	10:00
210205-17	B7-PH07(35.0-35.2)	Sediment	07/19/2005	11:25	07/23/2005	10:00
210205-18	B7-PH08(2.5-3.0)	Sediment	07/19/2005	12:15	07/23/2005	10:00
210205-19	B7-PH08(9.8-10.0)	Sediment	07/19/2005	12:30	07/23/2005	10:00
210205-20	B7-PH08(14.5-15.0)	Sediment	07/19/2005	12:50	07/23/2005	10:00

SAMPLE INFORMATION
Date: 08/04/2005

Job Number.: 210215
Customer....: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20001517
Customer Project ID....: SENECA FALLS SEDIMEN
Project Description....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210215-1	B7-PH01(1.5)	Sediment	07/12/2005	17:00	07/15/2005	09:20
210215-2	B7-PH01(13.0)	Sediment	07/12/2005	17:35	07/15/2005	09:20
210215-3	B7-PH01(25.5-26)	Sediment	07/12/2005	18:10	07/15/2005	09:20
210215-4	B7-PH01(28.3)	Sediment	07/12/2005	18:30	07/15/2005	09:20
210215-5	B11-PH08(2.9)	Sediment	07/13/2005	11:15	07/15/2005	09:20
210215-6	B11-PH08(20.8-21.0)	Sediment	07/13/2005	14:30	07/15/2005	09:20
210215-7	B11-PH08(22.0-22.3)	Sediment	07/13/2005	15:35	07/15/2005	09:20
210215-8	B11-PH08(24.5-24.7)	Sediment	07/13/2005	16:00	07/15/2005	09:20
210215-9	B11-PH09(1.5-2.0)	Sediment	07/14/2005	09:40	07/15/2005	09:20
210215-10	B11-PH09(11.5)	Sediment	07/14/2005	10:05	07/15/2005	09:20
210215-11	B11-PH09(15.5)	Sediment	07/14/2005	10:30	07/15/2005	09:20
210215-12	B11-PH09(32.5-32.8)	Sediment	07/14/2005	12:25	07/15/2005	09:20
210215-13	B7-PH02(2.0)	Sediment	07/14/2005	16:00	07/16/2005	10:25
210215-14	B7-PH02(13.2-13.4)	Sediment	07/14/2005	16:45	07/16/2005	10:25
210215-15	B7-PH02(23.5-23.8)	Sediment	07/14/2005	17:59	07/16/2005	10:25
210215-16	B7-PH02(27.5-28)	Sediment	07/14/2005	18:25	07/16/2005	10:25
210215-17	B11-PH10(0.6-0.8)	Sediment	07/15/2005	08:35	07/16/2005	10:25
210215-18	B11-PH10(11.5)	Sediment	07/15/2005	09:20	07/16/2005	10:25
210215-19	B11-PH10(21.0)	Sediment	07/15/2005	10:45	07/16/2005	10:25
210215-20	B11-PH10(30.0)	Sediment	07/15/2005	11:30	07/16/2005	10:25

S A M P L E I N F O R M A T I O N
Date: 08/22/2005

Job Number.: 210296
Customer...: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20001517
Customer Project ID....: SENECA FALLS SEDIMEN
Project Description....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210296-1	B7-PH08(25.8)	Sediment	07/19/2005	13:30	07/23/2005	10:00
210296-2	B7-PH08(35.6-35.9)	Sediment	07/19/2005	14:30	07/23/2005	10:00
210296-3	B7-PH04(2.5)	Sediment	07/20/2005	08:55	07/23/2005	10:00
210296-4	B7-PH04(5.0)	Sediment	07/20/2005	09:09	07/23/2005	10:00
210296-5	B7-PH04(12.0)	Sediment	07/20/2005	09:40	07/23/2005	10:00
210296-6	B7-PH04(21.8-22.0)	Sediment	07/20/2005	10:25	07/23/2005	10:00
210296-7	B2-PH01(2.0-2.4)	Sediment	07/21/2005	09:45	07/23/2005	10:00
210296-8	B2-PH01(13.0)	Sediment	07/21/2005	10:30	07/23/2005	10:00
210296-9	B2-PH01(25.2-25.6)	Sediment	07/21/2005	11:45	07/23/2005	10:00
210296-10	B2-PH01(33.6-33.8)	Sediment	07/21/2005	12:15	07/23/2005	10:00
210296-11	B7-PH03(11.5-12.5)	Sediment	07/21/2005	16:50	07/23/2005	10:00
210296-12	B7-PH03(0.6-0.8)	Sediment	07/21/2005	16:30	07/23/2005	10:00
210296-13	B7-PH03(10.5)	Sediment	07/21/2005	16:45	07/23/2005	10:00
210296-14	B7-PH03(12.5)	Sediment	07/21/2005	16:50	07/23/2005	10:00
210296-15	B2-PH02(2.5)	Sediment	07/22/2005	10:15	07/23/2005	10:00
210296-16	B2-PH02(12.0)	Sediment	07/22/2005	11:00	07/23/2005	10:00
210296-17	B2-PH02(25-26)	Sediment	07/22/2005	12:25	07/23/2005	10:00
210296-18	B2-PH02(32.0)	Sediment	07/22/2005	13:30	07/23/2005	10:00
210296-19	B7-PH04(1.6-1.8)	Sediment	07/20/2005	08:55	07/23/2005	10:00

SAMPLE INFORMATION

Date: 04/11/2006

Job Number.: 210366
Customer....: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20001517
Customer Project ID.....: SENECA FALLS SEDIMEN
Project Description.....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210366-1	B2-PH03(3.5)	Sediment	08/01/2005	10:10	08/03/2005	09:25
210366-2	B2-PH03(18.5)	Sediment	08/01/2005	11:40	08/03/2005	09:25
210366-3	B2-PH03(32.5)	Sediment	08/01/2005	13:40	08/03/2005	09:25
210366-4	B2-PH04(1.5)	Sediment	08/01/2005	14:40	08/03/2005	09:25
210366-5	B2-PH04(23)	Sediment	08/01/2005	15:30	08/03/2005	09:25
210366-6	B2-PH04(32.5)	Sediment	08/01/2005	16:30	08/03/2005	09:25
210366-7	B2-PH03	Water	08/01/2005	11:45	08/03/2005	09:25
210366-8	B2-PH04	Water	08/02/2005	10:00	08/03/2005	09:25
210366-9	B2-PH05(29.5)	Sediment	08/02/2005	11:30	08/03/2005	09:25
210366-10	B2-PH05(1.5)	Sediment	08/02/2005	08:15	08/03/2005	09:25
210366-11	B2-PH05(23)	Sediment	08/02/2005	10:00	08/03/2005	09:25
210366-12	B2-PH05(33)	Sediment	08/02/2005	11:50	08/03/2005	09:25
210366-13	TRIP BLANK	Water	08/01/2005	00:00	08/03/2005	09:25
210366-14	B2-PH06(1.5)	Sediment	08/02/2005	12:15	08/04/2005	09:30
210366-15	B2-PH06(23)	Sediment	08/02/2005	13:40	08/04/2005	09:30
210366-16	B2-PH06(30)	Sediment	08/02/2005	14:45	08/04/2005	09:30
210366-17	B2-PH07(2)	Sediment	08/03/2005	08:45	08/04/2005	09:30
210366-18	B2-PH07(19)	Sediment	08/03/2005	09:40	08/04/2005	09:30
210366-19	B2-PH07(32.5)	Sediment	08/03/2005	11:10	08/04/2005	09:30

S A M P L E I N F O R M A T I O N
Date: 08/24/2005

Job Number.: 210392
Customer...: MALCOLM PIRNIE, INC
Attn.....: Dan Lang

Project Number.....: 20001517
Customer Project ID....: SENECA FALLS SEDIMEN
Project Description....: Seneca Falls Sediment

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210392-1	B2-PH08(4.5)	Sediment	08/03/2005	12:40	08/05/2005	09:30
210392-2	B2-PH08(18)_	Sediment	08/03/2005	13:20	08/05/2005	09:30
210392-3	B2-PH08(32)	Sediment	08/03/2005	14:40	08/05/2005	09:30
210392-4	B2-PH07(22.5)	Sediment	08/04/2005	09:55	08/05/2005	09:30
210392-5	B2-PH09(20-22)	Sediment	08/04/2005	10:35	08/05/2005	09:30
210392-6	B2-PH09(20-23)	Sediment	08/04/2005	10:35	08/05/2005	09:30
210392-7	B2-PH08	Water	08/04/2005	12:00	08/05/2005	09:30
210392-8	TRIP BLANK	Water	08/04/2005	00:00	08/05/2005	09:30
210392-9	B2-PH09(2.5)	Sediment	08/04/2005	09:45	08/05/2005	09:30
210392-10	B2-PH09(22)_	Sediment	08/04/2005	10:35	08/05/2005	09:30
210392-11	B2-PH09(31)_	Sediment	08/04/2005	11:50	08/05/2005	09:30
210392-12	B2-PH10(3.5)	Sediment	08/04/2005	12:30	08/05/2005	09:30
210392-13	B2-PH10(17.5)	Sediment	08/04/2005	13:10	08/05/2005	09:30
210392-14	B2-PH10(33)_	Sediment	08/04/2005	14:30	08/05/2005	09:30
210392-15	G-1	Water	08/04/2005	14:00	08/05/2005	09:30
210392-16	G-2	Water	08/04/2005	14:30	08/05/2005	09:30

Date: 08/30/2005

Project Number.....: 20001517
Customer Project ID....: SENECA FALLS SEDIMEN
Project Description....: Seneca Falls Sediment

Page 1

STL Report : 210133
MALCOLM PIRNIE, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Metals – ICAP metals were determined using a JA61E trace ICAP following guidance provided in SW846 according to methods 3050B/6010B.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide and dibromochloromethane in 52267-2LCS and 52349-2LCS.

The following samples were analyzed as medium level soils for high targets:

Sample ID	Dilution
B11-PH01(22)	STRAIGHT
B11-PH01(37)	STRAIGHT
B11-PH02(0.5-1)	STRAIGHT
B11-PH02(19)	STRAIGHT
B11-PH02(35)	1:5
B11-PH03(13.0)	STRAIGHT
B11-PH04(12.7)	STRAIGHT
B11-PH08(13.0)	STRAIGHT
B7-PH05(12.5-13)	STRAIGHT

Samples B11-PH03(31.5), B11-PH04(12.7), B7-PH05(39.5), B7-PH06(38.3-38.5) and B7-PH07(2.0-2.5) were analyzed twice due to results having exhibiting internal standard area suppression and sample B7-PH05(39.5) also had a surrogate recovery outside QC limits. One set of data was reported since matrix interference was proven.

Sample Calculation:

Sample ID-B11-PH01(3-4)

Compound- Methylene Chloride

$$\frac{(70758 \text{ area})(125\text{ng})}{(494289 \text{ area})(.842 \text{ area/ng})(5\text{g})(.887)} = 4.79 = 4.8 \text{ ug/Kg.}$$

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. Soil sample prepared for TOC analysis following Lloyd Kahn, Determination of Total Carbon in Sediment, July 27, 1988. No analytical problems were encountered.

Analyte	Method	Reference
IC (Sulfate)	300.0	2
TOC	9060	1
Alkalinity	310.1	2
pH	9045C	1

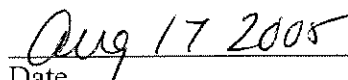
References:

1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.
2. Methods of Chemical Analysis of Water and Wastes, EPA 600, 1983.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Peter Frick
Laboratory Director


Date

STL Report : 210204
MALCOLM PIRNIE, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Metals – ICAP metals were determined using a TJA61E trace ICAP following guidance provided in SW846 according to methods 3010A/6010B.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples.

Sample B11-PH08(19) was analyzed at a 1:40 dilution with results for the compound trichloroethene above the calibration curve. The sample was reanalyzed at a 1:400 with the results within the low end of the calibration limits. Both sets of results have been reported with the 1:400 run designated with the suffix "DL".

The following samples were analyzed at dilutions due to high levels of target compounds:

B11-PH03	1:500
B11-PH-04	1:400
B11-PH06	1:400
B11-PH07(16.0)	1:1000000
B11-PH08(11)	1:10
B11-PH08(15)	1:25
B11-PH07	1:10000
B11-PH09	1:50
B7-PH06	1:4
B7-PH04(25)	1:10
B7-PH04(32-26)	1:5
B7-PH08	1:4

The trip blanks exhibited elevated methylene chloride results. This compound is a common laboratory contaminant.

Sample Calculation:

Sample ID-B11-PH03

Compound- Vinyl Chloride

$$\frac{(82107 \text{ area})(125\text{ng})(500)}{(318843 \text{ area})(.573 \text{ area/ng})(5\text{ml})} = 5617 = 5600\text{ug/l.}$$

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. No analytical problems were encountered.

Analyte	Method	Reference
Alkalinity	310.1	1
IC (Bromide, Chloride, Nitrate, Nitrite, Sulfate)	300	1
TDS	160.1	1
pH	9040B	2
Ammonia	350.1	1
TOC	415.2	1

References:

1. Methods of Chemical Analysis of Water and Wastes, EPA 600, 1983.
2. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

STL Report : 210205
MALCOLM PIRNIE, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 52111-2LCS, 52431-2LCS, and 52049-2LCS.

Samples B11-PH06(35.6) AND B7-PH07(22.0-22.5) were analyzed at a 1:2 dilution and sample B11-PH05(1.1) at a 1:5 dilution due to high target compounds.

The following samples were analyzed as medium level soils and analyzed straight or at the following dilutions due to high levels of target compounds:

B11-PH07(13.4)	1:10
B11-PH07(25)	1:5
B11-PH07(31.4-31.6)	STRAIGHT
B11-PH06(12.6)	STRAIGHT
B11-PH06(16.8-17.0)	STRAIGHT
B11-PH05(12.9)	1:5
B11-PH05(25.4)	STRAIGHT
B7-PH07(10.5)	STRAIGHT
B7-PH07(13.5)	1:4
B7-PH07(23.0-23.2)	STRAIGHT
B7-PH08(14.5-15.0)	STRAIGHT

The following samples exhibited internal standard area suppression. The samples were reanalyzed with similar results proving matrix interference. One set of results has been reported.

B7-PH07(22.0-22.5)
B7-PH07(35.0-35.2)

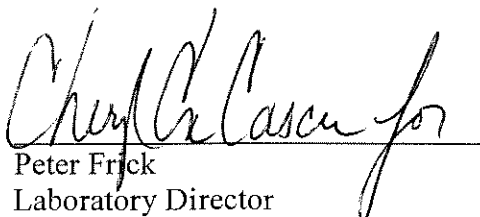
Sample Calculation:

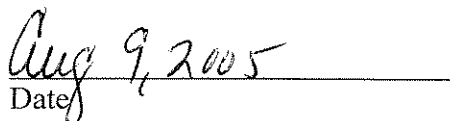
Sample ID-B11-PH06(35.6)
Compound- Methylene Chloride

$$\frac{(120117 \text{ area})(125\text{ng})(2)}{(532272 \text{ area})(.737 \text{ area/ng})(5\text{ml})(.827)} = 18.5 = 19\text{ug/kg.}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Peter Frick
Laboratory Director


Date

STL Report : 210215
MALCOLM PIRNIE, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature. Sample B11-PH08(2.9) was listed on the chain of custody for samples received on July 15, 2005, however was not received in the lab. MPI will submit this sample for STL CT receipt on July 16, 2005.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 52111-2LCS, 52193-2LCS and 52267-2LCS and dibromochloromethane in 52267-2LCS

Sample Calculation:

Sample ID-B7-PH01(1.5)
Compound- Methylene Chloride

$$\frac{(79561 \text{ area})(125\text{ng})}{(581114 \text{ area})(.737 \text{ area/ng})(5\text{g})(.962)} = 4.83 = 4.8 \text{ ug/Kg.}$$

The following samples were analyzed as medium level soils for high targets:

Sample ID	Dilution
B11-PH08(20.8-21.0)	1:2
B11-PH08(22.0-22.3)	1:1000
B11-PH08(24.5-24.7)	1:5
B11-PH09(15.5)	1:50
B11-PH09(32.5-32.8)	STRAIGHT
B7-PH02(2.0)	STRAIGHT
B7-PH02(13.2-13.4)	STRAIGHT
B11-PH10(0.6-0.8)	STRAIGHT
B11-PH10(21.0)	1:2
B11-PH10(30.0)	1:5

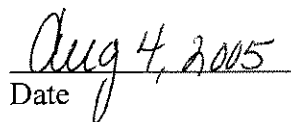
Samples B11-PH09(11.5) and B11-PH10(11.5) were analyzed at 1:5 dilutions as low level soils for high targets.

The following samples were analyzed twice due to results exhibiting internal standard area suppression: B7-PH01(25.5-26), B7-PH02(23.5-23.8) and B7-PH02(27.5-28). One set of data was reported since matrix interference was proven.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Peter Frick
Laboratory Director


Date

STL Report : 210296
MALCOLM PIRNIE, INC.Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 52431-2LCS, 52508-2LCS, and 52552-2LCS.

Sample B2-PH02(2.5) was analyzed at a 1:2 dilution due to high target compounds.

The following samples were analyzed as medium level soils and analyzed straight or at the following dilutions due to high chromatography/high levels of target compounds:

B2-PH02(12.0)	STRAIGHT
B2-PH02(25-26)	1:20
B2-PH02(32.0)	1:4
B7-PH04(2.5)	STRAIGHT
B7-PH04(5.0)	STRAIGHT
B2-PH01(2.0-2.4)	1:2

The following samples exhibited internal standard area suppression. The samples were reanalyzed with similar results proving matrix interference. One set of results has been reported.

B7-PH08(25.8)	B7-PH08(35.6-35.9)
B2-PH01(25.2-25.6)	B2-PH01(33.6-33.8)
B2-PH02(2.5)	B7-PH04(1.6-1.8)

Sample Calculation:

Sample ID-B7-PH08(25.8)
Compound- Methylene Chloride

$$\frac{(40798 \text{ area})(125\text{ng})(1)}{(204768 \text{ area})(.737 \text{ area/ng})(5\text{ml})(.907)} = 7.4\text{ug/kg.}$$

Metals – ICAP metals were determined using a JA61E trace ICAP following guidance provided in SW846 according to methods 3050B/6010B.

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. Soil samples prepared for TOC analysis following Lloyd Kahn, Determination of Total Carbon in Sediment, July 27, 1988. Due to an internal tracking error, sample "B7-PH03(11.5-12.5)" was analyzed out of hold for TOC. No other analytical problems were encountered.

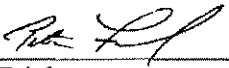
Analyte	Method	Reference
TOC	9060	1
Sulfate	300.0	2
pH	9045C	2
Alkalinity	310.1	2

References:

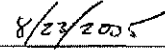
1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.
2. Methods of Chemical Analysis of Water and Wastes, EPA 600, 1983.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

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Peter Frick
Laboratory Director



Date

STL Report : 210366
MALCOLM PIRNIE, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 53031-2LCS, 53104-2LCS, 53105-2LCS, 53116-2LCS and 53012-2LCS.

The spike recoveries were within laboratory generated guidelines except for the following recoveries:

Client ID	Recoveries outside QC limits
B2-PH04(32.5)MS	Chloroethane
B2-PH04(32.5)MSD	Chloroethane
B2-PH07(19)MS	Methylene Chloride
B2-PH07(19)MSB	Methylene Chloride
B2-PH07(19)MSD	Methylene Chloride

The RPD for Carbon disulfide was outside QC criteria in B2-PH07(19)MS and B2-PH07(19)MSD.

The target compound, methylene chloride, was present in sample TRIP BLANK at higher than normal levels. This compound is a laboratory contaminant.

The following samples were analyzed as medium level soils for high targets:

Sample ID	Dilution
B2-PH03(3.5)	STRAIGHT
B2-PH03(18.5)	1:2
BW-PH03(32.5)	1:20
B2-PH04(1.5)	1:10
B2-PH04(23)	1:2
B2-PH04(32.5)	STRAIGHT
B2-PH05(29.5)	1:100
B2-PH05(1.5)	STRAIGHT
B2-PH05(23)	1:2
B2-PH05(33)	STRAIGHT
B2-PH06(1.5)	1:5
B2-PH06(23)	1:2
B2-PH06(30)	1:2
B2-PH07(2)	STRAIGHT

The following samples were analyzed at dilutions for high targets:

Sample ID	Dilution
B2-PH03	1:100
B2-PH04	1:250
B2-PH07(32.5)	1:5

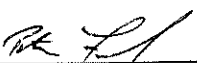
Sample Calculation:

Sample ID-B2-PH03
Compound- Methylene Chloride

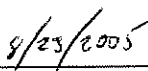
$$\frac{(18262 \text{ area})(125\text{ng})(100)}{(300051 \text{ area})(.587 \text{ area/ng})(5\text{ml})} = 259 = 260 \text{ ug/L.}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

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Peter Frick
Laboratory Director



Date

72

STL Report : 210392
MALCOLM PIRNIC, INC.

Case Narrative

Sample Receipt – All samples were received in good condition and at the proper temperature. Sample B2-PH08 and the TRIP BLANK for 8/4/05 both were received with headspace in one of the two volatile vials received. Analysis will be performed from the vial containing no headspace.

Organic Extraction - Samples were extracted according to method 3510C. No problems were encountered.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 1ul injection was used for all samples and standards. Refer to the standard concentration form behind the Form 8's for specific compound concentrations in each of the calibration levels. Internal standards were added to all samples and standards at 20ng/ul.

Sample G-1 was analyzed at a 1:20 dilution for target compounds.

Sample Calculation:

Sample ID – G-1

Compound – bis(2-ethylhexyl)phthalate

$$\frac{(2923017\text{Area})(20\text{ng})(1000\text{ul})(20)}{(1329699\text{Area})(1.001\text{Area/ng})(1\text{ul})(1000\text{ml})} = 880 \text{ ug/L}$$

Metals – ICAP metals were determined using a TJA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3010A, 3050B/6010B; mercury-7470A.

No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Classical Chemistry - Listed below are the wet chemistry analyte methods and references for the samples analyzed in this SDG. Soil samples prepared for TOC analysis following Lloyd Kahn, Determination of Total Carbon in Sediment, July 27, 1988. No analytical problems were encountered.

Analyte	Method	Reference
TOC	9060	1
Sulfate	300.0	2
Ammonia	350.1	2
Alkalinity	310.1	2
pH	9045C/9040B	1
Flashpoint	1020	1
Nitrate+Nitrite	300.0	2
Total Phosphorus	365.2	2

References:

1. Test Methods for the Evaluation of Solid Wastes, SW846, 3rd ed., 1986.
2. Methods of Chemical Analysis of Water and Wastes, EPA 600, 1983.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

Sample G-1 and 53003-1SBLK required acid cleanup prior to analysis.

Sample G-1 was analyzed at a 1:100 dilution for target compounds. Surrogates were diluted out of this sample.

The continuing calibration check analyzed on the RTX-CLPesticides column, on 08/18/05 at 21:33, did not meet QC criteria. This was an end-bracketing standard. Sample matrix was the cause.

The laboratory routinely reports the higher result between the two columns of analysis. If the % RPD between the two columns is greater than 40%, sample chromatography is evaluated. If there is evidence of matrix interference and/or overlapping peaks, then the lower result is reported.

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID – G-1

Compound – Aroclor 1254 at retention time 4.52

$$\frac{(11629834 \text{ area})(10,000 \text{ ul})(100)}{(63516280 \text{ area/ng})(1000 \text{ ml})(1 \text{ ul})} = 183 \text{ ug/L}$$

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 53031-2LCS, 53105-2LCS, 53116-2LCS and 53210-2LCS.

The following samples were analyzed as medium level soils for high targets:

Sample ID	Dilution
B2-PH08(4.5)	STRAIGHT
B2-PH09(22)	1:2
B2-PH09(31)	STRAIGHT

Sample B2-PH09(31)_ was also analyzed and reported at a 1:5 dilution as a low level soil.

The following samples were analyzed twice due to results exhibiting internal standard area suppression: B2-PH08(32), B2-PH09(2.5) and B2-PH10(17.5). One set of data was reported since matrix interference was proven.

Samples B2-PH08 and G-1 were analyzed at 1:4 and 1:400 dilutions, respectively, for high targets.

Sample Calculation:

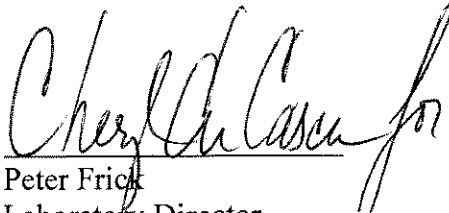
Sample ID-B2-PH08(18)_

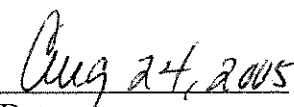
Compound- Methylene Chloride

$$\frac{(187824 \text{ area})(125\text{ng})}{(719549 \text{ area})(.737 \text{ area/ng})(2.5\text{g})(.894)} = 19.8 = 20 \text{ ug/Kg.}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

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Peter Frick
Laboratory Director


Date

STL Report : 210476
MALCOLM PIRNIE, INC.Case Narrative

Sample Receipt – Sample was received in good condition.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control samples except for carbon disulfide in 53630-2LCS.

Sample B11-PH08 was analyzed at a 1:10,000,000 dilution for high targets.

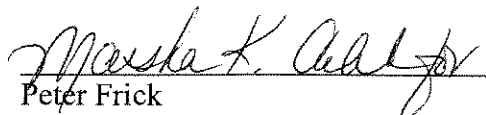
Sample Calculation:

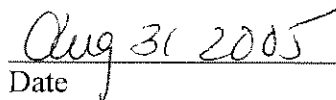
Sample ID-B11-PH08
Compound- Methylene Chloride

$$\frac{(10523 \text{ area})(125\text{ng})(10000000)}{(316401 \text{ area})(.587 \text{ area/ng})(5\text{ml})} = 14164578 = 14000000 \text{ ug/L.}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

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Peter Frick
Laboratory Director


Date

Data Validation Services

120 Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

Facsimile 518-251-4428

Attachment B
Technical Memorandum 3
Building 10 Investigation

Introduction

A soil investigation was conducted in the Building 10 area in 2008 in accordance with the *Building 10 Soil Sampling and Sub-Slab Depressurization Pilot Test Work Plan* (Malcolm Pirnie 2008). Five direct-push soil borings were advanced through the Building 10 slab to evaluate the potential presence of volatile organic compounds (VOCs) in subsurface soils. The *Building 10 Soil Sampling and Sub-Slab Depressurization Pilot Test Work Plan* (Malcolm Pirnie 2008) also provided details of a proposed sub-slab depressurization system pilot test in the Building 10 area.

Summary

The results of the November 2008 pilot test were submitted to the New York State Department of Environmental Conservation in the *Building 10 Area Sub-Slab Depressurization System Design Plan* (Malcolm Pirnie 2009). Sufficient data was collected to facilitate the design of the Building 10 area sub-slab depressurization system and characterize VOC concentrations in soil.

Data Collection

A Geoprobe® rig was used to advance five two-inch diameter Macrocores®, which were opened and screened with a photoionization detector to select samples for laboratory analysis. Soil samples were logged using the Unified Soil Classification System (USCS). Macrocores® were collected until Geoprobe® refusal. One soil sample was collected from each boring, ranging from 10 to 24 feet below the slab, to evaluate the presence of VOCs.

Data Evaluation

An analytical data table and a figure showing the Building 10 Investigation boring locations and data are attached. Soil boring logs are included as Appendix C of the *CMS Report*. As shown on Figure B3-1, trichloroethene (TCE) concentrations ranged from 0.56 to 37 milligrams per kilogram (mg/kg). Cis-1,2-dichloroethene was reported in two samples (0.120 and estimated at 0.360 mg/kg).

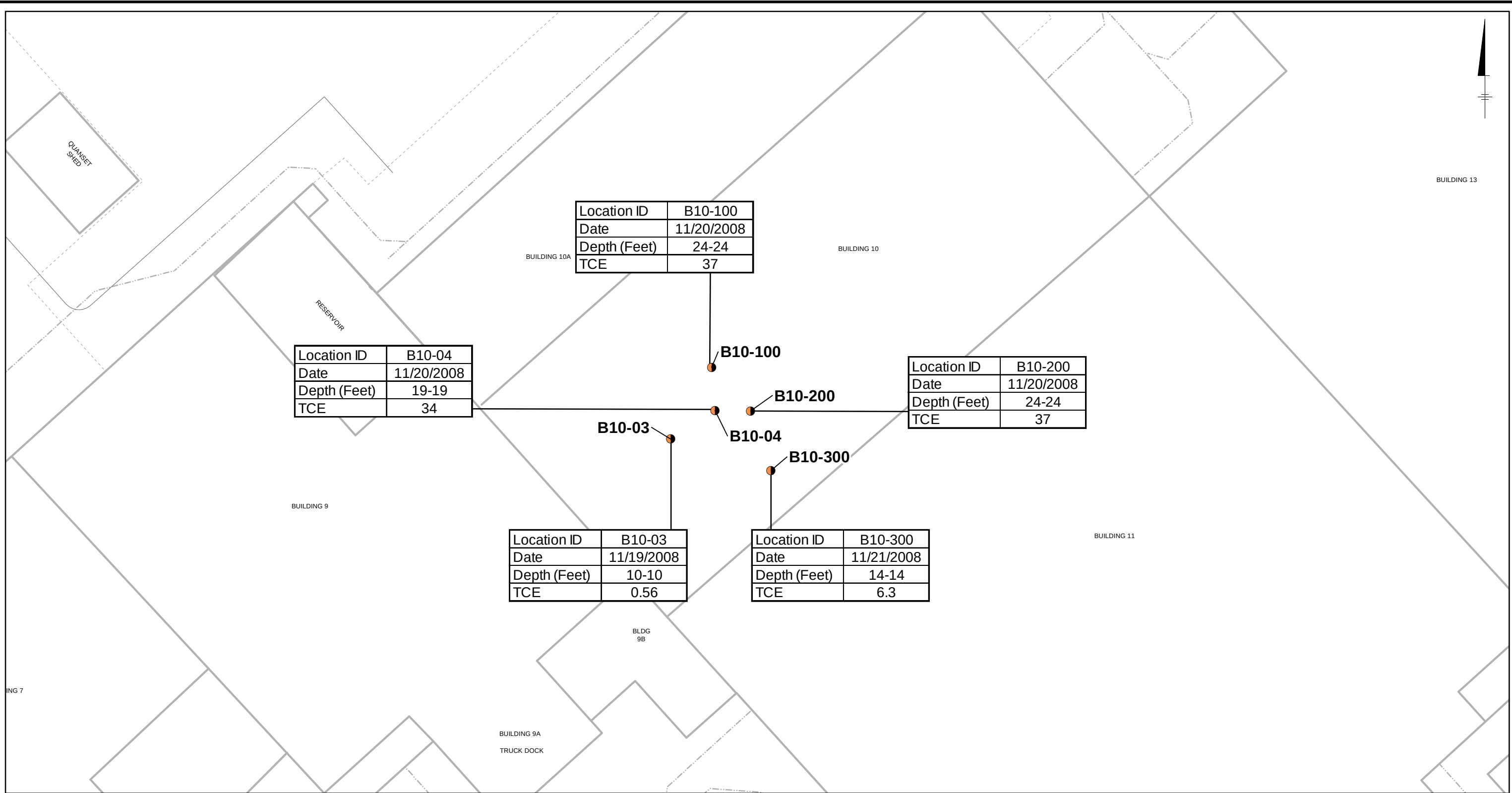


Appendix B

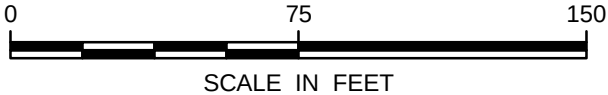
Technical Memorandum 3

Attachments

CITY: SCOTTS DALE DIV/GROUP:(ENV/IM) DB: M. EASTERLING LD: P/C: PM: TM: PROJECT: Path: G:\Project\Seneca Falls\MapDocuments\2013\Fig1 - Building 10 Area Historical VOCs.mxd Date Saved: 6/14/2013 11:44:19 AM



- LEGEND**
- SOIL SAMPLE LOCATION
 - RAILROAD TRACK
 - - - STORM SEWER PIPE
 - - - PROPERTY BOUNDARY
 - - - INTERCEPTOR PIPE
 - - - FENCE
 - ELECTRIC OVERHEAD LINE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. All results are displayed in milligrams per kilogram (mg/kg).
2. TCE - Trichloroethene
3. Exceeds the NYSDEC Industrial Soil Standards

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

CORRECTIVE MEASURES STUDY REPORT

**BUILDING 10 AREA INVESTIGATION
VOLATILE ORGANIC COMPOUNDS
IN SOIL**

FIGURE
B3-1

Table B3-1
2008 Building 10 Soil Sampling Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID	B10-03-10	B10-04-19	B10-100-24	B10-200-24	B10-300-14	TRIP BLANK
Depth Sampled (feet)	10	19	24	24	14	
Location	Testing Room	Frit Application Room			B10 Warehouse Near B11	
Date Collected	11/19/2008	11/20/2008	11/20/2008	11/20/2008	11/21/2008	
1,1,1-Trichloroethane	27 U	1100 U	1100 U	1100 U	550 U	5 U
1,1,2,2-Tetrachloroethane	27 U	1100 U	1100 U	1100 U	550 U	5 U
1,1,2-Trichloroethane	27 U	1100 U	1100 U	1100 U	550 U	5 U
1,1-Dichloroethane	27 U	1100 U	1100 U	1100 U	550 U	5 U
1,1-Dichloroethene	27 U	1100 U	1100 U	1100 U	550 U	5 U
1,2-Dichloroethane	27 U	1100 U	1100 U	1100 U	550 U	5 U
Benzene	27 U	1100 U	1100 U	1100 U	550 U	5 U
cis-1,2-Dichloroethene	120	360 J	1100 U	1100 U	550 U	5 U
Ethylbenzene	27 U	1100 U	1100 U	1100 U	550 U	5 U
Tetrachloroethene	27 U	1100 U	1100 U	1100 U	550 U	5 U
Toluene	27 U	1100 U	1100 U	1100 U	550 U	5 U
trans-1,2-Dichloroethene	27 U	1100 U	1100 U	1100 U	550 U	5 U
Trichloroethene	560	34000	37000	37000	6300	5 U
Vinyl chloride	27 U	1100 U	1100 U	1100 U	550 U	5 U *
m&p-Xylene	27 U	1100 U	1100 U	1100 U	550 U	5 U
o-Xylene	27 U	1100 U	1100 U	1100 U	550 U	5 U
Percent Moisture - %	7.51	8.02	8.15	8.84	8.79	NA
Percent Solids - %	92.5	92	91.9	91.2	91.2	NA

Notes:

All values for volatile organic compounds are shown in units of micrograms per kilogram (µg/kg).

U - Not detected. Reporting limit shown.

NA - Not applicable

* - Laboratory control spike or lab control spike duplicate exceeded the control limits

Attachment B
Technical Memorandum 4
2012 Sub-Slab Vapor Investigation

Introduction

A sub-slab vapor investigation was conducted in 2012 in accordance with the *Sub-Slab Vapor Investigation Work Plan* (ARCADIS 2012). This investigation included sub-slab vapor screening and sub-slab depressurization (SSD) diagnostic testing.

The purpose of the Sub-Slab Vapor Investigation was to:

- Delineate sub-slab vapor volatile organic compound (VOC) concentrations.
- Delineate the existing SSD systems radial extent of influence and evaluate options for improving these systems.
- Evaluate SSD as a soil vapor mitigation technique in other portions of the Building complex.
- Assess potential sub-slab vapor preferential pathways.
- Obtain sufficient data to evaluate corrective measure alternatives for soil vapor mitigation.

Summary

Crack sealing can improve the SSD radius of influence in some buildings. An additional SSD extraction point(s) in the central and/or northern half of Building 7 could be added to extend radius of influence. In Buildings 10 and 11, the SSD systems have lowered sub-slab VOC concentrations in areas beyond the respective SSD radius of influence. A limited pressure field extension was observed during the SSD diagnostic testing in Building 9. However, an additional SSD system does not appear to be needed at Building 9 to lower sub-slab vapor VOC concentrations, as the SSD systems near Building 9 are providing adequate mitigation. The SSD diagnostic testing indicated that Buildings 1, 2, 4, 6 and 8 are candidates for SSD, if selected.

Data Collection

Soil vapor mitigation methods were evaluated as described below using information collected during the following activities:

- Reviewing building construction drawings from the 1960s, surveying historical utility locations using ground penetrating radar, and inspecting a former concrete underdrain pipe as a potential soil vapor migration pathway.
- Installing 11 sub-slab vapor extraction points and approximately 60 0.25-inch sub-slab monitoring ports (Figure B4-1).
- Measuring the differential pressure between the sub-slab and indoor air and screening for VOCs (ARCADIS, 2012b).
- Screening with a ppbRAE photoionization detector (PID) of 60 sub-slab monitoring points with SSD systems operating and screening of 47 sub-slab monitoring points up to 15 times over a four-day period with SSD systems not operating.

- Collecting seven sub-slab vapor samples for analysis of VOCs by USEPA Method TO-15 and collecting 36 sub-slab vapor samples for analysis of VOCs using a field gas chromatograph.
- Completing sub-slab depressurization diagnostic tests in Buildings 1, 2, 4, 6, 8, and 9.
 - SSD diagnostic testing was conducted in Buildings 1, 2, 6, 8, and 9 to evaluate the slab condition, preferential flow paths, and the feasibility of SSD in each of these areas.
 - Temporary sub-slab vapor extraction (SSVE) points were installed near historical drain piping with ground penetrating radar to use the associated backfill as extraction galleries, and thus potentially increase the radius of influence (ROI) of each SSVE point. Vacuum was applied to SSVE points in Buildings 1, 2, 4, 6, 8, and 9 at varying flow rates and differential pressures to provide information about connectivity beneath the slab. The locations of the temporary SSVE points and monitoring points are shown on Figure B4-1.
 - Manual differential pressure measurements were recorded using data loggers at four monitoring ports during each diagnostic test. The data loggers recorded the minimum and maximum differential pressures at a monitoring port every 5 minutes, to evaluate whether fluctuations in the differential pressure during the testing could be identified.
- Completing sub-slab depressurization diagnostic tests in Buildings 7, 10, and 11.
 - The Buildings 7, 10, and 11 SSD systems are interim corrective measures (ICMs) that target occupied areas and/or areas of elevated sub-slab vapor VOC concentrations. The ICMs were tested to evaluate if SSD systems should be used as a component of the corrective measures alternatives, and to identify if their operation could be optimized. The diagnostic testing included ROI measurements (through differential pressure readings) and sub-slab VOC concentration recovery monitoring.
 - Baseline flow and vacuum data measurements at each SSVE riser pipe were recorded to assess the operating conditions of the existing systems and for comparison to SSD diagnostic testing results (Figure B4-2).
 - Temporary SSVE points were installed in Buildings 7 and 11, outside the known ROI of the ICMs. SSD diagnostic testing was conducted on these SSVE points to provide additional information about connectivity within the sub-slab and the most effective system layouts. Tests were conducted at various flow rates to determine the optimal operating conditions. Manual differential pressure measurements were verified using data loggers at up to four monitoring ports during each diagnostic test. The data loggers recorded the minimum and maximum differential pressures at a monitoring port every 5 minutes, to evaluate whether fluctuations in the differential pressure during the testing could be attributed to the measured extraction rates.
 - The Building 7, 10, and 11 SSD systems were shut down to evaluate transient changes in VOC concentrations. The recovery of sub-slab VOC concentrations, both inside and outside the SSD system ROI, was measured with a ppbRAE PID. At the completion of the recovery period, the SSD systems were restarted.

Data Evaluation

The Sub-Slab Vapor Investigation included an evaluation of historical drains, sub-slab vapor concentrations, and SSD diagnostic testing in buildings with and without ICMs.

Historical Drains

Investigators reviewed building complex drawings from the 1960s to evaluate potential preferential pathways. These drawings depict terra cotta, concrete, and cast-iron drainpipes beneath the concrete slabs (Figure B4-1). Investigators also surveyed historical utility locations using non-invasive geophysical techniques (GPR) and mapped them to identify potential preferential vapor-migration pathways. The GPR surveys were completed using a Subsurface Interfacing Radar System 3000, manufactured by Geophysical Survey Systems, Inc. GPR data were collected continually along survey lines aligned perpendicular to potential utility corridors.

A former concrete underdrain and process wastewater sewer pipe is beneath Buildings 10A, 10, and 11 and ends at a manhole north of the Building 10A exterior wall. This pipe-end area was observed to have been filled in with concrete and bricks (fill) that was consistent with previous reports. The pipe was exposed to evaluate the potential for former underdrains and process sewer lines, or the associated backfill, to serve as preferential vapor-migration pathways. A thin layer of gravel was observed around the 2-foot-diameter concrete pipe, suggesting that the backfill around the pipe could act as a preferential pathway for vapors.

Sub-slab Vapor Screening

PID screening data were used to establish a relative PID response compared to laboratory and field GC-reported TCE concentrations (Table B4-1). The positive correlation between the PID and laboratory data confirmed the validity of using PID screening results to evaluate the presence of TCE within the sub-slab soil vapor.

The data indicated that the SSD systems generally prevent VOCs from accumulating below the slabs of Buildings 9, 10, and 11. As shown in Table B4-1, VOCs were present in sub-slab vapor below parts of Buildings 1, 2, 3, 4, 6, 7, 8, and 10.

SSD Diagnostic Testing in Areas with SSD Systems (Buildings 7, 10, and 11)

The logger data recorded during the SSD diagnostic testing was consistent with the manual measurements observed at the monitoring ports, indicating that no significant variations in differential pressure occurred during the SSD diagnostic testing (Tables B4-2 and B4-3).

Vacuum influence was found to be preferential from the north in both Buildings 7 and 11 with vacuum field extension of approximately 60 feet to the north in Building 7 and approximately 70 feet to the north in Building 11. Similar vacuum field extensions were noted to a lesser extent to the south, east, and west of the temporary SSVE points in Buildings 7 and 11 (Figure B4-3).

The vapor recovery test measurements provided information on potential VOC sources, the rebound effect of VOCs in sub-slab soil vapor, and an approximate extent of VOCs in the sub-slab without the SSD systems operating (Table B4-4 and Figure B4-4). The recovery data indicated that with the systems turned off, VOCs in sub-slab soil gas accumulated below the slabs of Buildings 7, 9, 10, and 11. VOCs were not detected in these areas with the ppbRAE while the systems were running because the SSD systems create air flow beneath the buildings and dilute the sub-slab VOC concentrations. Sub-slab VOC concentrations increased to as high as 1,518, 4,671, and 2,107 parts per billion (ppb) in Buildings 9, 10, and 11, respectively, during

the recovery testing. VOCs were measured during the Building 7 recovery testing in the sub-slab vapor as high as 123 ppb within the SSD system ROI, and as high as 14,340 ppb outside the SSD system ROI. The recovery data indicate:

- Sub-slab vapor VOC concentrations in the northern half of Building 7 are not influenced by the SSD systems. An additional SSD extraction point(s) in the central and/or northern half of Building 7 would be needed to depressurize the sub-slab in this area if SSD is selected as a component of the final remedy.
- An additional SSD system does not appear to be required in Building 9 to lower sub-slab vapor VOC concentrations, because the SSD systems near Building 9 are providing adequate mitigation.
- In Buildings 10 and 11, the SSD systems have lowered sub-slab VOC concentrations beyond the respective ROI (-0.004 inch of water).

SSD Diagnostic Testing in Areas without SSD systems (Buildings 1, 2, 6, 8 and 9)

The logger data proved to be consistent with the manual measurements recorded at the monitoring ports, indicating that no significant variations in differential pressure occurred during the SSD diagnostic testing. The differential pressure readings and logger ranges are presented in Tables B4-5 through B4-11. The locations of the temporary SSVE ports and observed ROI are shown on Figure B4-3 and summarized below.

- Building 1: Vacuum influence was preferential along the backfill of the historic piping with vacuum field extension of approximately 70 feet to the northeast and southwest and approximately 40 feet to the northwest and southeast.
- Building 2: Vacuum influence was preferential in the east-west directions and extended under the western part of Building 3, with vacuum field extension of approximately 60 feet to the east and west and approximately 25 feet to the north.
- In select locations in Buildings 1 and 2, cracks in the building slab provide a potential preferential pathway for movement of indoor air to sub-slab and vice versa. The cracks in the slab were sealed with Siliflex Construction Sealant 1a or hydraulic cement. Following the sealing, the system performance (change in differential pressures) was re-evaluated. An improvement of 0.001 to 0.002 in water column in the differential pressure response was achieved at some of the monitoring ports, indicating further ROI may be achieved through sealing (Tables B4-3 and B4-4).
- Buildings 4 and 8: Vacuum influence was preferential to the north, with vacuum field extension of approximately 35 feet.
- Building 6: Vacuum influence was preferential to the northwest and southeast, with vacuum field extension of approximately 15 feet in each direction.
- Building 9: A limited vacuum field (less than 0.004 inches WC) was observed during the testing in Building 9, however the SSD systems near Building 9 appear to be preventing the accumulation of VOCs in the Building 9 sub-slab.

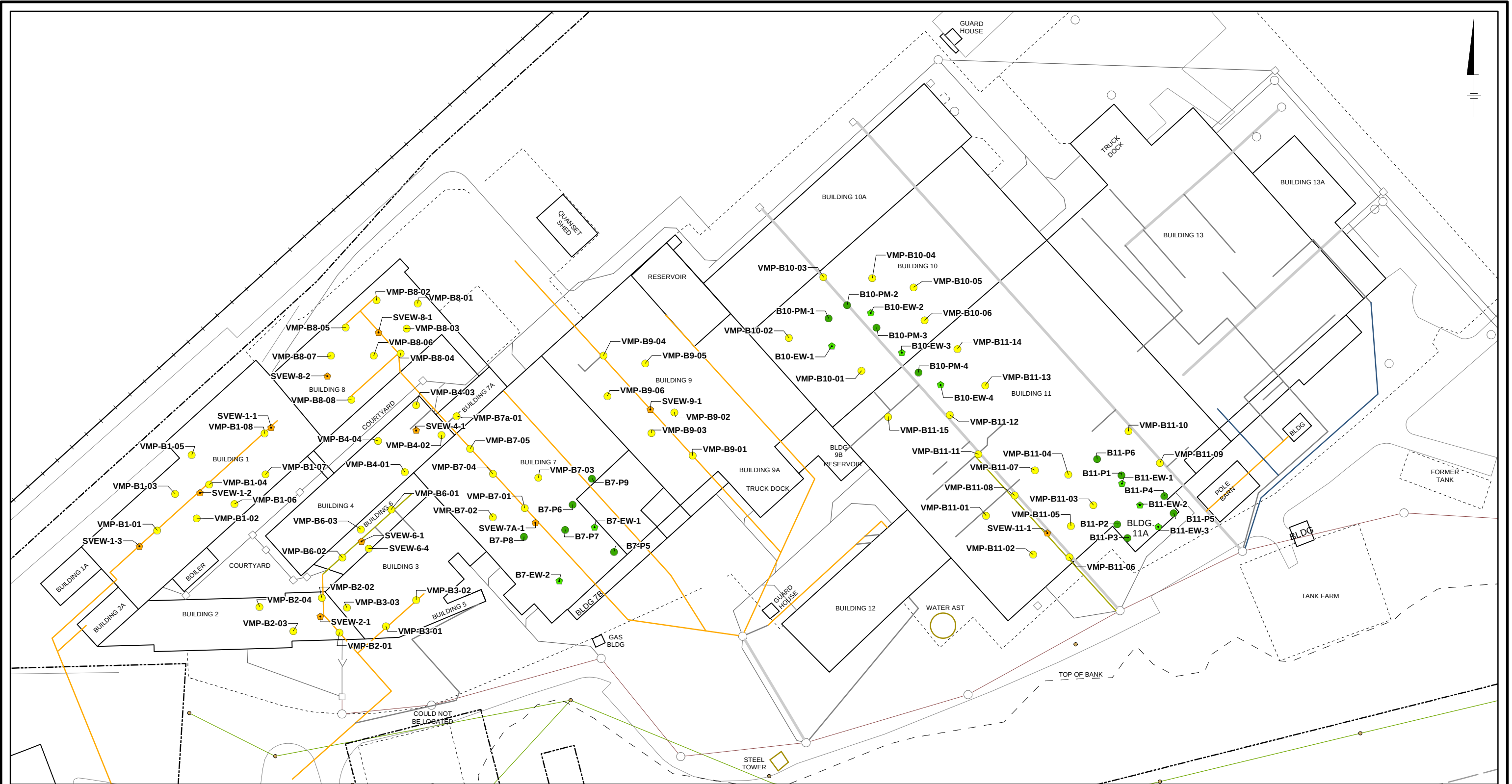
Buildings 1, 2, 4, 6 and 8 are candidates for SSD, if selected. The buildings with a smaller ROI also had smaller areas of elevated sub-slab VOC vapor concentrations (Table 4-1 and B4-3).



Appendix B

Technical Memorandum 4

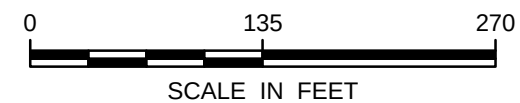
Attachments



 EXISTING EXTRACTION POINT
 NEW EXTRACTION POINT
 EXISTING MONITORING POINT
 NEW MONITORING POINT
 MANHOLE/CATCHBASIN
 STORM SEWER PIPE

 RAILROAD TRACK
 PROPERTY BOUNDARY
 INTERCEPTOR PIPE
 FENCE
 ELECTRIC OVERHEAD LINE

— UNIDENTIFIED PIPE
— CAST IRON
— CONCRETE
— SANITARY LINE
— TERRA COTTA



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

NOTES:

1. SVEW - Soil Vapor Extraction Well
2. AST - Aboveground Storage Tank
3. VMP - Vapor Monitoring Point

CORRECTIVE MEASURES STUDY REPORT

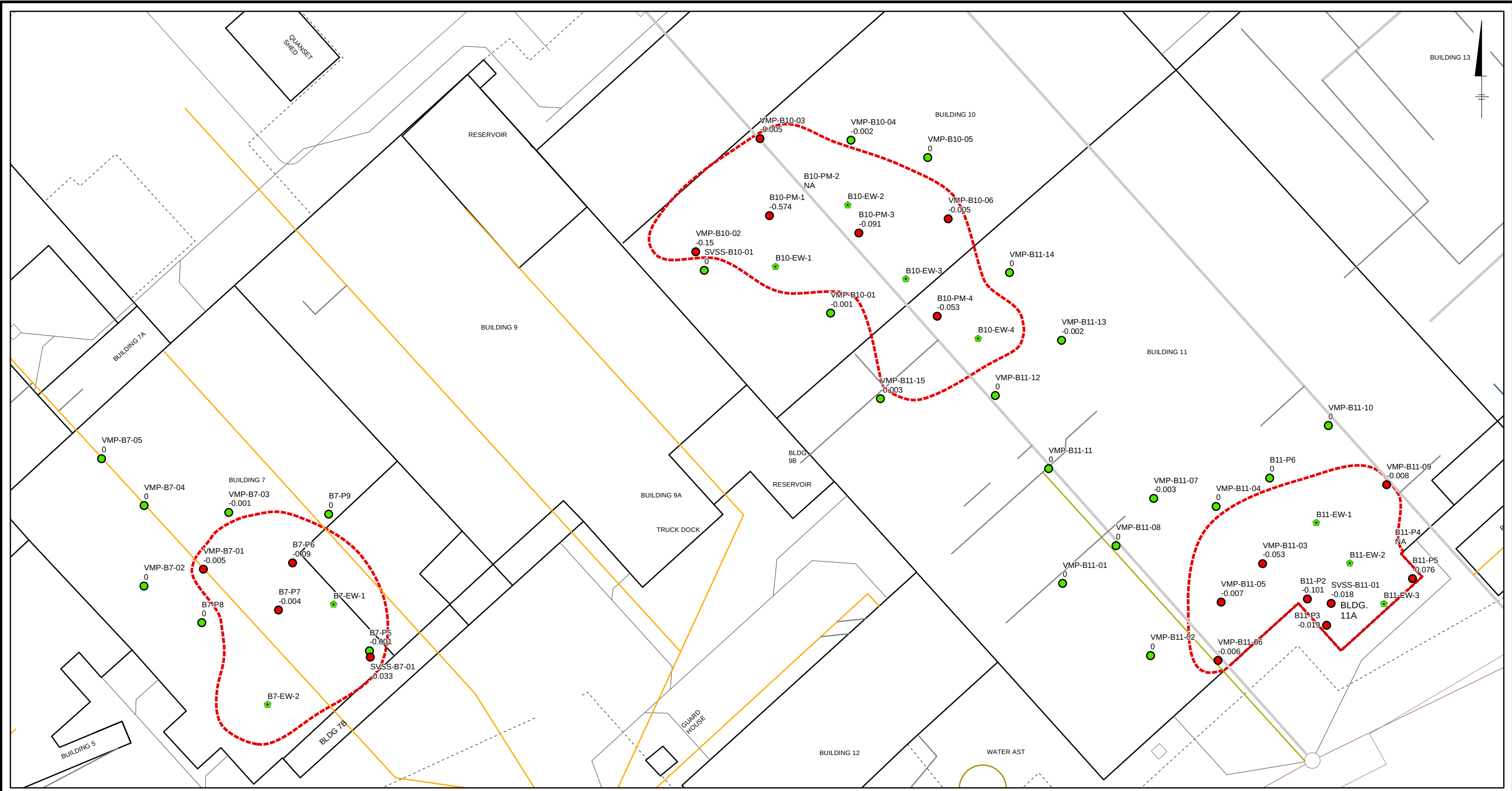
SUB-SLAB VAPOR EXTRACTION AND MONITORING POINTS



FIGURE

34-1 |

CITY: CLE DIV/GROUP:(ENV/IM) DB: L.GREENE LD: M. EASTERLING PIC: PM: TM: Path: G:\Project\Seneca Falls\MapDocuments\2013\FB8-3 BaselinePressureData.mxd Date Saved: 6/20/2013 1:56:03 PM PROJECT:



LEGEND

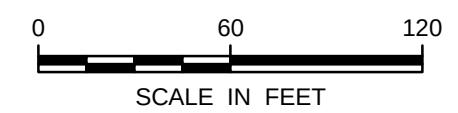
DIFFERENTIAL PRESSURE (INCHES OF WATER)

- -0.004 - 0.0
- -0.574 - -0.004
- ★ EXTRACTION POINT
- MANHOLE/CATCHBASIN
- RADIUS OF INFLUENCE - SUBSLAB DEPRESSURIZATION SYSTEM

- RAILROAD TRACK
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE

PIPE MATERIALS AND LCOATIONS
(SOURCE: SYLVANIA ELEC. PROD., INC. JULY 13, 1967)

- UNIDENTIFIED PIPE
- CAST IRON
- CONCRETE
- SANITARY LINE
- TERRA COTTA
- STORM SEWER PIPE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

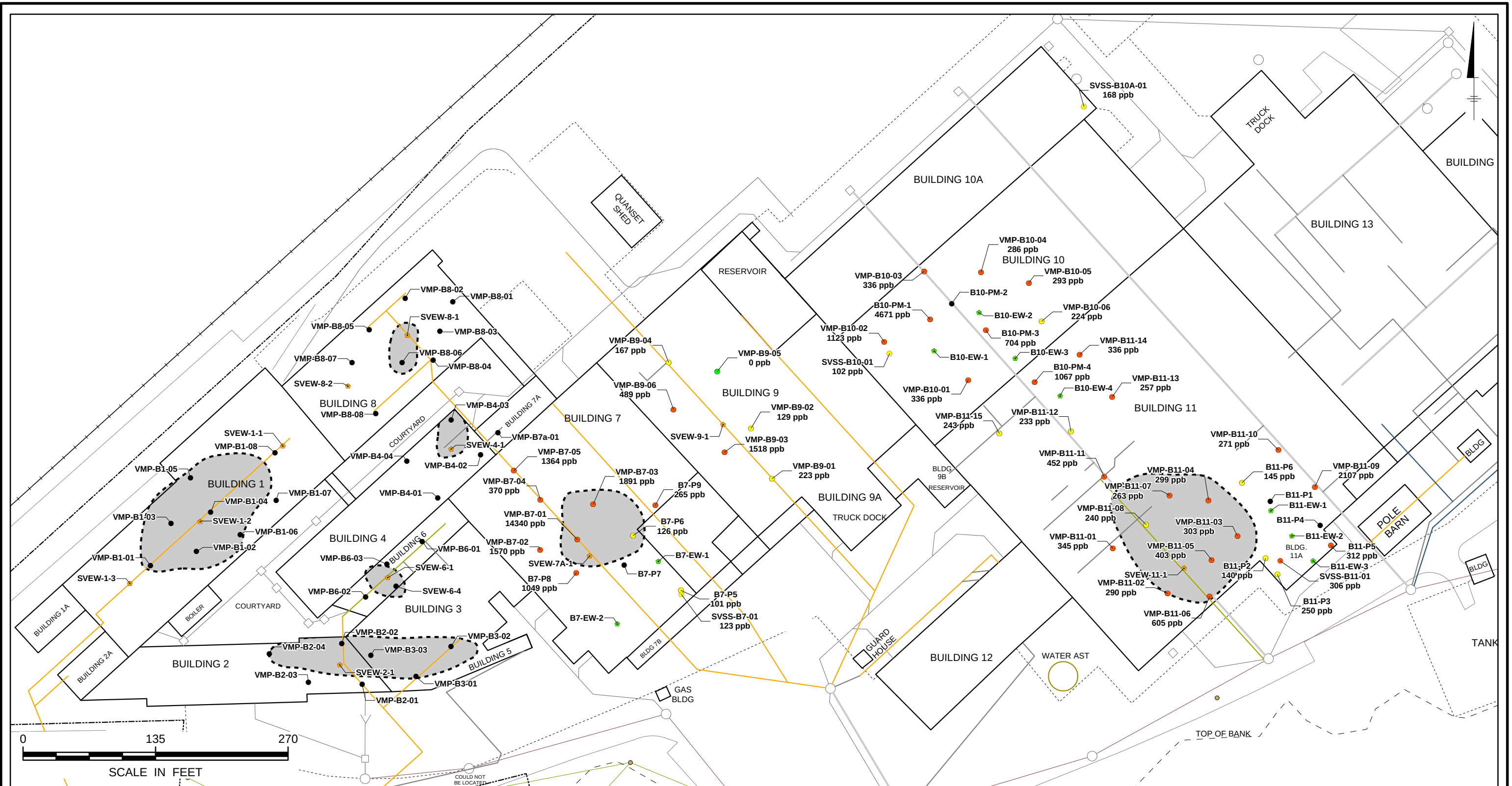
FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

BASELINE PRESSURE MEASUREMENTS



FIGURE
B4-2

CITY: DEN-TECH DIV/GROUP:(ENV/IM) DB: R.MCKINNEY, LD: P.C. PM: TM: Pat: G:\Project\Seneca Falls\MapDocuments\2013\FR08-4_SSDT ROI w Vapor Max.mxd Date Saved: 6/20/2013 2:12:28 PM



LEGEND

MAXIMUM VAPOR RESULT

- 0 PPB
- 100 - 250 PPB
- > 250 PPB
- MONITORING POINT
- (NO VOC DATA WAS COLLECTED WHILE NO SUBSLAB DEPRESSURIZATION SYSTEMS WERE OPERATING)
- EXISTING EXTRACTION POINT

NEW EXTRACTION POINT

PIPE MATERIALS AND LCOATIONS (SOURCE: SYLVANIA ELEC. PROD., INC. JULY 13, 1967)

- UNIDENTIFIED PIPE
- CAST IRON
- CONCRETE
- SANITARY LINE
- TERRA COTTA

MANHOLE/CATCHBASIN

APPROXIMATE RADIUS OF INFLUENCE OF SUB-SLAB DEPRESSURIZATION TESTING

- RAILROAD TRACK
- STORM SEWER PIPE
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE

ELECTRIC OVERHEAD LINE

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet NOTES:

- Vapor result displayed in maximum result from 9/18/2012 to 9/21/2012 while no subslab depressurization system was operating. Vapor data was collected in the field using a photoionization detector.
- ppb - parts per billion
- VOC - volatile organic compound
- Sub-slab depressurization testing radius of influence based on locations with a differential pressure greater than 0.004 inches of water.

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK

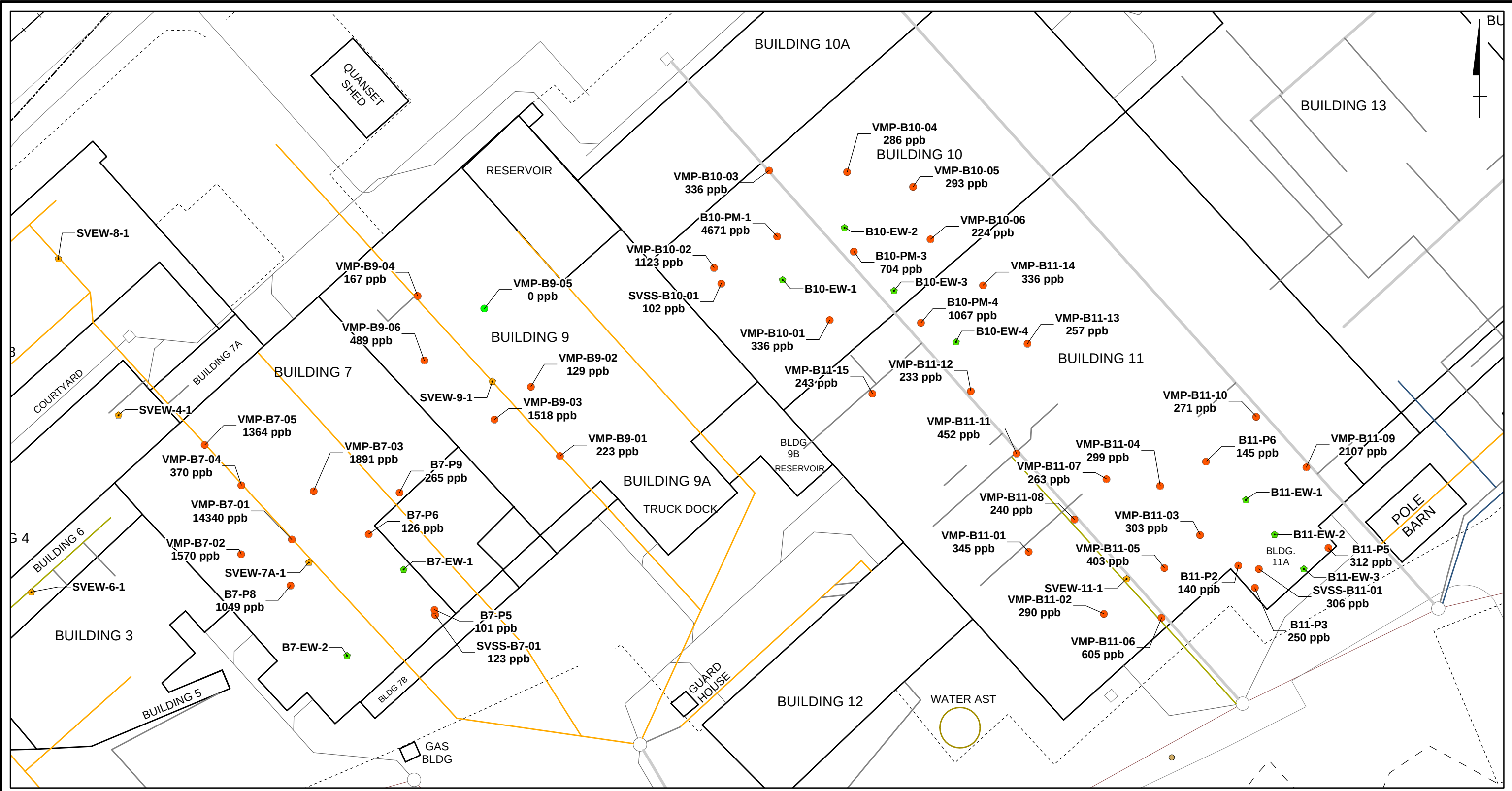
SUB-SLAB DEPRESSURIZATION TESTING RADIUS OF INFLUENCE



FIGURE

B4-3

CITY: DEN-TECH DIV/GROUP:(ENV/IM) DB: R.MCKINNEY, LD: P.C. PM: TM: Patht: G:\Project\Seneca Falls\MapDocuments\2013\Figs-5 - VOC Recovery Testing.mxd Date Saved: 6/20/2013 7:25:03 AM PROJECT:



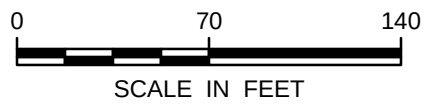
LEGEND
MAXIMUM VAPOR RESULT

- 0 PPB
- 0- 50 PPB
- >50 PPB
- EXISTING EXTRACTION POINT
- NEW EXTRACTION POINT

PIPE MATERIALS AND LCOATIONS
(SOURCE: SYLVANIA ELEC. PROD., INC. JULY 13, 1967)

- UNIDENTIFIED PIPE
- CAST IRON
- CONCRETE
- SANITARY LINE
- TERRA COTTA

- MANHOLE/CATCHBASIN
- RAILROAD TRACK
- STORM SEWER PIPE
- PROPERTY BOUNDARY
- INTERCEPTOR PIPE
- FENCE
- ELECTRIC OVERHEAD LINE



PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet
NOTES:
1. Vapor result displayed in maximum result from 9/18/2012 to 9/21/2012 while no SSDS was operating. Vapor data was collected in the field using a Photo Ionization Detector.
2. ppb - parts per billion
3. VOC - Volatile Organic Compound
4. AST - Aboveground Storage Tank

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

SUB-SLAB VAPOR CONCENTRATION
RECOVERY TESTING

FIGURE
B4-4

Table B4-1
August-September 2012 Sub-Slab Vapor Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID	PID Screening 8/27/12 - 8/29/12			TO-15 Sampling 8/29/12				Field Gas Chromatograph Analysis 9/4/12 - 9/5/12				
	Date	Time	PID Result	ppbRAE Pre-Sampling	ppbRAE Post-Sampling	TO-15 TCE	TO-15 Total VOCs	Date	Time	PID Result	TCE GC Concentration	PCE GC Concentration
Building 1												
VMP-B1-01	8/28/2012	1150	811					9/4/2012	1644	1,633	261	ND
VMP-B1-02	Excess moisture							9/4/2012	1651	0	ND	ND
VMP-B1-03	8/28/2012	1153	0					9/4/2012	1712	0	ND	ND
VMP-B1-04	8/29/2012	1048	43,410	44,500	43,880	21,000	22,180	9/4/2012	1718	23,330	2,800	ND
VMP-B1-05	8/29/2012	1032	7,020					9/5/2012	911	3597	44	9
VMP-B1-06	8/29/2012	1042	19,910					9/4/2012	1748	12760	324	ND
VMP-B1-07	8/29/2012	1044	0					9/4/2012	1755	657	318	72
VMP-B1-08	8/29/2012	1028	0					9/5/2012	906	1,028	3	ND
Building 2												
VMP-B2-01	8/28/2012	1138	1250					9/4/2012	1513	0	19	ND
VMP-B2-02	8/28/2012	1139	0					9/4/2012	1559	1,309	311	14
VMP-B2-03	8/28/2012	1141	0					9/4/2012	-	483		
VMP-B2-04	8/28/2012	1145	912					9/4/2012	1607	803	136	Trace
Building 3												
VMP-B3-01	8/28/2012	1129	0					9/4/2012	1508	0	8	ND
VMP-B3-02	8/28/2012	1131	0					9/4/2012	1505	890	750	35
VMP-B3-03	8/28/2012	1135	2005	2,780	2,726	1,100	1,137	9/4/2012	1503	2,313	522	ND
Building 4												
VMP-B4-01	8/28/2012	1125	1021	801	814	820	831	9/4/2012	1343	815	ND	ND
VMP-B4-02	8/28/2012	1118	0					9/4/2012	1244	0	ND	ND
VMP-B4-03	8/28/2012	1119	0					9/4/2012	1250	0	ND	ND
VMP-B4-04	8/28/2012	1122	0					9/4/2012	1259	0	ND	ND
Building 6												
VMP-B6-01	8/28/2012	1115	16700	22,580	20,300	11,000	11,360	9/4/2012	1203	20,660	1,110	ND
VMP-B6-02	8/28/2012	1112	0					9/4/2012	1233	1,860	600	5
Building 7												
VMP-B7-01	8/28/2012	1108	11410	2,519	5,780	1,100	1,411	9/4/2012	1046	25,520	2,850	ND
VMP-B7-02	8/28/2012	1057	151					9/4/2012	-	NA	650	70
VMP-B7-03	8/28/2012	1102	0					9/4/2012	1111	1,162	472	28
VMP-B7-04	8/28/2012	1059	120					9/4/2012	1057	0		
VMP-B7-05	8/28/2012	1101	0					9/4/2012	1104	478		
VMP-B7A-01	8/29/2012	1114	0					9/5/2012	1233	0	Trace	ND
Building 8												
VMP-B8-01	8/29/2012	1107	0					9/5/2012	1218	0	ND	ND
VMP-B8-02	Inaccessible			Inaccessible				Inaccessible				
VMP-B8-03	8/29/2012	1105	0					9/5/2012	1156	0	ND	ND
VMP-B8-04	8/29/2012	1109	28					9/5/2012	1045	175	324	ND
VMP-B8-05	8/29/2012	1100	0					9/5/2012	-	NA		
VMP-B8-06	8/29/2012	1103	224					9/5/2012	941	730	33	ND
VMP-B8-07	8/29/2012	1058	0					9/5/2012	1037	0	ND	ND
VMP-B8-08	8/29/2012	1111	0					9/5/2012	1149	1,787	40	ND
Building 9												
VMP-B9-01	8/27/2012	1331	0					9/5/2012	1307	0	ND	ND
VMP-B9-02	8/27/2012	1326	0	0	0	16	17.62	9/5/2012	1301	0	ND	ND
VMP-B9-03	8/27/2012	1346	0					9/5/2012	1324	0	ND	ND
VMP-B9-04	8/27/2012	1340	0					9/5/2012	1345	0	ND	ND
VMP-B9-05	8/27/2012	1335	0					9/5/2012	1330	0	ND	ND
VMP-B9-06	8/27/2012	1353	0					9/5/2012	1349	0	ND	ND
Building 10												
VMP-B10-01	8/27/2012	1216	0									
VMP-B10-02	8/27/2012	1304	0									
VMP-B10-03	8/27/2012	1256	0									
VMP-B10-04	8/27/2012	1244	0									
VMP-B10-05	8/27/2012	1249	0									
VMP-B10-06	Inaccessible			Inaccessible				Inaccessible				
Building 11												
VMP-B11-01	8/27/2012	1132	0									
VMP-B11-02	8/27/2012	1136	0									
VMP-B11-03	8/29/2012	1148	0									
VMP-B11-04	8/27/2012	1110	0									
VMP-B11-05	8/29/2012	1150	0									
VMP-B11-06	8/29/2012	1149	0									
VMP-B11-07	8/27/2012	1114	0									
VMP-B11-08	8/27/2012	1119	0									
VMP-B11-09	8/29/2012	1155	0									
VMP-B11-10	8/29/2012	1152	0									
VMP-B11-11	8/27/2012	1206	0									
VMP-B11-12	8/27/2012	1158	0									
VMP-B11-13	8/27/2012	1228	0									
VMP-B11-14	8/27/2012	1224	0									
VMP-B11-15	8/29/2012	1200	94	0	0	3.4	4.61					

Notes:

All results are in parts per billion

A blank cell indicates no samples/measurements were collected/recorded.

The results are from samples collected while the sub-slab depressurization systems were operating.

GC – Gas Chromatograph

ND - non-detect

PID - Photoionization Detector

TCE - Trichloroethene

PCE - Tetrachloroethene

ppb - parts per billion

**Table B4-2
Sub-Slab Depressurization Field Test
Building 7, SVEW-7-1**

**Former Philips Display Components Facility
Seneca Falls, New York**

		Baseline with Existing System On ^(a)		Test Start ^(c)		Test End ^(d)		Test Datalogger Range	Test with Existing System Off ^(b,d)		Test Datalogger Range with Existing System Off
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)
B7-01	13	-0.014	11:28 A.M.	-0.164	1:00 P.M.	-0.163	1:30 P.M.	-0.161 to -0.168	-0.144	2:05 P.M.	-0.143 to -0.146
B7-02	50	0.000	11:33 A.M.	0.000	1:01 P.M.	0.000	1:31 P.M.	0.000	0.000	2:06 P.M.	0.000
B7-03	50	-0.007	11:36 A.M.	-0.012	1:06 P.M.	-0.014	1:33 P.M.		-0.005	2:03 P.M.	
B7-04	75	0.000	11:34 A.M.	0.000	1:02 P.M.	0.000	1:32 P.M.	0.000	0.000	2:05 P.M.	0.000
B7-05	115	0.000	11:35 A.M.	0.000	1:05 P.M.	0.000	1:32 P.M.		0.000	2:02 P.M.	
B7-P5	100	-0.008	11:39 A.M.	-0.007	1:11 P.M.	-0.007	1:35 P.M.		-0.001	2:05 P.M.	
B7-P6	50	-0.107	11:44 A.M.	-0.173	1:09 P.M.	-0.174	1:36 P.M.		-0.008	1:59 P.M.	
B7-P7	40	-0.021	11:41 A.M.	-0.020	1:05 P.M.	-0.021	1:38 P.M.		-0.001	2:08 P.M.	
B7-P8	13	0.000	11:42 A.M.	0.000	1:07 P.M.	0.000	1:40 P.M.	0.000 to -0.002	0.000	2:07 P.M.	0.000 to -0.002
B7-P9	85	-0.002	11:44 A.M.	-0.003	1:10 P.M.	0.000	1:41 P.M.		-0.002	2:06 P.M.	

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 5, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Note Building 7 system was on during baseline monitoring.

(b) Monitoring data from 1400 was collected with Building 7 system turned off (1355).

(c) Blower operating at 22 cfm and 40 in wc vacuum.

(d) Blower operating at 20 cfm and 40 in wc vacuum.

Table B4-3
Sub-Slab Depressurization Field Test
Building 11, SVEW-11-1

Former Philips Display Components Facility
Seneca Falls, New York

		Baseline with Existing System On ^(a)		Higher Flow Test ^(b, e)		Higher Flow Test Datalogger Range	Middle Flow Test ^(c, e)		Middle Flow Test Datalogger Range	Lower Flow Test ^(d, e)		Lower Flow Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)
B11-01	80	0.000	9:33 A.M.	-0.002	3:24 P.M.		-0.001	5:34 P.M.		0.000	6:02 P.M.	
B11-02	30	-0.002	9:34 A.M.	-0.010	3:23 P.M.		-0.006	5:32 P.M.		-0.004	6:04 P.M.	
B11-03	60	-0.104	9:41 A.M.	-0.127	3:10 P.M.		-0.119	5:47 P.M.		-0.112	6:16 P.M.	
B11-04	80	-0.020	9:40 A.M.	-0.040	3:14 P.M.		-0.036	5:58 P.M.		-0.028	6:11 P.M.	
B11-05	30	-0.023	9:47 A.M.	-0.131	1:54 P.M.		-0.092	5:26 P.M.		-0.053	5:57 P.M.	
B11-06	40	-0.012	9:46 A.M.	-0.020	3:12 P.M.		-0.018	5:50 P.M.		-0.013	6:17 P.M.	
B11-07	80	-0.013	9:38 A.M.	-0.040	3:20 P.M.		-0.031	5:59 P.M.		-0.022	6:15 P.M.	
B11-08	55	-0.002	9:36 A.M.	-0.096	3:21 P.M.	-0.098 to -0.099	-0.059	5:31 P.M.	-0.059	-0.025	6:00 P.M.	-0.025
B11-09	155	-0.001	9:48 A.M.	0.000	3:15 P.M.		-0.001	5:35 P.M.		0.000	6:00 P.M.	
B11-10	150	-0.004	9:49 A.M.	-0.004	3:17 P.M.		-0.005	5:38 P.M.		-0.004	6:02 P.M.	
B11-11	125	0.000	10:02 A.M.	-0.001	3:25 P.M.		-0.001	5:30 P.M.		0.000	6:06 P.M.	
B11-12	185	-0.021	10:01 A.M.	-0.021	3:28 P.M.	-0.021 to -0.022	-0.022	5:41 P.M.	-0.021	-0.022	6:08 P.M.	-0.022
B11-13	195	-0.013	10:00 A.M.	-0.013	3:32 P.M.		-0.014	5:40 P.M.		-0.013	6:04 P.M.	
B11-14	245	0.000	10:06 A.M.	-0.005	3:37 P.M. ⁽¹⁾		-0.025	5:43 P.M. ⁽²⁾		-0.028	6:06 P.M.	
B11-15	235	-0.015	10:04 A.M.	-0.013	3:34 P.M.	-0.014 to -0.015	-0.015	5:42 P.M.	-0.015	-0.015	6:13 P.M.	-0.014 to -0.015

Notes:

1. B11-14 @ 1:37 pm range was -0.005 to +0.330
2. B11-14 @ 5:43 pm range was -0.025 to +1.900

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 4 and 5, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Baseline collected on 9/5/12 with existing Building 11 system running.

(b) Blower operating at 110 cfm and 16 in wc vacuum.

(c) Blower operating at 70 cfm and 8 in wc vacuum.

(d) Blower operating at 30 cfm and 2.5 in wc vacuum.

(e) The existing Building 11 system was running throughout the SVEW-11-1 test.

Table B4-4
September 2012 Sub-Slab Vapor Concentration Recovery Test Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID	B7-01		B7-02		B7-03		B7-04		B7-05		SVSS-B7-01		B7-P5		B7-P6	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012	1452	7356	1455	781	1503	856	1457	360	1500	629	1437	94				
	1554	7810	1603	684	1556	830	1558	314	1600	648	1545	61				
	1651	7301	1653	716	1659	762	1655	236	1657	546	1647	32				
	1759	7152	1801	733	1807	762	1803	240	1805	638	1756	19				
9/19/2012	1037	6811	1039	868	1045	698	1041	204	1043	589	1023	38	1025	72	1035	50
	1139	6408	1131	787	1137	684	1133	204	1135	570	1125	22	1127	38	1141	64
	1244	6487	1236	767	1242	686	1238	123	1240	560	1231	14	1230	42	1246	68
	1351	6431	1343	746	1349	655	1345	85	1347	534	1338	0	1337	4	1353	36
	1448	6441	1441	659	1447	649	1443	93	1445	532	1437	0	1430	0	1449	32
9/20/2012	1022	7458	1014	788	1020	650	1016	98	1018	426	1010	6	1009	0	1024	32
	1139	12880	1131	1465	1137	1287	1133	370	1135	1104	1127	96	1126	59	1141	79
	1323	13210	1315	1570	1321	1891	1317	319	1319	1080	1311	74	1310	53	1325	104
	1429	13920	1420	1436	1427	1457	1422	300	1425	1234	1417	104	1416	51	1432	126
	1559	14340	1551	1332	1557	1560	1553	289	1555	1364	1547	123	1546	101	1501	126
9/21/2012	1117	11790	1108	1315	1115	1128	1110	228	1112	944	1105	0	1103	22	1119	28

Sample ID	B7-P8		B7-P9		B9-01		B9-02		B9-03		B9-04		B9-05		B9-06	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012					1520	223	1518	171	1506	223	1514	136	1517	0	1512	356
					1615	175	1613	129	1605	145	1610	81	1613	0	1608	308
					1710	162	1708	110	1702	178	1706	81	1709	0	1704	288
					1818	113	1816	90	1810	158	1814	51	1817	0	1812	281
9/19/2012	1028	400	1020	265	1055	60	1053	32	1047	184	1051	64	1054	0	1049	277
	1129	396	1142	186	1151	40	1149	24	1143	176	1147	36	1150	0	1145	246
	1233	380	1248	147	1301	26	1259	18	1253	147	1257	36	1260	0	1255	234
	1341	350	1354	115	1404	14	1402	0	1356	113	1400	30	1403	0	1358	218
	1439	325	1451	123	1500	0	1459	0	1453	93	1457	20	1460	0	1455	208
9/20/2012	1012	288	1026	49	1037	13	1035	9	1029	59	1033	52	1036	0	1031	193
	1129	685	1143	154	1155	81	1153	73	1146	204	1151	127	1154	0	1149	449
	1313	774	1327	186	1337	108	1335	99	1329	241	1333	152	1336	0	1331	470
	1418	946	1434	208	1445	108	1443	109	1437	238	1441	157	1444	0	1438	472
	1549	1049	1603	207	1612	121	1610	122	1605	222	1609	167	1612	0	1607	489
9/21/2012	1107	502	1121	108	1134	50	1131	48	1124	154	1128	135	1132	0	1126	463

Note:
ppb = parts per billion

Table B4-4
September 2012 Sub-Slab Vapor Concentration Recovery Test Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID	B10-01		B10-02		B10-03		B10-04		B10-05		B10-PM-1		B10-PM-3		B10-PM-4	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012	1450	296	1506	441	1459	336	1458	286	1455	293	1452	19	1452	19	1452	19
	1610	224	1624	352	1618	299	1616	197	1614	194	1612	224	1612	224	1612	224
	1711	158	1722	327	1720	175	1717	141	1715	164	1713	161	1713	161	1713	161
	1610	138	1823	296	1822	144	1816	131	1814	133	1812	141	1812	141	1812	141
9/19/2012	1122	58	1159	422	1148	73	1138	10	1125	0	Blocked		1204	524	1212	918
	1235	45	1251	443	1245	90	1239	27	1230	62	Blocked		1256	555	1259	939
	1403	17	1428	513	1424	167	1423	80	1411	87	1431	4671	1406	569	1438	1006
	1532	139	1600	457	1555	92	1549	34	1538	83	1602	4367	1545	520	1607	1041
9/20/2012	1108	182	1136	605	1133	115	1123	70	1120	122	1139	4605	1112	675	1105	1067
	1308	182	1350	987	1340	174	1342	107	1344	139	1315	4430	1311	704	1306	1021
	1416	180	1459	1110	1449	172	1451	79	1453	124	1419	4414	1415	701	1412	1031
	1617	255	1615	1123	1624	168	1622	88	1620	160	1705	4465	1703	661	1658	945
9/21/2012	1143	336	1140	1076	1155	168	1153	95	1149	126	1306	4430	1303	566	1258	789

Sample ID	SVSS-B10-01		SVSS-B10A-01		B10-06		B11-01		B11-02		B11-03		B11-04		B11-05	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012	1502	0	1335	168	1452	19	1410	345	1411	290	1420	293	1418	299	1422	299
	1530	102	1621	138	1612	224	1522	270	1525	289	1536	303	1534	289	1538	403
	1724	61	1725	69	1713	161	1625	187	1627	214	1646	207	1644	215	1648	204
	1821	32	1818	69	1812	141	1730	168	1732	201	1747	191	1745	189	1743	180
9/19/2012	1157	20	1154	59	1126	2	1106	0	1104	8	1025	0	1050	0	1028	0
	1248	59	1244	62	1228	104	1214	0	1212	0	1205	0	1209	0	1208	0
	1426	94	1420	101	1408	83	1419	0	1420	0	1538	0	1426	180	1540	0
	1558	38	1552	59	1537	94	1556	0	1557	0	1628	0	1555	0	1630	0
9/20/2012	1135	52	1128	112	1115	76	1013	103	1014	110	1025	91	1022	72	1027	69
	1338	62	1318	115	1346	113	1210	62	1212	74	1221	112	1218	43	1225	81
	1447	77	1428	112	1455	108	1330	65	1332	71	1339	110	1336	51	1341	80
	1614	73	1708	96	1616	146	1544	67	1546	74	1555	79	1552	60	1558	79
9/21/2012	1137	43	1310	125	1146	83	1150	93	1152	99	1204	147	1202	67	1206	180

Note:
ppb = parts per billion

Table B4-4
September 2012 Sub-Slab Vapor Concentration Recovery Test Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID	B11-06		B11-07		B11-08		B11-09		B11-10		B11-11		B11-12		B11-13	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012	1436	342	1416	237	1415	233	1440	670	1441	164	1409	362	1408	204	1404	243
	1550	395	1530	263	1527	240	1551	2075	1559	207	1518	322	1515	233	1603	257
	1650	375	1642	225	1640	164	1652	2107	1654	115	1629	309	1627	181	1659	220
	1741	315	1739	208	1736	151	1750	221	1756	101	1732	288	1730	161	1758	105
9/19/2012	1020	201	1053	0	1058	0	1100	405	1102	22	1108	105	1111	11	1113	2
	1200	195	1210	0	1209	0	1202	395	1158	0	1216	87	1218	0	1222	0
	1503	224	1424	180	1422	0	1544	462	1548	0	1414	452	1417	0	1550	0
	1608	218	1609	0	1612	0	1645	457	1646	0	1600	104	1602	0	1604	0
9/20/2012	1030	574	1020	55	1018	88	1047	637	1049	161	1057	264	1055	125	1053	134
	1228	10	1216	40	1214	57	1250	699	1252	163	1259	250	1257	127	1255	134
	1343	605	1335	42	1334	64	1353	701	1355	166	1403	249	1400	129	1358	130
	1605	526	1550	36	1548	57	1628	689	1633	88	1649	216	1646	105	1641	98
9/21/2012	1208	594	1200	78	1158	91	1221	652	1224	271	1243	268	1239	164	1234	208

Sample ID	B11-14		B11-15		SVSS-B11-01		B11-PM-02		B11-PM-03		B11-PM-05		B11-PM-06	
Date	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)	Time	Concentration (ppb)
9/18/2012	1445	336	1443	243	1434	306								
	1607	276	1605	220	1540	230								
	1705	167	1707	119	1640	151								
	1802	151	1759	85	1740	90								
9/19/2012	1114	46	1115	0	1032	0	1038	0	1035	0	1042	0	1044	0
	1225	20	1229	0	1133	0	1138	0	1136	0	1140	0	1143	0
	1552	0	1554	0	1435	0	1505	0	1530	0	1533	0	1536	0
	1636	0	1638	0	1540	0	1540	0	1630	0	1633	0	1636	0
9/20/2012	1102	206	1059	64	1043	110	1035	67	1041	55	1045	16	1051	55
	1305	201	1302	72	1244	141	1234	69	1248	250	1248	250	1254	62
	1405	205	1407	71	1346	131	1345	69	1350	225	1350	225	1354	63
	1657	201	1653	61	1618	81	1610	19	1622	84	1622	84	1636	2
9/21/2012	1253	190	1248	80	1216	147	1212	140	1214	125	1218	312	1227	145

Note:
ppb = parts per billion

Table B4-5
Sub-Slab Depressurization Field Test
Building 1, SVEW-1-2

Former Philips Display Components Facility
Seneca Falls, New York

		Baseline ^(a)		Higher Flow Test Start ^(b)		Higher Flow Test End ^(c)		Higher Flow Test After Cracks Sealed ^{(d) (e)}		Higher Flow Test Datalogger Range	Lower Flow Test After Cracks Sealed Start ^{(d) (f)}		Lower Flow Test After Cracks Sealed End ^{(d) (g)}		Lower Flow Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B1-01	69	-0.004	11:37 AM	-0.008	2:08 PM	-0.009	2:46 PM	-0.010	3:14 PM	-0.006 to -0.011	-0.007	3:22 PM	-0.008	3:57 PM	-0.006 to -0.010
B1-02 ⁽³⁾	18	-0.002	11:37 AM	-0.004	2:15 PM	-0.004	2:45 PM	-0.005	3:15 PM	-0.003 to -0.006	-0.003	3:21 PM	-0.004	3:58 PM	-0.002 to -0.006
B1-03	24	-0.002	11:39 AM	-0.028	2:07 PM	-0.028	2:53 PM	-0.030	3:14 PM		-0.016	3:21 PM	-0.014	3:56 PM	
B1-04	15	-0.001	11:40 AM	-0.580	2:10 PM	-0.585	2:47 PM	-0.577	3:17 PM		-0.289	3:19 PM	-0.283	3:55 PM	
B1-05	39	-0.003	11:41 AM	-0.016	2:11 PM	-0.015	2:48 PM	-0.016	3:17 PM	-0.012 to -0.018	-0.009	3:20 PM	-0.009	4:00 PM	-0.008 to -0.017
B1-06	42	0.000	11:41 AM	-0.005	2:14 PM	-0.006	2:01 PM	-0.006	3:15 PM		-0.005	3:20 PM	-0.001	3:59 PM	
B1-07	85	0.000	11:43 AM	0.000	2:13 PM	0.000	2:50 PM	0.000	3:16 PM		0.000	3:19 PM	0.000	3:58 PM	
B1-08	100	0.001	1:55 PM	0.000	2:12 PM	0.000	2:50 PM	-0.001	3:16:00 PM ⁽¹⁾	0.000	-0.001	3:20:00 PM ⁽²⁾	0.000	3:59 PM	0.000
SVEW-1-1	96										-0.003	3:32 PM			
SVEW-8-2	217										-0.005	3:35 PM			

Notes:

1. B1-08 (3:16 P.M.) - range was -0.001 to +0.003
2. B1-08 (3:20 P.M.) - range was 0.002 to -0.001
3. Soil was wet.

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 6, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Test blower was off and no SSD system was operating in the building.

(b) Test blower began operation at 2:00 PM at 39 cfm and 30 in wc vacuum.

(c) Test blower operating at 37 cfm and 30 in wc vacuum.

(d) At 3:00 pm - cracks and voids were sealed.

(e) Test blower operating at 38 cfm and 30 in wc vacuum.

(f) Test blower operating at 20 cfm and 14 in wc vacuum.

(g) Test blower operating at 21 cfm and 14 in wc vacuum.

**Table B4-6
Sub-Slab Depressurization Field Test
Building 2, SVEW-2-1**

Former Philips Display Components Facility
Seneca Falls, New York

		Baseline		Higher Flow Test Start ^(d)		Higher Flow Test End ^(e)		Higher Flow Test Datalogger Range	Medium Flow Test Start ^(f)		Medium Flow Test End ^(g)		Medium Flow Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B3-01	58	0.000	9:47 AM	-0.004	10:03 AM	-0.005	10:27 AM		-0.005	10:48 AM	-0.005	11:18 AM	
B3-02	96	0.000	9:47 AM	-0.001	10:04 AM	0.000	10:27 AM ⁽¹⁾		0.000	10:49 AM ⁽²⁾	-0.003	11:19 AM ⁽³⁾	
B3-03	55	0.000	10:47 AM	-0.010	10:03 AM	-0.010	10:26 AM	-0.009 to -0.012	-0.005	10:49 AM	-0.006	11:19 AM	-0.004 to -0.008
B2-01	27	0.000	11:47 AM	-0.003	10:03 AM	-0.003	10:28 AM	-0.003 to -0.004	-0.002	10:48 AM	-0.002	11:18 AM	0.000 to -0.002
B2-02	24	0.000	12:47 PM	-0.063	10:03 AM	-0.061	10:28 AM	-0.059 to -0.064	-0.032	10:46 AM	-0.033	11:17 AM	-0.030 to -0.034
B2-03	27	0.000	1:47 PM	0.000	10:02 AM	0.000	10:29 AM	0.000	0.000	10:47 AM	0.000	11:16 AM	0.000
B2-04	57	0.000	2:47 PM	0.000	10:02 AM	0.000	10:29 AM		0.000	10:47 AM	0.001	11:17 AM	
		Baseline		Lower Flow Test Start ^(h)		Lower Flow Test End ^(a,i)		Lower Flow Test Datalogger Range	Higher Flow Test After Cracks Sealed Start ^(a,b,j)		Higher Flow Test After Cracks Sealed End ^(c,k)		Medium Flow Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B3-01	58	0.000	9:47 AM	-0.004	11:25 AM	-0.004	11:54 AM		-0.007	12:59 PM	-0.007	1:15 PM	
B3-02	96	0.000	9:47 AM	-0.002	11:26 AM ⁽⁴⁾	0.002	11:55 AM		-0.001	12:58 PM ⁽⁵⁾	-0.001	1:15 PM ⁽⁶⁾	
B3-03	55	0.000	10:47 AM	-0.004	11:25 AM	-0.003	11:54 AM	0.000 to -0.004	-0.012	12:58 PM	-0.010	1:15 PM	-0.010 to -0.013
B2-01	27	0.000	11:47 AM	0.000	11:24 AM	0.000	11:54 AM	0.000	-0.004	12:59 PM	-0.004	1:14 PM	-0.003 to -0.005
B2-02	24	0.000	12:47 PM	-0.016	11:24 AM	-0.015	11:53 AM	-0.013 to -0.017	-0.071	12:58 PM	-0.071	1:14 PM	-0.067 to -0.072
B2-03	27	0.000	1:47 PM	0.000	11:23 AM	0.000	11:53 AM	0.000	0.000	1:00 PM	0.000	1:13 PM	0.000
B2-04	57	0.000	2:47 PM	-0.001	11:23 AM	0.000	11:53 AM		-0.002	1:00 PM	-0.002	1:13 PM	

Notes:

1. B3-02 (10:27 A.M.) - range was 0 to +0.003
2. B3-02 (10:49 A.M.) - range was 0 to +0.005
3. B3-02 (11:19 A.M.) - range was -0.003 to +0.001
4. B3-02 (11:26 A.M.) - range was -0.002 to +0.007
5. B3-02 (12:58 P.M.) - range was -0.001 to +0.004
6. B3-02 (1:15 P.M.) - range was +0.004 to -0.001

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 6, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) System shutdown at 11:56 A.M. Sealed holes and cracks in floor around points and then set blower to full at 12:57 P.M.

(b) After crack sealing, allow system to run approximately 15 minutes/round of measurements at 12:57 P.M.

(c) System shut down at 1:18 P.M.

(d) Blower operating at 96 cfm and 12 in wc vacuum.

(e) Blower operating at 114 cfm and 11 in wc vacuum.

(f) Blower operating at 70 cfm and 6 in wc vacuum.

(g) Blower operating at 69.5 cfm and 6 in wc vacuum.

(h) Blower operating at 40 cfm and 3 in wc vacuum.

(i) Blower operating at 39.5 cfm and 3 in wc vacuum.

(j) Blower operating at 112 cfm and 12 in wc vacuum.

(k) Blower operating at 111 cfm and 12 in wc vacuum.

Table B4-7
Sub-Slab Depressurization Field Test
Building 4, SVEW-4-1

Former Philips Display Components Facility
Seneca Falls, New York

		Baseline		Higher Flow Test Start ^(a)		Higher Flow Test End ^(b)		Higher Flow Test Datalogger Range	Lower Flow Test Start ^(c)		Lower Flow Test End ^(d)		Lower Flow Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B4-01	60	0.000	3:45 P.M.	0.000	3:56 P.M.	0.000	4:20 P.M.	0.000	0.000	4:31 P.M.	0.000	5:00 P.M.	0.000
B4-02	30	0.000	3:46 P.M.	0.000	3:54 P.M.	0.000	4:20 P.M.		0.000	4:30 P.M.	0.000	5:00 P.M.	
B4-03	35	0.000	3:41 P.M.	-0.011	3:55 P.M.	-0.011	4:21 P.M.	-0.010 to -0.012	-0.004	4:30 P.M.	-0.004	4:59 P.M.	-0.003 to -0.005
B4-04	50	0.000	3:48 P.M.	0.000	3:56 P.M.	0.000	4:21 P.M.	0.000	0.000	4:31 P.M.	0.000	5:00 P.M.	0.000
B7A-01	60	0.000	3:49 P.M.	-0.001	3:57 P.M.	0.000	4:22 P.M.		0.000	4:34 P.M.	0.000	5:04 P.M.	

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 5, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Blower operating at 53.5 cfm and 30 in wc vacuum.

(b) Blower operating at 60 cfm and 30 in wc vacuum.

(c) Blower operating at 30 cfm and 10 in wc vacuum.

(d) Blower operating at 29.5 cfm and 10 in wc vacuum.

**Table B4-8
Sub-Slab Depressurization Field Test
Building 6, SVEW-6-1**

**Former Philips Display Components Facility
Seneca Falls, New York**

		Baseline		Test Start ^(a)		Test End ^(b)		Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B6-01	53.9	0.000	12:45 P.M.	0.000	12:55 P.M.	0.000	1:29 P.M.	0.000
B6-02	27.9	0.000	12:45 P.M.	-0.002	12:55 P.M.	-0.002	1:29 P.M.	0.000 to -0.002
B6-03	15	0.000	12:45 P.M.	-0.080	12:55 P.M.	-0.082	1:29 P.M.	-0.079 to -0.083
B6-04	15	0.000	12:45 P.M.	-0.034	12:55 P.M.	-0.035	1:29 P.M.	-0.033 to -0.036
B4-01	100	0.000	12:45 P.M.	0.000	12:55 P.M.	0.000	1:29 P.M.	
B3-03	75	0.000	12:45 P.M.	0.000	12:55 P.M.	-0.001	1:29 P.M.	

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 12, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Blower operating at 5.3 cfm and 30 in wc vacuum.

(b) Blower operating at 4.88 cfm and 30 in wc vacuum.

**Table B4-9
Sub-Slab Depressurization Field Test
Building 8, SVEW-8-1**

**Former Philips Display Components Facility
Seneca Falls, New York**

		Baseline ^(a)		Test Start ^(b)		Test End ^(c)		Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B8-01	35	0.002	4:18 P.M.	0.000	10:26 A.M. ⁽¹⁾	0.000	11:00 A.M. ⁽²⁾	
B8-02	50	NA	NA	0.000	10:24 A.M.	-0.002	10:59 A.M.	0.005 to -0.011
B8-03	35	0.000	4:12 P.M.	0.000	10:24 A.M.	0.000	10:58 A.M.	0.004 to -0.008
B8-04	35	0.000	4:15 P.M.	-0.004	10:25 A.M.	-0.001	11:00 A.M.	
B8-05	35	-0.002	4:11 P.M.	0.000	10:26 A.M.	0.000	10:47 A.M.	0.000
B8-06	35	0.000	4:16 P.M.	-0.006	10:29 A.M.	-0.009	10:57 A.M.	
B8-07	65	-0.001	4:15 P.M.	0.000	10:29 A.M.	0.000	10:58 A.M.	0.000
B8-08	85	0.000	4:10 P.M.	0.000	10:27 A.M.	0.000	11:01 A.M.	
SVEW-8-2	80	0.000	4:05 P.M.	0.000	11:35 A.M. ⁽³⁾	0.000	11:02 A.M.	

Notes:

1. B8-01 (10:26 A.M.) - range was 0 to +0.002
2. B8-01 (11:00 A.M.) - range was 0 to +0.002
3. SVEW-8-2 (11:35 A.M.) - range was 0 to +0.001

Comments:

Bold indicates monitoring points where vacuum influence (minimum of 0.004 greater than the baseline) was achieved.

Field test conducted on September 6 and 7 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

NA = not accessible

SSD = sub-slab depressurization

(a) Baseline collected on 9/6/12

(b) Blower operating at 12.6 cfm and 29 in wc vacuum.

(c) Blower operating at 13.3 cfm and 30 in wc vacuum.

**Table B4-10
Sub-Slab Depressurization Field Test
Building 8, SVEW-8-2**

**Former Philips Display Components Facility
Seneca Falls, New York**

		Baseline ^(a)		Test Start ^(b)		Test End ^(c)		Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B8-01	140	0.002	4:18 P.M.	-0.001	11:48 A.M.	-0.003	12:14 P.M. ⁽¹⁾	
B8-02	105	NA	NA	0.000	11:49 A.M.	0.000	12:16 PM	0.003 to -0.011
B8-03	110	0.000	4:12 P.M.	0.000	11:47 A.M.	0.000	12:20 P.M.	
B8-04	90	0.000	4:15 P.M.	0.000	11:46 A.M.	0.000	12:20 P.M.	
B8-05	60	-0.002	4:11 P.M.	0.000	11:43 A.M.	0.000	12:15 P.M.	0.000
B8-06	60	0.000	4:16 P.M.	-0.001	11:45 A.M.	0.001	12:18 P.M.	
B8-07	20	-0.001	4:15 P.M.	0.000	11:43 A.M.	0.000	12:15 P.M.	0.000
B8-08	40	0.000	4:10 P.M.	-0.002	11:42 A.M.	-0.002	12:15 A.M.	-0.002 to -0.003
SVEW-8-1	80	0.002	4:20 P.M.	0.000	11:50 A.M.	0.000	12:16 P.M.	

Notes:

1. B8-01 @ 1214 range was -0.003 to +0.003

Comments:

Field test conducted on September 7, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

NA = not accessible

SSD = sub-slab depressurization

(a) Baseline collected on 9/6/12

(b) Blower operating at 13.8 cfm and 30 in wc vacuum.

(c) Blower operating at 14.5 cfm and 29 in wc vacuum.

**Table B4-11
Sub-Slab Depressurization Field Test
Building 9, SVEW-9-1**

**Former Philips Display Components Facility
Seneca Falls, New York**

		Baseline		Test ^(a)		Test Datalogger Range
Monitoring Point	Approximate Distance from SSD Well (ft)	Pressure (in wc)	Time	Pressure (in wc)	Time	Pressure (in wc)
B9-01	80	0.000	9:15 AM	0.000	10:39 AM	0.008 to -0.003
B9-02	30	0.000	9:15 AM	-0.001	10:38 AM	
B9-03	30	0.000	9:15 AM	0.000	10:40 AM	
B9-04	85	0.000	9:15 AM	0.000	10:42 AM	0.000
B9-05	55	-0.005	9:15 AM	0.000	10:43 AM	0.003 to -0.004
B9-06	55	0.000	9:15 AM	0.000	10:41 AM	

Comments:

Field test conducted on September 5, 2012.

cfm = cubic feet per minute

ft = feet

in wc = inches of water column

SSD = sub-slab depressurization

(a) Blower operating at 5.65 cfm and 40 in wc vacuum.

Attachment B
Technical Memorandum 5
Multi-Phase Extraction Investigation

Introduction

A multi-phase extraction (MPE) investigation was conducted in 2012 in accordance with the *MPE Investigation Work Plan* (ARCADIS 2012). This investigation included an MPE pilot test and a bench-scale soil resistivity test. The purpose of the MPE Investigation was to:

- Assess the hydraulic and pneumatic properties of the upper water-bearing unit, which consists of glacial till.
- Provide data to support the conceptual design of an extraction/treatment system for use during a full-scale in situ thermal remediation (ISTR) application.
- Assess if ISTR should be retained as a corrective measures alternative.

Summary

The MPE investigation data indicated that hydraulic and vapor control can be established and sustained with relatively low extraction rates. MPE effectiveness is limited by the low permeability of the till and the ability to move groundwater and vapor through the subsurface. Because of technology limitations, MPE was not considered as a stand-alone technology but would be applicable in conjunction with ISTR. The data and evaluation summarized below provide the basis for these conclusions.

Data Collection

MPE was evaluated as described below using information collected during the following activities:

- Installing one extraction well, two shallow vapor monitoring points, and two deep monitoring wells using drive-and-wash drilling methods. The extraction well (MPE-1) was constructed using 4-inch diameter carbon steel casing and 4-inch diameter 0.010-inch slot size stainless steel wire-wrapped screen installed from 4 to 34 feet bgs. Deep monitoring wells (MW-30R and MW-31R) were constructed using 2-inch diameter schedule 40 polyvinyl chloride (PVC) casing and 2-inch diameter 0.010-inch slot size PVC screens installed from 4.5 to 34 feet bgs. Shallow vapor monitoring points (MP-1 and MP-2) were constructed using 1-inch diameter schedule 40 PVC casing and 1-inch diameter 0.010-inch slot size PVC screens installed from 2.5 to 5.5 ft bgs. The extraction well and monitoring point locations are depicted on Figure B5-1. The boring/well construction logs are included in Appendix C of the *CMS Report*.
- Collecting three soil samples for soil resistivity testing. During boring advancement for deep monitoring well MW-31, soil cores were collected at 5 to 7, 15 to 17, and 25 to 27 feet bgs. The cores were shipped to McMillan-McGee Corporation in Calgary, Ontario, Canada to evaluate the applicability of electrical resistive heating (ERH) using McMillan-McGee Corporation's patented Electro-Thermal Dynamic Stripping Process (ET-DSP™) technology.
- Collecting six soil samples for VOC analysis by USEPA Method 8260B, ash and organic matter content by American Society for Testing and Materials (ASTM) Method D2974, grain size distribution by ASTM Method D2974, and moisture content by ASTM Method D2216-90.

Three split-spoon soil samples were collected from MW-30 at depths of 2 to 4, 14 to 18, and 30 to 32 feet bgs, and three samples were collected at MPE-1 at depth intervals of 5 to 7, 14 to 17, and 24 to 26 feet bgs.

- Measuring depth to groundwater in MPE-1 and three monitoring wells (MW-30R, MW-31R, and MW-25). The depth to groundwater in MW-25 was approximately 6 feet bgs. The shallow vapor monitoring points (MP-1 and MP-2) were installed to 5.5 feet bgs (i.e., above the water table) and were dry at the time of gauging.
- Implementing a 90-minute MPE vacuum step test to determine the proper blower operating conditions for the longer duration test. The vacuum step test procedures involved running the vacuum extraction blower at different vacuum settings while adjusting the depth of the stinger tube and monitoring: 1) the extraction well head vacuum, 2) extracted vapor flow rates, 3) groundwater recovery, and 4) vacuum and groundwater level response at the surrounding monitoring points. Vapor samples were collected using a Tedlar® bag for field screening of VOC concentrations with a photoionization detector (PID). A sample was collected from extraction well MPE-1 to characterize groundwater for disposal purposes. The sample was submitted to Test America Laboratories, Inc. in South Burlington, Vermont and analyzed for VOCs by USEPA Method 8260B, total and dissolved metals by USEPA Method 6020A, and chloride by USEPA Method 300.0.
- Implementing a four-day MPE static-vacuum pilot test, including the collection of three effluent vapor samples for VOC analysis by USEPA Method TO-15 and the collection of three groundwater samples for VOC analysis by USEPA Method 8260B. The MPE test was conducted using a trailer-mounted extraction system with a 7.5 horsepower oil-sealed liquid ring vacuum pump, liquid-vapor separator tank, liquid transfer pump, liquid holding tank, a small air compressor, and vapor-phase granular activated carbon (GAC) vessels for off-gas treatment. A piping and instrument diagram for the extraction system is included as Figure B5-2. Extraction well MPE-1 was connected to the extraction trailer using 2-inch diameter, high-vacuum rated suction hose, and the extraction well head was equipped with fittings that allowed a vacuum to be directly applied to a down-well stinger/drop tube, which simultaneously extracted vapor and liquid. Recovered groundwater was separated from the vapor stream at a liquid-vapor separator tank and pumped to a polyethylene holding tank for temporary storage. The recovered vapors passed through the vacuum blower and vapor-phase GAC vessels (for removal of VOCs) prior to discharge to the atmosphere.

Data Evaluation

Soil Resistivity

Soil resistivity in the three soil cores collected from the deep monitoring well boring at MW-31 ranged from 48.5 to 92.1 ohm-meters (Ω -m), which is within the optimal soil resistivity range of 10-300 Ω -m for ET-DSP™ technology (Table B5-1) (McMillan-McGee, 2011). Soil conditions are favorable for implementation of ERH.

Soil Results

A summary of the soil analytical results is provided below.

- Higher concentrations of chlorinated VOCs (18,000 to 150,000 µg/kg) were reported in the samples collected between 14 to 18 feet bgs (near the middle of the unconsolidated formation) than were reported in the shallow or deep soil samples (1.5 to 550 µg/kg) (Table B5-2). More than 90% of the total mass of VOCs was reported in samples collected in the 14 to 18-foot depth interval (Table B5-2).
- Soils in the test area are composed of nearly equal quantities of sand, silt, and clay-sized particles, with little variability across the soil profile (Table B5-3). A chart showing the sample grain size distribution is included as Figure B5-3.
- The soil moisture content ranged between approximately 9 and 16% by weight for unconsolidated formation materials in the test area, consistent with typical field capacities for loamy soils with a mixture of sands, silts, and clays (Table B5-3).
- The fraction of organic carbon (f_{OC}) ranged from 0.5 to 0.6% by mass, typical of the soils encountered in the test area (Table B5-2).

Groundwater Results

TCE was the primary VOC reported in groundwater (Table B5-4). Table B5-5 summarizes the baseline water level measurements at each of the wells.

Multi-phase Extraction Results

The MPE pilot system could quickly and effectively dewater the subsurface treatment zone with relatively low extraction rates. The MPE test data indicate that:

- Extraction well spacing should not exceed 12 to 15 feet on center to ensure adequate vacuum/vapor recovery radius of influence (ROI).
- A high-vacuum extraction blower capable of applying greater than 13 inches of mercury (in Hg) to each extraction well will be required to ensure sufficient ROI.
- Hydraulic control of the treatment area is feasible at low groundwater recovery rates.
- Vapor recovery flow rates of 6 to 10 standard cubic feet per minute (SCFM) were observed during the MPE test. However, a full-scale ISTR design would account for potential higher flow rates (e.g., 15 to 20 SCFM per well) because of reductions in viscosity, increased permeability, and steam generation.
- The vapor and water treatment systems, if used, should be designed to treat TCE, cis-1,2-DCE, and vinyl chloride as the primary COPCs.

Step Testing Detailed Results

- The vacuum applied to the stinger/drop tube ranged from 12 to 25 in Hg, and vacuum transmitted to the extraction well casing ranged from 10 to 18 in Hg (i.e., approximately 70% of the vacuum applied to the stinger tube was transmitted to the well casing). The vacuum drop observed between the stinger tube and well casing is attributed to the mechanical energy

expended to lift groundwater from the water table to ground surface, in addition to friction losses that result from turbulent mixing of vapor and liquid in the conveyance line.

- Groundwater recovery was initiated upon reaching an applied vacuum of 12 in Hg to the stinger tube. Groundwater recovery was maintained throughout the remainder of the test through the principles of air entrainment (i.e., the velocity of the extracted vapors in the drop tube and vacuum line was sufficient to carry water droplets up the drop tube and back to the liquid knockout tank).
- To prevent the extraction blower from overheating, the extracted vapor was supplemented with dilution air on the inlet side of the extraction blower. The dilution prevented accurate extracted vapor flow rate and vapor concentration measurements. PID readings ranged from 1 to 47 parts per million by volume (ppmV).

Static Vacuum Testing Detailed Results

- The extraction blower was set to operate at approximately 19.5 inches Hg for the static MPE test. A vacuum of approximately 13 inches Hg was applied to extraction well MPE-1. During the initial 2 days of testing (October 8 and 9, 2012), vapor flow and PID readings upstream of the liquid ring pump were inconsistent because of the open dilution air valve. The air valve was opened to allow ambient air into the system so the pump would not overheat. The dilution resulted in uncertainty in the vapor extraction flow rate from the formation because the flow readings were collected downstream of the air dilution valve. On the morning of October 10, 2012 (approximately 45 hours into the test), the air dilution valve upstream of the liquid ring pump was closed to eliminate inconsistency in air flow rate measurements. The valve was re-opened after 5 PM to ensure that the liquid ring pump would not overheat. The air dilution valve was closed again the following morning and remained closed until the test was ended at 3:00 PM on October 11, 2012.
- Vacuum transmitted to the extraction well head after closing the dilution air valve upstream of the liquid ring pump (approximately 45 hours into the test) was maintained between 17 and 19 in Hg, and vapor extraction flow rates ranged between 6.6 and 9.5 SCFM. A chart showing the relationship between extraction well casing and vapor extraction flow rate during the MPE test is included as Figure B5-4 (Note: vapor flow readings measured prior to closing the air dilution valve are not representative of flow from the MPE well).
- PID readings in the extracted vapor ranged from approximately 70 to 420 ppmV with the air dilution valve in the closed position. A chart showing PID readings and vapor flow rates during the MPE test is included as Figure B5-5 (Note: PID readings and vapor flow readings measured prior to closing the air dilution valve upstream of the blower were diluted).
- The vacuum response at shallow vapor monitoring points (MP-1 and MP-2, located 5.5 and 8.3 feet from Extraction Well MPE-1, respectively) ranged from approximately 1 to 46 inches of water column (IWC) after the air dilution valve was closed on the morning of October 10, 2012 (approximately 45 hours into the test). A chart showing the vacuum response at shallow vapor monitoring points and the vacuum transmitted to the extraction well casing over the course of the MPE test is included as Figure B5-6.
 - The vacuum response at MP-1 was irregular, exhibiting a strong response immediately after closing the air dilution valve and increasing the applied vacuum at MPE-1 between

30 and 46 IWC on October 10, 2012. However, the vacuum response in MP-1 reached a maximum value of approximately 17 IWC. The reduced vacuum response observed in MP-1 may be related to dewatering of the unconsolidated aquifer, opening up more area for vapor to flow.

- The vacuum response at MP-2 exhibited a relatively steady increasing trend during the MPE test. At the beginning of the test, a vacuum of approximately 0.5 IWC was measured at MP-2, and by the second day of testing, the vacuum stabilized at approximately 0.8 IWC. Upon closing the air dilution valve on the third day of testing and increasing the vacuum transmitted to the extraction well casing, the vacuum at MP-2 began to rise steadily until reaching approximately 1.75 IWC on the fourth day of testing.
- A rapid vacuum response was observed at both deep monitoring wells (MW-31R and MW-30R), indicating that vacuum propagation in the deeper soils is feasible (Figure B5-6).
 - The vacuum at MW-31R (approximately 2.7 feet from MPE-1) reached a stable vacuum of approximately 3 IWC by the second day of testing, and the vacuum response climbed by approximately 1 to 3 IWC after closing the air dilution valve on the third and fourth days of testing.
 - The vacuum at MW-30R (approximately 5 feet from MPE-1) remained at or below a vacuum of approximately 0.11 IWC, and exhibited a slowly decreasing vacuum response trend over the course of the test. The reduced vacuum may be attributable to increased dewatering of the unconsolidated aquifer, opening up more area for vapor flow.
- Approximately 375 gallons of groundwater were recovered during the course of the MPE testing activities (approximately 75 hours). The groundwater extraction rate remained fairly constant at approximately 0.08 gallon per minute after the initial few hours of testing (Figure B5-7).
- A groundwater drawdown response was observed at the deep monitoring wells, indicating that a full-scale MPE system will be capable of dewatering the saturated zone at relatively low groundwater extraction rates. A chart showing depth to water over time during the MPE test in wells MW-30R, MW-31R, and background water level monitoring well MW-25 is included as Figure B5-8.
 - Approximately 40 hours into the test, the water level in MW-30R fell below the depth at which the transducer was set in the well (approximately 1.5 to 2.0 feet off the bottom of the well), and the water level remained below the transducer for the remainder of the test.
 - The water level in MW-31R reached a depth of more than 30 feet bgs by the final day of testing, indicating that the entire saturated part of the unconsolidated aquifer was nearly dewatered.

Vapor and groundwater analytical results are provided in Tables B5-6 and B5-7, respectively, and summarized below.

- TCE, cis-1,2-DCE, PCE, and VC were the primary COPCs reported in the extracted groundwater. The COPC concentrations decreased during testing indicating that groundwater with lower VOC concentrations from outside the treatment zone may have been drawn toward the recovery well during groundwater extraction.
- TCE, cis-1,2-DCE, PCE, and VC were reported in the extracted vapor stream.

- Approximately 500 grams (1.1 pounds) of chlorinated VOC mass were extracted during the MPE test (Figure B5-9). Recovery rates during a full-scale ISTR application would be expected to be much higher because of the increased vapor pressures and contaminant desorption rates at elevated temperatures. A full-scale ISTR system would need to operate for about 6 to 12 months.

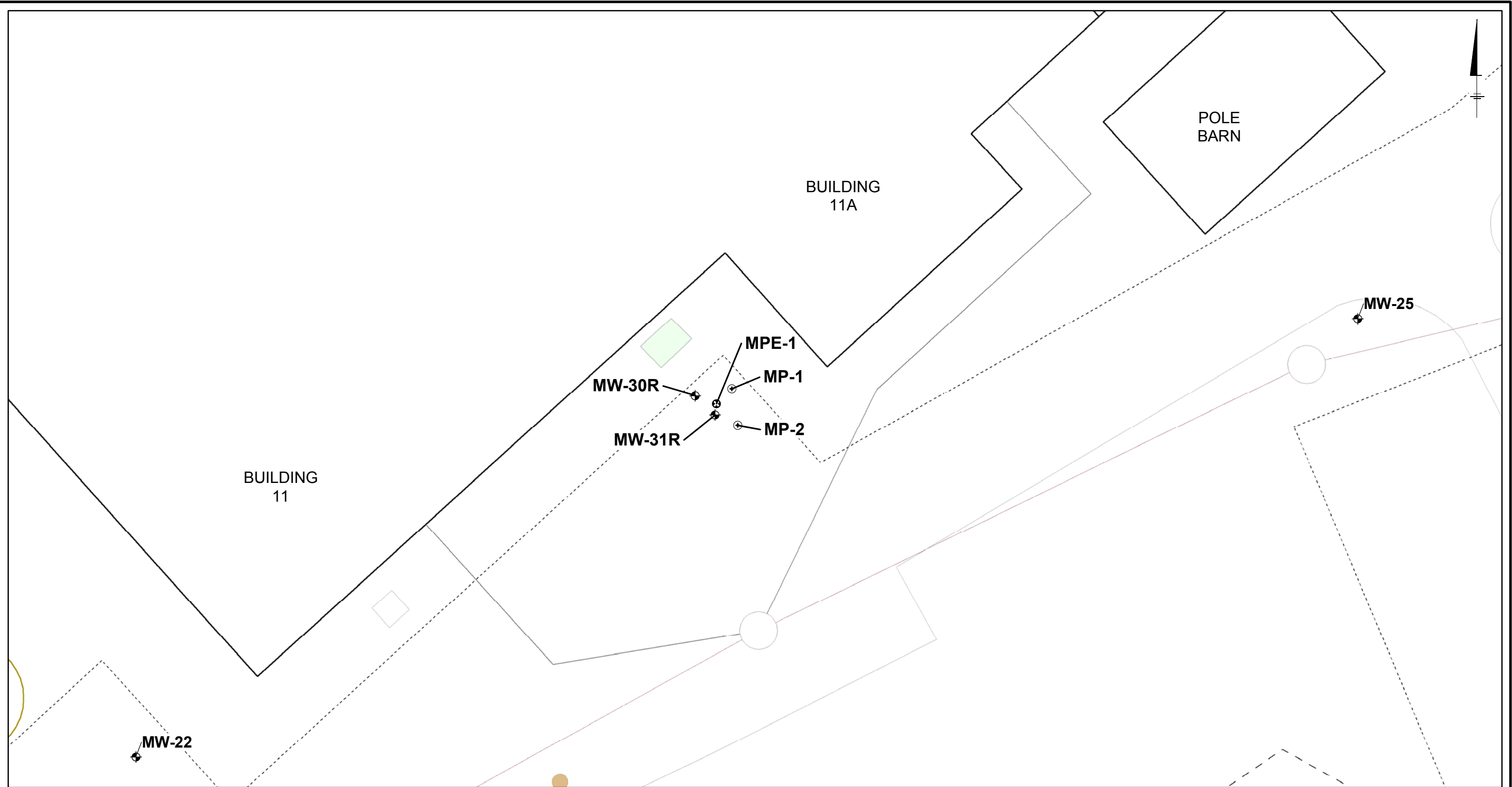


Appendix B

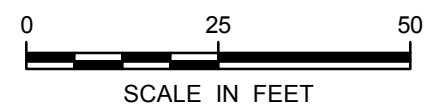
Technical Memorandum 5

Attachments

CITY: DEN-TECH DIV/GRPUP(ENV/IM) DB: R.MCKINNEY LD: PIC: PM: J.BONSTEEL TM: J.GATTENBY
PROJECT: 04563003.0000 Path: G:\Projects\Seneca Falls\MapDocuments\2013\FigB4-1 - Building 11 MPE and EW.mxd Date Saved: 5/17/2013 7:40:22 AM



LEGEND			
	EXTRACTION WELL		RAILROAD TRACK
	SHALLOW VAPOR MONITORING POINT		STORM SEWER PIPE
	MONITORING WELL		PROPERTY BOUNDARY
	MANHOLE/CATCHBASIN		INTERCEPTOR PIPE
	ELECTRICAL POLE		FENCE
	SUB-SLAB DEPRESSURIZATION SYSTEM BUILDING		ELECTRIC OVERHEAD LINE



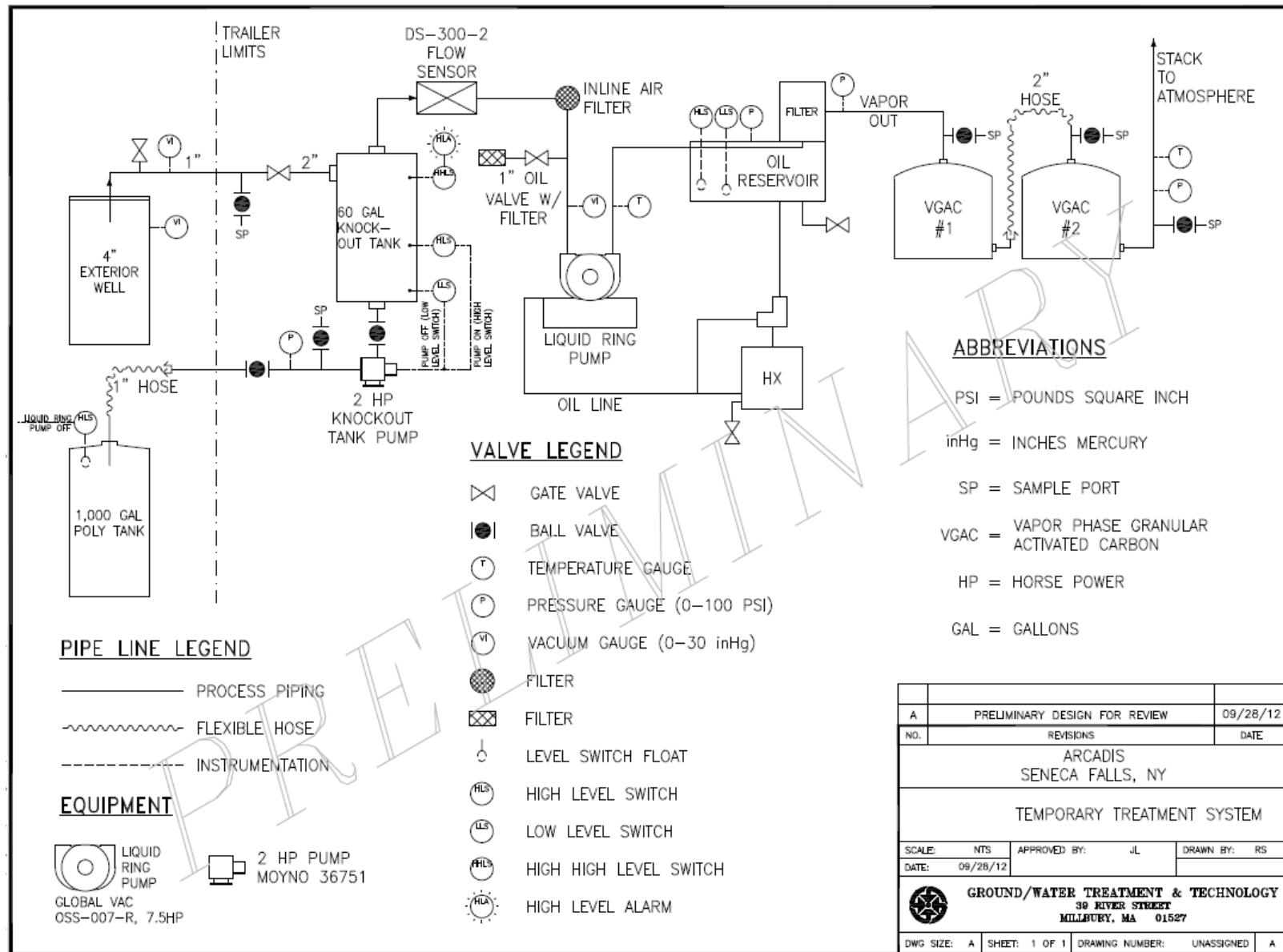
FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

**MULTI-PHASE EXTRACTION AND
MONITORING WELL LOCATIONS**



FIGURE
B5-1

PROJECTION: NAD_1983_StatePlane_New_York_Central_FIPS_3102_Feet

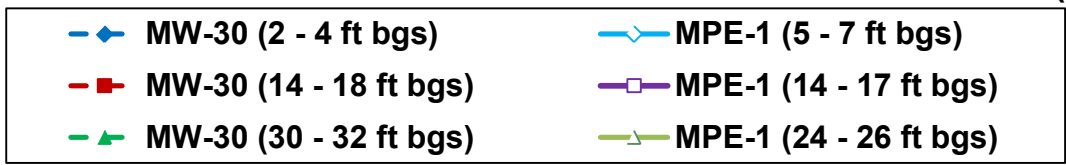
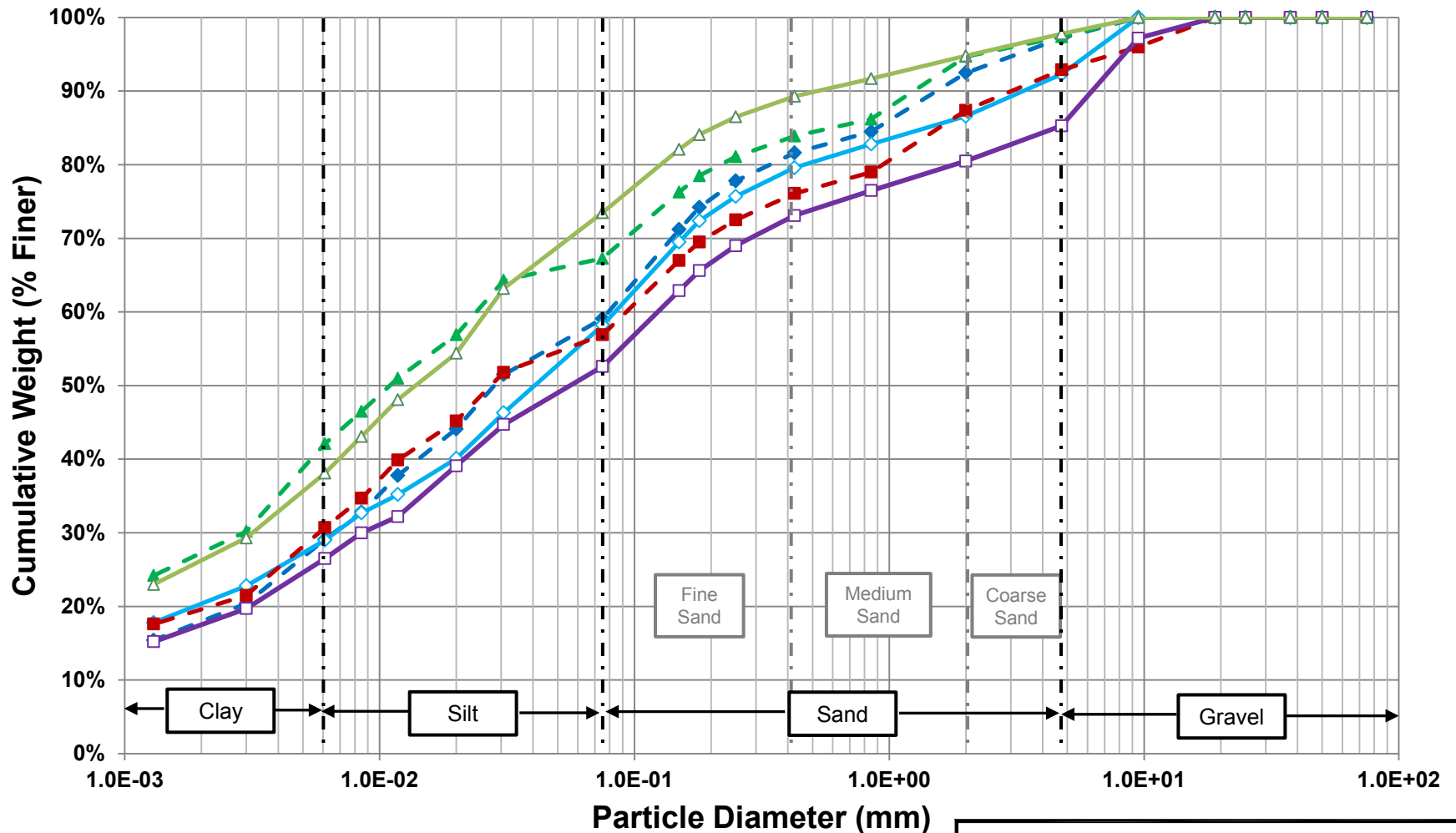


SOURCE: GROUND/WATER TREATMENT AND TECHNOLOGY



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SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
MULTI-PHASE EXTRACTION PROCESS FLOW DIAGRAM

FIGURE B5-2



Notes: bgs – below ground surface
ft – feet
mm - millimeter

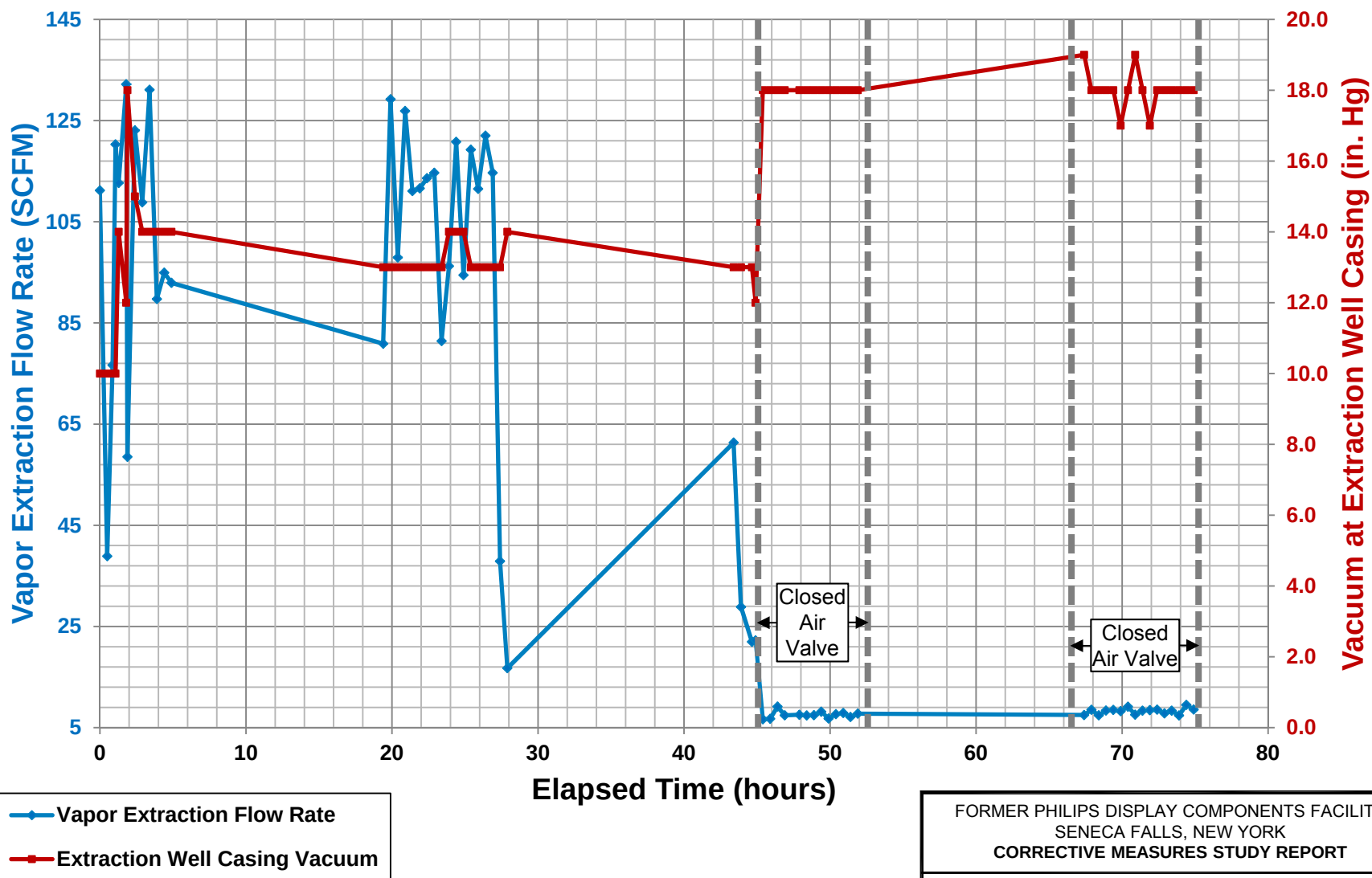
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GRAIN SIZE ANALYSIS DATA FOR
MULTI-PHASE EXTRACTION TEST AREA SOILS



FIGURE

B5-3



Notes: Vapor flow readings collected prior to closing the air valve are not indicative of flow from extraction well. The air valve was open to prevent the blower from overheating.
 in. Hg – inches of mercury
 SCFM – standard cubic feet per minute

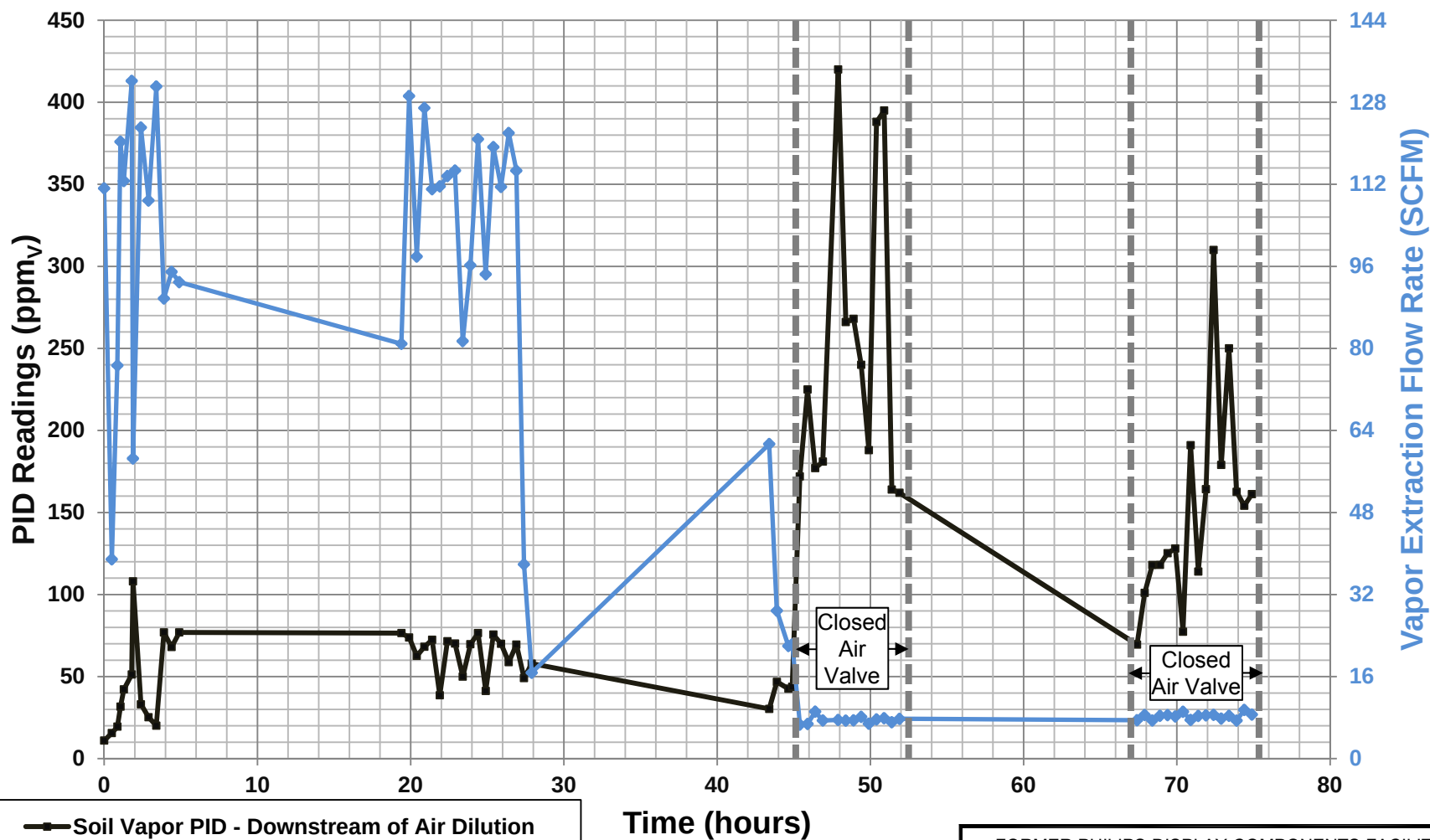
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VAPOR EXTRACTION FLOW RATE AND APPLIED
 VACUUM AT EXTRACTION WELL



FIGURE

B5-4



Notes: PID readings collected prior to closing the air valve were diluted and are not indicative of concentrations from multi-phase extraction well. The air valve was open for much of the test to prevent the extraction blower from overheating.

PID – photoionization detector

ppm_v – parts per million by volume

SCFM – standard cubic feet per minute

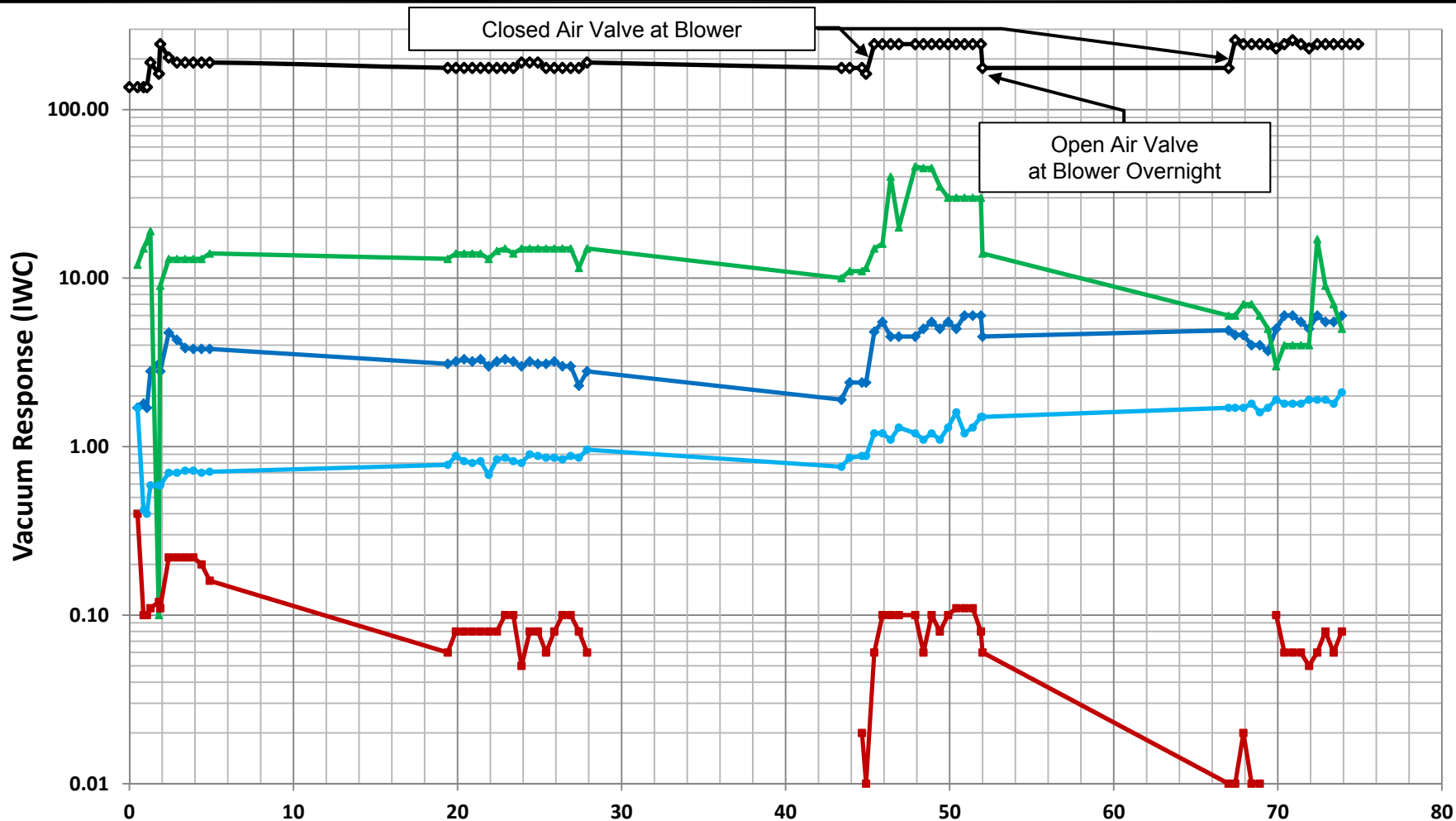
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PHOTOIONIZATION DETECTOR READINGS
AND VAPOR EXTRACTION FLOW RATES
DURING MULTI-PHASE EXTRACTION TEST



FIGURE

B5-5



—◆— MPE-1 (Extraction Well) —◆— MW-31R (2.7 ft)
 —◆— MP-1 (5.5 ft) —◆— MW-30R (5.0 ft)
 —◆— MP-2 (8.3 ft)

Notes: MP-1 and MP-2 were screened 2.5 to 5.5 feet below ground surface. MW-31R, MW-30R and MPE-1 were screened 4.5 to 34.5 feet below ground surface.
 ft – feet
 IWC – inches of water column

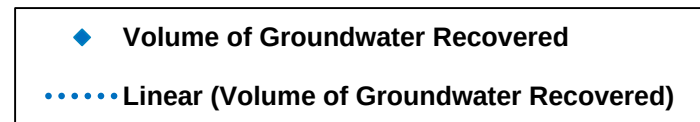
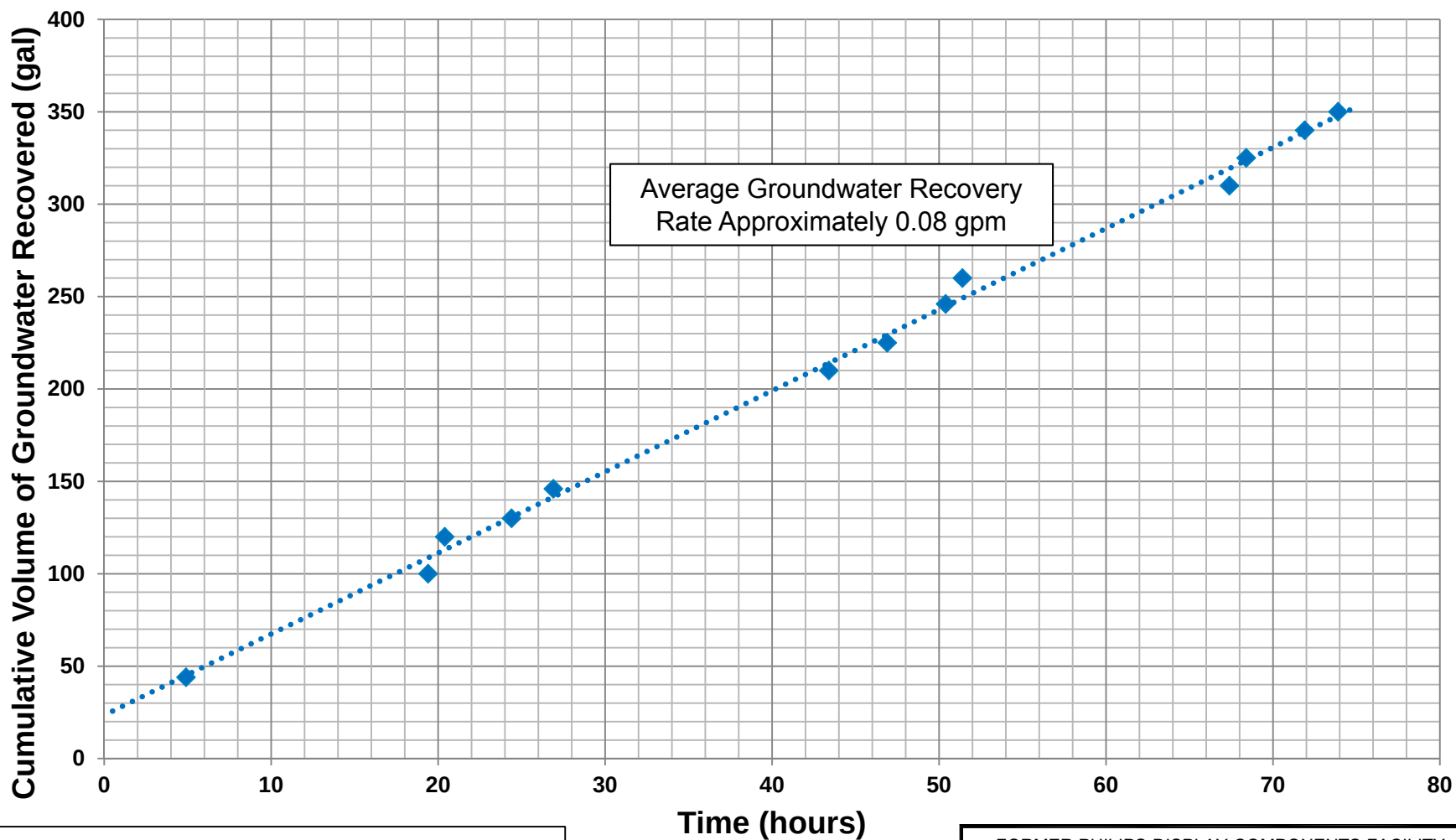
Time (hours)

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VACUUM RESPONSE AT SHALLOW AND DEEP
 VAPOR MONITORING POINTS DURING
 MULTI-PHASE EXTRACTION TEST



FIGURE
 B5-6



Notes: gal – gallons
gpm – gallons per minute

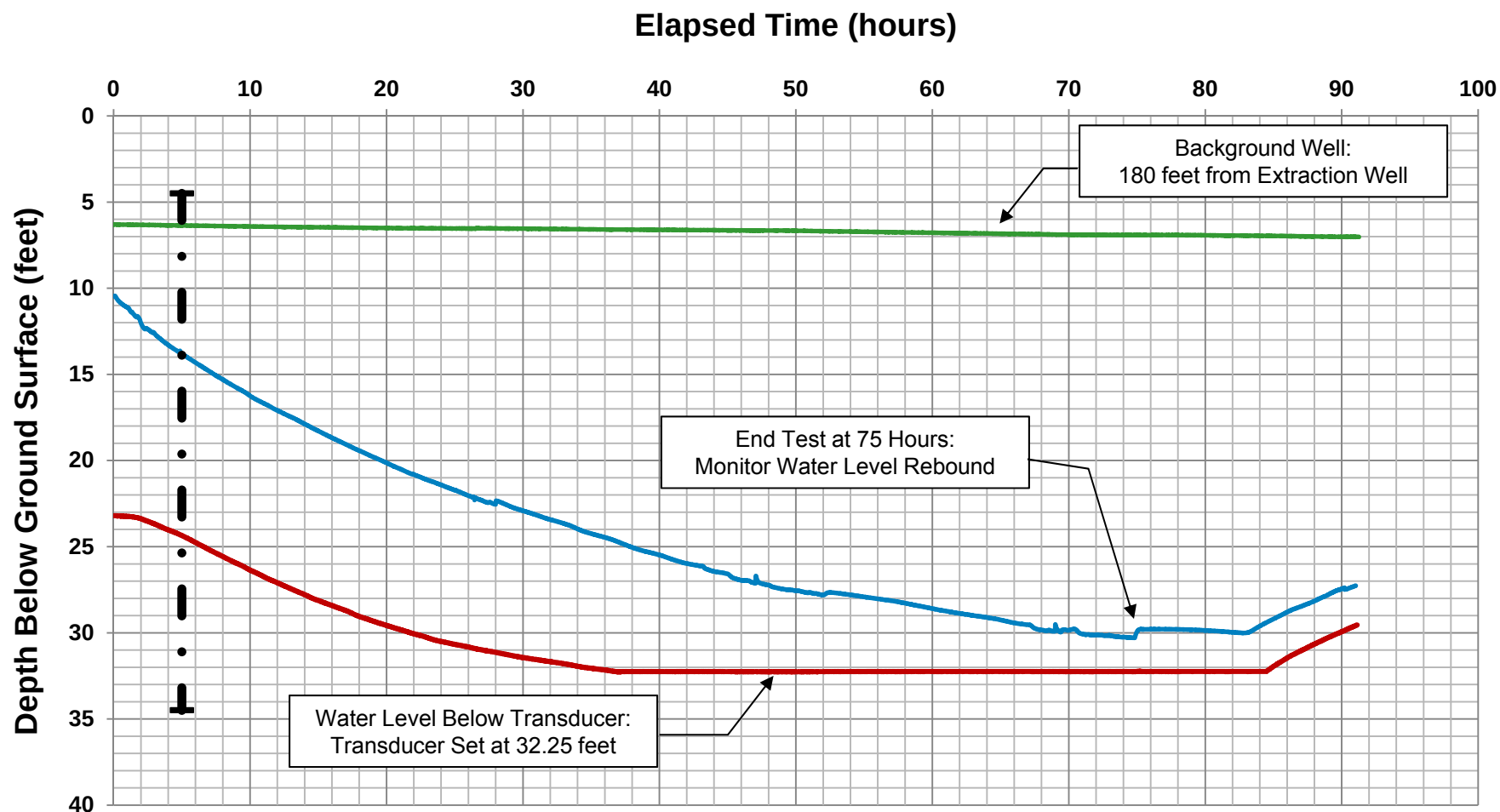
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VOLUME OF GROUNDWATER
RECOVERED OVER TIME



FIGURE

B5-7



- MW-31R (2.7 ft)
- MW-30R (5 ft)
- MW-25 (180 ft)
- Screen Interval (MPE-1, MW-31R, MW-30R)

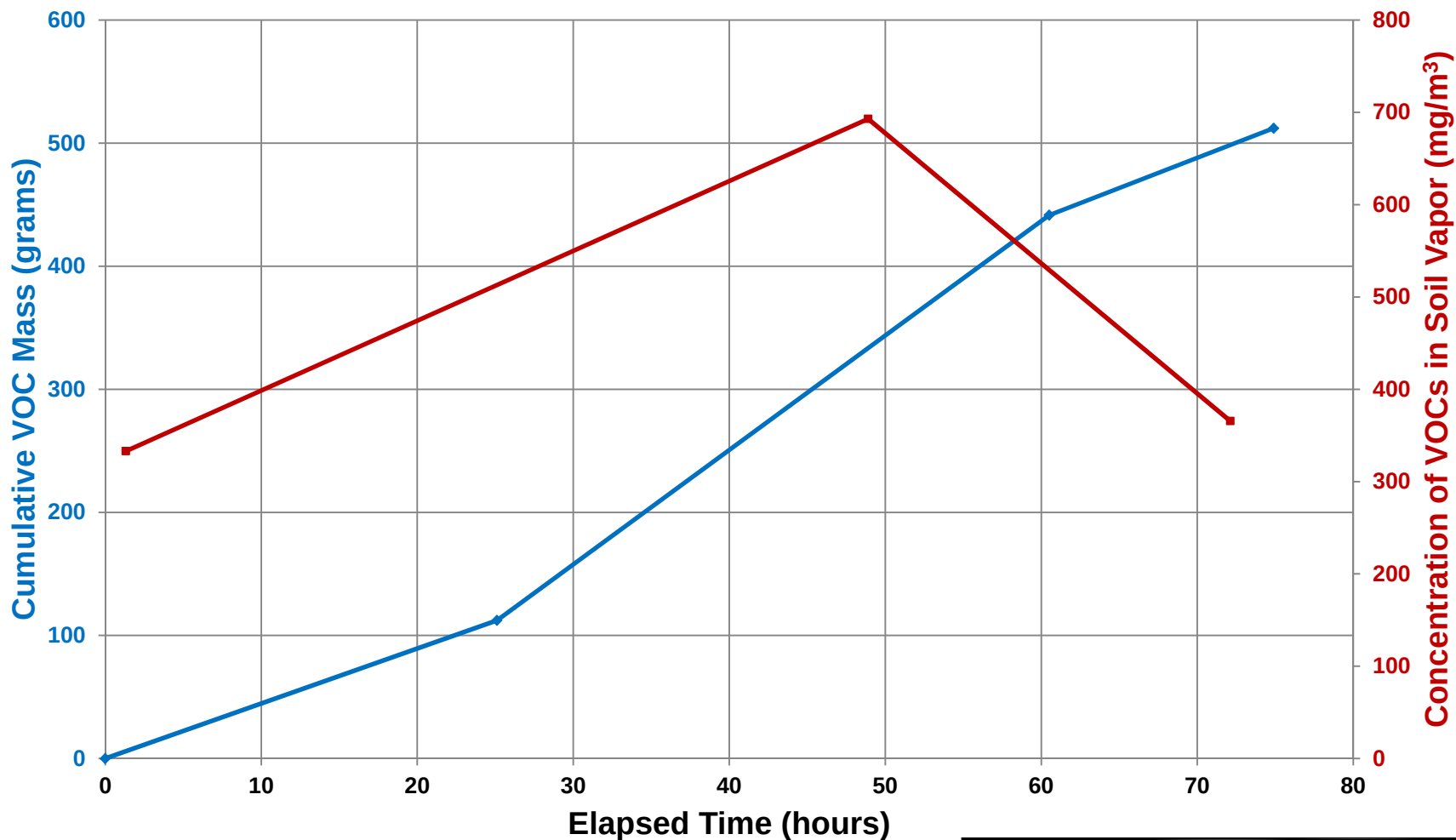
Notes: Stinger Tube inlet set at approximately 31 feet in extraction well
ft – feet

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REP

TIME SERIES DEPTH TO WATER TRENDS
DURING MULTI-PHASE EXTRACTION TEST



FIGURE
B5-8



— Cumulative Mass of VOCs Recovered in Soil Vapor
— Total VOC Concentration in Soil Vapor

Notes: Initial vapor phase sample collected prior to closing air dilution valve.
VOC concentrations based on laboratory analytical data.
mg/m³ – milligrams per meter cubed
VOC – volatile organic compound

FORMER PHILIPS DISPLAY COMPONENTS FACILITY
SENECA FALLS, NEW YORK
CORRECTIVE MEASURES STUDY REPORT

SOIL VAPOR CONCENTRATIONS
DURING MULTI-PHASE EXTRACTION TEST



FIGURE

B5-9

Table B5-1
Static Soil Electrical Resistivity Test Results

Former Philips Display Components Facility
Seneca Falls, New York

Boring / Location ID	Depth Interval (ft bgs)	Resistivity ($\Omega \cdot m$)
MW-31	5 - 7	92.1
MW-31	15 - 17	48.5
MW-31	25 - 27	68.3

Notes:

ft bgs = feet below ground surface

$\Omega \cdot m$ = Ohm-meters

Table B5-2
MPE-1 and MW-30 Soil Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample Identification:	MW-30	MW-30	MW-30	MPE-1	MPE-1	MPE-1
Sample Date:	9/10/2012	9/10/2012	9/10/2012	9/12/2012	9/12/2012	9/12/2012
Depth Interval (ft bgs):	2 - 4	14 - 18	30 - 32	5 - 7	14 - 17	24 - 26
Volatile Organic Compounds						
Acetone	17	12,000 U	9.2	310 U	1,400 U	300 U
Bromomethane	5.8 U	2,400 U	4.8 U	20 J	290 U	23 J
Chloroform	1.0	660 J	0.96 J	16 J	77 J	16 J
cis-1,2-Dichloroethene	72	2,400 U	4.8 U	61 U	290 U	61 U
Methylene Chloride	1.8 J	1,200 J	1.6 J	33 J	130 J	32 J
Tetrachloroethene	3	1,800 J	4.8 U	170	1,100	61 U
Trichloroethene	64	150,000	1.5 J	550	18,000	110
Vinyl Chloride	0.70 J	2,400 U	4.8 U	61 U	290 U	61 U
General Chemistry						
Percent Solids	82.9%	89.3%	86.5%	90.6%	90.0%	88.8%
Moisture Content	9.7%	11.6%	15.6%	9.2%	11.2%	12.9%
Total Organic Matter	0.6%	0.5%	0.6%	0.6%	0.6%	0.5%
Ash Content	99.4%	99.5%	99.4%	99.4%	99.4%	99.5%
Fractional Organic Matter	0.4%	0.3%	0.3%	0.4%	0.3%	0.3%

Notes:

All results for volatile organic compounds reported in units of micrograms per kilogram (µg/kg)

Results for percent solids, moisture content, and total organic matter reported in units of percent of total sample mass

Results for ash content and fractional organic matter reported in units of percent of total organic matter

ft bgs - feet below ground surface

U - Not detected, reporting limit shown

J - Estimated Result

Only compounds reported in one or more samples are shown.

Table B5-3
Grain Size Laboratory Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Sample Identification:		MW-30	MW-30	MW-30	MPE-1	MPE-1	MPE-1
		Sample Date:		9/10/2012	9/10/2012	9/10/2012	9/12/2012	9/12/2012	9/12/2012
		Depth Interval (ft bgs):		2 - 4	14 - 18	30 - 32	5 - 7	14 - 17	24 - 26
United States Seive Number	Soil Description	Opening		Cumulative Weight Percent Passing					
		millimeters	inches						
3-inch	Gravel	75.000	2.953	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2-inch		50.000	1.969	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1.5-inch		37.500	1.476	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1-inch		25.000	0.984	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3/4-inch		19.000	0.748	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3/8-inch		9.500	0.374	100.0%	96.0%	100.0%	100.0%	97.2%	100.0%
#4	Coarse Sand	4.750	0.187	97.2%	92.9%	97.4%	92.3%	85.3%	97.8%
#10		2.000	0.079	92.5%	87.4%	94.7%	86.6%	80.5%	94.8%
#20		0.850	0.033	84.5%	79.0%	86.2%	82.8%	76.5%	91.7%
#40	Medium Sand	0.425	0.017	81.6%	76.1%	83.9%	79.6%	73.1%	89.3%
#60		0.250	0.010	77.8%	72.5%	81.1%	75.7%	69.0%	86.5%
#80		0.180	0.007	74.2%	69.5%	78.5%	72.4%	65.6%	84.1%
#100		0.150	0.006	71.2%	67.0%	76.3%	69.5%	62.9%	82.1%
#200	Fine Sand	0.075	0.003	59.1%	56.9%	67.3%	58.2%	52.6%	73.5%
Hydrometer Reading 1		0.031	0.0012	51.5%	51.8%	64.3%	46.3%	44.7%	63.2%
Hydrometer Reading 2		0.020	0.0008	44.1%	45.2%	56.9%	40.1%	39.1%	54.4%
Hydrometer Reading 3		0.012	0.0005	37.8%	39.9%	51.0%	35.2%	32.2%	48.1%
Hydrometer Reading 4		0.009	0.0003	32.8%	34.7%	46.5%	32.7%	30.0%	43.1%
Hydrometer Reading 5		0.006	0.0002	29.1%	30.7%	42.1%	29.0%	26.5%	38.1%
Hydrometer Reading 6		0.003	0.00012	20.4%	21.5%	30.2%	22.8%	19.7%	29.3%
Hydrometer Reading 7	Clay	0.001	0.00005	15.4%	17.6%	24.2%	17.8%	15.2%	23.0%

Note:

ft bgs = feet below ground surface

Table B5-4
MPE-1 Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Identification: MPE-1 Sample Date: 9/18/2012 Sample Time: 13:00	Sample Identification: MPE-1 Sample Date: 9/18/2012 Sample Time: 13:00	Sample Identification: MPE-1 Sample Date: 9/18/2012 Sample Time: 13:00
Volatile Organic Compounds (8260B)	Metals (6020A - Total)	Metals (6020A - Dissolved/Filtered)
Chloroform 120 J	Aluminum 336	Aluminum 19.2 J
cis-1,2-Dichloroethene 500	Arsenic 2.0 U	Arsenic 0.21 J
Dichlorodifluoromethane 220 J	Barium 113	Barium 108
Methylene Chloride 230 J	Calcium 110,000	Calcium 109,000
Tetrachloroethene 290 J	Cobalt 1.2 J	Cobalt 0.97 J
Trichloroethene 33,000	Chromium 0.83 J	Chromium 0.12 J
	Copper 6.7 J	Copper 5.4 J
Anions	Potassium 5,050	Potassium 4,820
Chloride 23.2	Magnesium 37,600	Magnesium 36,100
	Manganese 129	Manganese 120
	Sodium 14,700	Sodium 14,400
	Nickel 13 J	Nickel 12.2 J
	Lead 0.23 J	Lead 2.0 U
	Antimony 0.52 J	Antimony 0.46 J
	Selenium 2.0 U	Selenium 0.34 J
	Thallium 0.085 J	Thallium 2.0 U
	Zinc 2.6 J	Zinc 1 J
	Vanadium 0.45 J	Vanadium 4.0 U
	Iron 394	Iron 75.8 J

Notes:

All results reported in units of micrograms per liter (µg/L)

MPE - multi-phase extraction

U - Not detected, reporting limit shown

J - Estimated Result

Only compounds reported in one or more samples are shown.

**Table B5-5
Baseline Water Levels**

**Former Philips Display Components Facility
Seneca Falls, New York**

Well ID	Depth to Water (ft btoc)	Total Well Depth (ft bgs)
MPE-1	8.55	34.0
MW-30R	23.20	34.0
MW-31R	10.45	34.0
MW-25	6.30	NM
MP-1	dry	5.5
MP-2	dry	5.5

Notes:

ft btoc - feet below top of casing

ft bgs - feet below ground surface

NM - not measured

Table B5-6
Multi-Phase Extraction Pilot Test Effluent Vapor Sample Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

Sample ID:		MPE EFFLUENT DAY 1	MPE EFFLUENT DAY 3	MPE EFFLUENT DAY 4
Date:		10/8/2012	10/10/2012	10/11/2012
Time:		13:25 - 13:27	13:00 - 13:03	12:13 - 12:15
Analyte	Unit			
1,1,1-Trichloroethane	µg/m ³	1500 U	2000 U	1100 U
1,1,2,2-Tetrachloroethane	µg/m ³	1900 U	2600 U	1400 U
1,1,2-Trichloroethane	µg/m ³	1500 U	2000 U	1100 U
1,1-Dichloroethane	µg/m ³	1100 U	1500 U	840 U
1,1-Dichloroethene	µg/m ³	1100 U	1500 U	820 U
1,2-Dichloroethane	µg/m ³	1100 U	1500 U	840 U
Benzene	µg/m ³	890 U	1200 U	660 U
cis-1,2-Dichloroethene	µg/m ³	170000	240000	120000
Ethylbenzene	µg/m ³	1200 U	1600 U	900 U
m,p-Xylene	µg/m ³	3000 U	4000 U	2300 U
o-Xylene	µg/m ³	1200 U	1600 U	900 U
Tetrachloroethene	µg/m ³	33000	220000	96000
Toluene	µg/m ³	1000 U	1400 U	780 U
trans-1,2-Dichloroethene	µg/m ³	1100 U	1500 U	820 U
Trichloroethene	µg/m ³	83000	220000	140000
Vinyl Chloride	µg/m ³	47000	13000	9600

Notes:

µg/m³ = micrograms per cubic meter

MPE = multi-phase extraction

U = Not Detected. Reporting Limit Shown.

Table B5-7
Multi-Phase Extraction Pilot Test Effluent Groundwater Analytical Data

Former Philips Display Components Facility
Seneca Falls, New York

Sample Identification:	Groundwater Sample 1	Groundwater Sample 2	Groundwater Sample 3
Sample Date:	10/8/2012	10/10/2012	10/11/2012
Sample Time:	13:27	13:10	12:05
Volatile Organic Compounds (8260B)			
Vinyl Chloride	87	3.2 J	1.6 J
Acetone	190 J	40 J	33
trans-1,2-Dichloroethene	44 U	8.8 U	0.96 J
cis-1,2-Dichloroethene	1,300	560	250
2-Butanone (Methyl Ethyl Ketone)	280	44 U	20 U
Trichloroethene	1,000	200	120
Toluene	44 U	1.7 J	0.87 J
Tetrachloroethene	180	110	51
o-Xylene	44 U	8.8 U	0.73 J

Notes:

All results reported in units of micrograms per liter (µg/L)

MPE - multi-phase extraction

U - Not detected, reporting limit shown

J - Estimated Result

Only compounds reported in one or more samples are shown.



Appendix C

Soil Boring Logs

BORING NO. MW-1THE CHESTER ENGINEERS
CORADPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1

PROJECT Philips ECG LOCATION Seneca Falls, New York GROUND ELEVATION 459.33
 FEATURE Upgradient Well Top of Casing 462.13
 DATE STARTED 3/11/83 TYPE OF SAMPLER Split Spoon DIAMETER OF AUGER 9 inch GROUND WATER 0 HRS 17.0' 24 HRS 6.3'
 DATE COMPLETED 3/12/83 SAMP. SIZE 2 inch O.D. WEIGHT OF HAMMER 140 lb. FALL 36 inch
 WEATHER Cloudy, Cold CASING SIZE 4 inch I.D. WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CON- SISTENCY, HDNSS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-14.0 445	Silt and clay, some sand, trace gravel (till)	reddish brown	damp	very stiff to hard	9-12-12 19-24-26		S-1 S-2	5.0-6.5 10.0-11.5			
14.0-20.0 439	Silt, some clay, some sand, little gravel (till)	brown	damp	very stiff	9-8-9		S-3	15.0-16.5			
20.0-30.0 429	Silt and clay, some sand, little gravel (till)	grayish brown	moist	hard to stiff	9-12-17 16-16-25 5-5-4-6		S-4 S-5 S-6	20.0-21.5 25.0-26.5 30.0-32.0			
	Bottom of Hole 30.0' Well Completion Data Cement 2.0 - Surface Bentonite 5.0-2.0' Sand Pack 30.0-5.0' Screen 30.0-20.0'										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.
 DRILLING COMPANY Catch Environmental Co. DRILLER Arthur Utter INSPECTOR Frank Jones

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-20

GROUND ELEVATION: 466.21

WELL ELEVATION: 465.81

ELEV. DATUM: FEET MSL

WELL DEPTH: 14

DATUM: FEET BGS

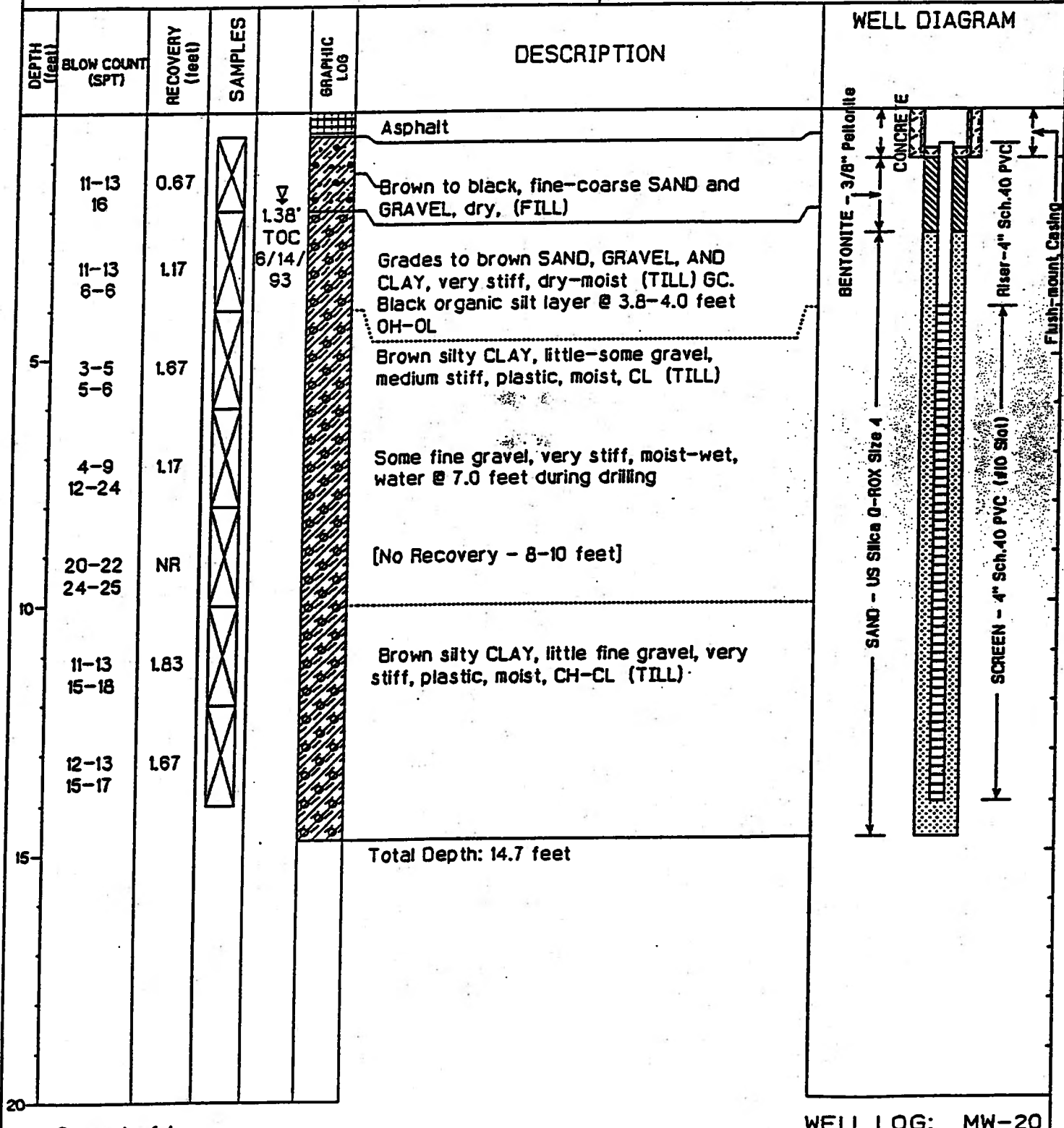
DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 4 MAY, 1993

GEOLOGIST: MIKE MEYER



WELL LOG: MW-20

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-21

GROUND ELEVATION: 470.03

WELL ELEVATION: 469.58

ELEV. DATUM: FEET MSL

WELL DEPTH: 21.6

DATUM: FEET BGS

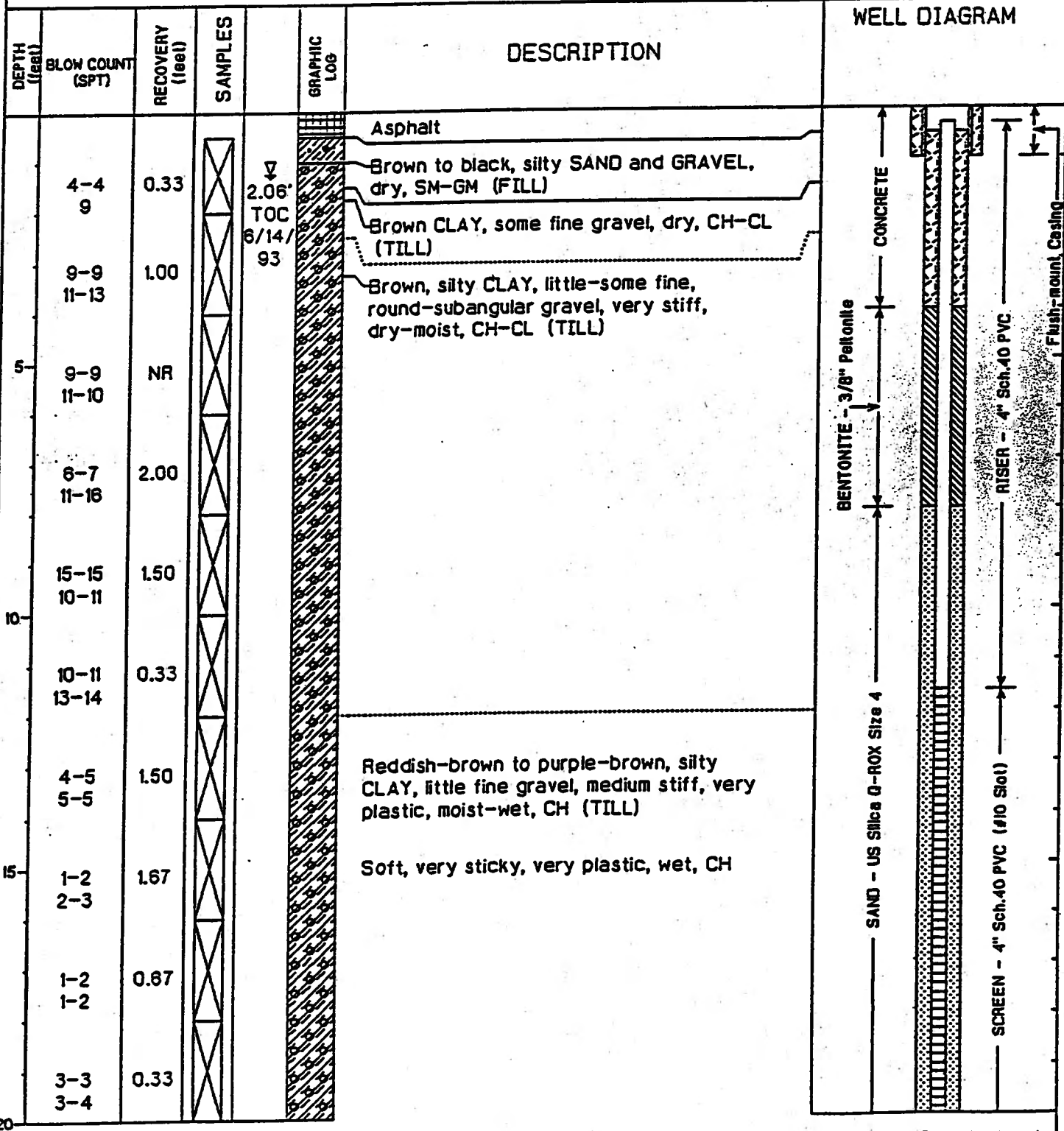
DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 4-5 MAY, 1993

GEOLOGIST: MIKE MEYER



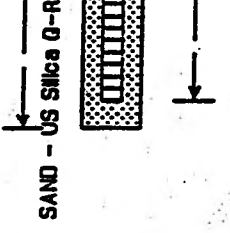
WELL LOG: MW-21

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-21

GROUND ELEVATION: 470.03
 WELL ELEVATION: 469.58 ELEV. DATUM: FEET MSL
 WELL DEPTH: 21.6 DATUM: FEET BGS
 DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER
 DRILLER: EMPIRE SOILS INVESTIGATION
 DATE DRILLED: 4-5 MAY, 1993
 GEOLOGIST: MIKE MEYER

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	2-2 4-5	1.67			Trace-little, fine gravel, CL-CH (TILL)	
	3-5 6-7	2.00			WELL SET IN DRY HOLE	
25					Total Depth: 24 feet	
30						
35						
40						

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-22

GROUND ELEVATION: 483.33

WELL ELEVATION: 462.93

ELEV. DATUM: FEET MSL

WELL DEPTH: 15

DATUM: FEET BGS

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 5 MAY, 1993

GEOLOGIST: MIKE MEYER

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
					Asphalt	
6-6 4	1.00				Gray, silty CLAY, some fine gravel and coarse sand, medium stiff, dry, CL (FILL)	
10-4 4-4	0.33				Brown, clayey SILT, some fine-coarse sand, medium stiff, dry, ML (FILL)	
4-10 10-15	0.83				Brown-gray, silty CLAY, trace-little coarse sand and fine gravel, very stiff, dry (almost fissile), CL (FILL)	
7-10 11-12	1.17			6.62' TOC 6/14 93	Brown, silty CLAY, little fine subrounded gravel, very stiff, moist, organic odor, CH-CL (TILL)	
10-10 10-17	1.33				[Subangular-subrounded gravel]	
3-6 7-10	1.33				[Stiff, drilled on cobble or boulder @ 11.0 feet, water @ 12 feet during drilling]	
8-12 14-17	1.67				[Very Stiff, moist-wet]	
4-7 11-13	1.50					
4-5 9-13	NR					
					Total Depth: 16 feet	

PROJECT: SUPPLEMENTAL SAMPLING VISIT

LOCATION: SENECA FALLS, NEW YORK

CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-23

GROUND ELEVATION: 463.44

WELL ELEVATION: 463.04

WELL DEPTH: 19

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

ELEV. DATUM: FEET MSL

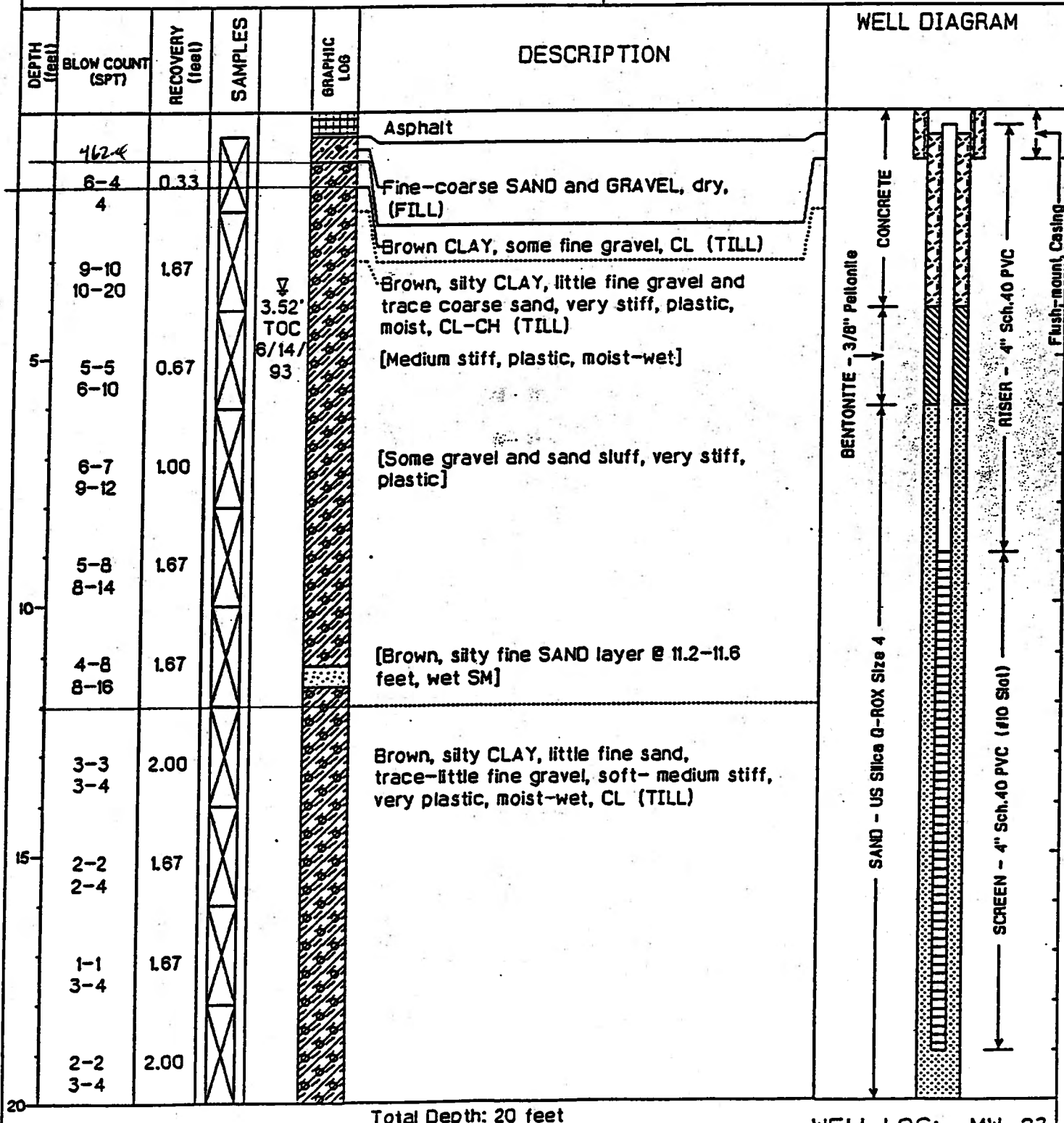
DATUM: FEET BGS

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 6-7 MAY, 1993

GEOLOGIST: MIKE MEYER



PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-24

GROUND ELEVATION: 465.23

WELL ELEVATION: 464.78

ELEV. DATUM: FEET MSL

WELL DEPTH: 24.5

DATUM: FEET BGS

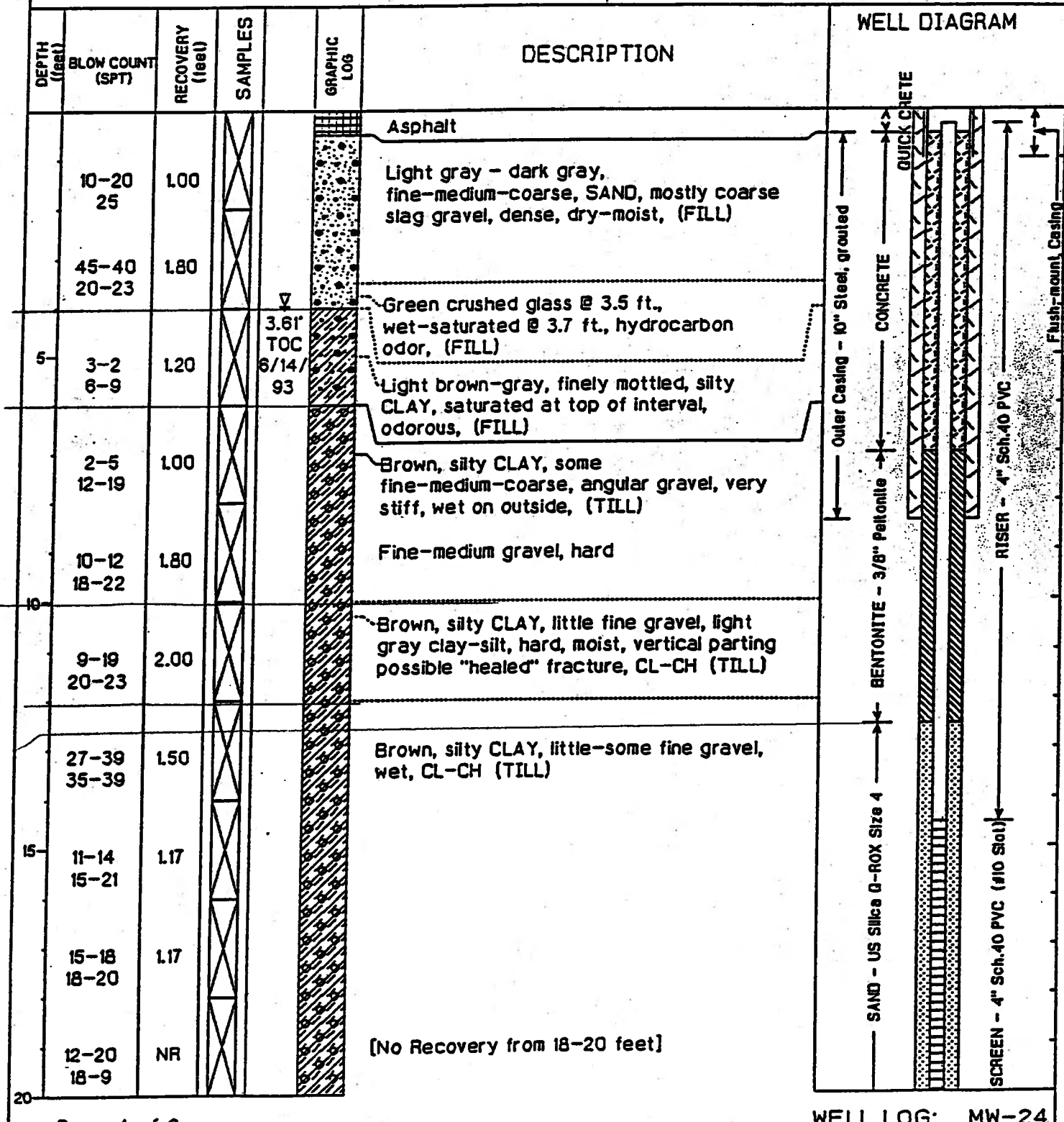
DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 4.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 10 JUNE, 1993

GEOLOGIST: MIKE MEYER



WELL LOG: MW-24

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-24

GROUND ELEVATION: 485.23

WELL ELEVATION: 464.78

ELEV. DATUM: FEET MSL

WELL DEPTH: 24.5

DATUM: FEET BGS

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 4.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 10 JUNE, 1993

GEOLOGIST: MIKE MEYER

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	5-8 8-10	1.17			[Stiff, saturated, slight hydrocarbon odor]	
	7-8 10-15	NR			[No recovery from 22-24 feet]	
25	3-4 5-6	1.67			Brown, silty CLAY, trace-little fine gravel, medium stiff, very plastic, saturated, CH (TILL)	
					Total Depth: 26 feet	
30						
35						
40						

← SAND - US Silica Q-Rox Size 4



PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-25

GROUND ELEVATION: 460.29

WELL ELEVATION: 462.94

ELEV. DATUM: FEET MSL

WELL DEPTH: 16

DATUM: FEET BGS

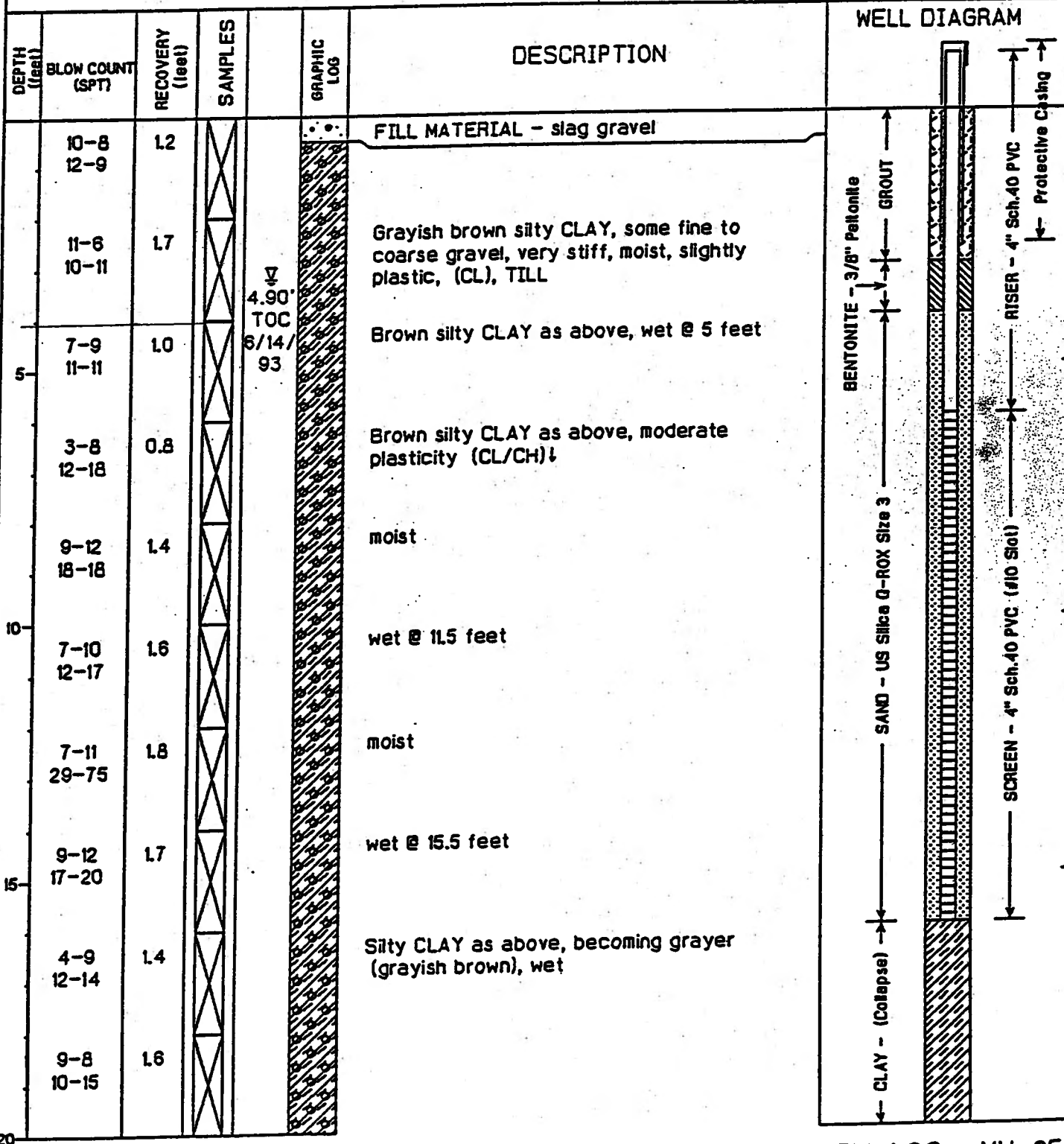
DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 11 MAY, 1993

GEOLOGIST: MARK SHAHEEN



WELL LOG: MW-25

PROJECT: SUPPLEMENTAL SAMPLING VISIT

LOCATION: SENECA FALLS, NEW YORK

CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-26

GROUND ELEVATION: 461.89

WELL ELEVATION: 461.09

ELEV. DATUM: FEET MSL

WELL DEPTH: 15

DATUM: FEET BGS

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 12 MAY, 1993

GEOLOGIST: MARK SHAHEEN

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	3-4-5	1.1			Asphalt	
	3-2 2-5	1.6			Grayish brown silty CLAY, some fine to medium gravel, medium stiff, moist, (CL)	
	3-5 5-4	1.4			Grayish brown silty CLAY as above, wet @ 3.5 feet	
5	4-5 7-8	2.0		6.13' TOC 6/14/ 93	^{456.7} Brown silty CLAY as above, stiff, soft wet and sandy @ 5 to 6 feet, (SC/CL)	
	4-6 8-10	1.8			^{455.2} fine sand seam @ 6.5 to 7 feet, fracture @ 60' in that zone, another fine sand seam @ 7.5 to 7.6 feet (SC/CL)	
10	3-6 9-12	1.2			^{451.2} ^{450.7} clayey SILT @ 10.5 to 11 feet (ML/CL)	
	6-10 12-14	1.4			Brown silty CLAY as above, very stiff, fine sand seam @ 30' @ 13 feet, saturated ^{448.7}	
15	3-4 7-8	0				
Total depth: 16 feet						

WELL LOG: MW-26

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-27

GROUND ELEVATION: 460.57

WELL ELEVATION: 462.67

ELEV. DATUM: FEET MSL

WELL DEPTH: 15

DATUM: FEET BGS

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 12 MAY, 1993

GEOLOGIST: MARK SHAHEEN

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	10-11 9-6	1.6				
	9-8 10-14	1.7			Brown silty CLAY, little fine to coarse gravel, very stiff, moist, (CL), TILL	
5	3-8 10-11	1.5			Brown silty CLAY as above, wet in small blotches	
	8-10 14-16	1.5		7.29' TOC 6/14/ 93	two gray thin 1/8-inch horizontal silt seams @ 7 feet (wet) and one brown 1/4-inch silt seam angled at ca. 60° @ 7.5 feet	
	9-18 23-26	1.6			some thin 1/8-inch silt/clay seams @ 8 to 10 feet, hard, moist/wet	
10	4-10 16-18	1.8			some fine to coarse gravel, moist/wet	
	8-13 19-22	1.3			hard	
15	4-8 10-12	1.8				
Total depth: 16 feet						

WELL LOG: MW-27

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-28

GROUND ELEVATION: 481.3

WELL ELEVATION: 463.48

WELL DEPTH: 15.5

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

ELEV. DATUM: FEET MSL

DATUM: FEET BGS

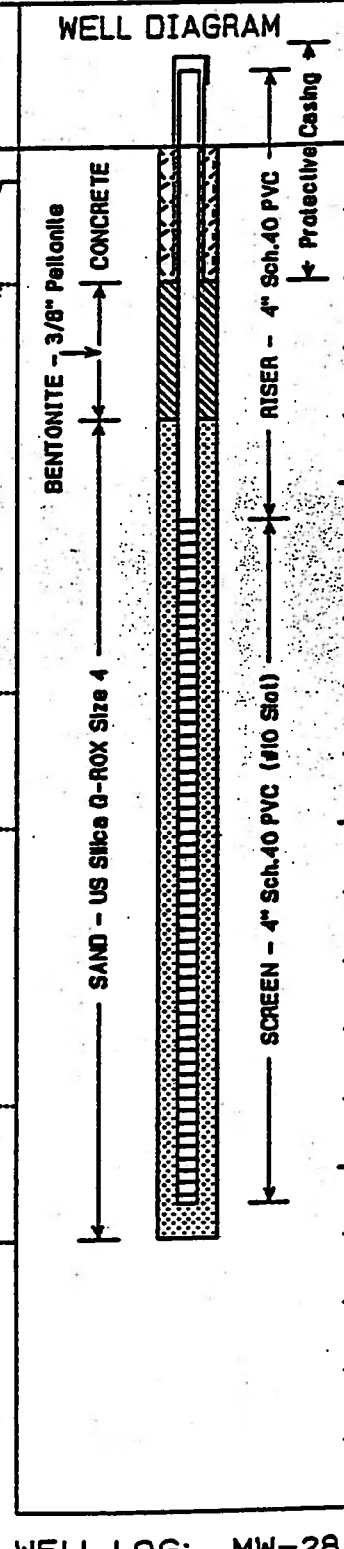
DRILLING METHOD: 8.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 3-4 JUNE, 1993

GEOLOGIST: MIKE MEYER

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	5-10 11-8	2.00			Top soil, sandy SILT, little clay, moist, organics SM	
					Brown, silty CLAY, some fine-coarse gravel, very stiff, dry, trace organics, CL-CH (TILL)	
	5-4 4-5	1.50			Brown, silty CLAY, trace-little fine gravel, medium stiff, moist, CL-CH (TILL)	
5	3-2 1-2	0.67		6.62' TOC 6/14/93	[Brown-dark brown]	
	2-5 8-10	0.58			[Brown, stiff]	
10	6-11 15-20	2.00			Brown, silty CLAY, little fine-medium sand, little fine gravel, very stiff, moist-wet, CL (TILL)	
	7-9 20-18	1.17			Brown, silty CLAY, trace fine sand, trace-little fine gravel, very stiff-hard, plastic, moist, CL-CH (TILL)	
	27-18 28-31	1.58			[Trace coarse gravel, hard, plastic, moist-wet]	
15	18-22 26-33	2.00			Brown, silty CLAY, little-some fine gravel, hard, plastic, wet, CL-CH (TILL)	
					Total Depth: 16 feet	



WELL LOG: MW-28

PROJECT: SUPPLEMENTAL SAMPLING VISIT
 LOCATION: SENECA FALLS, NEW YORK
 CLIENT: PHILIPS DISPLAY COMPONENTS

WELL LOG: MW-29

GROUND ELEVATION: 460.03

WELL ELEVATION: 462.17

WELL DEPTH: 18

DEVELOPMENT METHOD: SURGE AND PURGE - BAILER

ELEV. DATUM: FEET MSL

DATUM: FEET BGS

DRILLING METHOD: 6.25-INCH I.D. HOLLOW STEM AUGER

DRILLER: EMPIRE SOILS INVESTIGATION

DATE DRILLED: 3-4 JUNE, 1993

GEOLOGIST: MIKE MEYER

DEPTH (feet)	BLOW COUNT (SPT)	RECOVERY (feet)	SAMPLES	GRAPHIC LOG	DESCRIPTION	WELL DIAGRAM
	5-12 10-7	1.17			Top soil, sandy SILT, little clay, moist, organics	
					Dark brown, silty CLAY, little fine gravel, very stiff, dry, organics, CL	
	4-6 8-9	0.67			Brown, silty CLAY, little fine gravel, stiff, dry to 3 feet, moist at 3-4 feet, CL-CH (TILL)	
5	5-8 9-14	NR		7.04 TOC 6/14/ 93	[No Recovery from 4-6 feet]	
	14-44 44-43	0.58			[Driving on cobble, poor recovery from 6-8 feet]	
	12-18 20-26	2.00			Brown, silty CLAY, little fine gravel, hard, dry-moist, (TILL)	
10	18-18 19-23	1.83				
	18-18 17-19	1.33			[Light brown, wet-saturated]	
15	18-25 31-35	1.00				
	8-11 13-18	1.67			Brown, silty CLAY, little fine gravel and trace coarse gravel, very stiff, plastic, wet, (TILL)	
	16-19 22-25	0.25			[Poor Recovery from 18-20 feet]	
20						

WELL DIAGRAM

BENTONITE - 3/8" Peltonite

SAND - US Silica Q-ROX Size 4

SCREEN - 4" Sch.40 PVC (#10 Slot)

RISER - 4" Sch.40 PVC

Protective Casing

WELL LOG: MW-29

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BI-1				
Client: GTEOSI						Sampler: 4-inch core barrel		Page 1 of 2			
Proj. Loc: Seneca Falls, NY						Hammer: Sonic		Location:			
File No.: 23966.008.888						Fall: NA		Start Date: 1/17/01 End Date: 1/17/01			
Boring Company: Prosonic Incorporated						Screen		=		Grout	
Foreman: Denzell						Riser				Sand Pack	
OBG Geologist: David J. Carnevale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed		Field Testing PID (ppm) UV	
0		5	NA	5/5	NA	Asphalt to 0.5 ft, to gravel subbase to 1 ft, to light brown (5YR 5/6) with brownish gray (5YR 4/1) mottles, moist silty CLAY, trace fine to medium rounded gravel.					ND
5		15	NA	10/6.5	NA	Moderate brown (5YR 4/4), moist, SILT some fine to coarse subrounded gravel trace clay				2.1 @ 5 ft	ND
10											
15		25	NA	10/9	NA	Brownish gray (5YR 4/1), moist, clayey SILT, some fine to medium subrounded gravel, fine sand seam 24 to 24.3 ft				118 @ 14 ft	ND
20										16 @ 20 ft	

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BI-2				
Client: GTEOSI						Sampler: 4-inch core barrel		Page 2 of 2			
Proj. Loc: Seneca Falls, NY						Hammer: Sonic		Location:			
File No.: 23966.008.888						Fall: NA		Start Date: 1/16/01 End Date: 1/16/01			
Boring Company: Prosonic Incorporated						Screen		=		Grout	
Foreman: Denzell						Riser		=		Sand Pack	
OBG Geologist: David J. Carnevale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	Equip. Installed		Field Testing PID (ppm) UV	
25		30	NA	5/5	NA	Brownish gray (5YR 4/1), saturated, clayey SILT, some fine to coarse sub-rounded gravel, few cobbles				0.1 @ 25 ft	ND
30		35	NA	5/5	NA	As above to ~33 ft, to brownish gray (5YR 4/1), saturated CLAY to 35 ft				0.0 @ 30 ft	ND
35		40	NA	5/3	NA	CLAY as above to ~37 ft, to weathered limestone bedrock to ~38.5 ft, competent bedrock to 40 ft				0.0 @ 35 ft	ND
40							BEDROCK				
Monitoring well constructed of 5 ft of 2-inch diameter, 0.010-inch slot, schedule 40 PVC well screen flush-threaded to riser PVC casing to grade											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BI-3						
Client: GTEOSI						Sampler: 4-inch core barrel		Page 1 of 2					
Proj. Loc: Seneca Falls, NY						Hammer: Sonic		Location:					
File No.: 23966.008.888						Fall: NA		Start Date: 1/16/01 End Date: 1/16/01					
Boring Company: Prosonic Incorporated						Screen		=		Grout			
Foreman: Denzell						Riser				Sand Pack			
OBG Geologist: David J. Carnevale										Bentonite			
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change	Equip. Installed	Field Testing				
General						Descript			PID (ppm)	UV			
0		5	NA	5/5	NA	Olive black (5Y 2/1), moist, clayey SILT some fine to medium subrounded gravel to 3 ft, to moderate brown (5YR 4/4), with gray mottles, damp, SILT, some fine to medium subrounded gravel, little clay fine sand lense between ~4 and 4.2 ft					ND		
5		15	NA	10/7.5	NA	Moderate brown (5YR 4/4), damp, SILT, some very fine to medium subrounded gravel, little very fine sand to 8 ft, to brownish gray (5YR 4/1), moist, SILT, some very fine to medium subrounded gravel, little very fine sand to 15 ft			4.5 @ 5 ft		ND		
10									55.1 @ 10 ft				
15		25	NA	10/10	NA	Moderate yellowish brown (10YR 5/4), saturated, fine to medium SAND, little silt, trace medium subrounded gravel to ~17.5 ft, to brownish gray (5YR 4/1), moist, clayey SILT, some fine to medium subrounded gravel to 25 ft			2.8 @ 15 ft		ND		
									23.1 @ 17 ft				
20													

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-1				
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 2			
j. Loc: Seneca Falls, NY						Hammer: 140-lb.		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/21/01 End Date: 6/27/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm)	UV	
0	1	2	--	24/6	--	0-12' Blacktop @ 12" grades to moderate yellowish brown (10YR 5/4) GRAVEL and SILT (fill) (wet, loose)		--	0.0		
			5.3								
2	2	4	5-7	24/24	19	@ 3' grades to a moderate yellowish brown (10YR 5/4) SILT (wet, medium dense).		ML	0.0		
			12-13								
4	3	6	4-4	24/12	11	Moderate yellowish brown (10YR5/4) SILT, trace gravel (fill) (wet, medium dense).		ML	0.0		
			7-13								
6	4	8	11-18	24/4	36	Same as above (dense)		ML	0.0		
			18-18								
8	5	10	4-7	24/24	16	Same as above (medium dense)		ML	0.0		
			9-12								
10	6	12	7-11	24/24	25	Same as above, with fine sand (medium dense)		ML	0.0		
			14-14								
12	7	14	10-10	24/24	22	Same as above		ML	0.0		
			12-12								
14	8	16	3-4	24/24	10	Same as above		ML	0.0		
			6-10								
16	9	18	7-7	24/24	18	Same as above		ML	0.0		
			11-14								
18	10	20	3-5	24/6	13	Same as above		ML	0.0		
			8-11								
20	11	22	6-11	24/12	29	Moderate yellowish brown (10YR5/4) SILT, trace gravel (subrounded limestone) (wet, medium dense)		ML	0.0		
			18-17								
22	12	24	12-16	24/0	34	No recovery		--	NA		
			18-19								
24	13	26	9-9	24/24	22	Moderate yellowish brown (10YR5/4) SILT, trace rounded gravel (wet, medium dense)		ML	0.0		
			13-17								
26	14	28	9-12	24/24	34	Moderate yellowish brown (10YR5/4) SILT, trace rounded gravel (wet, dense).		ML	0.0		
			22-19								

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-BR-2			
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 3			
Loc: Seneca Falls, NY						Hammer: 140-lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/11/01 End Date: 6/18/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Chawn O'Dell										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
0	--	1	--	--	--	Blacktop and crushed stone to 1'		--			
1	1	3	3-4 5-6	24/16	9	Pale brown (5YR5/2), SILT, little fine sand and gravel (angular), trace clay (moist, loose)		ML	0.1		
3	2	5	6-13 14-15	24/18	27	Same as above (moist, medium dense)		ML	0.1		
6	3	8	10-16 20-22	24/3	36	Moderate yellowish brown (10YR5/4), SILT, some fine sand, little clay and fine gravel (angular) (moist, dense)		ML	0.2		
8	4	10	19-26 29-26	24/4	55	Same as above (very dense)		ML	0.2		
10	5	12	9-10 15-16	24/24	25	Pale brown (5YR5/2) SILT, some fine - medium gravel (subangular to angular) little clay and fine sand (moist, medium dense).		ML	0.3		
12	6	14	10-32 22-22	24/24	54	Same as above (very dense)		ML	0.2		
14	7	16	13-9 7-18	24/22	16	Grayish red (10YR4/2) SILT, some fine sand, little fine to medium gravel (subangular to angular), trace clay (moist, medium dense)		ML	0.0		
16	8	18	7-14 11-11	24/23	--	Same as above		ML	0.1		
18	9	18-20	11-6 6-10	24/4	12	Grayish red (10YR4/2) SILT, some fine sand, little fine to coarse gravel (subangular to angular) and clay (wet, medium dense).		ML	0.1		
20	10	20-22	2-3 6-6	24/24	9	Grayish red (10YR4/2) SILT, some fine sand, little fine gravel (subangular) and clay, trace medium to coarse sand (wet, loose)		ML	0.1		
22	11	22-24	4-6 7-8	24/22	13	Same as above (medium dense)		ML	0.1		

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-2				
Client: GTEOSI						Sampler: 2-inch SPT		Page 2 of 3			
j. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/11/01 End Date: 6/18/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Chawn O'Dell										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
24	12	24-26	11-12	24/23	18	Pale brown (5YR5/2) SILT, some fine to medium sand, little fine gravel (sub-angular) and clay (wet, medium dense)		ML	0.1		
			6-7								
26	13	26-28	4-8	24/18	28	Pale brown (5YR5/2) fine SAND, some silt, little medium to coarse sand, little fine gravel (subangular), trace clay (wet, medium dense)		SM	0.3		
			20-12								
28	14	28-30	4-6	24/24	14	Pale brown (5YR5/2) SILT, some fine sand, little fine to medium gravel (sub-angular), and little clay (wet, medium dense).		ML	0.1		
			8-9								
30	15	30-32	2-5	24/24	12	Pale brown (5YR5/2) SILT, some fine sand, little clay and fine to medium gravel (subangular), trace medium to coarse sand (wet, medium dense)		ML	0.0		
			7-9								
32	16	32-34	5-9	24/24	23	Same as above		ML	0.1		
			14-17								
34	17	34-36	3-5	24/4	12	Same as above		ML	0.0		
			7-12								
36	18	36-38	2-11	24/18	24	Same as above.		ML	0.0		
			13-14								
38	19	38-40	2-2	24/24	5	Pale brown (5YR5/2) SILT, some fine sand, little clay and fine to medium gravel (subangular) (wet, loose)		ML	0.0		
			3-4								
40	20	40-42	5-9	24/24	18	Same as above (medium dense)		ML	0.0		
			9-9								
42	21	42-44	4-6	24/24	14	Same as above		ML	0.0		
			8-11								
44	22	44-46	7-14	24/18	60	Same as above (very dense)		ML	0.0		
			46-17								
46	23	46-48	23-50	24/24	97	LIMESTONE (very dense).		--	0.0		
			47-53								

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-2				
Client: GTEOSI						Sampler: 2-inch SPT		Page 3 of 3			
j. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/21/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
48	24	48-50	19-21	24/12	41	Brownish gray (5YR4/1) SILT (till)		GM	0.0		
			20-17			and GRAVEL angular limestone (wet, dense).					
50	25	50-51.4	16-22	17/12	72	Same as above (very dense)		GM	0.0		
			50/0.4			@ 51' grades to weathered limestone					
52	26	52-52.7	50/7	0.7/0.7	--	Medium dark gray (N4) SILT, trace clay		ML	0.0		
				--		(wet)					
60						Auger refusal @ 54'	Bedrock 53'				
						Drill to 58' bgs with a 5 7/8 air hammer					
						Set 4 in flush thread casing to 58 ft					
65											
						5' Core samples to 98' bgs.					
70											
75											
80											
85											
90											
95											
100		--	--	--	--	Dark gray (N3) LIMESTONE (wet).		--			
105		--	--	--	--	Same as above (dry)		--			
110		--	--	--	--	Same as above - wet		--			
						Used forced water injection. Sample					
						recovery very hard. Limestone (based					
						on drilling rate). Switched to rollerbit					
						BT @ 126'					
						Screen: 61-126'					
						No. 2 Sand: 58 - 126'					
						Bentonite Chips: 43 - 58'					
						Grout: 0.5 - 43'					
Interpretations presented on the logs are based on an interpretation of O'Brien & Gere Engineers, Inc. field logs and Parratt Wolff Inc. drilling logs.											

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-3				
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 4			
j. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/14/01 End Date: 6/25/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm)		UV
0	1	2	--	24/12	--	0-6" blacktop. @ 6" grades to moderate brown (5YR3/4) SILT (moist)		--	0.0		
			7-8								
2	2	4	5-9	24/12	20	Moderate yellowish brown (10YR5/4) SILT, trace clay and fine sand (moist, medium dense)		ML	0.0		
			11-13								
4	3	6	11-9	24/9	21	Moderate yellowish brown (10YR5/4) SILT, some clay, trace fine sand (moist, medium dense)		ML	0.0		
			12-14								
6	4	8	14-19	24/8	38	Moderate yellowish brown (10YR5/4) SILT, some clay (moist, dense)		ML	0.0		
			19-24								
8	5	10	3-5	24/14	13	Moderate yellowish brown (10YR5/4) SILT, little clay, trace subangular gravel (moist, medium dense)		ML	0.0		
			8-11								
10	6	12	5-7	24/18	17	Same as above		ML	0.0		
			10-10								
12	7	14	10-11	24/19	25	Moderate yellowish brown (10YR5/4) SILT, little clay, trace angular gravel (moist, medium dense)		ML	0.0		
			14-15								
14	8	16	2-4	24/18	10	Moderate yellowish brown (10YR5/4) SILT, some clay, trace angular gravel (moist, medium dense)		ML	0.0		
			6-6								
16	9	18	9-9	24/24	22	Same as above		ML	0.0		
			13-16								
18	10	20	2-5	24/5	12	Same as above		ML	0.0		
			7-9								
20	11	22	3-5	24/24	13	Moderate brown (5YR4/4) CLAY, some silt, trace gravel (moist, stiff)		CL	0.0		
			8-10								
22	12	24	12-13	24/24	26	Same as above (very stiff)		CL	0.0		
			13-13								
24	13	26	3-3	24/19	6	Moderate brown (5YR3/4) SILT, little clay, trace gravel (moist, loose)		ML	0.0		
			3-5								

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-3				
Client: GTEOSI						Sampler: 2-inch SPT		Page 2 of 4			
Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/14/01 End Date: 6/25/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
26	14	28	4-6	24/24	13	Same as above (medium dense)		ML	0.0		
			7-8								
28	15	30	1-2	23/8	4	Moderate brown (5YR4/4) SILT, some clay, trace gravel (wet, loose)		ML	0.0		
			2-4								
30	16	32	1-1	24/24	3	Same as above (very loose)		ML	0.0		
			2-3								
32	17	34	3-4	24/24	9	Same as above (loose)		ML	0.0		
			5-6								
34	18	36	1-2	24/24	4	Same as above		ML	0.0		
			2-4								
36	19	38	3-4	24/24	10	Same as above		ML	0.0		
			6-6								
38	20	40	1-2	24/24	5	Same as above		ML	0.0		
			3-4								
40	21	42	1-19	24/12	43	Moderate yellowish brown (10YR5/4) SILT, trace gravel and clay (wet) dense @ 41.2' grades to grayish brown GRAVEL @ 41.9' grades to moderate yellowish brown (10YR5/4) SILT, trace gravel (subangular) (wet, dense)		ML	0.0		
			24-6								
								ML			
42	22	44	13-46	24/12	--	Dark yellowish brown (10YR4/2) GRAVEL (weathered limestone) (wet, very dense)		GP	0.0		
			50/1								
44	23	46	8-54	24/6	--	Dark gray (N3) GRAVEL (subangular weathered limestone) (wet, very dense).		GP	0.0		
46	24	48	50-50/2	24/8	--	Same as above		GP	0.0		
			--								

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-3				
Client: GTEOSI						Sampler: 2-inch SPT		Page 3 of 4			
Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/14/01 End Date: 6/25/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
48	25	50	12-22	24/12	34	Dark gray (N3) GRAVEL, some silt, little fine sand (wet, dense)		GP	0.0		
			12-13								
50	26	52	10-33	24/24	68	Dark yellowish brown (10YR4/2)		GM	0.0		
			35-50			SILT and GRAVEL (angular weathered limestone) (wet, very dense)					
52	27	54	24-50/2	24/8	--	Same as above (saprolite layer)		GM	0.0		
			--								
54	28	56	50/1	24	--	Auger refusal at 53'. Broke 2" spoon		--	0.0		
			--			Rock fragments. Use air-hammer (5 7/8) to 60' (7" socket)					
60		--	--	--	--	Dark gray (N3) LIMESTONE (wet)		--	0.0		
65						Dark gray (N3) LIMESTONE (dry)		--	0.0		
70						Same as above		--	0.0		
75						Same as above		--	0.0		
80						Same as above		--	0.0		
85						Same as above		--	0.0		
90						Same as above		--	0.0		
95						Same as above		--	0.0		
100						Same as above		--	0.0		
105						Same as above		--	0.0		
110						Same as above		--	0.0		
115						Same as above		--	0.0		
						@ 115' very dry (BT at 120' bgs) allow time to recharge					

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-4				
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 2			
j. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/7/01 End Date: 6/8/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Dave Carnevale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm)		UV
0	1	2	1-2	24/12	4	Moderate yellowish brown (10YR5/4) SILT, some fine sand (moist, very loose)		ML	0.0		
			2-1								
2	2	4	2-4	24/12	11	Pale yellowish brown (10YR6/2) SILT, little fine sand, trace clay (moist, medium dense)		ML	0.0		
			7-7								
4	3	6	3-6	24/24	15	Olive gray (5YR4/1) highly weathered LIMESTONE (moist, medium dense)		--	0.0		
			9-19								
6	4	8	13-9	24/24	19	@ 7' grades to dark reddish brown (10YR3/4) SILT (moist, medium dense) @ 7.5' grades to olive weathered LIMESTONE		ML	0.0		
			10-11								
8	5	10	4-7	24/24	19	Olive gray (5YR4/1) SILT (moist, medium dense).		ML	0.0		
			12-32								
10	6	11.4	7-40	17/17	--	Light olive gray (5YR6/1) highly weathered LIMESTONE (dry)		--	0.0		
			50/.4								
12	7	12.8	15	10/10	--	Same as above.		--	0.0		
			50/.3								
14	8	16	6-9	24/18	35	Olive gray (5YR4/1) highly weathered LIMESTONE (moist, dense)		--	0.0		
			26-20								
16	9	17.5	20-53	18/12	103	@ 17' grades to medium dark gray weathered LIMESTONE (wet, very dense)		--	0.0		
			50 - x								
18	10	19.8	28-38	22/22	60	@ 19' grades to dusky yellow (5YR6/4) fine SAND (wet).		--	0.0		
			22-50/.3			@ 19.2' grades to dark gray (N3) weathered LIMESTONE (very dense)		--			
20	11	21.8	10-15	20/22	51	Dark gray (N3) LIMESTONE (wet, very dense)		--	0.0		
			36-50/.3								
22	12	22.4	50/0.4	--	--	Same as above with some silt layers		--	0.0		
24	13	25.8	20-28	22/22	36	Same as above with some silt layers (dense)		--	0.0		
			8-50/0.3								
26	14	26.2	50/0.2	3/3	--	No Recovery		--			
26.2						Set a 4-inch flush thread casing to 26' Begin Air Hammer					

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-BR-4			
Client: GTEOSI						Sampler: 2-inch SPT		Page 2 of 2			
j. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5316/23966						Fall: 30-inches		Start Date: 6/8/01 End Date: 6/8/01			
Boring Company: Parratt Wolff Foreman: Layne Pech OBG Geologist: Dave Carnevale						Screen Riser		=		Grout Sand Pack Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
30						Dark gray (N3) weathered SHALE and LIMESTONE (dry).		--			
40											
50											
60											
70											
80						Water encountered water at 89'					
90						BT at 90' bgs. Screen: 80 - 90' No. 2 Sand: 71 - 90' Bentonite Chips: 45 - 71' Grout: 0.5 - 45' Flush Mounted 4" aluminum cover					

Interpretations presented on the logs are based on an interpretation of O'Brien & Gere Engineers, Inc. field logs and Parratt Wolff Inc. drilling logs.

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING MW-BR-5				
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 2			
J. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/6/01 End Date: 6/8/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Dave Carnevale										Bentonite	
Depth Below Grade		Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
0	1	2	WOH 3-2	24/18	5	Moderate yellowish brown (10YR5/4) SILT, little clay (moist, loose)		ML	0.0		
2	2	4	4-3 4-4	24/6	7	Same as above		ML	0.0		
4	3	6	4-5 4-4	24/0	9	No recovery		--	--		
6	4	8	4-5 4-5	24/5	9	Dark yellowish brown SILT, little fine sand, trace clay (moist, loose)		ML	0.0		
8	5	10	9-5 2-2	24/0	7	No recovery		--	--		
10	6	12	2-2 3-16	24/24	5	Olive gray (5YR4/1) SILT (moist, loose) @ 11.8' grades to dark green/gray (5YR4/1) weathered rock	weathered bedrock	--	0.2		
12	7	12.3	50/0.3	--	--	Olive gray (5YR4/1) highly weathered LIMESTONE (wet)		--	1.4		
14	8	15.2	8-58 50/0.2	15/15	--	Same as above		--	2.5		
16	9	16.8	13- 50/0.3	10/10	--	Same as above		--	0.5		
18	10	19.3	14-37 50/0.3	15.6	--	Same as above		--	3.2		
20	11	21.6	22-11 36-50/0.1	19/19	--	Olive gray (5YR4/1) LIMESTONE, some fine sand (wet)		--	0.0		
22	12	24	13-20 20-20	24/24	40	Olive gray (5YR4/1) weathered LIMESTONE (wet, dense)		--	0.8		
24	13	26	3-11 19-40	24/24	30	Dark gray (N3) weathered LIMESTONE (medium dense)		--	0.2		
26	14	28	25-11 3-24	24/24	14	Grayish black (N3) weathered LIMESTONE and SHALE (medium dense)		--	0.0		
28	15	28.8	50/0.3	10/10	--	Set surface casing to 28' 4-inch flush thread casing					

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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-BR-6			
Client: GTEOSI						Sampler: 2-inch SPT		Page 1 of 3			
Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/19/01 End Date: 6/20/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm)		UV
0	1	2	--	24/12	78	0-6" blacktop. grades to moderate yellowish brown (10YR5/4) CLAY, some silt, trace gravel (dry, hard)		CL	0.0		NEG
			31-44								
2	2	4	40-33	24/6	68	Moderate yellowish brown (10YR5/4) SILT, some clay and gravel (fill) (dry, hard)		ML	0.0		NEG
			35-31								
4	3	6	6-7	24/12	19	Moderate yellowish brown (10YR5/4) SILT, some fine sand (wet, medium dense).		ML	0.0		NEG
			12-13								
6	4	8	15-17	24/12	36	@ 7.6' grades to moderate yellowish brown (10YR5/4) SILT, little clay trace gravel (fill) (moist, dense)		ML	0.0		NEG
			19-26								
8	5	10	4-6	24/12	19	Moderate yellowish brown (10YR5/4) SILT, trace fine sand and clay (moist, medium dense).		ML	0.0		NEG
			13-14								
10	6	12	4-5	24/24	13	Moderate yellowish brown (10YR5/4) SILT, little clay, trace sand (moist, medium dense)		ML	0.0		NEG
			8-1								
12	7	14	9-11	24/7	60	Moderate yellowish brown (10YR5/4) fine SAND, some silt (wet, very dense) @ 13.6' GRAVEL (angular limestone)		SM	0.0		NEG
14	8	16	18-16	24/24	19	Moderate yellowish brown (10YR5/4) SILT (moist, hard). @ 15.9' dark gray (N3) LIMESTONE (dry, medium dense)		ML	0.0		NEG
			3-16								
16	9	18	6-4	24/6	8	Moderate yellowish brown (10YR5/4) SILT, trace gravel (moist, loose)		ML	0.3		NEG
			4-5								
18	10	20	4-4	24/12	23	Moderate yellowish brown (10YR5/4) SILT (wet, hard). @ 19.3' grades to grayish brown (5YR3/2) SILT (dry, medium dense).		ML	0.0		NEG
			19-41								
20	11	22	12-36	24/7	26	Same as above		ML	0.0		NEG
			50/4								
22	12	24	19-50/3	24/12	--	Dark yellowish brown (10YR4/2) SILT, trace gravel (perched water at 22 - 22.6).	Perched water	ML	0.0		NEG
			--								
24	13	26	50/4	24/4	-	Dark yellowish brown (10YR4/2) weathered LIMESTONE	Weathered rock	--	0.0		NEG
			--								

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-BR-6			
Client: GTEOSI						Sampler: 2-inch SPT		Page 2 of 3			
Proj. Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/19/01 End Date: 6/20/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
26	14	28	35-50/4	24/12	--	Dark gray (N3) SILT and GRAVEL (angular, weathered rock) (dry, very dense).		GM	0.0	NEG	
28	15	30	19-18 12-11	24/12	30	Same as above (medium dense)		GM	0.0	NEG	
30	16	32	8-8 5-3	24/--	13	Same as above		GM	0.0	NEG	
32	17	34	6-8 5-11	24/18	13	Grayish brown (5YR3/2) SILT (moist, medium dense)		ML	0.0	NEG	
34	18	36	10-16 20-20	24/24	36	Moderate yellowish brown (10YR5/4) SILT and GRAVEL (wet, dense) @ 35.4' grades to dark yellowish brown (10YR4/2) (dry, dense)	Perched	GM	0.0	NEG	
36	19	38	28-33 27-2	24/12	60	Dark yellowish brown (5YR4/4) SILT, trace gravel (dry, very dense)		ML	0.0	NEG	
38	20	40	4-2 --	24/24	3	Moderate yellowish brown (10YR5/4) SILT and GRAVEL (wet, very loose)	water	GM	0.0	NEG	
40	21	42	1-1 1-1	24/2	2	Same as above (wet)		GM	0.0	NEG	
42	22	44	1-3 3-9	24/12	6	Same as above (wet, loose)		GM	0.0	NEG	
44	23	46	4-4 9-23	24/10	13	Dark gray (N3) GRAVEL, some silt (wet, medium dense)		GM	0.0	NEG	
46	24	48	33-24 11-11	24/12	35	Same as above. @ 47.6' grades to dusky yellowish brown (10YR2/2) SILT (wet, dense). Sulfur odor		ML	0.0	NEG	
48	25	50	5-4 4-5	24/24	8	Dark gray (N3) GRAVEL (subangular) (wet, loose). @ 49.6' grades to dusky brown (5YR2/2) SILT (loose)		GM	0.0	NEG	
50	26	52	4-4 10-12	24/24	14	Dark gray (N3) GRAVEL, little silt (wet, loose). @ 51' grades to dusky yellowish brown SILT, some gravel, little fine sand (wet, medium dense).		GM	0.0	NEG	

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG		REPORT OF BORING MW-BR-6			
Client: GTEOSI						Sampler: 2-inch SPT		Page 3 of 3			
Loc: Seneca Falls, NY						Hammer: 140 lb		Location:			
File No.: 5816/23966						Fall: 30-inches		Start Date: 6/19/01 End Date: 6/20/01			
Boring Company: Parratt Wolff						Screen		=		Grout	
Foreman: Layne Pech						Riser				Sand Pack	
OBG Geologist: Eddy Teasdale										Bentonite	
Depth Below Grade	No.	Depth (feet)	Blows /6"	Penetr/ Recovery	"N" Value	Sample Description	Stratum Change General Descript	USCS	Field Testing PID (ppm) UV		
52	27	54	20-18	24/	28	Dark gray (N3) GRAVEL and SILT (wet, medium dense).		GM	0.0	NEG	
			10-18								
54	28	56	6-6	24/24	17	Dark gray (N3) SILT, trace fine sand (wet, medium dense).		ML	0.0	NEG	
			11-17								
56	29	58	20-44	24/18	--	Dark gray (N3) SILT, little gravel (wet, dense).		ML	0.0	NEG	
			50/3								
58	30	60	11-36	24/18	--	Same as above		ML	0.0	NEG	
			50/4								
60	31	62	22-58/5	24/x	--	Dark gray (N3) SILT and GRAVEL (dense).		GM	0.0	NEG	
			--								
62	32	64	23-22	24/x	43	Same as above. @ 63.4' grades to dark gray (N3) GRAVEL (angular) (angular), little silt (dense)		GM	0.0	NEG	
			21-40								
64	33	66	50/0.3	24/3	--	Dark gray (N3) LIMESTONE (sub-angular) trace silt (wet)		--	0.0	NEG	
			--								
66	34	68	x-33	24/24	56	Same as above (very dense)		--	0.0	NEG	
			23-18								
68	35	70	10-22	24/	52	Same as above, some silt		--	0.0	NEG	
			30-30								
70	36	72	16-40	24/18	90	Same as above		--	0.0	NEG	
			50/0.3								
72	37	74	50/0.2	24/2	--	Same as above, angular rock fragments. Note: 6 1/4 augers hit refusal. Drilling rate and footage decreased.		--	0.0	NEG	
			--								
						BT at 74' bgs					
						Screen: 44 - 74'					
						No. 2 Sand: 40 - 74'					
						Bentonite Chips: 25 - 40'					
						Grout: 0.5 - 25'					
						Flush Mounted 4" aluminum cover					
Interpretations presented on the logs are based on an interpretation of O'Brien & Gere Engineers, Inc. field logs and Parratt Wolff Inc. drilling logs.											

BORING NO. MW-2THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1

PROJECT Phillips ECG LOCATION Seneca Falls, New York GROUND ELEVATION 445.95
 FEATURE Downgradient Well to Right of Lagoon Top of Casing 449.19
 DATE STARTED 3/10/83 TYPE OF SAMPLER Split Spoon DIAMETER OF AUGER 9 inch GROUND WATER 0 HRS Dry 24 HRS 21.7'
 DATE COMPLETED 3/10/83 SAMP. SIZE 2 inch O.D. WEIGHT OF HAMMER 140 lb. FALL 36 inch
 WEATHER Cloudy, Cold CASING SIZE 4 inch I.D. WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRIUM	DESCRIPTION OF STRIUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, MOHSS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-14.0 432	Silt and clay, some sand, little rounded gravel (till)	reddish brown	damp	hard	12-15-28 22-24-34		S-1 S-2	5.0-6.5 10.0-11.0			
14.0-21.0 425	Clay, some silt, little sand, trace rounded gravel (till)	gray	wet	stiff	6-6-6 5-3-14		S-3 S-4	15.0-16.5 20.0-21.5			
21.0-22.0 424	Weathered shaley limestone Auger refusal at 22.0'	gray	damp	hard							
	Bottom of Hole 22.0' <u>Well Completion Data</u> Cement 2.0'-surface Bentonite 5.0-2.0' Sand Pack 22.0-5.0' Screen 22.0-12.0'										

ABANDONED 6-11-93

*NOTE: Blow Count Indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Catch Environmental Co. DRILLER Arthur Utter INSPECTOR Frank Jones

PROJECT Philips ECG LOCATION Senaca Falls, New York GROUND ELEVATION 443.20
 FEATURE Downgradient Center Well Top of Casing 446.00
 DATE STARTED 3/9/83 TYPE OF SAMPLER Split Spoon DIAMETER OF AUGER 9 inch GROUND WATER 0 HRS Dry 24 HRS Dry
 DATE COMPLETED 3/10/83 SAMP. SIZE 2 inch O.D. WEIGHT OF HAMMER 140 lb. FALL 36 inch
 WEATHER Rain, Cold CASING SIZE 4 inch I.D. WEIGHT OF HAMMER FALL

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, HARDNESS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-24.0 419	Silt, some clay, some sand, little rounded gravel (till)	reddish brown	damp to very moist at 17.0'	hard	11-18-24-41 17-23-18 8-6-6 12-14-41		S-1 S-2 S-3 S-4	5.0-7.0 10.0-11.5 15.0-16.5 20.0-21.5			
24.0-24.5 418	Weathered limestone Auger refusal at 24.5'	gray		hard	50/.3		S-5	24.0-24.3			
	Bottom of Hole 24.5' Well Completion Data Cement 2.0'-Surface Bentonite 5.0-2.0' Sand Pack 24.5-5.0' Screen 24.5-14.5'										

ABANDONED 6-22-93

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Cato Environmental Co. DRILLER Arthur UtterINSPECTOR Frank Jones

BORING NO. MW-4THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1

PROJECT Phillips ECG LOCATION Seneca Falls, New York GROUND ELEVATION 441.96
 FEATURE Downgradient Well Top of Casing 444.56
 DATE STARTED 3/8/83 TYPE OF SAMPLER Split Spoon DIAMETER OF AUGER 9 inch GROUND WATER 0 HRS Dry 24 HRS Dry
 DATE COMPLETED 3/9/83 SAMP. SIZE 2 inch O.D. WEIGHT OF HAMMER 140 lb. FALL 36 inch
 WEATHER Cold, Rain CASING SIZE 4 inch I.D. WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, INDEX	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-12.0 430	Some sand, some silt, some clay, little small to medium gravel (till)	reddish brown	damp	hard	17-22-26 13-22-26		S-1 S-2	5.0-6.5 10.0-11.5			
12.0-25.5 417	Silt and clay, some sand, little small to medium gravel (till)	brownish gray	moist to wet at 17.0'	very stiff	9-12-8 2-10-20		S-3 S-4	15.0-16.5 20.0-21.5			
25.5-26.0 417	Weathered limestone Auger refusal at 26.0'	gray	dry	hard	50/.5		S-5	25.0-25.5			
	Bottom of Hole 26.0' ABANDONED <u>6-9-83</u> Well Completion Data Cement 2.0'- Surface Bentonite 5.0-2.0' Sand Pack 26.0-5.0' Screen 26.0-16.0'										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Catoh Environmental Co. DRILLER Arthur UtterINSPECTOR Frank Jones

Boring No. MW-7THE CHESTER ENGINEERS
CORADOLIS, PENNSYLVANIA
TEST BORING RECORDSheet 01

PROJECT PHILIPS ECG LOCATION Seneca Falls, New York GROUND ELEVATION 440.52
 FEATURE Deep Monitoring Well between MW-3 and MW-4
 DATE STARTED 9/26/83 TYPE OF SAMPLER _____ DIAMETER OF AUGER 9-inch GROUND WATER 0 HRS 58.0 24 HRS 58.0
 DATE COMPLETED 9/29/83 SAMP. SIZE No Samples HEIGHT OF HAMMER No Samples FALL _____
 WEATHER Cloudy, Cool CASING SIZE _____ WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, IDNESS	BLOW CNT OR RECVY*	% REC.	SHPL. OR RUN NO.	SHPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-21.0	Silt, some clay, little sand, little gravel (till)	Brown	Moist	Hard							
21.0-23.5	Silt and clay, little sand, little gravel (till)	Gray	Moist	Hard							
23.5-45.0	Limestone, very soft and weathered first 4 feet, then hard	Bluish Gray	ABANDONED 6-25-93								
45.0-48.0	Limestone, hard	Brownish Gray									
48.0-51.0	Limestone, hard	Bluish Gray									
51.0-58.0	Soft shaley seam, lost water at 51.0 feet	Brown									
58.0-80.0	Limestone, hard	Gray									
	Bottom of Hole 80.0'										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Catch Environmental Co. DRILLER Arthur Utter INSPECTOR Frank Jones

BORING NO. MW-8THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1

PROJECT PHILLIPS ECG LOCATION Seneca Falls, New York GROUND ELEVATION 459.67
 FEATURE Near MW-1 Upgradient Well Top of Casing 461.91
 DATE STARTED 2/27/84 TYPE OF SAMPLER None DIAMETER OF AUGER Air Hammer GROUND WATER @ IRS Dry 24 IRS Dry
 DATE COMPLETED 2/29/84 SAMP. SIZE N/A WEIGHT OF HAMMER N/A FALL _____
 WEATHER Snow, cold CASING SIZE 8 inch WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATH	DESCRIPTION OF STRATH	COLOR	MOISTURE CONDITION	DENSITY CON-SISTENCY, INDEX	BLOW CNT. OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-7.0	Silt, some clay, some sand, little gravel	Brown	Moist	Hard							
7.0-35.0	Clay, some silt, little sand, little gravel	Gray	Wet	Hard							
35.0-150.0	Limestone with gypsum seams	Gray	Dry	Medium Hard							
	Bottom of hole 150.0'										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Catch Environmental Co.

DRILLER _____

INSPECTOR Frank Jones

BORING NO. MW-9THE CHESTER ENGINEERS
CORAOPLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1PROJECT PHILIPS ECGLOCATION Senaca Falls, New YorkGROUND ELEVATION 441.89FEATURE Downgradient near Flume shelterTop of Casing 443.86DATE STARTED 2/29/84 TYPE OF SAMPLER NoneDIAMETER OF AUGER Air HammerGROUND WATER 0 HRS 64.1 24 HRS 63.9DATE COMPLETED 3/1/84 SAMP. SIZE N/AHEIGHT OF HAMMER N/A

FALL

WEATHER Snow, Cold CASING SIZE 8 inch

HEIGHT OF HAMMER

FALL

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, INDEX	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-27.0	Clay, some silt, little sand, little gravel	Gray	Moist	Hard							
27.0-59.0	Limestone with soft gypsum seams	Gray	Dry	Medium Hard							
59.0-61.0	Void - Took 20 bags of sand to fill										
61.0-85.0	Limestone with soft gypsum seams	Gray	Dry	Medium Hard							
	Bottom of hole 85.0'	ABANDONED		<u>6-2493</u>							

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

INSPECTOR Frank Jones

BORING NO. NW-10THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1

PROJECT PHILIPS ECG LOCATION Seneca Falls, New York GROUND ELEVATION 446.31
 FEATURE Downgradient near MW-2 Top of Casing 448.81
 DATE STARTED 3/2/84 TYPE OF SAMPLER None DIAMETER OF AUGER Air Hammer GROUND WATER 0 HRS 64.9 24 HRS 64.6
 DATE COMPLETED 3/3/84 SAMP. SIZE N/A WEIGHT OF HAMMER N/A FALL _____
 WEATHER Snow, cold CASING SIZE 8 inch WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, HARDNESS	BLOW CNT OR. RECVY*	% REC.	SHPL. OR RUN NO.	SHPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-20.5	Clay, some silt, little sand, little gravel	Gray	Moist	Hard							
20.5-64.5	Limestone with sold gypsum seams	Gray	Dry	Medium Hard							
64.5-66.0	Soft shaley seam	Brown	Wet	Soft							
66.0-84.0	Limestone with soft gypsum seams	Gray	Dry	Medium Hard							
	Bottom of hole 84.0'	ABANDONED <u>6-25-93</u>									

*NOTE: Blow Count Indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY Catch Environmental Co.

DRILLER _____

INSPECTOR Frank Jones

BORING NO. MW-11THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1PROJECT PHILIPS ECGLOCATION Seneca Falls, New YorkTop of Casing 455.94GROUND ELEVATION 453.42FEATURE Deep Well Southeast of Filter Cake PondDATE STARTED 7/10/04 TYPE OF SAMPLER NoneDIAMETER OF AUGER 8-3/4 inch GROUND WATER 0 HRS 00.5 24 HRS 00.5DATE COMPLETED 7/12/04 SAMP. SIZE NoneWEIGHT OF HAMMER N/A FALL N/AWEATHER Sunny, Warm CASING SIZE 6 InchWEIGHT OF HAMMER FALL

DEPTH OF STRIUM	DESCRIPTION OF STRIUM	COLOR	MOISTURE CONDITION	DENSITY CON-SISTENCY, HNESS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	ROD LENGTH	% ROD	CAS. BLOWS
0.0-17.0 436	Silt, some clay, some sand, some gravel	Brown	Damp	Very Stiff							
17.0-29.0 424	Silt and clay, some sand, some gravel (till)	Gray	Moist	Hard							
29.0-37.0 416	Silt, some medium gravel, some sand, little clay	Gray	Very Moist	Medium							
37.0-40.0 413	Weathered shale	Gray		Medium							
40.0-98.0 355	Limestone with shaley seams and some soft clay seams	Gray		Medium Hard							
	Bottom of Hole 98.0'										
	ABANDONED 6-24-93										
	<u>Well Completion Data</u>										
	Grout 52.0-Surface										
	Bentonite 55.0-52.0'										
	Sand Pack 98.0-55.0'										
	Screen 98.0-80.0'										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

Chester Environmental Co. Tim Lowell

BORING NO. MW-12THE CHESTER ENGINEERS
CORAOPLIS, PENNSYLVANIA
TEST BORING RECORDSHEET 1 of 1PROJECT PHILIPS ECGLOCATION Seneca Falls, New YorkTop of Casing 456.27
GROUND ELEVATION 453.60FEATURE Shallow Well Southeast of Filter Cake PondDATE STARTED 7/9/84 TYPE OF SAMPLER NoneDIAMETER OF AUGER 8-3/4 GROUND WATER 0 HRS 12.2 24 HRS 39.3DATE COMPLETED 7/10/84 SAMP. SIZE NoneWEIGHT OF HAMMER N/A FALL N/AWEATHER Cloudy, Cool CASING SIZE WEIGHT OF HAMMER FALL

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, HARDNESS	BLOW CNT OR RECYC*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0.0-14.0 440	Silt, some clay, some sand, some gravel	Brown	Moist	Stiff							
14.0-25.0 429	Silt and clay, some sand, some gravel (till)	Gray	Moist	Hard							
25.0-30.5 423	Silt, some gravel, some sand, little clay	Brown	Moist	Medium							
30.5-34.0 420	Silt and clay, some small gravel, little sand (till)	Gray	Moist	Hard							
34.0-36.0 418	Weathered shaley limestone	Gray		Medium							
36.0-42.0 412	Limestone, with shaley seams	Gray		Medium Hard							
	Bottom of Hole 42.0' <u>Well Completion Data</u> Grout 18.0-Surface Bentonite 21.0-18.0' Sand Pack 42.0-21.0' Screen 42.0-32.0'										

ABANDONED 6-10-93

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

Inspector Frank Jones

PROJECT PHILIPS ECG LOCATION SENECA FALLS, NEW YORK GROUND ELEVATION 443.11
 FEATURE _____
 DATE STARTED 11/1/85 TYPE OF SAMPLER 2" Splitspoon DIAMETER OF AUGER 8" O.D. GROUND WATER 0 HRS _____ 24 HRS _____
 DATE COMPLETED 11/4/85 SAMP. SIZE _____ WEIGHT OF HAMMER 140 lbs FALL 30"
 WEATHER Clear, sunny 50° CASING SIZE _____ WEIGHT OF HAMMER _____ FALL _____
to wet and cold

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, IDNESS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0 - 5.0'	Silty clay, some fine sand, some black limestone gravel and pebbles	Medium Brown	Moist								
5.0-10.0'	Silt and clay, some fine black sand, some black limestone gravel and pebbles	Red-brown and medium brown	Moist		9-13-18		S-1	5.0-6.5'			
10.0-14.5'	Silt and clay, some fine black sand, some black limestone gravel and pebbles	Medium brown, gray-brown and olive green mottled	Moist		4-3-5		S-2	10.0-11.5'			
14.5-16.5'	Gravel sized to small boulders of limestone in a silt and clay matrix, rare mica flakes	Black to gray limestone, brown & green silt & clay	Dry to Moist		8-24-50 .17'		S-3	14.5-15.17'			
					30-47-95		S-4	15.0-16.5'			
16.5-20.0'	Silt and clay with black limestone pebbles and gravel	Medium Brown	Wet to Moist								
20.0-25.0'	Clayey silt and silty clay layers	Gray-Brown	Very Moist		1-2-1		S-5	20.0-21.5'			
25.0-25.33'	Crystalline metamorphic cobbles. Auger refusal	Black			100 .33'		S-6	25.0-25.33'			

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY CATON ENVIRONMENTAL

DRILLER

TIM CROWELL

INSPECTOR

GLORIA A. DePAOLIS

CORAPOLIS, PENNSYLVANIA
TEST BORING RECORD

PROJECT PHILIPS ECG LOCATION SENECA FALLS, NEW YORK GROUND ELEVATION 443.11
 FEATURE _____
 DATE STARTED 11/1/85 TYPE OF SAMPLER 2" Splitspoon DIAMETER OF AUGER 8" O.D. GROUND WATER 0 HRS _____ 24 HRS _____
 DATE COMPLETED 11/4/85 SAMP. SIZE _____ WEIGHT OF HAMMER 140 lbs FALL 30"
 WEATHER Clear, sunny 50° CASING SIZE _____ WEIGHT OF HAMMER _____ FALL _____
to wet and cold

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, IDNESS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
25.33-35.33	Limestone	Black			Cuttings						
	PVC pipe: 35.00-25.42 Screen: 25.42-15.58 PVC pipe: 15.58-0 Cuttings: 35.33-35.00 Bentonite: 35.00-26.5 Sand: 26.5-13.0 Bentonite: 13.0-11.5 Cement: 11.5-0	ABANDONED <u>6-22-93</u>									

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY CATON ENVIRONMENTAL DRILLER TIM CROWELL INSPECTOR GLORIA DePAOLIS

TEST BORING RECORD

PROJECT PHILIPS ECG LOCATION SENECA FALLS, NEW YORK GROUND ELEVATION 442.84

FEATURE _____

DATE STARTED 11/5-85 TYPE OF SAMPLER 2" Split spoon DIAMETER OF AUGER 8" O.D. GROUND WATER 0 HRS _____ 24 HRS _____

DATE COMPLETED 11/7/85 SAMP. SIZE _____ HEIGHT OF HAMMER 140 lbs FALL 30"

WEATHER Wet and cold to CASING SIZE _____ HEIGHT OF HAMMER _____ FALL _____

Sunny, Warm

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, HISS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0-5.0	Silty clay, some fine sand, some limestone gravel	Medium Brown	ABANDONED 6-8-93								
5.0-10.0	Silt and clay with fine sand and 5% rounded and angular limestone gravel and cobbles	Medium Brown	Moist		3-5-8		S-1	5.0-6.5			
10.0-15.0	Silty clay with up to 20% limestone gravel and cobbles	Medium Brown to Gray-Brown	Moist		12-11-12		S-2	10.0-11.5			
15.0-20.0	Silt and clay, some limestone gravel	Medium Brown, some green and pink mottling	Wet		1-1-3		S-3	15.0-16.5			
20.0-22.0	Clayey silt, some limestone gravel, few cobbles	Gray-Brown	Moist		2-2-34		S-4	20.0-21.5			
22.0-23.5	Sticky clay, some fine sand	Brown	Moist								
23.5-25.0	Weathered Bedrock: Lime-shale with some gypsum	Gray, brown-green, white & pink mottled	Dry		15-68-100		S-5	23.5-25.0			
25.0-33.5	Limestone	Black to Gray			Cuttings						

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

DRILLING COMPANY CATON ENVIRONMENTAL DRILLER T. Crowell/G. Verburg/ INSPECTOR GLORIA DePAOLIS

CORAOOLIS, ISYLVANIA
TEST BORING RECORD

PROJECT PHILIPS' ECG LOCATION SENECA FALLS, NEW YORK GROUND ELEVATION 442.84
 FEATURE _____
 DATE STARTED 11/5/85 TYPE OF SAMPLER 2" Splitspoon DIAMETER OF AUGER 8" O.D. GROUND WATER 0 IIRS 24 IIRS
 DATE COMPLETED 11/7/85 SAMP. SIZE _____ WEIGHT OF HAMMER 140 lbs FALL 30"
 WEATHER Wet and cold to CASING SIZE _____ WEIGHT OF HAMMER _____ FALL _____
Sunny, Warm

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, IDNESS	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
	PVC pipe: 33.0 - 25.0 Screen: 25.0 - 15.0 PVC pipe: 15.0 - 0 Cuttings: 33.5 - 33.0 Bentonite: 33.0 - 24.5 Sand: 24.5 - 12.0 Bentonite: 12.0 - 9.0 Cement: 9.0 - 0	ABANDONED 6-8-83									

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140 pound hammer falling 30 inches.

CATON ENVIRONMENTAL

CROWELL/VERBURG/UTTER

INSPECTOR GLORIA A. DePAOLIS

BORING NO. MW-16THE CHESTER ENGINEERS
CORAPOLIS, PENNSYLVANIA
TEST BORING RECORDPROJECT PHILLIPS ECG LOCATION SENECA FALLS, NEW YORK GROUND ELEVATION 444.93

FEATURE _____

DATE STARTED 11/7-85 TYPE OF SAMPLER 2" Split spoon DIAMETER OF AUGER 8" O.D. GROUND WATER 0 HRS _____ 24 HRS _____
DATE COMPLETED 11/8/85 SAMP. SIZE _____ WEIGHT OF HAMMER 140 lbs FALL 30"
WEATHER Sunny, Warm CASING SIZE _____ WEIGHT OF HAMMER _____ FALL _____

DEPTH OF STRATUM	DESCRIPTION OF STRATUM	COLOR	MOISTURE CONDITION	DENSITY CONSISTENCY, INDEX	BLOW CNT OR RECVY*	% REC.	SAMPL. OR RUN NO.	SAMPL. OR RUN INTVL	RQD LENGTH	% RQD	CAS. BLOWS
0-14.0	Silt and clay, some sand minor rounded gravel (till)	Reddish Brown	Damp	Hard	12-15-28 22-24-34		S-1 S-2	5.0-6.5 10.0-11.0			
14.0-19.5	Clay, some silt, minor sand, trace rounded gravel (till)	Gray	Wet	Stiff	6-6-6		S-3	15.0-16.5			
19.5-21.5	Silt and clay, some limestone gravel with pyrite crystals	Red-brown and gray-green mottled	Wet		20-20-22-20		S-1	19.5-21.5			
21.5-22.5	Shale then shaly limestone, no gypsum	Black then gray green	Wet in top .33' then dry		20-35		S-2	21.5-22.5			
22.5-32.0	Limestone	Black to Gray									
	ABANDONED 6-22-93 PVC pipe: 29.61-21.98 Screen: 21.98-12.85 PVC pipe: 12.85-0 Cuttings: 32.0-30.0 Bentonite: 30.0-23.0 Sand: 23.0-11.0 Bentonite: 11.0 - 9.0 Cement: 9.0 - 0 Description of 0-19.5 Ft is from MW-2 log by Frank Jones										

*NOTE: Blow Count indicates number of blows required to drive sampler 6 inches using 140-pound hammer falling 30 inches.

CATION ENVIRONMENTAL

ANALYST

ART HITTER

INSPECTOR GLORIA A. DePAOLIS

MALCOLM PIRNIE						TEST BORING LOG			BORING No. B11-PH01			
PROJECT GTEOSI Seneca Falls					LOCATION Seneca Falls, NY					SHEET 1 OF 2		
CLIENT									PROJECT No. 4563003			
DRILLING CONTRACTOR Marcor									MEAS. PT. ELEV.			
PURPOSE Buildings 2, 7, and 11 Field Work									GROUND ELEV.			
WELL MATERIAL N/A									DATUM			
DRILLING METHOD(S) Direct Push					SAMPLE	CORE	CASING	DATE STARTED 7/7/05				
DRILL RIG TYPE Geoprobe					TYPE Macrocore			DATE FINISHED 7/7/05				
GROUND WATER DEPTH '					DIA. 2"			DRILLER Jim Agar				
MEASURING POINT N/A					WEIGHT #			PIRNIE STAFF M. Flusche				
DATE OF MEASUREMENT N/A					FALL	"						
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS				
					Concrete							
					Lt. gray gravel, subrounded fill	0.3						
2					Lt. brown silt and clay, trace gravel, compact, slightly hard, dry, slightly plastic.	0.6						
4					Brown silt matrix w/rounded to sub-angular gravel, tight, stiff, dry. Angular cobble @ 7' & becomes slightly moist.	4.0						
6					Gray sand & sub-angular gravel from above, dry, loose	8.5						
10					Reddish brown silt, rounded gravel, stiff, moist, uniform laminations from 12-13'	9.0						
12												
14					Sharp color transition to reddish gray-brown.	14.0						
16												
18					Reddish-gray brown silt w/ sub-rounded gravel. SAA, slightly moist, stiff.	18.0						
								wet at ~19'				

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			1.6		SAA but wet.	20.0		Sample from 22' for VOC analysis @ 1120.
24			0.0		Reddish gray-brown silt and sand w/ sub-rounded gravel, wet-stiff.	23.5		>1.5" Dia. sandstone cobble.
26			2.2					Shale cobble @ 25.5'.
28			0.0		SAA w/ less gravel, moist-wet, slightly plastic.	28.0		
30			0.0		SAA.	30.0		
32			0.0					
34			0.0					
36			0.0		Reddish brown clay & silt, plastic, wet-moist, no gravel. Gravel & cobbles in bottom one inch.	36.0		Sample collected @ 37' for VOC analysis
			0.0		Refusal at 37.6	37.6		Refusal @ 37.6'

PROJECT		GTEOSI Seneca Falls		LOCATION		Seneca Falls, NY		SHEET 1 OF 2	
CLIENT								PROJECT No. 4563003	
DRILLING CONTRACTOR								MEAS. PT. ELEV.	
PURPOSE		Buildings 2, 7, and 11 Field Work						GROUND ELEV.	
WELL MATERIAL		N/A						DATUM	
DRILLING METHOD(S)		Direct Push		SAMPLE	CORE	CASING		DATE STARTED 7/7/05	
DRILL RIG TYPE		Geoprobe	TYPE	Macrocore			DATE FINISHED 7/7/05		
GROUND WATER DEPTH			'	DIA.	2"			DRILLER Jim Agar	
MEASURING POINT			N/A	WEIGHT	#			PIRNIE STAFF K. Roe	
DATE OF MEASUREMENT			N/A	FALL	"				

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			36.4		Gray gravel fill to 8".			
			158			0.7		
			91.3		Reddish brown silt, some little gravel, trace laminations, stiff but crumbles, dry			
2			33.0					
			44.5					
4			23.6					
			93.4		Reddish brown silt, some sub-angular gravel, stiff, dry.	4.0		
			400					
6			136					
			96					
			300					
			1154					
8			220		No recovery 8'-9'	8.0		Sample collected for VOC, TOC @ 7.5' @ 1430. Cobbles @ 7.5'-8'.
			1451		SAA.	9.0		
10			763					
			>9999					Sample collected for VOC, TOC @ 11' @ 1455.
12			>9999		SAA but some clay @ 13.2'-13.5'.	12.0		Some odors. VOC sample collected @ 13' @ 1505.
			>9999					
14			768					
			360		Reddish brown silt, some clay & sub-rounded gravel, dry-moist. stiff.	14.0		
			>9999					
			4172					
16					SAA w/ some rounded cobbles, moist-dry.	16.0		
			157					
			941					VOC sample collected @ 17' @ 1520.
18			149					
			297					
			274					VOC sample collected @ 19' @ 1530.
			103					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Jim Agar**

PIRNIE STAFF **K. Roe**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		Concrete slab			
			0.0		Gravel (subslab) f/m/c+, dry	0.5		MC-1 (0-4')
2			0.0		Red-brown SILT, dry to moist, trace clay, hard	1.0		
			0.0					VOA @ 1.3'
4			0.0		Red-brown SILT, little m/c gravel (R to SA, to 1.5'), trace clay moist;	4.0		MC-2 (4-8')
			0.0					VOA @ 6'
6			0.0					
			0.0					
8			0.0		As above gravel is f/m/c and well rounded to angular, content slightly higher, moist	8.0		MC-3 (8-10')
			0.0					VOA @ 9.0'
10			0.0		As above, with more f/ gravel & less c/ gravel	10.0		MC-4 (10-12')
			217					
			513					
			3700					
12			>9999		As above, w/ increased clay (trace to little), wet	12.0		MC-5 (12-13') VOA @ 12.0'
			1227					
			2760		As above, except color changing to less red, darker brown (gradually, starting at 13.5' to dark brown 14.5-15' corresponding to lower PID 14.5-15.0'; moist to wet	13.0		VOA @ 13.0' MC-6 (13-15'). Corresponding with high PID reads is a "pungent" odor (foul).
14			>9999					
			6030					
			2146					
			1652		Dark brown SILT, little f/m gravel (well rounded to rounded, occasionally subangular; to 5/8") trace clay to little, moist to wet	15.0		MC-7 (15-18') VOA sample @ 17.1'. "Foul" odor less, no PID readings.
16			4404					
			1951					
			461					
			0.0					
			0.0					
18			0.0		As above, wet to saturated	18.0		MC-8 (18-20')
			0.0					
			0.0					
			0.0					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0					MC-9 (20-23')
								VOA @ 22.0'
24					As above, very cohesive (clay content increased slightly), wet	23.0		MC-10 (23-26')
26								VOA @ 25.8' MC-11 (26-28'). PID hits on slough & wet sludge from above, but none on inside of sample core @ 26-28'
28								MC-12 (28-32'). First MC was (28-32') with no recovery, place basket in core & run 28-32', recovery 1.8'/4.0' upper 1.5' soft wet slough
30								
32					Refusal at 32.5'	32.5		VOA @ 31.5' MC-13 (32-32.5'). Install temp PVC (screen 15') for potential GW sampling, to keep hole open.

[illegible]

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		As above (noted that a few pieces of	20.0		MC-9 (20.0-22.0')
			0.0		freshly broken gravel very black shale			
			0.0		"platey"; also some siltstone gravel (dark			
22			0.0		grey))			MC-10 (22.0-24.0') VOA @ 23.0'
			0.0					
			0.0					
			0.0					
			0.0					
			0.0					
24			0.0		Increased clay & more cohesive, less	23.5		MC-11 (24-26')
			0.0		gravel			
			0.0		Dark Brown (to dark red-grey) SILT some	24.0		
			0.0		to little clay, little to trace f++/m/c- gravel			
			0.0		(well rounded ± subangular), wet			
26			0.0		As above, very cohesive; wet	26.0		MC-12 (26-29') VOA 27.5'
			0.0					
			0.0					
			0.0					
28			0.0					
			0.0					
			0.0		As above	29.0		MC-13 (29-32') VOA @ 31.5'
30			0.0					
			0.0					
			0.0					
			0.0					
32			NA		As above	32.0		MC-14 (32'-36.8'). 32'-36' - no
			NA					recovery, 32'-34' - no recovery,
			NA					32'-36.8' - 1.0' recovery. Refusal @
34			NA					36.8'. VOA @ 36.5'. Install temp
			NA					1" PVC (screen 20") for weekend -
			NA					hole open for potential GW
			NA					sampling 7/11/05
36			0.0					
			0.0					
			0.0		Refusal at 36.8'	36.8		

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor				MEAS. PT. ELEV.
PURPOSE	Buildings 2, 7, and 11 Field Work				GROUND ELEV.
WELL MATERIAL	N/A				DATUM
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 7/11/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 7/11/05
GROUND WATER DEPTH		DIA.	2"		DRILLER Jim Agar
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF K. Roe
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			10.1		ASPHALT			MC-1 (0-4')
			18.4		Gravel Bedding	0.2		VOA @ 1.1'
2			2.7		Red-brown SILT, trace clay, some s/m+ gravel (A), trace sand, dry	0.8		1.8' becomes moist
			3.0		mod yellow brown SILT, trace clay, trace to little c/sand & f/m gravel (subrounded to 1/2"), becomes moist	1.4		2.8-3.3' wet to saturated where more sand/gravel
			4.4		very moist, higher sand and gravel	1.8		MC-2 (4-7')
4			4.1		Red brown SILT, trace clay, trace to little f/m gravel (well rounded - subrounded), moist	3.3		
			3.5		Mod yellow brown to red brown, little c/sand + f/m gravel (well rounded - subangular, to 1/2"), occasional trace clay (as white/grey) - especially @ 5.5' + @ 6.5', moist to dry 6.5' - moisture increasing	4.0		VOA @ 6.9'
			4.7		As above	6.5		MC-3 (7-9')
6			5.8					MC-3 (9-11')
			4.3					VOA @ 10.3'
			3.6					MC-4 (11-14')
			8.0					VOA @ 12.9'
8			4.0					MC-5 (14-16')
			3.2					MC-6 (16-19')
			1.5					
			1.0					
10			4.6					
			12.5		Mod yellow brown SILT and f/ SAND little f/m+ gravel (well rounded - subangular to 5/8"), trace clay, wet	10.5		
			36.3		As above, with occasional c/gravel (well rounded - subrounded, to 1"); color grading to more red brown near 14.0'	11.0		
12			42.5		12.5' sand content decreasing to some (very fine), eventually to little and trace sand, varying amounts +/- vf sand	12.5		
			58.9		13.8' color gradation to dark red brown / red grey	13.8		
			703		Dark red - grey / brown SILT, little clay; little (embedded) f+/m/c gravel (well rounded - subangular, to 3/4") and c/sand (well rounded), trace clay, wet	14.0		
14			554		As above, becoming much more cohesive w/ increasing amount of clay. Dark red-grey / brown SILT, little clay, little (embedded) f/m+/c gravel (well rounded - subangular to 1 1/4"), trace vff sand	16.0		
			304					
			727					
16			323					
			324					
			251					
18			205					
			178					
			148					
			292					
			245					
			269					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			180		occasional wet.			
			74.1		As above			
			44					MC-8 (21-23')
			35.5					
22			34.5					
			19.8					MC-9 (23-25')
			154					
24			82.2					
			58.9					MC-10 (25-27'), VOA @ 25.4'
			426					
26			215		25.15' - 25.5' Dark yellow brown to red f/ SAND, moist	25.5		
			394		As above, except less cohesive => lesser amount clay, moist to wet	26.0		MC-11 (27-30')
			189		Clay content increases - more cohesive, moist to wet. 29.5' weathered shale c/sand and f/ gravel, wet	27.0		
28			47.2					
			104					
			23.9					
			84.7					
30			19.8		Dark red-grey / brown SILT, little clay, little (embedded) f+/m+/c gravel (WR-SR, to 3/4"), wet	30.0		MC-12 (30-32')
			17.5					
			1.9					MC-13 (32-35') VOA @ 34.8-35'
32			2.0					
			9.4					
			3.2		Brown and grey CLAY, wet	33.3		
34			2.3		Brown and grey vf/SAND, trace interbedded clay, wet.	34.6		MC-14 (35-35.4')
					weathered black/grey SHALE.	35.2		
					Refusal at 35.4'	35.4		

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor				MEAS. PT. ELEV.
PURPOSE	Buildings 2, 7, and 11 Field Work				GROUND ELEV.
WELL MATERIAL	N/A				DATUM
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 7/11/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 7/11/05
GROUND WATER DEPTH	'	DIA.	2"		DRILLER Jim Agar
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF K. Roe
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			1.5		Concrete slab			MC-1 (0-4')
			3.4		Gravel bedding, dry	0.3		
2					Dark red brown SILT, trace to little clay, little (embedded) f/m+c gravel (well rounded - subrounded to 5/8"), dry to moist	1.5		VOA @ 1.6'
			1.7					
			2.2					
4			2.1					MC-2 (4-7')
			1.4					
			3.2					
6			6.8					
			18.9					
			3.6		As above, with occasional trace vf/sand and trace evidence of oxidation; moist	7.0		MC-3 (7-9') VOA @ 7.0'
8			25.3					
			7.3					MC-4 (9-11')
10			4.2		As above, moisture increasing	9.5		
			7.6					
			12.9					MC-5 (11-13')
			9.1					
12			17.7					
			48.3					VOA @ 12.6'
			35.5					MC-6 (13-15')
14			38.6		As above, with red clay lens @ 13.3'; becomes wet by 14.5-15'	13.0		
			28					
			8.5					MC-7 (15-17')
16			48.0					
			54.1					
			58.1					VOA @ 16.8-17.0'
			82.3		f/m+ GRAVEL (well rounded - subrounded, to 5/8") trace silt, wet	16.8		MC-8 (17-19')
18			24.4					
			1.0					MC-9 (19-21')
			2.0		As above, slight increase in clay & gravel content-more coarse gravel this 2'	19.0		
			7.3					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			2.0		interval, becoming more cohesive wet			
			2.7					
			3.1		Dark red-brown SILT, little to some clay,	21.0		MC-10 (21-23')
22			7.3		little to some f-/m+/c gravel (well rounded			
			5.2		- subangular, to 1"), wet			
			2.1					
			1.4		Appears to be poor recovery of material	23.0		MC-11 (23-25') VOA jar from
24			10.1		above (silt, clay and gravel) combined w/			23-23.5' (discard?). Very sloppy
			4.4		wet gravel "slough" that collapsed			and loose gravel around till within
			4.9					core from above & below. Higher
								PIDs below likely due to water?
26			45		Dark red brown - red grey SILT, some	26.0		MC-12 (25-27') VOA jar from 25.5'
			4.2		clay, little f/m++/c+ gravel (well rounded -			(discard?)
			2.2		subangular, to 1 1/4"), wet, very cohesive			
28								MC-13 (27-30'). Upper 1.8' in
								m-core is loose wet gravelly slough
								from hole core
			3.1					
			2.3					
30			1.6					MC-14 (30-32') VOA @ 30.3'
			2.3					
			1.7					
			1.1					
32			1.0					MC-15 (32-34')
			3.8					
34			8.0					MC-16 (34-35.8')
					Brown grey CLAY, wet	34.4		
			3.0		Brown-grey CLAY and vf/SAND; w/ large			
			1.4		(2") piece of sub-rounded gravel, wet	34.9		VOA @ 35.6'
			1.2		Brown-grey CLAY and SILT			
					Brown-grey vf/SAND large oxidation stain	35.1		
					@ 35.8', wet			
					Refusal at 35.8'	35.4		
						35.8		

PROJECT GTEOSI Seneca Falls				LOCATION Seneca Falls, NY				SHEET 1 OF 2	
CLIENT								PROJECT No. 4563003	
DRILLING CONTRACTOR Marcor								MEAS. PT. ELEV.	
PURPOSE Buildings 2, 7, and 11 Field Work								GROUND ELEV.	
WELL MATERIAL N/A								DATUM	
DRILLING METHOD(S) Direct Push				SAMPLE		CORE		CASING	
DRILL RIG TYPE Geoprobe				TYPE Macrocore				DATE STARTED 7/12/05	
GROUND WATER DEPTH '				DIA. 2"				DATE FINISHED 7/12/05	
MEASURING POINT N/A				WEIGHT #				DRILLER Jim Agar	
DATE OF MEASUREMENT N/A				FALL "				PIRNIE STAFF K. Roe	

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			2.4		Asphalt and gravel, dry			MC-1 (0-4')
2			5.4		Dark brown SILT, trace to little f+/m gravel (rounded - subangular), trace f/sand, moist, trace organic matter (roots, etc.)	1.4		VOA @ 3.0'
			7.9					
4			4.4		Color change to mod / dark yellow brown and red brown-grey SILT, (some light grey mottling), little f+/m gravel (well rounded - subangular) trace clay, moist, loose	3.6		MC-2 (4-7')
			3.8					
			9.4					VOA @ 5.0' water sample => No yield
6			21.6		crumbly	5.0		
			7.2		Color predominantly dark red brown / dark yellow - no longer mottled - SILT little f+/m gravel (well rounded - subangular), trace clay, moist (to wet in "pockets")			MC-3 (7-10')
			4.3					
			4.8					
			4.0					
8			8.2		Color dark red brown, SILT trace to little f+/m+/c gravel (well rounded - subrounded, to 1 3/8"), trace clay, moist to wet	8.0		VOA @ 9.2' water sample => No yield
			47.7					MC-4 (10-12')
			111					
10			149					VOA @ 11.3'. Note: 11.2-11.4' large pieces of gravel (5/8"-3/4") and less clay, with trace to little f/ sand
			253					MC-5 (12-14')
			309		Dark red brown to dark yellow brown SILT and some clay, little f+/m-/c gravel (well rounded - subangular to 1 1/4"), moist to wet	10.8		VOA @ 13.4'
12			306					MC-6 (14-16')
			654			12.3		
			>9999		As above, SILT, little to some f+/m+/c+ gravel (well rounded - subrounded, to 1 1/4"), trace clay, wet			
14			>9999					
			574					
			443					
			494		Color change to dark red grey brown material same as above, wet	14.8		Purge extremely muddy water and ran out of water => allow for recharge, check tubing @ bottom, check slot-pt @bottom - clean out => retry => no more water with pump
16			461					
			406					
18								

PROJECT **GTEOSI Seneca Falls**LOCATION **Seneca Falls, NY**SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22								Water sample attempt, same as above
24			875 266 284 55 39.1 32.7		Dark red-grey brown SILT and clay material w/ embedded subrounded gravel (fmc), moist	24.0		Water sample => sludge from hole up to pump to thick to pump. pull tubing clogged with mud => change tip to finer screen at bottom => too muddy. VOA @ 25.0'
26								Slough from 27-30' - wet. Dark brown globules sheen on liquid between 28-30'. Sweet solvent odor.
28								
30			257 136 71 966 1165 24.5					MC- (31-32.6') VOA @ 31.4-31.6'. Install temp. well pt. w/ 5' screen.
32					Dark red brown and grey CLAY Mod yellow brown vf/f SAND, moist Refusal at 32.6'	32.3 32.5 32.6		

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			46.6		Dark red grey SILT, little f/m+/c gravel (well rounded - subrounded) to 3/4", trace	20.0		still strong reaction w/ HCl, impossible to fill without bubbles. Archive one 40ml sample on ice for possible analysis. Continue PH08 w/ soil macrocore sample to refusal.
			73.1		clay, trace vf/sand, wet	21.0		MC-6 (20-21')
			98.7		Dark red grey dark yellow brown gravelly			VOA @ 20.8-21.0'
			6840		TILL, loose: GRAVEL (m/c+, to 1 3/4", well rounded - subrounded) and silt, trace			MC-7 (21-23')
			9737		VF/sand, wet sheen and visible DNAPL globules.			VOA @ 22-22.3' (visible DNAPL globules)
			9841					MC-8 (23-25')
			9925					VOA @ 24.5-24.7'. Sample is all clay / silt material - no DNAPL observed.
24			8872					
			6420		23-24.1' gravelly till, loose as described above - with 0.2' harder cohesive till	24.1		
			4850		23.3-23.5' very loose/soft 23.5-24.1' => could be all slough from gravelly interval above; wet.	25.0		
			3116		Dark red grey / brown CLAY, and to some silt / trace f/ gravel (rounded - subrounded) + c/sand (embedded), wet to moist, cohesive			

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

DATE STARTED **7/14/05**

GROUND WATER DEPTH **'**

DIA.

2"

DATE FINISHED **7/14/05**

MEASURING POINT **N/A**

WEIGHT

#

DRILLER **Jim Agar**

DATE OF MEASUREMENT **N/A**

FALL

"

PIRNIE STAFF **K. Roe**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			3.4		ASPHALT and gravel bedding, dry			MC-1 (0-4')
2			2.2			1.5		VOA @ 1.5-2.0'
			0.9		Dark yellow black SILT, some f/m+/c+ gravel (subangular - angular to 1"), trace f/m sand, moist. At 2.1' medium dark yellow brown with lighter mottling SILT, trace to little clay, trace f/m gravel (rounded - subrounded to 1/2"), embedded, trace organic material (wood), moist to wet (3.5-4.0')			MC-2 (4-8')
4			0.3					
			0.3					
			0.1					
			0.3					
			0.1					
6			0.2		Mod-dark red brown SILT, trace to little clay, trace to little f/m/c gravel (WR-SR, to 3/4") embedded occasional trace f/sand, wet-, cohesive-, dense-, hard- (gravelly, clayey till)	5.4		VOA @ 7.5'
			0.2					MC-3 (8-11')
			0.2					
8			0.8					
			0.3					
			0.3					
			0.5					
10			0.7					
			5.6					
			14.7					
			11.5		Large broken gravel (up to 2 1/2"), within clayey till.	10.5		MC-4 (11-14') VOA @ 11.5'
12			4.5		Clayey-gravelly TILL as above, occasional sandy, especially @ 13.8-14.0', hard, wet. 14.8' => clay-rich, cohesive, gravel well-rounded & m/c+, wet, solvent odors			VOA @ 13.5'
			33.4					MC-5 (14-16')
			205					
14			217					
			169					
			116					
			313					
16			4984					VOA @ 15.5'
			836					MC-5 (16-18')
			353					
18			137					
			138		Color changes from dark yellow brown to dark red grey brown, wet (tight)	17.6		MC-6 (18-20')
					As above, with gravel mostly f/ WR-R, clay content increasing, wet (tight), very cohesive.			VOA @ 19.6'
			220					
			125					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			21.3 11.0 4.8 1.2 1.5		As above, with occasional large coarse gravel (2" @ 21.2 - 21.3'), wet (tight), dense cohesive. At 25' note: small globule of DNAPL observed in water/slough from above No recovery between 24-27'			MC-7 (20-22') MC-8 (22-24')
24			3.4 1.7					VOA @ 23.9' MC-9 (24-28'). Driller notes no recovery from 24-27', 27-28' may be slough only (used basket)
26								
28			33.4 1.5		As above	27.5		PID @ 27.5' most likely due to contamination of water slough above recovered soil. VOA @ 27.5-28' MC-10 (28-32')
30			11.8					
32			10.7 3.1 3.6 2.9		Dark red grey brown SILT, little to some clay, little f+/m gravel, wet, soft 31-31.8' wet /slurry, trace f/gravel 31.8-32' Dark red grey brown SILT, little to some clay, trace to little f/m gravel (well rounded - subrounded), wet, soft+ (as above) 32.0-32.4' As above @ 31.8' with clay increasing, wet soft 32.4-32.55' Dark grey / red grey CLAY, trace to little silt, trace f/gravel, wet, soft very cohesive 32.55-32.8' Dark yellow brown vf/ SAND, wet Refusal at 32.8'	30.5 32.8		VOA @ 31.8-32' MC-11 (32.0-32.8') VOA @ 32.5-32.8'

BORING No. B11-PH10

SHEET 1 OF 2

PROJECT No. 4563003

MEAS. PT. ELEV.

GROUND ELEV.

DATUM

DATE STARTED 7/15/05

DATE FINISHED 7/15/05

DRILLER **Jim Agar**

PIRNIE STAFF K. Roe

PIRNIE STAFF K. Roe

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			3.1		ASPHALT and m/c gravel bedding, dry (0.6-1.1') => Dark yellow brown SILT, some to little f/m gravel, (subangular - angular, to 3/8"), trace f/ sand, moist (FILL)			MC-1 (0-4') VOA @ 0.6-0.8'
2			1.6			1.1		
			0.5					
			0.2					
			0.1		(1.1-1.7') => Dark grey-brown with black mottling SILT, trace clay trace organic matter (roots), moist.			
			0.1					
4			0.2					
			0.1		(1.7-4.0') => Mod yellow brown / mod red brown with light grey mottling TILL = clayey silt matrix with trace f/m (subrounded) gravel embedded; moist, moderately hard, cohesive.	4.0		MC-2 (4-7')
			1.1					
			0.7					
6			0.5					
			0.7		(3.5-4.0') => Less clay, less cohesive			VOA @ 6.0'
			0.7					
			1.4		Mod red brown SILTY matrix TILL, clay varies trace to little, embedded gravel content increase to little f/m+/c (WR-SR, to 1 1/2") moist.	7.0		MC-3 (7-10')
8			0.8					
			1.4					
			3.6		TILL, as above, with silty/SANDY matrix @ 8.9-9.0'; moist to wet in pockets (especially @ 9.0').			
10			7.8					
			8.1					
			6.0		(10.0-11.0') => TILL as above, moist to wet in pockets.			MC-4 (10-12')
			16.8					
			11.5		11.0' Note: change from "TILL" matrix appearance to layering of silt/clay, some light grey laminates, moist laminated CLAY and SILT (red brown & light grey), moist trace f/m+ gravel (well rounded - rounded)	11.0		VOA @ 11.5' MC-5 (12-14')
12			29.2					
			7.8					
			10.5					
			17.3					
14			17.9		(12.0') => Medium red brown TILL, silt/clay matrix w/ occasional f/ sand, embedded f/m/c gravel (well rounded - subrounded), moist, medium hard to medium soft; wet in pockets. Note: periodically can see clay lamination.			VOA @ 13.5' MC-6 (14-16')
			15.0					
			36.1		(13.1-13.3') => Very clay-rich.			
			34.0		(13.3-13.6') => Color varies to dark yellow / green brown.			
16			44.9		(13.6-14.0') => Red brown TILL - clayey silty matrix, occasional sandy with f/m/c gravel, wet in pockets.	16.0		VOA @ 15.5' MC-7 (16-18')
			31.2					
			26.2					
			18.0					
18			9.1		(14.0-16.0') => Red brown TILL as above;	19.0		MC-8 (18-20') VOA @ 19.5'
			31.5					
			32.3					
			32.5					
			42.4					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			37.4		matrix variable - predominately SILTY			MC-9 (20-22')
			70.4		with clay & occasional f/ sand; f/m/c			VOA @ 21.0'
			79.9		gravel (well rounded - subangular, to 1			MC-10 (22-24')
			67.4		1 1/4") => "little" moist - wet in seams /			
			16.0		pockets: medium hard to medium soft.			
			14.7		As above, becoming harder, wet in seams!			
			11.4		pockets			
24			13.3		19.0' => Color change to dark red grey			MC-11 (24-28')
			14.6		medium hard TILL as above, moist to wet.			
			14.0		20.0' => Dark red grey TILL as above,			
			18.0		becoming medium soft w/ increased			
			14.8		CLAY in matrix, wet.			
26			18.6		22.0' => As above, medium soft to soft,			
			9.3		wet			
			12.9		24.0' => As above grading to: dark red			VOA @ 27.0'
			0.7		grey CLAY, little silt, trace embedded f/m			
28			0.3		gravel (well rounded - sub rounded), wet,			MC-12 (28-30')
			20.8		soft cohesive	28.0		
			66.2		As above, grades very soft, cohesive			
			172		CLAY, trace m/c+ gravel (well rounded -			
30			402		subrounded, to 1 1/2"), wet	29.5		MC-13 (30-31.8') VOA @ 30.0'
					29.5' => Mod yellow brown vf/fine SAND,			
					wet. No recovery except 31.5' - 31.8'			
					31.6' => Weathered rock - shale			
					31.8' => As above, mixed with vf/ SAND			
					Refusal at 31.8'	31.8		Install temp. well with 5.0' screen

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor				MEAS. PT. ELEV.
PURPOSE	Buildings 2, 7, and 11 Field Work				GROUND ELEV.
WELL MATERIAL	N/A				DATUM
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 7/12/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 7/12/05
GROUND WATER DEPTH	'	DIA.	2"		DRILLER Jim Agar
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF K. Roe
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					No Recovery			MC-1 (0-4')
2			0.2		Asphalt and subgrade find medium and coarse angular to subangular gravel to 1.25", some silt and sand, dry	1.0		Black staining VOA @ 2-2.5'
			0.2					Dark gray staining from above
			2.4		Dark brown-red-black; SILT and fine to medium subangular to angular gravel (most is slag/brick cinders) and decaying wood, moist	1.6		
			3.8					
			0.0			2.5		
4			0.0					
			1.7			3.3		MC-2 (4-8')
			0.1		Dark gray-brown; SILT till with embedded trace fine to medium gravel, trace clay; medium stiff; moist	4.0		
			0.1					
6			0.1		Color change to medium to light gray/brown with mottling of lighter gray materials as above; moist	6.5		VOA @ 6.4-6.6'
			0.4		Medium reddish brown; SILT, trace clay, trace-little fine, medium, to coarse well rounded to subangular embedded gravel to 3/4", lighter gray mottling (and trace fine sand in matrix) especially @ 6-6.5'; moist; medium stiff	8.0		MC-3 (8-11')
			0.1					
8			0.0					
			0.0					
			0.4					
10			0.3					
			0.5		Silty/sandy till matrix with trace fine gravel, less stiff; more moist			VOA @ 10.5'
			0.2		Sandy/silty till as above, fine to medium well rounded to subrounded gravel to 5/8"; moist to wet in "pockets"; medium stiff			MC-4 (11-14')
			0.1					
12			2.1					
			3.5					
			3.0					
			1.6					VOA @ 13'
			6.2					
14			6.2					MC-5 (14-17')
			3.8		Dark gray/black; fine to medium to coarse subangular to subrounded GRAVEL to 1.25", some medium to coarse sand, trace silt; wet	14.4		
			3.9					
			3.2		Sandy/silty till as above	14.6		VOA @ 15.3-15.5'
16			3.9					
			3.2			15.4		
			1.3		Color change to dark red gray, size of medium to coarse subangular to well rounded gravel increased, trace clay, (less sand); moist to wet	17.0		MC-6 (17-19')
			0.8					
18			1.3					
			0.9					
			0.3		Silty till with trace to little clay as above, rounded to subrounded gravel up to 1.75"; medium stiff; sl. cohesive; wet	19.0		MC-7 (19-21')
			0.6					VOA @ 19.5'
			1.3					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET 2 OF 2

CLIENT

PROJECT No. **4563003**

[illegible]

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH **'**

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Jim Agar**

PIRNIE STAFF **K. Roe**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			1.5		Asphalt and subbase gravel			MC-1 (0-4')
			1.1					
			2.2		Medium brown; SILT and gravel, little fine to coarse sand, trace brick; moist	1.0		
2			1.0					
			10.9		Black; fine to medium sand, trace gravel, trace brick, trace cinders; slight petroleum odors; moist, wet at 4'	1.5		VOA @ 2.5'
			2.4					
4								MC-2 (4-8')
			0.7					
			0.1		Gray-brown; CLAY, some silt, trace coarse sand; soft; moist-wet	4.5		
			0.4					
6			0.6					
			3.1					
			10		Color change to medium orange brown @ 6.5'; silt content increases	6.5		VOA @ 7-7.5'
			1.9					
8			7.6		Medium brown; SILT till, some fine to coarse sand, little clay, trace subrounded to subangular gravel; stiff; moist	7.5		MC-3 (8-10')
			4.1					
			4.5					Collected groundwater sample with mill slot sampler from 0-10'
			5.3					VOA @ 10'
10			18.7		As above, gravel increases in size to 1/2-3/4" diameter, predominantly subrounded	10.0		MC-4 (10-12')
			15.3					
			12.1					
			8.5					VOA @ 12'
12			25.6		As above, clay content increases to little	12.0		MC-5 (12-14')
			15.4					
			20.2					
			12.3					
14			30.5					MC-6 (14-16')
			42.7					VOA @ 16'
16			46.1					MC-7 (16-18')
			48.9					
			37.6					
			38.9					
18			49.3		As above with occasional gray clay vertically oriented partings/seams	18.0		MC-8 (18-20')
			32.7					
			36.2					
			42.8					VOA @ 19.5'

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			35.8					MC-9 (20-23')
			11.6					
			43.6					
			37.1					
22			39.4					
			118		Color change to gray-brown and corresponding increase in clay content at 22'	22.0		VOA @ 22.5'
			101					MC-10 (23-26')
			9.6					
24			194		Gray-brown; clayey SILT till as above, coarse subangular gravel to 2" diameter; solvent odor from 23-26'			
			115					
			2107					VOA @ 25-26'
			1845					
26			2411					MC-11 (26-28')
			376					
			278					
			365					
28			248					
			342					MC-12 (28-31')
			246					
			116					
30			88.2					VOA @ 30-30.5'
			344					
			292		2" fine sand pocket @ 30.6'	30.6		MC-13 (31-33.1')
			116					
32			902		Red-brown and gray; CLAY, laminated; soft, saturated	31.5		VOA @ 32'
			580		Olive green-tan; SILT and very fine sand; soft, saturated	32.0		
			529		Red-brown and gray; CLAY; laminations; soft	32.5		
					Olive green to dark gray; weathered rock fragments	32.7		
					Refusal at 33.1'	33.1		

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH **'**

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Kieth Marsalas**

PIRNIE STAFF **M. Flusche**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.3		Asphalt			MC-1 (0-4')
			0.4		Angular gravel fill; loose; dry	0.5		
2			0.0					
			0.0		Black-brown; SILT, trace fine sand; loose; dry	2.5		
4			7.0					VOA @ 3.5'
			0.0		Brown; SILT; some black staining; stiff; dry-moist	4.0		MC-2 (4-8')
			0.2					
			0.0					
6			0.1					VOA @ 7'
			0.0					
			0.2					
			0.0					
8			0.0		Redish-brown; SILT, some subrounded gravel; very stiff; dry	8.0		MC-3 (8-12')
			0.7					
			1.8					
10			1.0					
			0.7					
			0.3		Gray; subangular to subrounded GRAVEL, some silt; loose; dry	11.0		VOA @ 11.5'
12			2.8					MC-4 (12-15')
			2.0		Red brown; SILT, some subrounded gravel; stiff; dry	12.0		
			13.1					
			4.3		Black; fine SAND lense; moist; dry	13.5		VOA @ 13.5'
14			1.4		Red brown; SILT; stiff; moist to dry			
			0.1			13.7		
			4.2		Red brown; SILT and medium sand; moderately stiff; moist to wet	15.0		Water first present at 15'
16			1.8		Red brown; SILT and subrounded gravel; stiff; moist	16.0		VOA @ 15.5'
			4.3					MC-5 (15-18')
			4.0					
			9.1					Water sample collected from 15-20'
18			183					MC-6 (18-20')
			50.3					VOA @ 18.5'
			60.8					
			38.2					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			124		Brown; SILT and fine sand; stiff; moist	20.0		MC-7 (20-24')
			40.7					VOA @ 21'
			388					
			168					
			254		Red brown; SILT, little subrounded gravel; stiff; moist-dry	22.0		
			119					
24			80.7		Brown; fine SAND and silt; stiff-soft; moist	23.5		MC-8 (24-28')
			42.3		Brown; fine sand, trace gravel; loose; wet			
			61.3			24.0		
			119		Red brown; SILT, little gravel; stiff; dry			
26			10.7			25.0		
			9.1					VOA @ 27'
28			3.0		Brown; fine sand; loose-dense; wet; probably fell in from above	28.0		MC-9 (28-32')
			44.3					
30			82.8					
			9.9		Red brown; SILT, some clay, little coarse gravel; stiff; moist	31.0		VOA @ 31'
32			34.3		Red brown; SILT, some clay, faint laminations, trace sand, angular rock (shale) fragments in bottom of core; stiff; moist	32.0		VOA @ 32.5'
			165					
			333					
			155		Refusal @ 33.0'	33.0		

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH **'**

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Kieth Marsalas**

PIRNIE STAFF **M. Flusche**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2			2.1		Gray; subangular GRAVEL; loose; dry			MC-1 (0-4')
			1.7		Black; fine GRAVEL; wet-moist	0.8		VOA @ 1.5'
			0.7					
4			0.5		Brown; SILT; stiff; dry	3.0		
			0.8		Red brown; SILT, some gravel, some gray silt from 5.5-6.5', faint laminations; stiff, dry to moist	4.0		MC-2 (4-8')
			0.5					
6			0.7					
			1.8					
			3.1					
			4.4					
8			3.2		Red brown; SILT with white and gray silt partings, some gravel	7.9		VOA @ 7.5' MC-3 (8-12')
			4.8					
10			7.1		Red brown; SILT, some subrounded gravel; stiff; dry	10.0		VOA @ 11'
			8.2					
12			3.8		Red brown; SILT, some subrounded gravel; stiff; dry to moist	12.0		MC-4 (12-16')
			5.1					
			2.3					
14			2.7					
			2.7					
			3.1					
16			8.1					VOA @ 15.5' MC-5 (16-20')
			6.7					
18			39.5					VOA @ 18'
			11.9					
			24.1					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			83.7		Red brown; SILT, little subrounded gravel; stiff, dry to moist	20.0		MC-6 (20-24')
			278					
			403					
22								
			268					
			671					VOA @ 23'
24			161		Red brown; SILT, some clay, trace gravel; stiff, moist	24.0		MC-7 (24-28')
			46.1					
26			12.8					VOA @ 26'
			36.6					
28			6.8					MC-8 (28-32')
			6.8					
			1.7		Brown; SILT, some clay, trace gravel; stiff, moist	29.0		VOA @ 30'
30			0.6					
			1.2					
32			0.5		Light brown; SILT and clay laminations; stiff, moist	31.5		MC-9 (32-33')
			13.0		Brown gray; angular GRAVEL and sand; loose; wet	32.0		VOA @ 32.5'
			15.6		Refusal at 33.0'	33.0		Installed temporary well point screened from 23-33'. No backfill. Groundwater sample collected for VOC analysis on 8/2/05.

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

DATE STARTED **8/2/05**

GROUND WATER DEPTH **'**

DIA.

2"

DATE FINISHED **8/2/05**

MEASURING POINT **N/A**

WEIGHT

#

DRILLER **Kieth Marsalas**

DATE OF MEASUREMENT **N/A**

FALL

"

PIRNIE STAFF **M. Flusche**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		ASPHALT/subbase gravel			MC-1 (0-4') VOA @ 1.5' 0820
			0.0					
			0.0					
2			0.0		FILL, Silt, red-brown, some gravel, trace to little sand, trace clay, moist	1.2		
			0.0					
			0.0		FILL, gravel and f/c sand, black trace silt, wet	2.5		
			0.0					
4			0.0					MC-2 (4-8') VOA @ 4.5' - 5.0' 0830
			0.0					
			0.0		Silt, brown-olive green, some f/c sand, little clay, stiff, moist color change to red brown @ 5.5'	5.0		
6			0.0		- trace gravel @ 7.0' subrounded - subangular			
			0.0					
			0.0					
8			0.0		TILL, Silt till, red-brown some f/c sand, little clay, little gravel, subrounded, moist, very stiff, occasional gray clay partings	8.0		MC-3 (8-12')
			0.0					
10			0.0					VOA @ 10.0' 0910
			0.0					
			0.0					
12			0.0		Silt till as above	12.0		MC-4 (12-16')
			0.2					
			0.4					
			7.5					
14			1.9					
			2.8					
			3.2					
			0.6					
16								VOA @ 15.8-16.0' 0920
			2.2					MC-5 (16-20')
			3.5					
			3.5					
18			2.3					
			5.1					
			9.2					
			14.4		TILL, as above, color change to	19.5		

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			18.7 32.0 10.7 77.7 311 193 132 3137		grey-brown @ 19.5' corresponding increase in clay content, moist-wet			MC-6 (20-24') VOA @ 20' 0940
24			924 1125 391 209 479 2240		SILT TILL, as above, strong solvent odor vertical "fractures" evident w/ color variation to dark grey along fracture planes	24.0		VOA @ 23.1' 1000 MC-7 (24-28')
26			10000 950 813					VOA @ 26.5' 1030
28			844 10000 10000		Brown grey SILT TILL, some clay, trace fine gravel, moist, soft. - DNAPL present within sample primarily 29-30'	28.0		MC-28-32' VOA @ 29.5' 1130
30			1000 864 194 51.0					
32			77.5 8.6 52.2		SILT, tan, little clay, soft, wet, wet plasticity	32.0		MC-9 (32-33')
					GRAVEL, and f/c sand subrounded, wet slight solvent odor Refusal at 33.0'	32.7 33.0		VOA @ 33' 1150. Set temporary well at 33.0', 10.0' of screen, no backfill

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor	MEAS. PT. ELEV.			
PURPOSE	Buildings 2, 7, and 11 Field Work	GROUND ELEV.			
WELL MATERIAL	N/A	DATUM			
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 8/2/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 8/2/05
GROUND WATER DEPTH	'	DIA.	2"		DRILLER Kieth Marsalas
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF M. Flusche
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			1.7		ASPHALT, subbase gravel fill			MC-1 (0-4')
			4.8					
			73.8		FILL, dark grey and black gravel, and f/c sand, little cinders and slag, wet, solvent odor	1.0		VOA @ 1.5' 1220
2			47.8			1.5		
			17.3		SILT, brown to grey brown, and fine sand, little gravel, dark grey streaks			
			7.2					
					SILT, grey-black organic a 3.5' trace to little sand, trace organics, moist	3.5		MC-2 (4-8')
4			24.9					
			45.4		SILT, grey-brown, and olive green mottled, some clay, trace coarse sand, moist	4.3		VOA @ 5.0' 1230
			3.6			5.0		
6			1.8		TILL, red brown sand, silt, little clay, trace fine gravel, moist medium stiff			
			3.2		-hard at 6.5'			
			3.5					
			1.6					
8			5.1		SILT TILL, as above, grey sandy clay partings 8-10', near vertical, gravel to 1" diameter.	8.0		MC-3 (8-12')
			1.8		-color changes to grey-brown at 10'			
			2.6					
			5.5					
10			6.7					
			6.8					
			9.7					
			5.6					
12			17.9		TILL, as above, gravel is fine (to 1/4" diameter) subrounded, stiff	12.0		MC-4 (12-16') VOA @ 12' 1240
			6.6					
			11.7					
			11.5					
14			35.6					VOA @ 14.5' 1300
			48.6					
			11.4					
			16					
16			4.2		SILT TILL, as above, red-brown	16.0		MC-5 (16-20')
			1.7		-Brown-grey @ 18'			
			2.2					
			5.0					
18			8.3					
			12.5					
			6.1					
			51.6					VOA @ 19.5' 1320

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			15.0 62.7 11 169 127 68.9 757 233		SILT TILL, grey-brown as above, some clay, slight plasticity, moist	20.0		MC-6 (20-24')
24			220		SILT TILL, as above, and clay at 26', wet	24.0		VOA @ 23.0' 1340 MC-7 (24-28')
26			148 91.4					VOA @ 25.0' 1425
28			28.4 5.7 2.4 0.7		SILT TILL, as above, and clay, wet at 30.0', soft	28.0		MC-8 (28-31.5')
30			16.8 8.8 32.2 58.9 42.1 37.4 32.0					VOA @ 30' 1445
					Refusal at 31.5'	31.5		No well set, backfilled hole w/ cement grout. No water at completion

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			7.2 3.0 2.9 1.7 2.2 5.0 0.9 1.0		TILL, silt till as above, medium stiff, moist-wet	20.0		MC-6 (20-24')
24			0.8 0.1 0.5 0.7 0.2 0.0 0.0 0.0		TILL, clayey silt till, as above	24.0		VOA @ 22.5' 0955 MC-7 24-28'
26			0.0 0.0 0.0 0.0					VOA @ 25.5' 1010
28			0.6 0.6 0.0 0.8 1.0 2.0 1.4		TILL, clayey silt till, as above. 30.2' => sand, grey, fine grained, saturated 30.9' => clay, gray and brown, laminated little silt, soft, saturated	28.0		
30			3.6 4.7 3.8		TILL, clay and silt lenses (2-3" in thickness) medium-brown (SILT) and medium grey (CLAY), soft and saturated. 32.7' => Shale fragments, medium grey brown, wet Refusal at 33.0'	32.0 33.0		
32								

PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR Marcor						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, and 11 Field Work						GROUND ELEV.		
WELL MATERIAL N/A						DATUM		
DRILLING METHOD(S) Direct Push				SAMPLE	CORE	CASING	DATE STARTED 8/3/05	
DRILL RIG TYPE Geoprobe		TYPE	Macrocore			DATE FINISHED 8/3/05		
GROUND WATER DEPTH '		DIA.	2"			DRILLER Kieth Marsalas		
MEASURING POINT N/A		WEIGHT	#			PIRNIE STAFF M. Flusche		
DATE OF MEASUREMENT N/A		FALL	"					
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		Asphalt, gravel to 6"			MC-1 (0-4')
			2.8		FILL, black sand and gravel, loose, dry, moist	0.5		
			0.8					
			0.9					
2			0.6		FILL, brown silt, little gravel, hard, dry, trace f/c sand	2.0		
			0.4					
			209		TILL, brown silt with gravel lense at 3.2'	3.0		VOA @ 3.0' 1230
			62.7					
4			1234		TILL, silt till as above, little gravel, subrounded to 1/2" diameter, medium brown grey, gasoline odor at 4-5'. 5.5' => color change to red-brown	4.0		MC-2 (4-8') VOA @ 4.5' 1240
			780					
			674					
			82					
6			49.1					
			54.4					
			34.4					
			28.2					
8			5.4		TILL, silt till as above, moisture content increases from moist from to wet with depth.	8.0		MC-3 (8-12')
			5.5					
			1.8					
			6.5		10.5' => SAND fine grained and gravel, some silt, saturated medium brown grey.			VOA @ 9.5' 1250
10			2.7		10.9' => SILT TILL as above, red brown, wet, soft			
			2.0					
			1.3					
			0.4					
12			0.3		TILL, silt till as above, color change to grey brown and corresponding increase in clay content (to little clay) at 13.0' moist, medium stiff	12.0		MC-4 (12-16')
			2.9					
			1.2					VOA @ 13.0' 1305
			7.0					
14			0.6					
			0.2					
			0.3					
			0.3					
16			0.1		TILL, clayey silt till, as above, grey-brown, wet	16.0		MC-5 (16-20')
			0.2					
			0.7					
18			0.2					VOA @ 18.0' 1320
			0.5					
			0.2					
			0.0					
			0.2					

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		Same as above	20.0		MC-6 (20-24')
			0.1					
			0.2					VOA @ 21.5' 1335
22			0.1					
			0.1					
24			0.1		TILL, silt and clay, grey-brown, soft, wet, trace fine gravel to 1/4" diameter, subrounded, occasional dark grey clay laminations	24.0		MC-7 24-28' VOA @ 24.5' 1410
			0.2					
			0.4					
26			0.1					
			0.2					
			0.1					
			0.1					
28			0.0		TILL, silt and clay as above, trace f/c sand, soft, wet saturated. 35.0' => medium grey-brown weathered rock fragments and f/c sand wet	28.0		MC-8 28-35.5'
			0.1					
			0.8					
30			0.5					
			0.8					
32			0.4					VOA @ 32.0' 1440. Driller inadvertently pushed sample 8' (28-35.5') due to soft conditions
			0.1					
34			0.1					
			0.0		Refusal at 35.5' set temporary well at 35.5', 5' screen, no backfill	35.5		

MALCOLM PIRNIE			TEST BORING LOG			BORING No. B2-PH09		
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR Marcor						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, and 11 Field Work						GROUND ELEV.		
WELL MATERIAL N/A						DATUM		
DRILLING METHOD(S) Direct Push			SAMPLE	CORE	CASING	DATE STARTED 8/4/05		
DRILL RIG TYPE Geoprobe		TYPE	Macrocore			DATE FINISHED 8/4/05		
GROUND WATER DEPTH '		DIA.	2"			DRILLER Kieth Marsalas		
MEASURING POINT N/A		WEIGHT	#			PIRNIE STAFF M. Flusche		
DATE OF MEASUREMENT N/A		FALL	"					
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.4		Asphalt, gravel subbase			MC-1 (0-4')
2			0.5			1.5		
			1.2		FILL, fine sand, some gravel, dark-brown, trace cinders, moist			VOA @ 2.5' 0845
			5.6					
			0.7		FILL, dark-grey silt some f/c sand little gravel, trace cinders, moist	3.0		MC-2 (4-8')
4			0.6					
			0.2					
			0.2		TILL, silt and f/c sand, little gravel, little clay, grey clay partings / fractures vertical, moist, stiff, red-brown.	5.0		
6			0.6					
			2.3					
			8.1					
			4.9					
			29.6					
8			38.0		TILL, silt till as above	8.0		VOA @ 7.5-8.0' 0855 MC-3 (8-12')
			25.0					
			12.3					
10			47.1					VOA @ 10' 0910
			59.6					
			34.2					
			52.3					
			11.5					
12			9.7		TILL, as above.	12.0		MC-4 12-16'
			7.8		13.2' => increase in clay content to some clay			
			53.7					
14			15.4					
			24.3					
			23.6					
			95.6					VOA @ 15.0' 0930
			44.8					
16			5.1		TILL, silt till as above, some gravel (subangular - subrounded) to 1/2" diameter stiff	16.0		MC-5 16-20'
			20.8					
			13.3					
			23.9					
18			5.9					
			20.4					
			49.1					VOA @ 19.0' 1000
			29.4					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			227 289 1227 497 1332 227 58 78.6		TILL, silt till, brown-grey, as above	20.0		MC-6 (20-23') VOA @ 22.0' 1035. Sampled: TOC (20-22'), pH, Alk, Mn, Fe, Na, SO4 (20-23') and grain size 20-23' MC-7 23-26'
24			146 153 51.6 58.2					VOA @ 24.5' 1100
26			5.3 5.7 2.5		TILL, as above, and clay, soft, wet	26.0		MC-8 (26-30')
28			1.3 0.6					VOA @ 28' 1125
30			0.8 6.6 2.5 0.4		TILL, clayey silty till, as above, rock fragment at bottom of sample	30.0		MC-9 (30-32') VOA @ 31.0' 1150
32			0.0		Refusal @ 32.0'	32.0		

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			2.0 1.6 1.1 1.1 1.2 0.4 0.4 0.5 0.3					MC-6 (20-24') VOA @ 21.0' 1330
24								MC-7 (24-28')
26								
28			1.6		TILL, clayey silty till, as above, soft, wet	28.0		MC-8 (28-32')
30			2.6 0.8					VOA @ 30' 1400
32			0.3 0.6 0.6 0.3 0.4		TILL, silty, medium brown-olive green, and clay, laminated clay occurs as lenses < 1/2" thickness, rock fragments at base of sample	32.0 33.5		MC-9 (32-33.5') VOA @ 33' 1430
					Refusal at 33.5'			

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1 OF 2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH **'**

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Jim Agar**

PIRNIE STAFF **K. Roe**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		0-1.2' => Concrete slab & gravel subslab (slab 3.0" thick), gravel bedding (m/c to 1"), dry			MC-1 (0-4')
			0.0		1.2-3.1' => medium brown f/m SAND, dry, FILL			VOA @ 1.5'
2			0.0					
			0.0		2.6-3.1' => Light medium yellow brown SILT, trace f/m gravel (well rounded - rounded to 1/2"), trace sand moist.	2.6		
4			0.0		3.1-3.6' => Dark brown SILT trace f/m gravel (well rounded - subrounded, to 3/8"), moist	4.0		MC-2 (4-7')
			0.0		3.6-4.0' => Dark yellow brown SILT, little to some f/ sand, trace f/ gravel (well rounded - subrounded to 1/4") moist to dry			
6			0.0		4.0' => Medium dark yellow brown SILT, trace f/ gravel (R-SR to 3/8"), moist to dry.	8.0		MC-3 (7-10'). Upper 0.8' of core sand and some gravel from above = slough (-driller notes no changes) corresponding to loose/dry sand.
			0.0		4.5' => Dark yellow brown / dark red brown SILT, trace to little f+/m/c gravel (WR-SR to 1/2"), trace to little clay, moisture increasing			
10			0.0		As above, light grey mottling noted at 8.1'			MC 4 (10-12') VOA @ 10.0'
			0.0		10.0' => Dark yellow brown to dark red brown SILT, little f/m/c+ gravel (well rounded - subangular to 1 1/4") trace vf/f sand interbedded, moist to wet in pockets, trace clay.			
12			0.0		12.0' => Colors above; SILT, little f/m+/c+ gravel (well rounded - subangular), trace clay, moist in pockets, trace vf/ sand	14.0		MC-5 (12-14')
			0.0		As above, moist (wet in "pockets")			VOA @ 13.0'
14			0.0					MC-6 (14-16')
			0.0					
16			0.0		As above, moist to wet in pockets.	16.0		MC-7 (16-18')
			0.0		16.9' => Color change to dark brown / red brown, material as above, moist			
18			0.0		As above, moist to wet in "pockets"	18.0		VOA @ 17.5'
			0.0					MC-8 (18-20')
			0.0					
			0.0					

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		As above, wet.	20.0		MC-9 (20-22') VOA @ 20.5-21.0'
			0.0		20.8-21.0' => Broken gravel (large 2"			
			0.0		subrounded piece gravel & broken pieces,			
			0.0		wet)			
22			0.0		As above, wet	22.0		MC-10 (22-24')
			0.0					
			0.0					
24			0.0		As above	24.0		VOA @ 23.5'
			0.0					MC-11 (24-26')
			0.0					
26			0.0		Dark brown grey m+/c- SAND trace to	25.5		VOA @ 25.5-26.0' (lab)
			0.0		little to trace silt, wet			MC-12 (26-28')
			0.0		26.0' => As above, with m/c+ SAND trace			
			0.0		f+/m well rounded gravel, wet			
			0.0		26.7' => Grades back to m/c+ SAND			
28			0.0		27.2' => Grades into above silt	28.0		MC-13 (28-29') VOA @ 28.3'
			0.0		27.6' => Grades to m/ SAND, trace silt			
			0.0		28.0' => Dark red grey / brown SILT, little	29.0		MC-14 (29-30')
30					to trace clay, trace c/ gravel (well rounded			
					- rounded to 1 1/2"), wet to moist	30.0		
					No recovery - all sand wash from above			
					Geoprobe without sampling to total depth			
					40.0' => bottom of hole			
32								
34								
36								
38								
40					End of geoprobe at 40.0'	40.0		

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor				MEAS. PT. ELEV.
PURPOSE	Buildings 2, 7, and 11 Field Work				GROUND ELEV.
WELL MATERIAL	N/A				DATUM
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 7/22/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 7/22/05
GROUND WATER DEPTH	'	DIA.	2"		DRILLER Jim Agar
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF K. Roe
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
0.3					0 - 1.0' => Concrete slab & subslab, gravel bedding, dry			MC-1 (0-4')
0.5					1.0 - 2.0' => Fill, dark yellow brown SILT little f/m+/c+ gravel (angular - subrounded, to 1")	2.0		VOA @ 2.0'
16.8					2.0' => Grades into very dark brown FILL of slag & possible ground glass; SILT and f/m+/c GRAVEL, loose sand, dry, loose			VOA @ 3.2' note: ABOVE "paint smear"
2.6					3.6' => Smear of yellow paint(?) (by appearance) inside of liner.	4.3		MC-2 (4-8')
18.7					Dark yellow brown vf/ SAND trace silt, moist	4.5		
2.7					4.5' => Medium dark yellow brown TILL, some light grey mottling (especially @ 6.5') SILT, little f/m/c gravel (well rounded - subrounded, to 1 1/4"), trace to little clay, trace vf sand (grades from sandy to clayey and back), medium hard, moist.	8.0		VOA @ 7.7'
0.6					6.0 - 6.5' => becomes very hard+ 7.8' => becoming more moist (pockets) and a bit softer			MC-(8-11')
12.0					Till as above, very sandy to 8.8', very moist.			VOA @ 10.7'
0.8					9.0' => Grades back to silty TILL, with clay.			MC-4 (11-13.5')
0.4					10.5 - 11.0' => Very sandy TILL, moist			
0.3					11.0 - 13.0' => Sandy & silty TILL (trace to no clay), not cohesive, relatively soft, moist - more so @ 11.0 - 11.5' (more sand)	13.5		VOA @ 13.2-13.4'
0.4					13.0 - 14.0' => Sandy+ TILL, more moisture			MC-5 (13.5-16'). Note: upper 1.5' of macrocore is saturated sandy, gravelly slough (no sample collected as slough from above likely).
0.5					13.5 - 13.8' => Sandy, very (little to some) gravelly (f/m+/c+, well rounded - subrounded), non-cohesive and moist	16.0		VOA @ 15.8'
0.2					13.8' => [TILL, trace to little f+/m- gravel (embedded), sandy/silty matrix, trace clay, moist to wet, non-cohesive] within wet, sandy / gravelly slough from top core			MC-6 (16-18'). Note: top of core saturated sandy gravelly+ slough
0.9					16 - 17.5' => TILL as above, occasional c/ gravel (well rounded, to 1 1/2"), wet in seams & pockets.			MC-7 (18-20') VOA @ 18.8'
1.8								
8.8								
6.6								
4.9								
36.4								
18.2								
26.8								
28.2								
4.0								
27.1								
1.2								
3.2								
4.4								
12.3								
11.9								

PROJECT **GTEOSI Seneca Falls**LOCATION **Seneca Falls, NY**SHEET **2 OF 2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			5.5		17.5 - 18.0' => Becoming harder, color change to dark red grey, clay content increase, slightly cohesive, wet	20.0		MC-8 (20-23')
			1.1		18 - 20.0' => No recovery			
			0.5		20.0' => TILL w/ little f+/m/c gravel			
			0.3		21.9 - 22.1' => broken cobble (3" before break during drilling), well rounded;			VOA @ 22.4'
			0.3		quartz-rich igneous			MC-9 (23-25')
24			0.5		22.4' => Very thin (1/8" - 1/4") layer f/m	23.5		VOA @ 23.5-23.8'
			0.3		dark grey SAND, wet			
			0.2		23.5 - 23.8' => Medium dark yellow brown			MC-10 (25-26')
			0.2		/ dark red grey very fine SAND, trace silt, wet			VOA @ 26-27'
26			0.2		24 - 25.5' => As above, TILL with little f/m/c gravel (well rounded - subrounded)			
			0.2		embedded; matrix varies from clay-rich to sand rich. Note: unclear where TILL changes to SAND - appears TILL smeared on walls of core tube and sand pushed up verticle crack in middle - water pressure, and difficult drilling noted from sands.	27.0		VOA @ 27.5-28'
28			0.2		26 - 27.0' => Dark brown red grey f/m			
			0.2		SAND, trace silt, wet			
30			0.2		27 - 28.0' => Clayey TILL w/ embedded f+/m/c, gravel (well rounded, to 2 1/2"), wet dense.			
			0.2		28 - 30.0' => As above	32.0		
32			0.2		30 - 32.0' => As above			
			0.2		Bottom of borehole at 32.0'			

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **1** OF **2**

CLIENT

PROJECT No. **4563003**

DRILLING CONTRACTOR **Marcor**

MEAS. PT. ELEV.

PURPOSE **Buildings 2, 7, and 11 Field Work**

GROUND ELEV.

WELL MATERIAL **N/A**

DATUM

DRILLING METHOD(S) **Direct Push**

SAMPLE

CORE

CASING

DRILL RIG TYPE **Geoprobe**

TYPE

Macrocore

GROUND WATER DEPTH **'**

DIA.

2"

MEASURING POINT **N/A**

WEIGHT

#

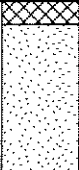
DATE OF MEASUREMENT **N/A**

FALL

"

DRILLER **Jim Agar**

PIRNIE STAFF **K. Roe**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2			1.4 0.9 0.6 0.3 0.2		Light grey gravel, and f/c sand (subbase) SAND, medium brown, f/m grained trace f/ gravel, loose, moist	0.4		MC-1 (0-4') VOA @ (0.6-0.8')
4			0.3 2.2 0.4 0.4 0.0 0.0 0.2 0.2 0.5		TILL, silty with f/c sand, trace to little clay, trace gravel (subrounded - subangular), moist stiff, medium brown / red brown	4.0		MC-2 (4-8') VOA @ 5.5'
8			0.6 0.8 1.0 0.7 0.7 0.1 0.1 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0		TILL as above, soft, wet medium brown	8.0		MC-3 (8-11')
10					TILL, as above, gravel is fine to 1/2" diameter, subangular	11.0		VOA @ 10.5'. Grain size collected 9.5-13.0 interval (includes harder TILL and softer sandier TILL) MC-4 (11-13') 2 - 8oz. collected 11.5-12' & 12-12.5'. TOC @ 12.0'. VOA @ 12.5 MC-5 (13-16')
12					TILL, same as above, wet	13.0		
14					Drive point to 26.0' retract screen-shield for screen interval 22-26' - initially ~2" water => wait 15-20 minutes; check => ~ 6-12" water => decide to drive point to 29' for screen interval 25-29' to attempt water sample. Screen interval 25-29' attempt water sample - no water available for sample collection. Grout hole to surface	16.0		VOA @ (15.5-16')
16								
18								

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22								
24								
26								
28								
30								
32								
34								
36								
38								
40								
42								
44								
					Refusal at 45.1			

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

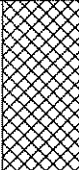
SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			1.0 3.7 2.3 5.4 4.1 14.2 0.0 0.0 0.0 0.4 0.1 0.0		20.0' => Color change to dark red grey / brown grey 21.7 - 22.0' => Gravel "pocket" as described above, dark grey staining, moist, slight odor / 22.0 Brown-grey SILT as above 23.0' => Sand m/c, some silt, trace f/ gravel, saturated medium grey			VOA @ 21.8-22.0' MC-9 (22-25') VOA @ 23-23.2'. Collect discrete water sample at 25.0' with mill-slot sampler. Due to configuration of sampling device groundwater may represent infiltration of water from above, sampler sat at bottom of open hole, no isolation from above Sampler (25.5- 29.5'). Attempt to collect groundwater sample. Unable to collect enough water for sample. Let sampler set for 20 minutes. Advance SP15 groundwater sampler to 36' retract to 32' exposing 4' of steel mesh screen SP15 groundwater sampler (32-36') collect VOAs w/ poly tubing and check valve.
36					Refusal at 36.3	36.3		

PROJECT	GTEOSI Seneca Falls		LOCATION	Seneca Falls, NY			SHEET	1	OF	2	
CLIENT							PROJECT No.	4563003			
DRILLING CONTRACTOR							Marcor				
PURPOSE							Buildings 2, 7, and 11 Field Work				
WELL MATERIAL							N/A				
DRILLING METHOD(S)							Direct Push		SAMPLE	CORE	CASING
DRILL RIG TYPE							Geoprobe		TYPE	Macrocore	
GROUND WATER DEPTH							'		DIA.	2"	
MEASURING POINT							N/A		WEIGHT	#	
DATE OF MEASUREMENT							N/A		FALL	"	
							MEAS. PT. ELEV.				
							GROUND ELEV.				
							DATUM				
							DATE STARTED	7/18/05			
							DATE FINISHED	7/18/05			
							DRILLER	Jim Agar			
							PIRNIE STAFF	K. Roe			

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2			0.6 0.4 0.4 0.2 0.2		0 - 1.5' => No recovery / compressed 1.5 - 2.5' => ASPHALT and gravel bedding, dry 2.5 - 2.9' => Gravel (bedding) with silt, wet			MC-1 (0-4')
4			0.2 0.2 0.2 0.3 0.1		2.9 - 4.0' => Medium yellow red brown SILT, trace f/m/c gravel (subangular - rounded, to 1 1/4"); trace clay, moist, med soft light grey mottling (silty clayey TILL matrix with trace to little gravel	2.9 4.0		VOA @ 3.0-3.5' MC-2 (4-7')
6			0.0 0.3 0.2 0.2		Silt matrix TILL (with varying trace to little clay and vf/ sand), trace to little f+/m+/c gravel (well rounded - subrounded), med soft to soft, wet. [Medium red brown w/ light grey mottling]	7.0		MC-3 (7-10')
8			0.2 0.4 0.5 0.7		As above, with occasional iron-oxidation observed, wet medium soft			VOA @ 8.5'
10			1.7 1.2 3.4 4.6		As above	10.0		MC-4 (10-12')
12			2.7 3.8 4.6 27.9		As above (medium soft, wet)	12.0		MC-5 (12-14') VOA @ 12.5-13.0'
14			21.4 18.4 6.9 10.2		As above (medium soft, wet)	14.0		MC-6 (14-16')
16			11 2.6 0.0 0.0		Color change to dark red grey / red brown; as above, wet, medium soft to soft	16.0		MC-7 (16-18') VOA @ 17'
18			0.0 0.0		As above, no recovery (except 3 pieces c+/ gravel subangular, to 2 1/4"); wet	18.0		MC-8 (18-20')

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22			0.0		As above, no recovery except 0.3' c/ gravel (subangular, to 1 1/2") with wet silt; gravel from above likely.	20.0		MC-9 (20-24')
24			5.1		As above, gravel (subangular to 1" diameter)	24.0		MC-10 (24-26') VOA @ 25.5-26'
26			0.0		As above with sub-angular gravel to 1.5"	26.0		MC-11 (26-28') VOA @ 27'
28			0.0		As above, sub-angular gravel to 0.5"	28.0		MW-12 (28-31')
30			0.0					
32			0.1		As above, wet, med. soft	31.0		MC-13 (31-34') VOA @ 31-31.5'
34			7.4					
36			0.2					
38			0.0					
40			0.0					
			7.1		As above, color change to med. gray at 36.5', stiff	34.0		MC-14 (34-37')
			0.0					
			3.0		SILT till; red-brown; trace-little fine to medium sub-rounded gravel to 1", trace clay; moist	37.0		MC-15 (37-41') VOA @ 39.5'
			0.2					
			3.0					
			6.0					
			0.1					
			0.1		Gray weathered shale fragments; little clay; wet	40.0		
			0.0					
					Refusal at 41.4'	41.4		

PROJECT	GTEOSI Seneca Falls	LOCATION	Seneca Falls, NY	SHEET	1 OF 2
CLIENT				PROJECT No.	4563003
DRILLING CONTRACTOR	Marcor				MEAS. PT. ELEV.
PURPOSE	Buildings 2, 7, and 11 Field Work				GROUND ELEV.
WELL MATERIAL	N/A				DATUM
DRILLING METHOD(S)	Direct Push	SAMPLE	CORE	CASING	DATE STARTED 7/18/05
DRILL RIG TYPE	Geoprobe	TYPE	Macrocore		DATE FINISHED 7/18/05
GROUND WATER DEPTH	'	DIA.	2"		DRILLER Jim Agar
MEASURING POINT	N/A	WEIGHT	#		PIRNIE STAFF K. Roe
DATE OF MEASUREMENT	N/A	FALL	"		

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.8		Asphalt/subbase gravel			MC-1 (0-4') VOA @ 0.8-1.1'
			0.2					
			0.2		SILT; red-brown, trace m. gravel to 1/4",	0.6		
2			0.3		trace clay, trace fine to coarse sand; stiff;			
			0.2		moist			
			0.1					
			0.3					
			0.1					
4			0.6		As above, gravel is subrounded to	4.0		MC-2 (4-8')
			0.9		subangular to 1/2", med. soft			
			0.7					
			0.8					
6			0.2					
			0.1					
			0.1					
			0.1					
8			0.4					MC-3 (8-10')
			0.4					
			0.5					
			0.8					
10			1.3					MC-4 (10-12') VOA @ 11-11.2'
			0.2					
			6.7					
			0.8					
12			4.1		As above, with subrounded gravel up to 1"	12.0		MC-5 (12-14')
			1.0		diameter			
			1.7					
			0.4					
14			0.0		As above, color change at 14.5' to	14.0		MC-6 (14-16')
			0.0		medium gray-brown and corresponding			
			1.2		increase in moisture and sand content;			
			0.0		wet			
16			0.0		As above, little to some clay; wet	16.0		MC-7 (16-19') VOA @ 18.1-18.8'
			0.0					
			0.0					
18			0.0		Gray; fine sand and silt, saturated	18.1		
			0.0					
			0.0		SILT and sand, trace medium subrounded	18.8		MC-8 (19-21')
			0.0		gravel, saturated, sand is predominantly			

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		coarse grained			
			0.0					
			0.0					
22			0.0		SILT, little subrounded gravel 1/4-1/2",	21.0		MC-9 (21-23')
			0.0		trace fine to coarse sand, trace clay;			
			0.0		medium gray; stiff; moist			
			0.0					
			0.0					
24			0.0		SILT as above, little fine to coarse sand;	23.0		MC-10 (23-25')
			0.0		stiff			
			0.0					
			0.0					
26			0.0					MC-11 (25-27') VOA @ 26.5-27'
			0.0					
			0.0					
28			0.0					MC-12 (27-30')
			0.0					
			0.0					
30			0.0		As above, subangular to subrounded	30.0		MC-13 (30-33')
			0.0		gravel to 1/4" diameter			
			0.0					
32			0.0					
			0.0					
			0.0					
34			0.0		SILT as above, little clay, trace fine to	33.0		MC-14 (33-36')
			0.0		coarse sand			
			0.0					
36			0.0		Med. gray to gray brown; CLAY, some	36.0		MC-15 (36-39') VOA @ 38.3-38.5'
			0.0		silt, occasional laminations; soft;			
			0.0		moderate plasticity; saturated			
38			0.0		Brown-gray; SILT, trace fine sand;	37.5		
					saturated			
					SILT and weathered shale fragments;	38.3		MC-16 (39-39.5')
					dense			
					Refusal at 39.5'	39.5		Set temporary 1" PVC well screened from 34-39', no sand or bentonite.

PROJECT	GTEOSI Seneca Falls		LOCATION	Seneca Falls, NY		SHEET 1 OF 2	
CLIENT					PROJECT No. 4563003		
DRILLING CONTRACTOR					MEAS. PT. ELEV.		
PURPOSE					GROUND ELEV.		
WELL MATERIAL					DATUM		
DRILLING METHOD(S)			SAMPLE	CORE	CASING	DATE STARTED	
DRILL RIG TYPE		TYPE				DATE FINISHED	
GROUND WATER DEPTH		DIA.				DRILLER	
MEASURING POINT		WEIGHT		PIRNIE STAFF			
DATE OF MEASUREMENT		FALL					

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Asphalt/subbase gravel			MC-1 (0-4')
2			0.0					
			0.0					
			0.0					VOA @ 2-2.3'
			0.0		Red-brown; sandy SILT matrix, trace gravel, trace clay; medium soft; moist to wet at base of sample	2.5		
4			0.0		As above, little clay, subrounded gravel to 1/2" diameter	4.0		MC-2 (4-8')
			0.0					
			0.1					
6			0.0					
			0.0					
			0.1					
			2.1					VOA @ 7.5-8'
8			5.4		As above, trace clay	8.0		MC-3 (8-11')
			28.6					
			35.7					
			70.4					
10			54.6					VOA @ 10.5'
			232					MC-4 (11-14')
			11.4					
			8.3					
12			193					
			137					
			53.5		Color change to medium gray-brown	13.0		
			192					VOA @ 13.5'
14			23		As above with coarse sand lenses with trace gravel at 15.0'; 15.5-15.7' possibly "fall-in" intermixed with till in macrocore during sampling, trace brick fragments.	14.0		MC-5 (14-17')
			0.8					
			3.3					VOA @ 15.5'
16			30.8					
			10.1					
			0.0					
			0.0		As above with more "fall-in" sluff, soft at 19.5'	17.0		MC-6 (17-20')
18			1.5					
			14.4					VOA @ 18.5-19'
			26.8					
			9.2					
			0.0					

PROJECT GTEOSI Seneca Falls

LOCATION Seneca Falls, NY

SHEET 2 OF 2

CLIENT

PROJECT No. 4563003

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0		Med. gray-brown; sandy SILT as above	20.0		MC-7 (20-28')
			36.6					PID of 36.6 likely from water/slough at top of macrocore
			0.0					
22			0.0					
			0.0					VOA @ 22--22.5'
			0.0		Medium to coarse subangular to subrounded gravel, little medium to coarse sand; saturated	22.2		
			9.8			22.5		MC-8 (23-25') VOA @ 23-23.2'
24			0.0		Wet sandy SILT till as above; fine to coarse wet sand, some gravel from 23-23.3' possibly from above			
			0.0					
			0.0					MC-9 (25-27')
26			0.0					
			0.0					
			0.0					
			0.0					
28			0.0		No recovery. Hard driving macrocore	27.0		MC-10 (27-29')
			0.0					
			0.0		Medium brown-gray clayey SILT and medium to coarse sand with trace fine subangular gravel; stiff; moist to wet	29.0		MC-11 (29-32')
30			0.0					
			0.0					
			0.0					VOA @ 31-31.5'
			0.0					
32			0.0		As above; wet-saturated	32.0		
			0.0					
			0.0					
			0.0					
34			0.0					
			0.0					
			0.0		Refusal at 35.2'	35.2		Refusal

PROJECT	GTEOSI Seneca Falls		LOCATION	Seneca Falls, NY		SHEET	1	OF	2
CLIENT						PROJECT No.	4563003		
DRILLING CONTRACTOR						MEAS. PT. ELEV.			
PURPOSE						GROUND ELEV.			
WELL MATERIAL						DATUM			
DRILLING METHOD(S)			SAMPLE	CORE	CASING	DATE STARTED	7/19/05		
DRILL RIG TYPE		TYPE	Macrocore			DATE FINISHED	7/19/05		
GROUND WATER DEPTH		DIA.	2"			DRILLER	Jim Agar		
MEASURING POINT		WEIGHT	#			PIRNIE STAFF	K. Roe		
DATE OF MEASUREMENT		FALL	"						

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Asphalt and subbase gravel			MC-1 (0-4')
2			0.0		Red-brown; sandy SILT, little clay, trace fine subrounded gravel to 1/4", sand is predominantly medium to coarse; stiff, moist	1.0		
			0.4					
			0.0					
			5.4					VOA @ 2.5-3.0'
			5.2					
			2.0					
4			2.8		As above, trace clay	4.0		MC-2 (4-8')
			0.0					
			0.0					
			0.3					
6			1.1					
			0.2					
			1.1					
			1.2					
8			0.4		As above, little subrounded gravel to 1" diameter	8.0		MC-3 (8-10')
			1.4					
			1.4					
			5.7					
10			21.8		As above, trace gravel to 1/2" diameter, moist	10.0		VOA @ 9.8-10.0' MC-4 (10-12')
			7.1					
			5.5					
			15.1					
12								MC-5 (12-15')
			1.1					
14			1.6					
			4.1					
			4.4		No recovery	15.0		VOA @ 14.5-15' MC-6 (15-19')
16								
18								
			0.0		Gray-brown; SILT till as above; soft	19.0		MC-7 (19-23')

PROJECT **GTEOSI Seneca Falls**

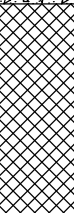
LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
			0.0					
			0.0		As above, stiff	20.5		
22			0.0					
			0.0					
			0.0					
			0.0					
			0.0					
			0.0					
24			0.0		As above, soft from 23-24.5', with little clay	23.0		MC-8 (23-26')
			0.0					
			0.0					
			0.0					
			0.0					
26			0.0		Medium gray; fine SAND, little silt, moist /	25.9		VOA @ 25.8'
			0.0		Brown-gray; SILT, little clay, little fine to medium sand, trace fine subangular gravel to 1/4"; stiff; moist; much of core filled vertically with "blown-in" sands	26.0		MC-9 (26-28')
			0.0					
28			0.0					MC-10 (28-31')
			0.0					
			0.0					
30			0.0					
			0.0					
			0.0					
32			0.0		As above; soft; wet-saturated; subangular gravel to 2" at base of sample	32.0		MC-11 (31-32')
			0.0					MC-12 (32-35.9')
			0.0					VOA @ 32-35.9'
34			0.0					
36					No recovery	35.9		MC-13 (35.9-36.1')
					Refusal at 36.1'	36.1		Set temporary well screened from 31-36' bgs, no backfill

MALCOLM PIRNIE				TEST BORING LOG			BORING No.B10-03	
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, 10 and 11 Field Work						GROUND ELEV.		
WELL MATERIAL						DATUM		
DRILLING METHOD(S) Direct Push			SAMPLE	CORE	CASING	DATE STARTED 11/19/08		
DRILL RIG TYPE Geoprobe		TYPE Macrocore				DATE FINISHED 11/19/08		
GROUND WATER DEPTH '		DIA. 2"				DRILLER Ron		
MEASURING POINT		WEIGHT #				PIRNIE STAFF E. Moskal		
DATE OF MEASUREMENT		FALL "						
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2	1	6 ppm			Concrete floor slab.			
4					Gravelly sand (fill).	1.5		
6	5	90 ppm			7-15.5 feet bgs - brown silty clay with gravel.	5.0		
8					15.5 - 40 bgs - Gray silty clay with gravel.			
10								
12	5	70 ppm						
14								
16								
18	5	250 ppm						

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22	5		550 ppm					
24								
26								
28	5		75 ppm					
30								
32	5		1 ppm					
34								
36								
38	5		0 ppm					
40						40.0		
					End of Boring at 40.0 feet BGS			

MALCOLM PIRNIE				TEST BORING LOG			BORING No.B10-04	
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, 10 and 11 Field Work						GROUND ELEV.		
WELL MATERIAL						DATUM		
DRILLING METHOD(S) Direct Push			SAMPLE	CORE	CASING	DATE STARTED 11/20/08		
DRILL RIG TYPE Geoprobe		TYPE	Macrocore			DATE FINISHED 11/20/08		
GROUND WATER DEPTH '		DIA.	2"			DRILLER Ron		
MEASURING POINT		WEIGHT	#			PIRNIE STAFF E. Moskal		
DATE OF MEASUREMENT		FALL	"					
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Concrete floor slab.			
2	5	10 ppm			Silty, gravelly clay, looser than till.	0.5		
4								
6	5	100 ppm			Brown silty clay with rounded gravel (TILL).	6.0		
8								
10								
12	5	50 ppm						
14								
16								
18	5	700 ppm						

PROJECT **GTEOSI Seneca Falls**

LOCATION **Seneca Falls, NY**

SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22	0							
24								
26								
28	5		500 ppm					
30								
32	5		300 ppm					
34								
36								
38	4.5		20 pm					
						39.5		
					End of Boring at 39.5 feet BGS			

MALCOLM PIRNIE				TEST BORING LOG			BORING No.B10-100	
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, 10 and 11 Field Work						GROUND ELEV.		
WELL MATERIAL						DATUM		
DRILLING METHOD(S) Direct Push			SAMPLE	CORE	CASING	DATE STARTED 11/20/08		
DRILL RIG TYPE Geoprobe		TYPE Macrocore				DATE FINISHED 11/20/08		
GROUND WATER DEPTH '		DIA. 2"				DRILLER Ron		
MEASURING POINT		WEIGHT #				PIRNIE STAFF E. Moskal		
DATE OF MEASUREMENT		FALL	"					
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Concrete floor slab.			
2	5	0 ppm			Brown, silty clay with rounded gravel.	0.5		
4								
6	5	0 ppm						
8								
10								
12	5	0 ppm						
14								
16								
18	5	60 ppm						

MALCOLM PIRNIE				TEST BORING LOG		BORING No.B10-100		
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 2 OF 2		
CLIENT						PROJECT No. 4563003		
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22	4.5		2					
24								
						24.5		End of boring at 24.5 feet bgs.

MALCOLM PIRNIE				TEST BORING LOG			BORING No.B10-200	
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 1 OF 2		
CLIENT						PROJECT No. 4563003		
DRILLING CONTRACTOR						MEAS. PT. ELEV.		
PURPOSE Buildings 2, 7, 10 and 11 Field Work						GROUND ELEV.		
WELL MATERIAL						DATUM		
DRILLING METHOD(S) Direct Push			SAMPLE	CORE	CASING	DATE STARTED 11/20/08		
DRILL RIG TYPE Geoprobe		TYPE	Macrocore			DATE FINISHED 11/20/08		
GROUND WATER DEPTH '		DIA.	2"			DRILLER Ron		
MEASURING POINT		WEIGHT	#			PIRNIE STAFF E. Moskal		
DATE OF MEASUREMENT		FALL	"					
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Concrete floor slab.			
					Brown silty clay with rounded gravel.	0.5		
2	2.5	2 ppm						
4								
6	5	2 ppm						
8								
10								
12	5	10 ppm						
14								
16								
18	5	600 ppm						

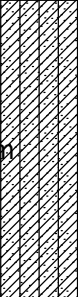
PROJECT **GTEOSI Seneca Falls**LOCATION **Seneca Falls, NY**SHEET **2** OF **2**

CLIENT

PROJECT No. **4563003**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22	5	1	300 ppm					
24								
26								
28	5	400 ppm						
30								
32	5	0 ppm						
34								
36								
38	4.5	0 ppm						
						39.5		
					End of Boring at 41 feet bgs.			

MALCOLM PIRNIE				TEST BORING LOG			BORING No.B10-300	
PROJECT GTEOSI Seneca Falls				LOCATION Seneca Falls, NY			SHEET 1 OF 2	
CLIENT							PROJECT No. 4563003	
DRILLING CONTRACTOR							MEAS. PT. ELEV.	
PURPOSE Buildings 2, 7, 10 and 11 Field Work							GROUND ELEV.	
WELL MATERIAL							DATUM	
DRILLING METHOD(S) Direct Push				SAMPLE	CORE	CASING	DATE STARTED 11/21/08	
DRILL RIG TYPE Geoprobe			TYPE	Macrocore			DATE FINISHED 11/21/08	
GROUND WATER DEPTH '			DIA.	2"			DRILLER Ron	
MEASURING POINT			WEIGHT	#			PIRNIE STAFF E. Moskal	
DATE OF MEASUREMENT			FALL	"				
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
					Concrete floor slab.			
2	5	3 ppm			Brown, silty clay with occassional gravel (TILL).	0.5		
4								
6	5	50 ppm						
8								
10								
12	5	150 ppm						
14								
16								
18	5	125 ppm						

MALCOLM PIRNIE				TEST BORING LOG		BORING No.B10-300		
PROJECT GTEOSI Seneca Falls			LOCATION Seneca Falls, NY			SHEET 2 OF 2		
CLIENT						PROJECT No. 4563003		
DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
22	5		100 ppm					
24								
26								
28	5		0 ppm		Saturated, sandy gravel.	26.0		
30								
32								
34	4.5		0 ppm		Brown to gray silty clay with gravel (TILL).	29.0		
						34.5		
					End of boring at 34.5 feet bgs.			

Date Start/Finish: 9/13/12
Drilling Company: Parrat Wolff
Driller's Name: Kelley Roe
Drilling Method: NA
Auger Size: NA
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 34 ft
Surface Elevation: NA

Descriptions By: Kelley Roe

Well/Boring ID: MPE-1
Client: GTE Operations Support Incorporated

Location: Seneca Falls NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-5	NA	NA	NA	NA		(0.0-5.0') No soil description sample taken.	Flushmount Road Box J-Plug Grout (1'-3' bgs) 4" Sch 40 PVC Riser (1'-4' bgs) Bentonite (3'-3.5' bgs)
5	-5	2	5-7	1.5	7 8 8 10	16	9.1 8.5 7.2 9.3		(5.0-7.0') Red brown, SILT, some Clay, trace fine to coarse, subangular to subrounded Gravel, trace coarse Sand, moist.	
		3	7-10	NA	NA	NA	NA		(7.0-10.0') No soil description sample taken.	Site 00 Sand (4'-34' bgs)
10	-10	4	10-12	1.5	8 8 10 10	18	9.9 10.4 11.9 9.2		(10.0-12.0') Red brown, SILT, some Clay, trace fine to coarse, subangular to subrounded Gravel, trace coarse Sand, moist.	
		5	12-14	NA	NA	NA	NA		(12.0-14.0') No soil description sample taken.	4" Wire Wound 0.010" Slot Well Screen (4'-34' bgs)
15	-15	6	14-16	1.5	7 8 7 8	15	1751 3034 29.87 1114		(14.0-16.0') Red brown to yellow brown, SILT, some Clay, trace coarse, subangular to subrounded Sand, trace fine to medium subangular to subrounded Gravel, moist to wet.	

Remarks:



Client: GTE Operations Support Incorporated

Well/Boring ID: MPE-1

Site Location:
Seneca Falls NY

Borehole Depth:

34 ft

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	DRAFT Well/Boring Construction
		7	16-18	0.2	9 9 14 15	23	771.4		(16.0-18.0') Red brown to yellow brown, SILT, some Clay, trace coarse, subangular to subrounded Sand, trace fine to medium subangular to subrounded Gravel, moist to wet.	
-20	-20								(18.0-24.0') No soil description sample taken.	Site 00 Sand (4'-34' bgs)
		8	18-24	NA	NA	NA	NA			
-25	-25									
		9	24-26	1.7	7 10 7 17	17	805 835 190 1144		(24.0-26.0') Dark yellow brown, CLAY, trace Silt, trace coarse Sand, trace fine, angular to subrounded Gravel, moist to wet.	
									(26.0-28.0') No Recovery.	
		10	26-28	0.0	12 12 14 17	26	NA		(28.0-31.0') No soil description sample taken.	4" Wire Wound 0.010" Slot Well Screen (4'-34' bgs)
-30	-30									
		11	28-31	NA	NA	NA	NA		(31.0-33.0') Brown gray, CLAY, soft, wet.	
		12	31-33	1.7	7 9 10 20	18	40 291 1620			
							69		(33.0-34.0') No Recovery.	
-35	-35									

End of Boring

Remarks:

PVC Cap (33.5'-34' bgs)



Date Start/Finish: 9/20/12
Drilling Company: Parrat Wolff
Driller's Name: Kelley Roe
Drilling Method: NA
Auger Size: NA
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 34 ft
Surface Elevation: NA

Descriptions By: Kelley Roe

Well/Boring ID: MW-30R
Client: GTE Operations Support Incorporated

Location: Seneca Falls NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-2	1.2	NA 8 7 7	15	2.0		(0.0-0.2') Asphalt. (0.2-0.5') Brown, GRAVEL and SAND, subangular to subrounded, coarse, trace Silt, loose, moist [FILL]. (0.5-2.0') Brown, SILT and CLAY, trace coarse Sand, very compact, moist.	Flushmount Road Box J-Plug
		2	2-4	1.5	7 10 14 17	24	12		(2.0-2.5') Pink-brown to gray, SILT, some Clay, trace coarse Sand, very compact, dry. (2.5-4.0') Brown, fine SAND, with Silt, trace fine to coarse, subangular to subrounded Gravel, compact, moist.	Grout (0'-3.5' bgs) "2 Sch. 40 PVC Riser (0'-4.55' bgs) Bentonite (3.5'-4' bgs)
-5	-5	3	4-6	1.2	10 12 14 14	26	2.8		(4.0-6.0') Brown, fine SAND and SILT, trace fine to medium, subangular to subrounded Gravel, compact, wet.	
		4	6-8	1.5	15 16 15 18	31	4.9		(6.0-8.0') Brown, fine SAND and SILT, trace fine to medium, subangular to subrounded Gravel, trace coarse Sand, compact, wet.	Site 00 Sand (4'-34' bgs)
		5	8-10	2	10 11 10 12	21	8.7		(8.0-8.5') Brown, SILT, some fine to medium, subangular to subrounded Gravel, compact, wet. (8.5-10.0') Brown, SILT, trace fine to medium, subangular to subrounded Gravel, compact, wet.	
-10	-10	6	10-12	1.2	7 8 8 10	16	23		(10.0-12.0') Brown, SILT, trace fine to medium, subangular to subrounded Gravel, compact, wet.	
		7	12-14	2	10 11 10 10	21	61		(12.0-14.0') Brown, SILT, with fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	"2 Sch. 40 PVC 10 Slot Well Screen (4.55'-34' bgs)
-15	-15	8	14-16	0.5	10 10 9 10	19	620		(14.0-16.0') Brown, SILT, trace fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	

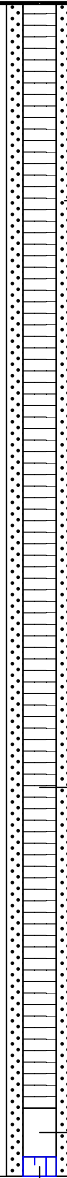
Remarks:



Site Location:
Seneca Falls NY

Borehole Depth: 34 ft

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	-20	9	16-18	2	8 9 8	17	620		(16.0-18.0') Brown, SILT, trace fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	
		10	18-20	NA	7 8	20	337		(18.0-20.0') Brown, SILT, trace fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	
		11	20-22	1.2	8 10	15	138		(20.0-22.0') Brown, SILT, trace fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	
		12	22-24	1.8	9 12 10	22	94		(22.0-24.0') Brown, SILT, trace fine Sand, trace Gravel, fine to medium, subangular to subrounded, compact, wet.	
25	-25	13	24-26	1.5	5 7 8	12	10		(24.0-26.0') Brown, SILT, trace Clay, trace fine to medium Gravel, trace coarse Sand, subangular to subrounded, compact, wet.	
		14	26-28	2	6 9 10	19	12.3		(26.0-28.0') Brown, SILT, trace Clay, trace fine to medium Gravel, trace coarse Sand, subangular to subrounded, compact, wet.	
		15	28-30	0.5	7 6 5	11	9.7		(28.0-30.0') Brown, SILT, trace Clay, trace fine to medium Gravel, trace coarse Sand, subangular to subrounded, compact, wet.	
30	-30	16	30-32	1.3	5 7 7	14	2.2		(30.0-32.0') Brown-gray, SILT, trace Clay, trace fine to medium Gravel, subangular to subrounded, soft, wet.	
		17	32-34	2	7 7	15	0		(32.0-32.5') Brown-gray, SILT, trace Clay, subangular to subrounded, soft, wet.	
					7				(32.5-34.0') Brown-gray, CLAY, trace Silt, trace medium Gravel, subangular to subrounded.	
35	-35								End of boring at 34.1' bgs.	PVC Cap (33.8'-34.1' bgs)

Remarks:

Date Start/Finish: 9/21/12
Drilling Company: Parrat Wolff
Driller's Name: Kelley Roe
Drilling Method: NA
Auger Size: NA
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 34.2 ft
Surface Elevation: NA

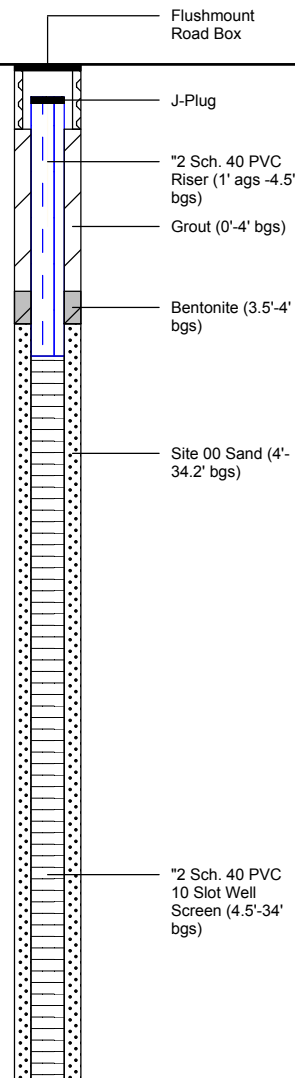
Descriptions By: Kelley Roe

Well/Boring ID: MW-31R

Client: GTE Operations Support Incorporated

Location: Seneca Falls NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5	NA	NA	NA	NA		(0.0-5.0') No soil description sample taken.	 Flushmount Road Box J-Plug "2 Sch. 40 PVC Riser (1' ags -4.5' bgs) Grout (0'-4' bgs) Bentonite (3.5'-4' bgs) Site 00 Sand (4'-34.2' bgs) "2 Sch. 40 PVC 10 Slot Well Screen (4.5'-34' bgs)
5	-5	2	5-7	1.9	10 16 21 15	37	NA		(5.0-7.0') No soil description sample taken (Note: brown, silty appearance).	
		3	7-10	NA	NA	NA	NA		(7.0-10.0') No soil description sample taken.	
10	-10	4	10-12	1.2	6 8 6 8	14	31		(10.0-12.0') Brown, SILT with trace subangular to subrounded, fine to coarse Gravel, compact, moist.	
		5	12-15	NA	NA	NA	NA		(12.0-15.0') No soil description sample taken.	
15	-15				10 10				(15.0-17.0') No soil description sample taken (Note: brown, silty appearance).	



Remarks:
 Soil descriptions were generated using the original soil boring MW-31

Site Location:
Seneca Falls NY

Borehole Depth: 34.2 ft

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		6		NA	14 16	24	NA			
		7	17-20	NA	NA	NA	NA		(17.0-20.0') No soil description sample taken.	
-20	-20				6 6 10 8	16	95		(20.0-22.0') Brown, SILT, trace fine Sand, trace fine to medium, subangular to subrounded Gravel, soft, wet.	
		8	20-22	0.1					(22.0-25.0') No soil description sample taken.	
		9	22-25	NA	NA	NA	NA			
-25	-25				10 10 9 9	19	NA		(25.0-27.0') No soil description sample taken (Note: brown, silty appearance).	
		10	25-27	1.7					(27.0-30.0') No soil description sample taken.	
		11	27-30	NA	NA	NA	NA			
-30	-30				4 4 4 4	8	0.1		(30.0-30.5') Gray to brown, SILT, trace fine Sand, trace medium, subangular to subrounded Gravel, soft, wet.	
		12	30-32	1.4					(30.5-31.0') Gray to brown, SILT and CLAY, trace fine to medium Gravel, subangular to subrounded, soft, wet.	
									(31.0-32.0') Gray to brown CLAY, trace Silt, soft, wet.	
		13	32-34	NA	NA	NA	NA		(32.0-34.2') No soil description sample taken.	
-35	-35								End of boring at 34.2' bgs.	

Site 00 Sand (4'-34.2' bgs)

"2 Sch. 40 PVC
10 Slot Well
Screen (4.5'-34'
bgs)

Solid PVC Sump

PVC Cap (34'-34.2' bgs)

Remarks:

Soil descriptions were generated using the original soil boring MW-31



Date Start/Finish: 9/10/12
Drilling Company: Parrat Wolff
Driller's Name: Kelley Roe
Drilling Method: NA
Auger Size: NA
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 5.5 ft
Surface Elevation: NA

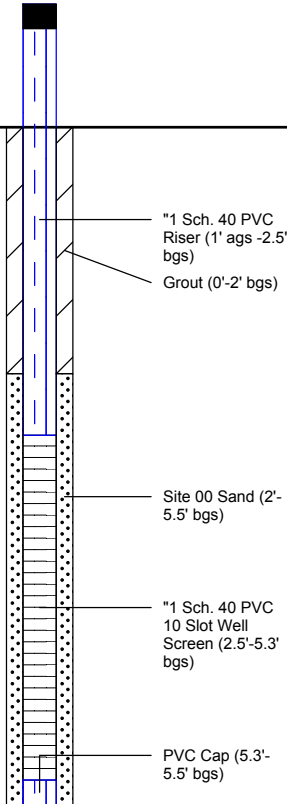
Descriptions By: Kelley Roe

Well/Boring ID: **MP-1**

Client: GTE Operations Support Incorporated

Location: Seneca Falls NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		NA	NA	NA	NA	NA	NA			 The diagram shows a vertical cross-section of the well. At the top is a black cap. Below it is a section of grout (0'-2' bgs). Then is a riser (1' ags -2.5' bgs). Below the riser is a section of site 00 sand (2'-5.5' bgs). Then is a 10 slot well screen (2.5'-5.3' bgs). At the bottom is a PVC cap (5.3'-5.5' bgs).
-5	-5									
									End of Boring	



Remarks:

Date Start/Finish: 9/10/12
Drilling Company: Parrat Wolff
Driller's Name: Kelley Roe
Drilling Method: NA
Auger Size: NA
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 5.5 ft
Surface Elevation: NA

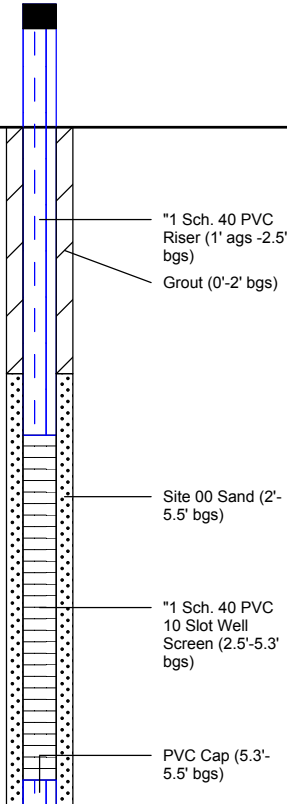
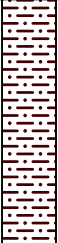
Descriptions By: Kelley Roe

Well/Boring ID: MP-2

Client: GTE Operations Support Incorporated

Location: Seneca Falls NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-3	NA	NA	NA	NA		(0.0-3.0') No soil description sample taken.	 "1 Sch. 40 PVC Riser (1' ags -2.5' bgs) Grout (0'-2' bgs) Site 00 Sand (2'-5.5' bgs) "1 Sch. 40 PVC 10 Slot Well Screen (2.5'-5.3' bgs) PVC Cap (5.3'-5.5' bgs)
		2	3-5	0.2	2 2 2	4	NA		(3.0-5.0') Brown, SILT, trace fine to medium, subangular to subrounded Gravel, soft, moist.	
-5	-5	3	5-5.5	NA	NA	NA	NA		(5.0-5.5') No soil description sample taken.	
									End of Boring	



Remarks:

Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 2 ft
Surface Elevation:

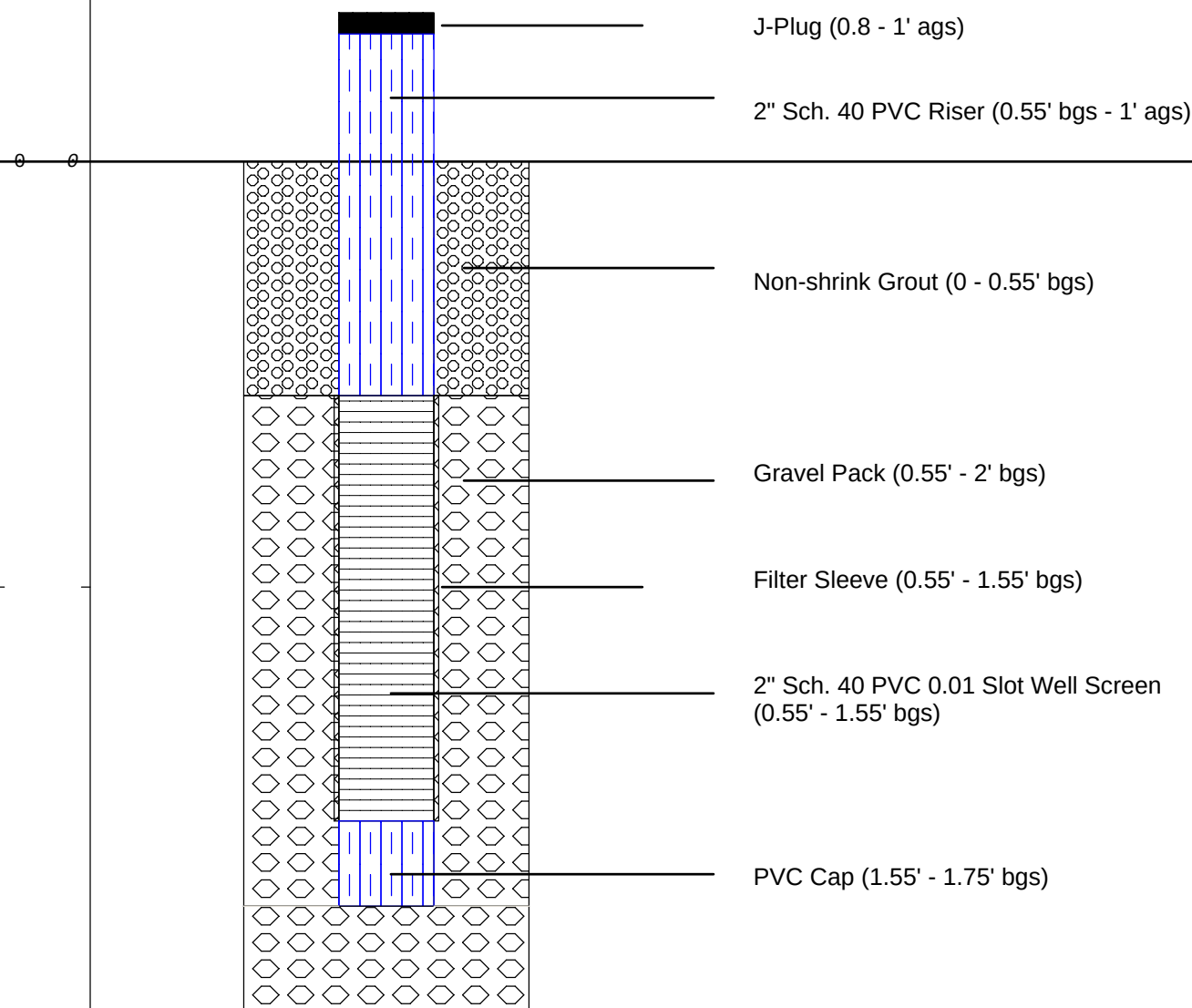
Descriptions By: Dan Zuck

Well ID: SVEW-1-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not
 Soil Description: 0' to 0.3': Concrete Applicable/Available.
 0.3' to 0.55': Fractured Concrete
 0.55' to 0.95': Blackish Brown, FILL, Coal and Slag,
 fragments, loose, moist, no odor.
 0.95' to 2': Medium brown, CLAY and SILT, trace coarse,
 subangular to subrounded Gravel, soft, moist, plasticity.
 Photo #: 101-1597



Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.75 ft
Surface Elevation:

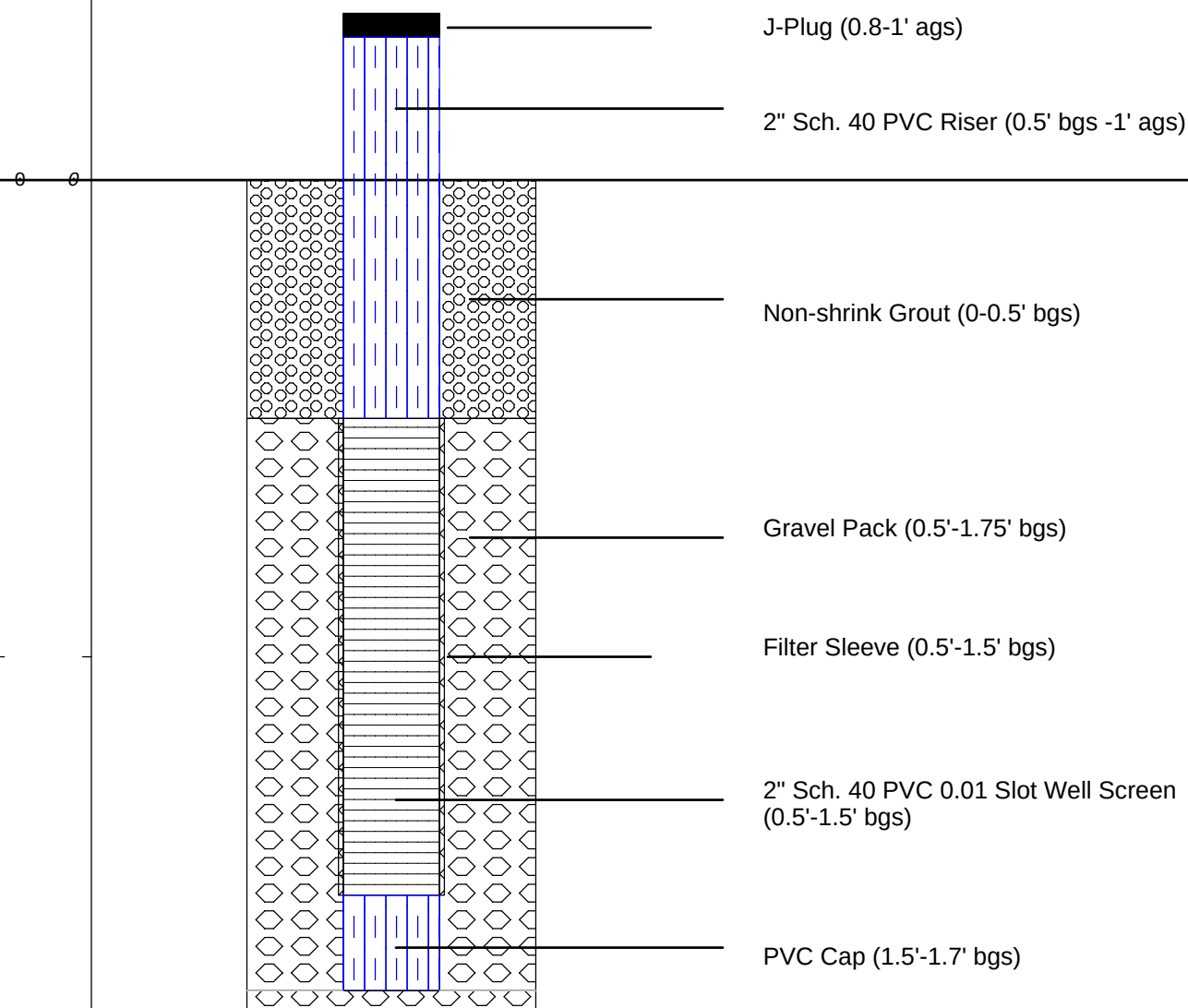
Descriptions By: Dan Zuck

Well ID: SVEW-1-2
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not
 Soil Description: 0 to 0.3': Concrete Applicable/Available.
 0.3' to 0.5': Fractured Concrete; medium to coarse blackish
 gray sand.
 0.8' to 1.95': Redish Brown, SAND and SILT, soft to
 medium stiff, slight plasticity, moist, trace medium to
 coarse, subangular to subrounded Gravel.

Photo #: 1598
 (original) and
 1599 (second)

Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.8 ft
Surface Elevation:

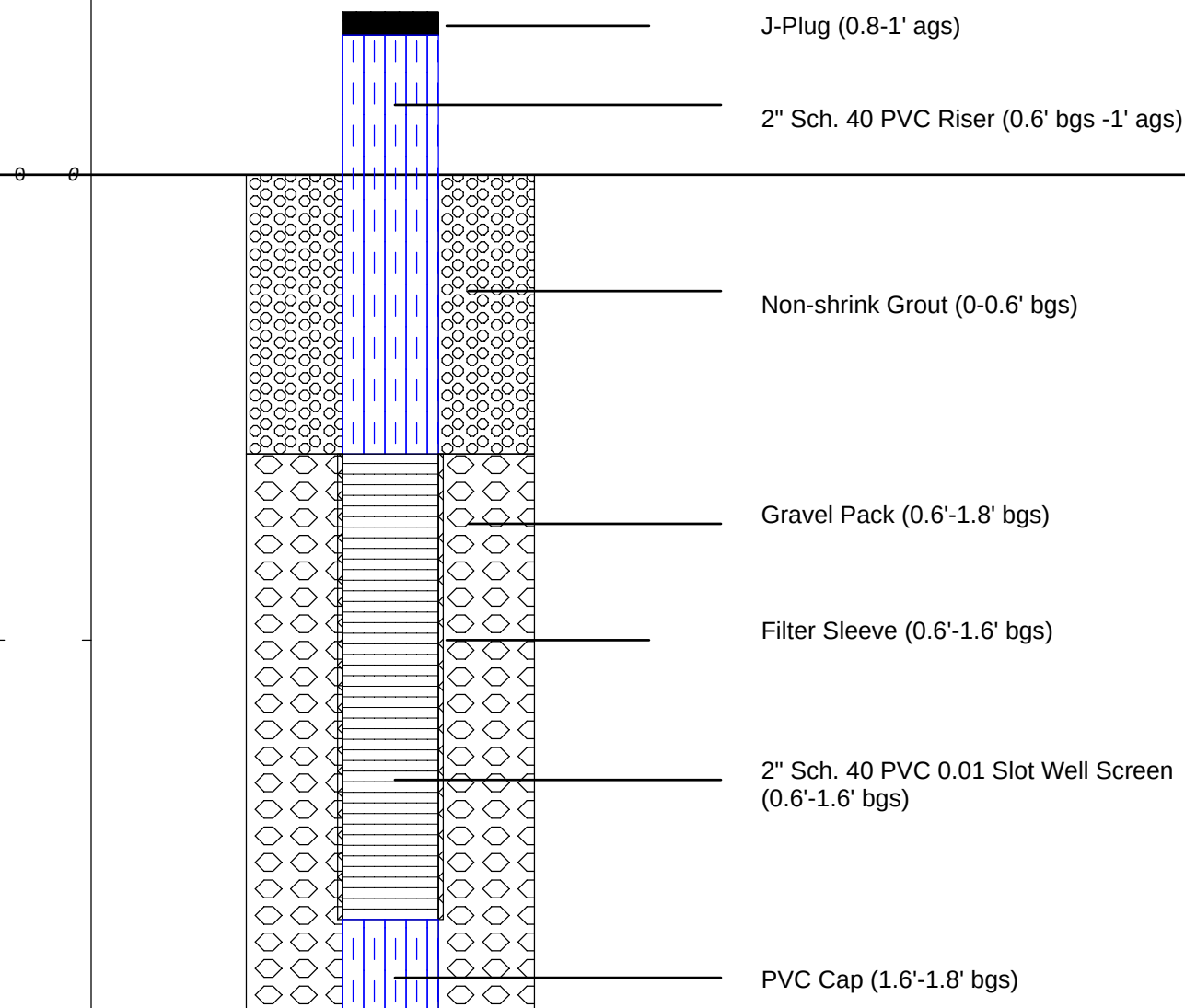
Descriptions By: Dan Zuck

Well ID: SVEW-1-3
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: 0' to 0.6': Concrete
 0.6' to 1.8': Fill Material; coarse Gravel to Pebbles, and Silt, (Brick, Concrete, Wire), loose to medium stiff, moist.

Photo #: 101-1601

Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.6 ft
Surface Elevation:

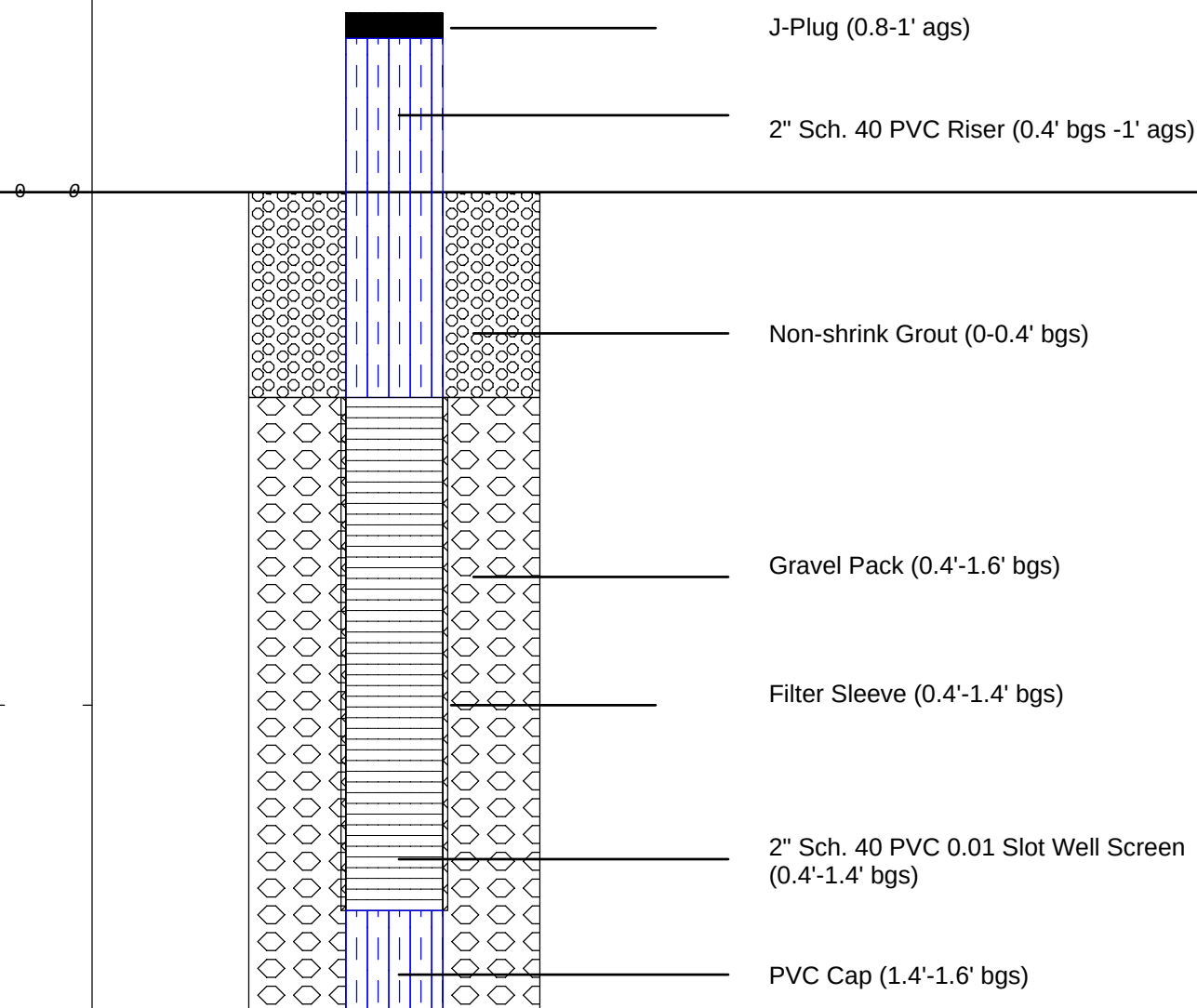
Descriptions By: Dan Zuck

Well ID: SVEW-2-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: 0' to 0.4': Concrete
 0.4' to 0.6': Void
 0.6' to 1.6': Redish brown, CLAY and SILT, some medium to fine Gravel, little medium to fine Sand, loose, slight plasticity, moist.

Photo #: 101-1593



Date Start/Finish: 8/23/12
Drilling Company: Nature's Way
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.75 ft
Surface Elevation:

Descriptions By: Dan Zuck

Well ID: SVEW-6-1
Client: GTE Operations Support Incorporated

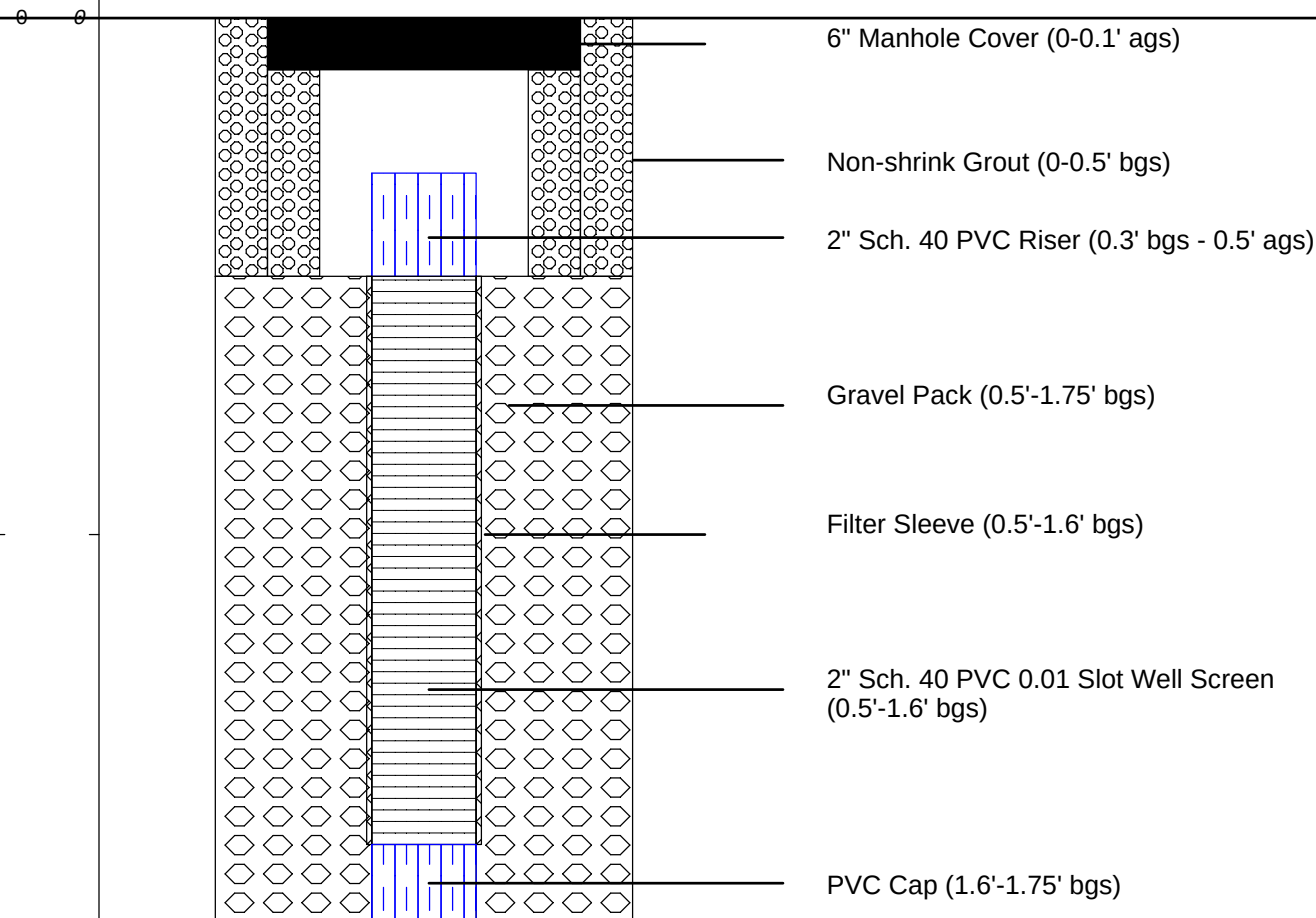
Location: Sececa Falls, NY

DRAFT

Well Construction Details

DEPTH

ELEVATION



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: Below Slab - mixed and varing trace gravel approximately 1" diameter, Silty/Sandy/Clay (Dark Brown and Light Brown) mixed with Black Coal Ash



Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.55 ft
Surface Elevation:

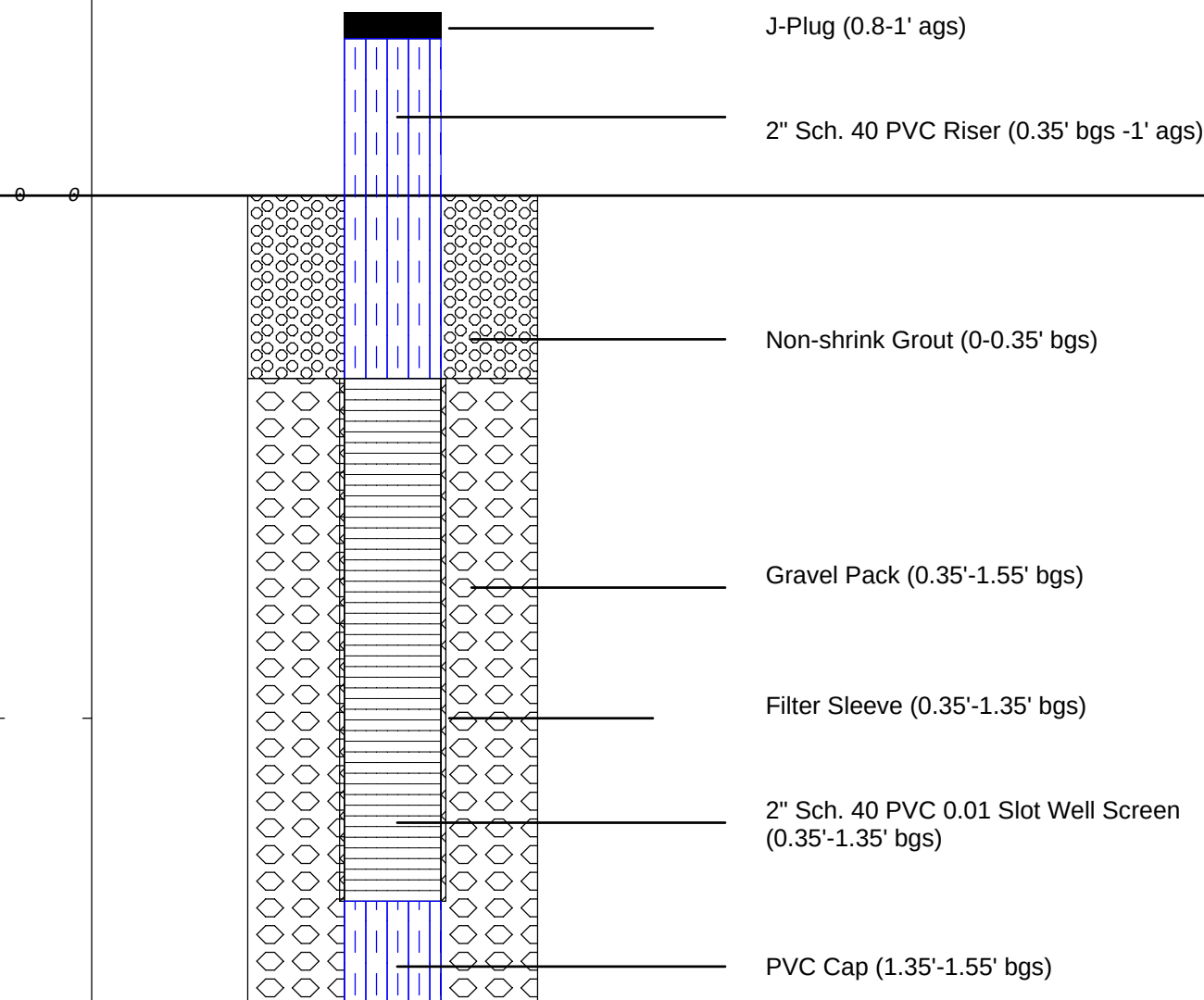
Descriptions By: Dan Zuck

Well ID: SVEW-7-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: 0' to 0.35': Concrete
 0.35' to 1.55': Orangish brown, SILT and SAND, loose, moist, trace coarse Sand, trace fine, subangular to angular Gravel.

Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 2 ft
Surface Elevation:

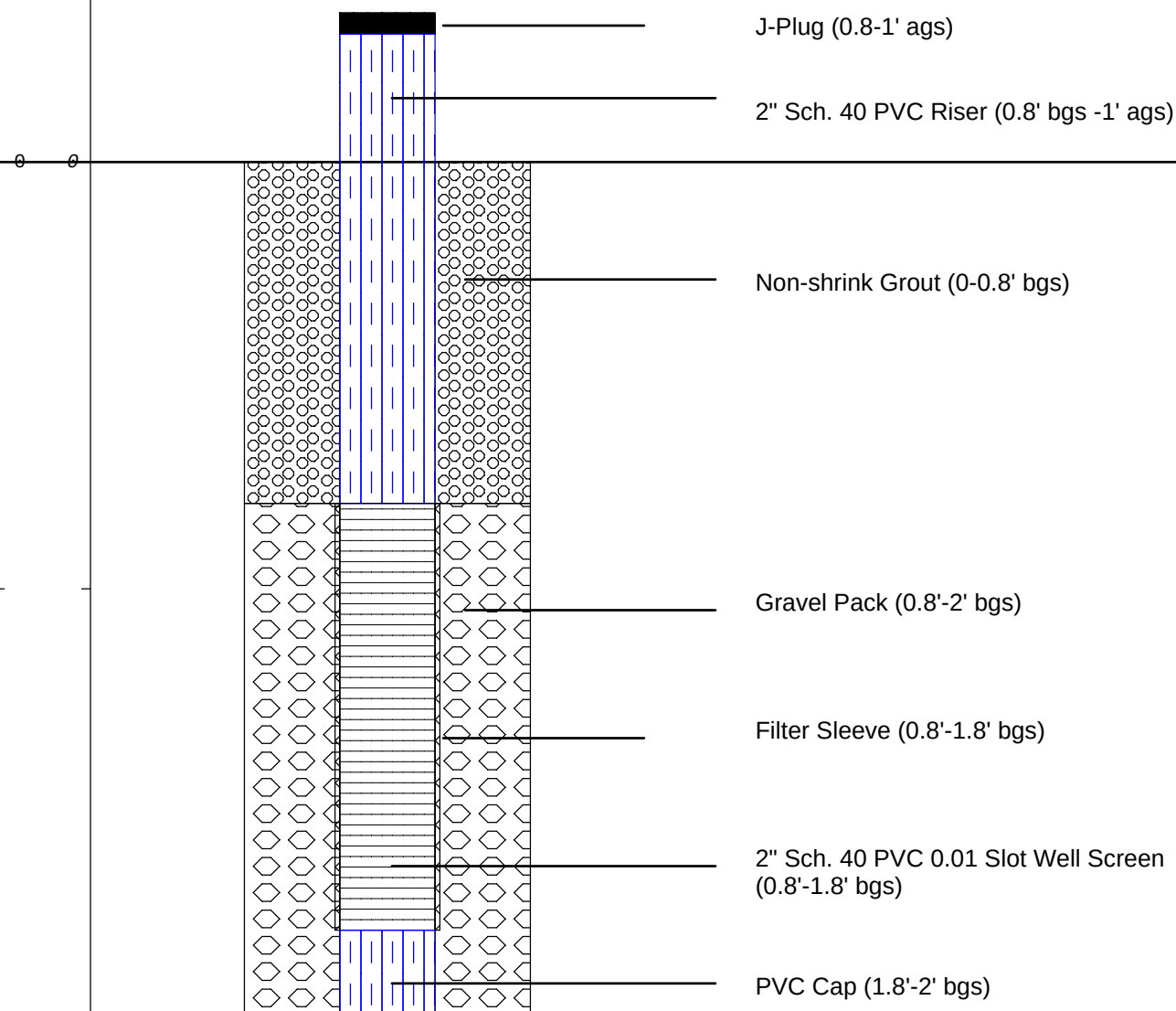
Descriptions By: Dan Zuck

Well ID: SVEW-8-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: 0' to 0.8': Concrete
 0.8' to 2': Redish brown, SILT, some medium to coarse subangular to subrounded Gravel, little Clay, medium to fine Sand, loose, trace plasticity, moist.

Photo #: 1594



Date Start/Finish: 8/23/12
Drilling Company: Zebra
Driller's Name: Phil Orzo
Drilling Method: Hand Auger
Bit Size: 6"
Auger Size: 6"
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.65 ft
Surface Elevation:

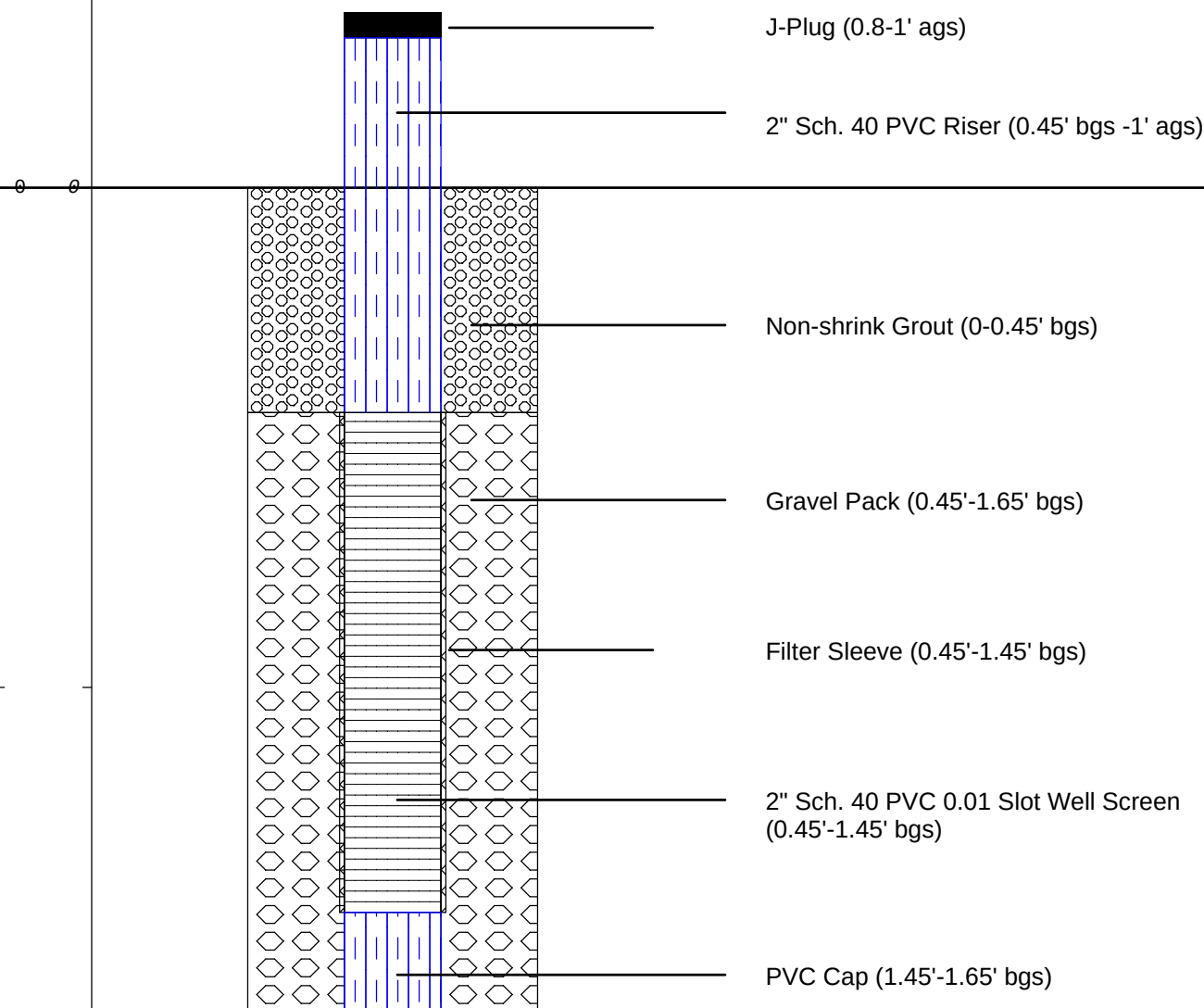
Descriptions By: Dan Zuck

Well ID: SVEW-8-2
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not
 Soil Description: 0' to 0.45': Concrete Applicable/Available.
 0.45' to 0.65': Redish brown, SAND and SILT, fine to medium
 subangular sand, loose, trace plasticity, moist, odor.
 0.65' to 0.75': Grayish brown, SAND and SILT, fine to medium,
 subangular SAND, stiff, strong odor, stained.
 0.75' to 1.65' Redish gray, SILT, some medium to coarse Gravel,
 trace fine to medium Sand (Brick/Coal), very stiff, odor, staining.

Photo #:
 1595

Date Start/Finish: 8/22/12
Drilling Company: Zebra
Driller's Name: Phil Orsi
Drilling Method: Hand Auger
Bit Size: 0.65'
Auger Size: 0.65'
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.75 ft
Surface Elevation:

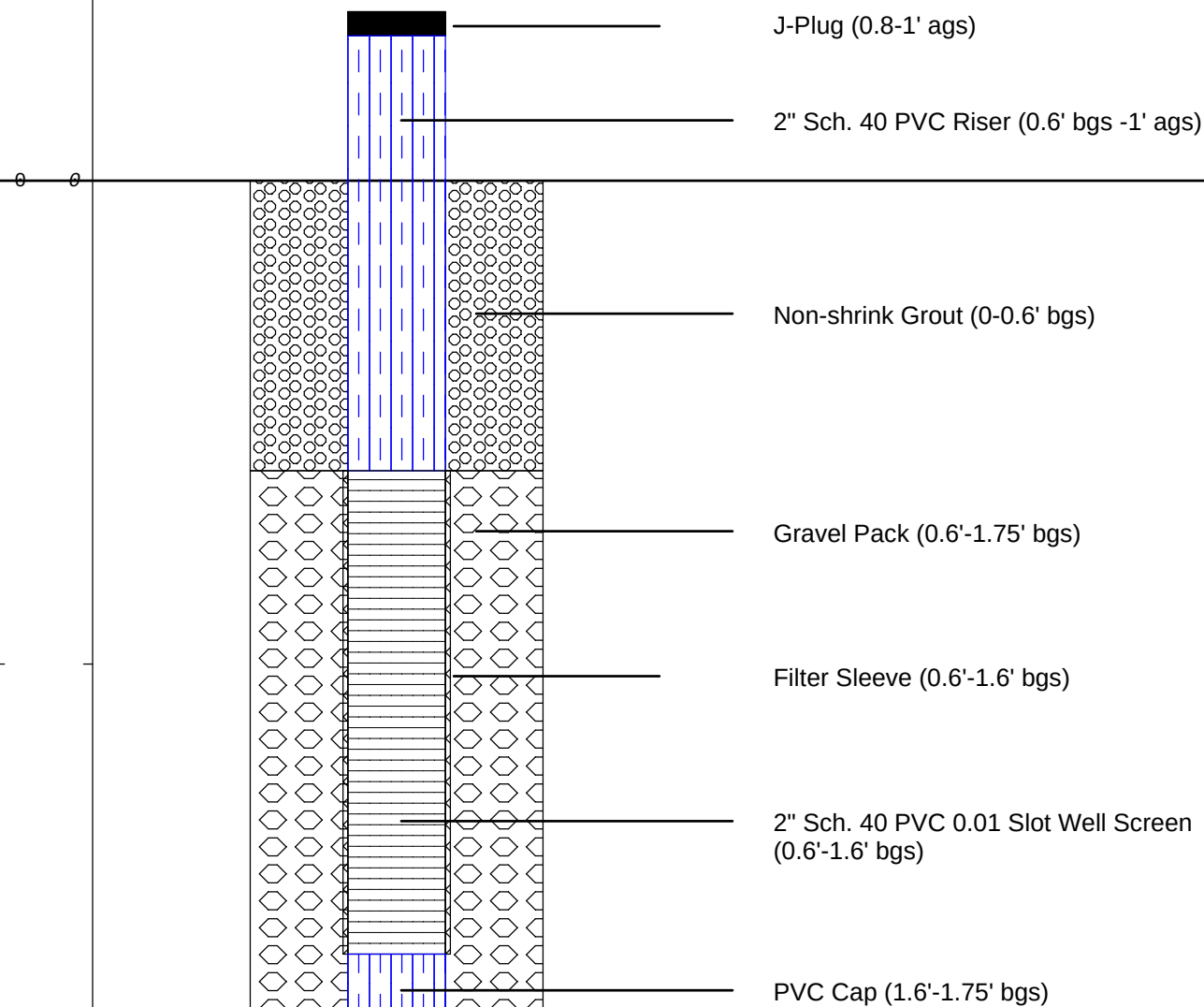
Descriptions By: Dan Zuck

Well ID: SVEW-9-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description: 0 to 0.65': Concrete
 0.65' to 0.8': Brownish gray, coarse Gravel, subangular to angular, loose.
 0.8 to 1.75': Orangish brown, SAND and SILT, some coarse subangular to angular Gravel, trace to little clay, loose, wet.
Photo #: 101-1592



Date Start/Finish: 8/22/12
Drilling Company: Zebra
Driller's Name: Phil Orsi
Drilling Method: Hand Auger
Bit Size: 0.65'
Auger Size: 0.65'
Rig Type: NA
Sampling Method: NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 1.85 ft
Surface Elevation:

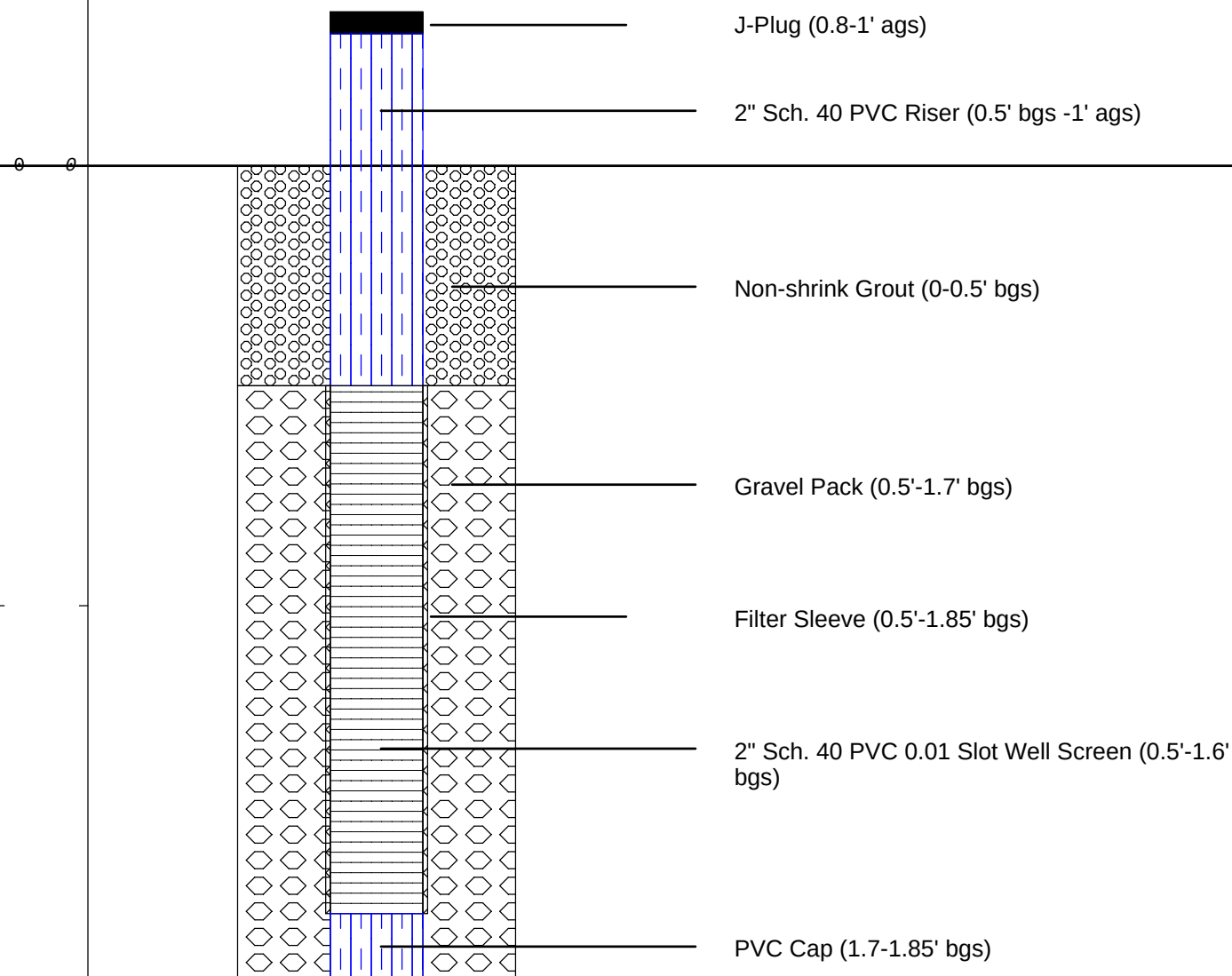
Descriptions By: Dan Zuck

Well ID: SVEW-11-1
Client: GTE Operations Support Incorporated

Location: Sececa Falls, NY

DRAFT

Well Construction Details



Remarks: bgs = below ground surface; ags = above ground surface; NA = Not Applicable/Available.

Soil Description:
 0 to 0.5': Concrete
 0.5' to 1': Gray, coarse angular Gravel, trace Silt, wet.
 1' to 1.85': Medium brown, CLAY and SILT, some medium to coarse angular to subangular Gravel, loose, moderate plasticity, wet.

Photo #: 101-1591



Appendix **D**

Soil Analytical Results

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 2 Area																					
				B2-01	B2-02	B2-03	B2-04	B2-05	B2-05	B2-06	B2-07	B2-08	B2-09	B2-10	B2-11	B2-12	B2-12	B2-13	B2-14	B2-14	B2-14	B2-15	B2A-02	B2A-04	B2-PH01
				Depth (feet)	2-6	14-16	14-16	10-12	22-24	24-26	24-26	12-14	14-16	10-12	14-16	24-26	25.5	4-6	6-8	20-22	24-26	4-6	6-8	24-26	8-12
				Units/Date	10/19/2000	10/19/2000	10/20/2000	10/20/2000	10/24/2000	10/24/2000	10/24/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/24/2000	10/25/2000
Percent Moisture	----	----	%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.5	20.5
Percent Solids	----	----	%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90.5	79.5
1,1,1-Trichloroethane	1,000,000 °	680	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
1,1,2-Trichloroethane	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
1,1-Dichloroethane	480,000	270	ug/kg	0.9 J	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	0.8 J	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
1,1-Dichloroethene	1,000,000 °	330	ug/kg	7	14 U	12 U	13 U	10 J	1 J	2700 U	3 U	8 J	3 U	3	3 U	18 U	5	3 U	540 U	17 J	47	13 U	3 U	3 U	5.5 U
1,2-Dichloroethane	60,000	20	ug/kg	6	10 J	4 J	6 J	360	450	1200 J	1 J	20 J	3 U	10	3 U	18 U	10	3 U	480	10000	22 J	13 U	3 U	3 U	5.5 U
1,2-Dichloropropane	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
2-Butanone (MEK)	1,000,000 °	120	ug/kg	2 J	56 U	48 U	51 U	62 U	6 J	11000 U	11 U	96 U	11 U	0.6 J	11 U	70 U	12 J	11 U	2200 U	93 U	120 U	42 J	11 U	11 U	11 U
2-Hexanone	----	----	ug/kg	6 U	28 U	24 U	26 U	31 U	10 U	5500 U	5 U	48 U	6 U	5 U	6 U	36 U	6 U	5 U	1100 U	46 U	58 U	27 U	5 U	6 U	11 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	6 U	28 U	24 U	26 U	31 U	14	5500 U	5 U	48 U	6 U	5 U	6 U	36 U	6 U	5 U	1100 U	190	58 U	27 U	5 U	6 U	11 U
Acetone	1,000,000 °	50	ug/kg	20	39 J	19 J	21 J	62 U	54	11000 U	8 J	30 J	4 J	9 J	8 J	47 J	78	4 J	2200 U	280	120 U	51 J	8 J	6 J	5.8 JB
Benzene	89,000	60	ug/kg	3 U	14 U	12 U	13 U	9 J	4 J	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	2 J	3 U	540 U	9 J	29 U	13 U	3 U	3 U	5.5 U
Bromodichloromethane	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Bromoform	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Bromomethane	----	----	ug/kg	6 U	28 U	24 U	26 U	31 U	10 U	5500 U	5 U	48 U	6 U	5 U	6 U	35 U	6 U	5 U	1100 U	46 U	58 U	27 U	5 U	6 U	5.5 U
Carbon Disulfide	----	----	ug/kg	0.7 J	14 U	12 U	13 U	15 U	2 J	2700 U	3 U	24 U	3 U	0.7 J	0.6 J	18 U	8	3 U	540 U	23 U	22 J	13 U	3 U	3 U	5.5 U
Carbon Tetrachloride	74,000	760	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Chlorobenzene	1,000,000 °	1,100	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Chloroethane	----	----	ug/kg	6 U	28 U	24 U	26 U	31 U	10 U	5500 U	5 U	48 U	6 U	5 U	6 U	35 U	6 U	5 U	1100 U	46 U	58 U	27 U	5 U	6 U	5.5 U
Chloroform	700,000	370	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Chloromethane	----	----	ug/kg	6 U	28 U	24 J	26 U	31 U	10 U	5500 U	5 U	48 U	6 U	5 U	6 U	35 U	6 U	5 U	1100 U	46 U	58 U	27 U	5 U	6 U	5.5 U
cis-1,2-Dichloroethene	1,000,000 °	250	ug/kg	1200	4	68	470	6800	360	1700	32	2300	100	210	3 U	81	440	19	1100	560	7800	13 U	3 U	17	4.8 J
cis-1,3-Dichloropropene	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Chlorodibromomethane	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Ethylbenzene	780,000	1,000	ug/kg	1 J	14 U	12 U	13 U	170	9	710 J	3 U	24 U	3 U	3 U	3 U	18 U	10	3 U	250	23 U	520	13 U	3 U	3 U	5.5 U
Dichloromethane	----	----	ug/kg	3 U	5 J	5 J	5 J	6 J	3 J	2700 U	3	6 J	1 J	5	1 J	7 J	3 U	0.9 J	540 U	15 J	13 J	3 J	4	1 J	8.1 JB
Styrene (Monomer)	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Tetrachloroethene	300,000	1,300	ug/kg	3 U	14 U	12 U	13 U	21	1 J	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3	3 U	540 U	23 U	30	13 U	3 U	3 U	5.5 U
Toluene	1,000,000 °	700	ug/kg	0.7 J	14 U	12 U	13 U	1300	600	9700	3 J	24 U	3 U	3 U	3 U	18 U	140	3 U	5600	660	2700	13 U	3 U	0.9 J	5.5 U
trans-1,2-Dichloroethene	1,000,000 °	190	ug/kg	24	14 U	12 U	3	18	2 J	2700 U	0.6 J	11 J	0.9 J	2 J	3 U	18 U	52	3 U	540 U	7 J	26 J	13 U	3 U	3 U	5.5 U
trans-1,3-Dichloropropene	----	----	ug/kg	3 U	14 U	12 U	13 U	15 U	5 U	2700 U	3 U	24 U	3 U	3 U	3 U	18 U	3 U	3 U	540 U	23 U	29 U	13 U	3 U	3 U	5.5 U
Trichloroethene	400,000	470	ug/kg	89	770	820	3300	17000	6400	340000	410	3200	32	390	3 U	11000	730	850	100000	14000	67	13 U	3	41	84
Vinyl Chloride	27,000	20	ug/kg	72	28 U	24 U	21 J	41	10 U	5500 U	1 J	40 J	11	18	6 U	35 U	26	5 U	1100 U	60	2500	27 U	5 U	6 U	5.5 U
Total Xylenes	1,000,000 °	1,600	ug/kg	6	14 U	12 U	13 U	1200	43	5100	1 J	24 U	3 U	3 U	3 U	18 U	52	3 U	1700	8 J	1600	13 U	3 U	3 U	5.5 U

Notes:
New York State Department of Environmental Conservation (NYSDEC), December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.
---- Limits not provided for specific COC in the NYSDEC Standards
c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3
Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
ppb - Parts per Billion
U- Not Detected
J- Estimated below reporting limit
B- Compound was detected in blank

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building Area 2																							
				B2-PH02	B2-PH02	B2-PH02	B2-PH02	B2-PH03	B2-PH03	B2-PH03	B2-PH04	B2-PH04	B2-PH04	B2-PH05	B2-PH05	B2-PH05	B2-PH05	B2-PH06	B2-PH06	B2-PH06	CY-01	CY-02	CY-03	CY-04	B2-PH07	B2-PH07	B2-PH07
			Depth (feet)	12	2.5	25-26	32	18.5	3.5	32.5	1.5	23	32.5	1.5	23	29.5	33	1.5	23	30	5.5	10-12	8-10	2-4	19	2	32.5
			Units/Date	7/22/2005	7/22/2005	7/22/2005	7/22/2005	8/1/2005	8/1/2005	8/1/2005	8/1/2005	8/1/2005	8/1/2005	8/2/2005	8/2/2005	8/2/2005	8/2/2005	8/2/2005	8/2/2005	8/2/2005	10/20/2000	10/20/2000	10/20/2000	10/20/2000	8/3/2005	8/3/2005	8/3/2005
Percent Moisture	----	----	%	9.3	14.9	9.6	17.2	9.2	13.7	16.2	25.1	9.4	17.1	15.1	16	12.6	9.6	23.2	8.9	12.5	--	--	--	--	10.1	15.3	17.5
Percent Solids	----	----	%	90.7	85.1	90.4	82.8	90.8	86.3	83.8	74.9	90.6	82.9	84.9	84	87.4	90.4	76.8	91.1	87.5	--	--	--	--	89.9	84.7	82.5
1,1,1-Trichloroethane	1,000,000 °	680	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
1,1,2-Trichloroethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
1,1-Dichloroethane	480,000	270	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
1,1-Dichloroethene	1,000,000 °	330	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
1,2-Dichloroethane	60,000	20	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	1900	3300 U	2300	2700 H	21 U	3 U	3 U	3 U	29	590 U	30 U
1,2-Dichloropropane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
2-Butanone (MEK)	1,000,000 °	120	ug/kg	550 U	24 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	83 U	11 U	12 U	11 U	11 U	590 U	61 U
2-Hexanone	----	----	ug/kg	550 U	24 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	11 U	590 U	61 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	550 U	24 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	11 U	590 U	61 U
Acetone	1,000,000 °	50	ug/kg	950 J	260 B	28000 UB	2000 J	1600 JB	1100 JB	9800 JB	10000 JB	3600 B	1100 JB	1100 JB	1800 JB	37000 JB	1100 JB	3900 JB	1500 JB	1700 JB	50 J	6 J	7 J	4 J	6.6 JB	1100 JB	37 JB
Benzene	89,000	60	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Bromodichloromethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Bromoform	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Bromomethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	5.6 U	590 U	30 U
Carbon Disulfide	----	----	ug/kg	550 U	17	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	72 B
Carbon Tetrachloride	74,000	760	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Chlorobenzene	1,000,000 °	1,100	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Chloroethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	5.6 U	590 U	30 U
Chloroform	700,000	370	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Chloromethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	5.6 U	590 U	30 U
cis-1,2-Dichloroethene	1,000,000 °	250	ug/kg	180 J	25	11000 U	2400 U	1100 U	580 J	12000 U	5200 J	1100 U	220 J	210 J	5300	20000 J	550 U	14000	2500	2200	21 U	3 U	3 U	3 U	75	110 J	87
cis-1,3-Dichloropropene	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Chlorodibromomethane	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Ethylbenzene	780,000	1,000	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	440 J	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Dichloromethane	----	----	ug/kg	160 JB	24 B	3600 JB	620 JB	500 JB	270 JB	6700 JB	3800 JB	750 JB	250 JB	390 JB	670 JB	32000 JB	250 JB	1700 JB	600 JB	610 JB	14 J	5 J	3	0.8 J	8.5 JB	330 JB	49 JB
Styrene (Monomer)	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Tetrachloroethene	300,000	1,300	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	150 J	1200 U	57000 U	550 U	1300 J	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Toluene	1,000,000 °	700	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	52000 J	170 J	570 J	1100	1300	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
trans-1,2-Dichloroethene	1,000,000 °	190	ug/kg	550 U	3.5 J	11000 U	2400 U	1100 U	150 J	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
trans-1,3-Dichloropropene	----	----	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	3 U	3 U	5.6 U	590 U	30 U
Trichloroethene	400,000	470	ug/kg	4500	54	250000	45000	17000	1800	220000	230000	36000	15000	16000	30000	1500000	8400	130000	40000	36000	21 U	18	3 U	0.8 J	94	7000	590
Vinyl Chloride	27,000	20	ug/kg	550 U	17	11000 U	2400 U	1100 U	110 J	12000 U	6700 U	1100 U	600 U	590 U	1200 U	57000 U	550 U	3300 U	1100 U	1100 U	41 U	6 U	6 U	6 U	5.6 U	590 U	30 U
Total Xylenes	1,000,000 °	1,600	ug/kg	550 U	12 U	11000 U	2400 U	1100 U	580 U	12000 U	6700 U	1100 U	600 U	590 U	2500	57000 U	550 U	3300 U	1100 U	1100 U	21 U	3 U	0.6 J	3 U	5.6 U	590 U	30 U

Notes:
New York State Department of Environmental Conservation (NYSDEC), December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.
---- Limits not provided for specific COC in the NYSDEC Standards
c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3
Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
ppb - Parts per Billion
U- Not Detected
J- Estimated below reporting limit
B- Compound was detected in blank

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 2 Area													
				B2-PH08	B2-PH08	B2-PH09	B2-PH09	B2-PH09	B2-PH10	B2-PH10	B2-PH10	MW-BI-01	MW-BI-01	MW-BI-01	MW-BI-01	MW-BI-01	MW-BI-01
			Depth (feet)	18	4.5	2.5	22	31	17.5	3.5	33	24	25	28	30	33	35
			Units/Date	8/3/2005	8/3/2005	8/4/2005	8/4/2005	8/4/2005	8/4/2005	8/4/2005	8/4/2005	8/4/2005	1/17/2001	1/17/2001	1/17/2001	1/17/2001	1/17/2001
Percent Moisture	----	----	%	10.6 14.7	10.1	17.8	9.3	10.2	10.3	10.2	18.5	--	--	--	--	--	--
Percent Solids	----	----	%	89.4 85.3	89.9	82.2	90.7	89.8	89.7	89.8	81.5	--	--	--	--	--	--
1,1,1-Trichloroethane	1,000,000 °	680	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	4400 J	100 J	1500 U
1,1,2-Trichloroethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
1,1-Dichloroethane	480,000	270	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
1,1-Dichloroethene	1,000,000 °	330	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
1,2-Dichloroethane	60,000	20	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	330	12000 U	6200 U	15000 U	77 J	1500 U
1,2-Dichloropropane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
2-Butanone (MEK)	1,000,000 °	120	ug/kg	22 U 12 U	560 U	12 U	1100 U	560 U	11 U	11 U	12 U	110 U	48000 U	25000 U	59000 U	1100 U	5900 U
2-Hexanone	----	----	ug/kg	22 U 12 U	560 U	12 U	1100 U	560 U	11 U	11 U	12 U	56 U	24000 U	12000 U	29000 U	550 U	2900 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	22 U 12 U	560 U	12 U	1100 U	560 U	11 U	11 U	12 U	56 U	24000 U	12000 U	29000 U	550 U	2900 U
Acetone	1,000,000 °	50	ug/kg	20 JB 8 JB	920 JB	88 B	1600 JB	1200 JB	6.2 JB	21 B	7.3 JB	25 J	48000 U	25000 U	59000 U	1100 U	5900 U
Benzene	89,000	60	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	8 J	12000 U	6200 U	15000 U	270 U	1500 U
Bromodichloromethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Bromoform	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	19000	270 U	1500 U
Bromomethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	56 U	24000 U	12000 U	29000 U	550 U	2900 U
Carbon Disulfide	----	----	ug/kg	5.7 JH 7.7	560 U	10	1100 U	560 U	8.3	4.3 J	6.1 UB	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Carbon Tetrachloride	74,000	760	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Chlorobenzene	1,000,000 °	1,100	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Chloroethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	56 U	24000 U	12000 U	29000 U	550 U	2900 U
Chloroform	700,000	370	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Chloromethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	56 U	24000 U	12000 U	29000 U	550 U	2900 U
cis-1,2-Dichloroethene	1,000,000 °	250	ug/kg	2.7 J 1.9 J	560 U	6.1 U	1300	560 U	5.6 U	5.6 U	6.1 U	730	2500 J	2300 U	15000 U	270 U	1500 U
cis-1,3-Dichloropropene	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Chlorodibromomethane	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Ethylbenzene	780,000	1,000	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Dichloromethane	----	----	ug/kg	20 JB 8.4 JB	230 JB	8.3 JB	500 JB	330 JB	6.8 JB	7.7 JB	8.7 JB	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Styrene (Monomer)	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Tetrachloroethene	300,000	1,300	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Toluene	1,000,000 °	700	ug/kg	11 U 5.9 U	560 U	6.1 U	450 J	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
trans-1,2-Dichloroethene	1,000,000 °	190	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
trans-1,3-Dichloropropene	----	----	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	270 U	1500 U
Trichloroethene	400,000	470	ug/kg	10 J 23	480 J	2.2 J	30000	350 J	5.6 U	5.6 U	2.5 J	2000	930000	380000	1200000	16000	71000
Vinyl Chloride	27,000	20	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	86	24000 U	12000 U	29000 U	550 U	2900 U
Total Xylenes	1,000,000 °	1,600	ug/kg	11 U 5.9 U	560 U	6.1 U	1100 U	560 U	5.6 U	5.6 U	6.1 U	28 U	12000 U	6200 U	15000 U	230 J	1500 U

Notes:
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Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
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Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 7 Area																		
				B7-01	B7-02	B7-03	B7-04	B7-05	B7-PH01	B7-PH01	B7-PH01	B7-PH01	B7-PH02	B7-PH02	B7-PH02	B7-PH02	B7-PH03	B7-PH03	B7-PH03	B7-PH04	B7-PH04	B7-PH04
			Depth (feet)	10-12	8-10	2-6	12-14	12-14	1.5	13	25.5-26	28.3	13.2-13.4	2	23.5-23.8	27.5-28	0.6-0.8	10.5	12.5	1.6-1.8	12	2.5
			Units/Date	10/19/2000	10/19/2000	10/19/2000	10/19/2000	10/19/2000	7/12/2005	7/12/2005	7/12/2005	7/12/2005	7/14/2005	7/14/2005	7/14/2005	7/14/2005	7/21/2005	7/21/2005	7/21/2005	7/20/2005	7/20/2005	7/20/2005
Percent Moisture	----	----	%	--	--	--	--	--	3.8	10.4	16.3	7.6	8.6	16.1	13.9	10.2	5.1	10.1	9.5	21.9	11.5	21.3
Percent Solids	----	----	%	--	--	--	--	--	96.2	89.6	83.7	92.4	91.4	83.9	86.1	89.8	94.9	89.9	90.5	78.1	88.5	78.7
1,1,1-Trichloroethane	1,000,000 ^c	680	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
1,1,2-Trichloroethane	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
1,1-Dichloroethane	480,000	270	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
1,1-Dichloroethene	1,000,000 ^c	330	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
1,2-Dichloroethane	60,000	20	ug/kg	1 J	3 U	27 U	260	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	6.8	11	6.4 U	5.6 U	640 U
1,2-Dichloropropane	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
2-Butanone (MEK)	1,000,000 ^c	120	ug/kg	11 U	11 U	110 U	90 U	11 U	10 U	11 U	12 U	11 U	550 U	600 U	12 U	11 U	11 U	11 U	11 U	13 U	11 U	640 U
2-Hexanone	----	----	ug/kg	6 U	6 U	54 U	45 U	5 U	10 U	11 U	12 U	11 U	550 U	600 U	12 U	11 U	11 U	11 U	11 U	13 U	11 U	640 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	6 U	6 U	54 U	45 U	5 U	10 U	11 U	12 U	11 U	550 U	600 U	12 U	11 U	11 U	11 U	11 U	13 U	11 U	640 U
Acetone	1,000,000 ^c	50	ug/kg	9 J	6 J	110 U	44 J	8 J	13 B	9 JB	14 B	11 B	--	610 JB	12 B	17 B	7.9 JB	8.2 JB	6.8 JB	14 B	9.8 JB	1500 J
Benzene	89,000	60	ug/kg	3 U	3 U	350	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Bromodichloromethane	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Bromoform	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Bromomethane	----	----	ug/kg	6 U	6 U	54 U	45 U	5 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Carbon Disulfide	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	4.1 J	5.3 U	5.6 U	5.5 U	17	5.6 U	640 U
Carbon Tetrachloride	74,000	760	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Chlorobenzene	1,000,000 ^c	1,100	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Chloroethane	----	----	ug/kg	6 U	6 U	54 U	45 U	5 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Chloroform	700,000	370	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Chloromethane	----	----	ug/kg	6 U	6 U	54 U	45 U	5 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
cis-1,2-Dichloroethene	1,000,000 ^c	250	ug/kg	3 U	3 U	27 U	21 J	3 U	5.2 U	5.3 J	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	82	40	5.6 J	14	640 U
cis-1,3-Dichloropropene	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Chlorodibromomethane	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Ethylbenzene	780,000	1,000	ug/kg	3 U	3 U	2400	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 UH	5.6 U	640 U
Dichloromethane	----	----	ug/kg	1 J	0.6 J	6 U	9 J	2 J	4.8 JB	5.8 JB	6.3 JB	6.4 JB	72 JB	100 JB	12 B	11 JB	7.3 JB	7 JB	6.7 JB	22 B	8.4 JB	130 JB
Styrene (Monomer)	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Tetrachloroethene	300,000	1,300	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	2.6 J	5.6 U	640 U
Toluene	1,000,000 ^c	700	ug/kg	3 U	3 U	96	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
trans-1,2-Dichloroethene	1,000,000 ^c	190	ug/kg	3 U	3 U	27 U	6 J	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
trans-1,3-Dichloropropene	----	----	ug/kg	3 U	3 U	27 U	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Trichloroethene	400,000	470	ug/kg	92	3 U	27 U	20000	11	5.2 U	5.6 U	6 U	3.3 J	3000	1200	27	8.1	13	33	2.3 J	220	13	640 U
Vinyl Chloride	27,000	20	ug/kg	6 U	6 U	54 U	45 U	5 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U
Total Xylenes	1,000,000 ^c	1,600	ug/kg	3 U	3 U	8600	23 U	3 U	5.2 U	5.6 U	6 U	5.4 U	550 U	600 U	5.8 U	5.6 U	5.3 U	5.6 U	5.5 U	6.4 U	5.6 U	640 U

Notes:
New York State Department of Environmental Conservation (NYSDEC), December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.
---- Limits not provided for specific COC in the NYSDEC Standards
c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3
Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
ppb - Parts per Billion
U- Not Detected
J- Estimated below reporting limit
B- Compound was detected in blank

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 7 Area																					
				B7-PH05	B7-PH05	B7-PH05	B7-PH06	B7-PH06	B7-PH06	B7-PH07	B7-PH07	B7-PH07	B7-PH07	B7-PH07	B7-PH07	B7-PH08	B7-PH08	B7-PH08	B7-PH08	B7-PH08	B7-PH08	B9A-01	B9A-02	B9A-03	B9A-04
				Depth (feet)	3-3.5	3-3.5	39.5	0.8-1.0	11-11.2	38.3-38.5	10.5	13.5	2-2.5	22-22.5	23-23.2	35-35.2	14.5-15	2.5-3	25.8	35.6-35.9	9.8-10	10-12	6-8	6-8	6-8
				Units/Date	7/18/2005	7/18/2005	7/18/2005	7/18/2005	7/18/2005	7/18/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	7/19/2005	10/17/2000	10/17/2000	10/17/2000	10/17/2000
Percent Moisture	----	----	%	11.4	12.2	18	11.7	9.3	5.7	9.8	10.7	5.2	9.1	11.8	14.1	10.8	11.7	9.3	16.4	10	--	--	--	--	--
Percent Solids	----	----	%	88.6	87.8	82	88.3	90.7	94.3	90.2	89.3	94.8	90.9	88.2	85.9	89.2	88.3	90.7	83.6	90	--	--	--	--	--
1,1,1-Trichloroethane	1,000,000 ^c	680	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
1,1,2-Trichloroethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
1,1-Dichloroethane	480,000	270	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
1,1-Dichloroethene	1,000,000 ^c	330	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	0.6 J	3 U	3 U	1 J	0.6 J
1,2-Dichloroethane	60,000	20	ug/kg	360 J	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	320	570 U	8.4	560 U	5.7 U	5.5 U	6 U	4.6 J	3 U	3 U	3 U	3 U	3 U
1,2-Dichloropropane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
2-Butanone (MEK)	1,000,000 ^c	120	ug/kg	560 U	11 U	12 U	11 U	11 U	11 U	550 U	2200 U	11 U	22 U	570 U	12 U	560 U	11 U	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone	----	----	ug/kg	560 U	11 U	12 U	11 U	11 U	11 U	550 U	2200 U	11 U	22 U	570 U	12 U	560 U	11 U	11 U	12 U	11 U	5 U	5 U	5 U	5 U	6 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	560 U	11 U	12 U	11 U	11 U	11 U	550 U	2200 U	11 U	22 U	570 U	12 U	560 U	11 U	11 U	12 U	11 U	5 U	5 U	5 U	5 U	6 U
Acetone	1,000,000 ^c	50	ug/kg	360 J	10 JB	8.3 JB	8.7 JB	9.4 JB	14 B	360 J	5600 U	11 UB	13 JB	1400 U	10 JB	1400 U	10 JB	20 B	15 B	8.8 JB	7 J	6 J	6 J	5 J	4 J
Benzene	89,000	60	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Bromodichloromethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Bromoform	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Bromomethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	5 U	5 U	5 U	5 U	6 U
Carbon Disulfide	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Carbon Tetrachloride	74,000	760	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Chlorobenzene	1,000,000 ^c	1,100	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Chloroethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	5 U	5 U	5 U	5 U	6 U
Chloroform	700,000	370	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Chloromethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	5 U	5 U	5 U	5 U	6 U
cis-1,2-Dichloroethene	1,000,000 ^c	250	ug/kg	310 J	6.3	2.6 J	5.7 U	5.6	3.2 J	130 J	2200 U	5.3 U	38	570 U	1.5 J	560 U	2 J	5.5 U	6 U	5.6 U	43	2 J	19	120	50
cis-1,3-Dichloropropene	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Chlorodibromomethane	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Ethylbenzene	780,000	1,000	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Dichloromethane	----	----	ug/kg	110 JB	6.2 JB	8.1 JB	5.7 JB	5.7 JB	7.6 JB	96 JB	300 JB	8.7 JB	17 JB	100 JB	7.8 JB	110 JB	9 JB	7.4 JB	7.8 JB	9 JB	2 J	2 J	2 J	1 J	1 J
Styrene (Monomer)	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Tetrachloroethene	300,000	1,300	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Toluene	1,000,000 ^c	700	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	140 J	2.8 J	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
trans-1,2-Dichloroethene	1,000,000 ^c	190	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	2 J	3 U	0.8 J	4	0.6 J
trans-1,3-Dichloropropene	----	----	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U
Trichloroethene	400,000	470	ug/kg	2900	11	3 J	7.3	22	5.3 U	9900	48000	22	330	2900	45	7500	13	5.2 J	6 U	85	270	46	160	200	100
Vinyl Chloride	27,000	20	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	550 U	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	6	5 U	2 J	20	9
Total Xylenes	1,000,000 ^c	1,600	ug/kg	560 U	5.7 U	6.1 U	5.7 U	5.5 U	5.3 U	210 J	2200 U	5.3 U	11 U	570 U	5.8 U	560 U	5.7 U	5.5 U	6 U	5.6 U	3 U	3 U	3 U	3 U	3 U

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Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
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U- Not Detected
J- Estimated below reporting limit
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Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building Area 10					Building 11 Area														
				B10-03	B10-04	B10-100	B10-200	B10-300	B11-01	B11-02	B11-02	B11-03	B11-04	B11-05	B11-06	B11-07	B11-08	B11-09	B11-10	B11-10	B11-01	B11-01	B11-01
			Depth (feet)	10	19	24	24	14	4-6	14-16	24-26	10-14	12-14	14-16	14-16	12-14	24-26	14-16	14-16	24-26	22	3-4	37
			Units/Date	11/19/2008	11/20/2008	11/20/2008	11/20/2008	11/21/2008	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/23/2000	10/27/2000	10/27/2000	10/27/2000	10/27/2000	10/27/2000	7/7/2005	7/7/2005
Percent Moisture	----	----	%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	11.3	13.9	
Percent Solids	----	----	%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	88.7	86.1	
1,1,1-Trichloroethane	1,000,000 ^c	680	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	3 J	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U	
1,1,2,2-Tetrachloroethane	----	----	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U	
1,1,2-Trichloroethane	----	----	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	4 J	3 U	3 U	3 U	3 U	6 J	10 U	3 U	570 U	5.6 U	580 U	
1,1-Dichloroethane	480,000	270	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	1 J	3500 U	3 U	11 U	3 U	3	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
1,1-Dichloroethene	1,000,000 ^c	330	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	0.7 J	3500 U	4 J	3 J	4	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
1,2-Dichloroethane	60,000	20	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	4 J	10 U	3 U	570 U	5.6 U	580 U
1,2-Dichloropropane	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
2-Butanone (MEK)	1,000,000 ^c	120	ug/kg	--	--	--	--	--	2 J	14000 U	14	42 U	11 U	11 U	11 U	0.6 J	11 U	53 J	38 U	11 U	570 U	11 U	580 U
2-Hexanone	----	----	ug/kg	--	--	--	--	--	6 U	6900 U	6 U	21 U	6 U	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	11 U	580 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	--	--	--	--	--	6 U	6900 U	4	21 U	6 U	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	11 U	580 U
Acetone	1,000,000 ^c	50	ug/kg	--	--	--	--	--	35	5400 J	430	16 J	14	4 J	6 J	9 J	10 J	49 J	17 J	10 J	420 JB	8.4 JB	410 JB
Benzene	89,000	60	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Bromodichloromethane	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Bromoform	----	----	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	570 U	5.6 U	580 U
Bromomethane	----	----	ug/kg	--	--	--	--	--	6 U	6900 U	6 U	21 U	6 U	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	5.6 U	580 U
Carbon Disulfide	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	1 J	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	0.8 J	570 U	5.6 U	580 U
Carbon Tetrachloride	74,000	760	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Chlorobenzene	1,000,000 ^c	1,100	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Chloroethane	----	----	ug/kg	--	--	--	--	--	6 U	6900 U	6 U	21 U	6 U	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	5.6 U	580 U
Chloroform	700,000	370	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	4 J	10 U	3 U	570 U	5.6 U	580 U
Chloromethane	----	----	ug/kg	--	--	--	--	--	6 U	6900 U	6 U	21 U	6 U	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	5.6 U	580 U
cis-1,2-Dichloroethene	1,000,000 ^c	250	ug/kg	120	360 J	1100 U	1100 U	550 U	3 U	3500 U	45	210	160	10	10	0.7 J	3 U	110	110	1 J	570 U	5.6 U	580 U
cis-1,3-Dichloropropene	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Chlorodibromomethane	----	----	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	570 U	5.6 U	580 U
Ethylbenzene	780,000	1,000	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	5 J	10 U	3 U	570 U	5.6 U	580 U
Dichloromethane	----	----	ug/kg	--	--	--	--	--	0.9 U	3500 U	1 J	5 J	1 J	3 U	0.9 J	1 J	1 J	7 J	3 J	3	370 JB	4.8 JB	350 JB
Styrene (Monomer)	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Tetrachloroethene	300,000	1,300	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	3 U	13	3 U	3 U	3 U	3 U	3 U	10 J	10 U	3 U	570 U	5.6 U	580 U
Toluene	1,000,000 ^c	700	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	2100 J	5	3 J	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
trans-1,2-Dichloroethene	1,000,000 ^c	190	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	3 U	3500 U	1 J	11 U	1 J	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
trans-1,3-Dichloropropene	----	----	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	18 U	10 U	3 U	570 U	5.6 U	580 U
Trichloroethene	400,000	470	ug/kg	560	34000	37000	37000	6300	3 U	140000	3600	10000	1300	1 J	3 U	3 U	3 U	9500	350	10	7800	32	650
Vinyl Chloride	27,000	20	ug/kg	27 U	1100 U	1100 U	1100 U	550 U	6 U	6900 U	6 U	12 J	17	5 U	5 U	6 U	6 U	37 U	19 U	5 U	570 U	5.6 U	580 U
Total Xylenes	1,000,000 ^c	1,600	ug/kg	--	--	--	--	--	3 U	3500 U	3 U	11 U	3 U	3 U	3 U	3 U	3 U	33	10 U	3 U	570 U	5.6 U	580 U

Notes:
New York State Department of Environmental Conservation (NYSDEC), December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.
---- Limits not provided for specific COC in the NYSDEC Standards
c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3
Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
ppb - Parts per Billion
U- Not Detected
J- Estimated below reporting limit
B- Compound was detected in blank

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 11 Area																								Building 11 Area						
			Depth (feet)	B11-PH02	B11-PH02	B11-PH02	B11-PH03	B11-PH03	B11-PH03	B11-PH04	B11-PH04	B11-PH04	B11-PH05	B11-PH05	B11-PH05	B11-PH05	B11-PH06	B11-PH06	B11-PH06	B11-PH06	B11-PH07	B11-PH07	B11-PH07	B11-PH07	B11-PH08	B11-PH08	B11-PH08	B11-PH08	B11-PH08	B11-PH09	B11-PH09	B11-PH09	B11-PH09	B11-PH10
				0.5-1	19	35	1.3	13	31.5	1	12.7	36.5	1.1	12.9	25.4	34.8-35	1.6	12.6	16.8-17	35.6	13.4	25	31.4-31.6	3	13	2.9	20.8-21	22-22.3	24.5-24.7	1.5-2	11.5	15.5	32.5-32.8	0.6-0.8
			Units/Date	7/7/2005	7/7/2005	7/7/2005	7/8/2005	7/8/2005	7/8/2005	7/8/2005	7/8/2005	7/8/2005	7/11/2005	7/11/2005	7/11/2005	7/11/2005	7/11/2005	7/11/2005	7/11/2005	7/11/2005	7/12/2005	7/12/2005	7/12/2005	7/12/2005	7/13/2005	7/13/2005	7/13/2005	7/13/2005	7/13/2005	7/14/2005	7/14/2005	7/14/2005	7/14/2005	7/15/2005
Percent Moisture	----	----	%	15.1	10.7	12.3	15	10.8	12.6	16.2	11.7	20.8	8.5	10	5.2	20.4	14.3	10.6	9	17.3	13.4	12.2	14.9	15.1	9.8	12.2	10.6	17.6	12.8	9.8	14.7	9.3	16.2	7.8
Percent Solids	----	----	%	84.9	89.3	87.7	85	89.2	87.4	83.8	88.3	79.2	91.5	90	94.8	79.6	85.7	89.4	91	82.7	86.6	87.8	85.1	84.9	90.2	87.8	89.4	82.4	87.2	90.2	85.3	90.7	83.8	92.2
1,1,1-Trichloroethane	1,000,000 °	680	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,1,2-Trichloroethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,1-Dichloroethane	480,000	270	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,1-Dichloroethene	1,000,000 °	330	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,2-Dichloroethane	60,000	20	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
1,2-Dichloropropane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
2-Butanone (MEK)	1,000,000 °	120	ug/kg	590 U	560 U	2900 U	12 U	560 U	11 U	12 U	570 U	13 U	55 U	2800 U	530 U	13 U	12 U	200 J	550 U	24 U	5800 U	2800 U	590 U	12 U	550 U	11 U	1100 U	610000 U	2900 U	11 U	59 U	28000 U	600 U	540 U
2-Hexanone	----	----	ug/kg	590 U	560 U	2900 U	12 U	560 U	11 U	12 U	570 U	13 U	55 U	2800 U	530 U	13 U	12 U	560 U	550 U	24 U	5800 U	2800 U	590 U	12 U	550 U	11 U	1100 U	610000 U	2900 U	11 U	59 U	28000 U	600 U	540 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	590 U	560 U	2900 U	12 U	560 U	11 U	12 U	570 U	13 U	55 U	2800 U	530 U	13 U	12 U	560 U	550 U	24 U	5800 U	2800 U	590 U	12 U	550 U	11 U	1100 U	610000 U	2900 U	11 U	59 U	28000 U	600 U	540 U
Acetone	1,000,000 °	50	ug/kg	540 JB	1400 UB	1300 JB	13 B	1100 JB	12 B	13 B	420 JB	14 B	40 JB	--	--	11 JB	53 B	370 JB	360 JB	24 B	1800 JB	--	--	35 B	1400 UB	5.5 JB	--	--	--	12 B	60 B	--	440 JB	300 JB
Benzene	89,000	60	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	3800 J	600 U	540 U
Bromodichloromethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Bromoform	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Bromomethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Carbon Disulfide	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	3.6 J	5.8 U	560 U	550 U	7.8 J	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	--	28000 U	600 U	540 U
Carbon Tetrachloride	74,000	760	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Chlorobenzene	1,000,000 °	1,100	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Chloroethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Chloroform	700,000	370	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U
Chloromethane	----	----	ug/kg	590 U	560 U	2900 U	5.9 U	560 U	5.7 U	6 U	570 U	6.3 U	27 U	2800 U	530 U	6.3 U	5.8 U	560 U	550 U	12 U	5800 U	2800 U	590 U	5.9 U	550 U	5.7 U	1100 U	610000 U	2900 U	5.5 U	29 U	28000 U	600 U	540 U

Appendix D-1
Soil Analytical Results- VOCs
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objectives [ppb]	NYSDEC Protection of Groundwater Soil Cleanup Objectives [ppb]	Location ID	Building 11 Area			Other Sampling Areas																							
				B11-PH10	B11-PH10	B11-PH10	B9-01	B9-02	B9-03	B9-04	B9-05	B9-06	EFF-01	EFF-02	FOT-04	IS-01	IS-02	IS-03	IS-04	IS-05	IS-05B	IS-06	MW20-01	MW20-01	MW20-04	MW20-05	MW-BR-01	MW-BR-02	MW-BR-03	MW-BR-04
			Depth (feet)	11.5	21	30	14-16	12-14	12-14	4-6	12-16	6-8	6-8	10-14	4-6	10-12	4-6	4-6	14-16	8-10	24-26	12-14	1-3	18-20	4-6	16-18	26-28	26-28	36-38	18-19.8
			Units/Date	7/15/2005	7/15/2005	7/15/2005	10/17/2000	10/23/2000	10/23/2000	10/23/2000	10/23/2000	10/23/2000	10/17/2000	10/17/2000	10/16/2000	10/19/2000	10/19/2000	10/19/2000	10/23/2000	10/23/2000	10/26/2000	10/23/2000	10/16/2000	10/16/2000	10/20/2000	10/20/2000	6/21/2001	6/11/2001	6/14/2001	6/7/2001
Percent Moisture	----	----	%	15.9	8.8	22.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Percent Solids	----	----	%	84.1	91.2	77.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,1,1-Trichloroethane	1,000,000 °C	680	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
1,1,2,2-Tetrachloroethane	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ	3 UJ	3 UJ	
1,1,2-Trichloroethane	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
1,1-Dichloroethane	480,000	270	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
1,1-Dichloroethene	1,000,000 °C	330	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	0.6 J	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
1,2-Dichloroethane	60,000	20	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	1 J	3 U	3 U	3 U	3 U	26 U	0.7 J	3	3 U	3 U	3 U	12 U	0.9 J	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
1,2-Dichloropropane	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
2-Butanone (MEK)	1,000,000 °C	120	ug/kg	59 U	1100 U	3200 U	11 U	78	11 U	4 J	11 U	12 U	4 J	11 U	100 U	11 U	1 J	11 U	11 U	11 U	46 J	11 U	22	11 U	11 U	0.7 J	11 U	11 U	12 U	
2-Hexanone	----	----	ug/kg	59 U	1100 U	3200 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	6 U	6 U	5 U	6 U	24 U	6 U	6 U	5 U	6 U	5 U	6 U	5 U	6 U	
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	59 U	1100 U	3200 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	6 U	6 U	5 U	6 U	24 U	6 U	6 U	5 U	6 U	5 U	6 UJ	5 U	6 U	
Acetone	1,000,000 °C	50	ug/kg	49 JB	--	--	6 J	340	10 J	52	10 J	17	30	7 J	87	7 J	20	29	4 J	9 J	97	6 J	110	9	3 J	20	11 U	10 J	3 J	
Benzene	89,000	60	ug/kg	30 U	1100 U	3200 U	3 U	0.7 J	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Bromodichloromethane	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Bromoform	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Bromomethane	----	----	ug/kg	30 U	1100 U	3200 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	6 U	6 U	5 U	6 U	24 U	6 U	6 U	5 U	6 U	5 U	6 U	5 U	6 U	
Carbon Disulfide	----	----	ug/kg	--	1100 U	3200 U	3 U	4	3 U	1 J	0.6 J	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	3 U	31	3 U	0.6 J	3 U	3 U	1 J	3 U	0.9 J	3 U	
Carbon Tetrachloride	74,000	760	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Chlorobenzene	1,000,000 °C	1,100	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Chloroethane	----	----	ug/kg	30 U	1100 U	3200 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	6 U	6 U	5 U	6 U	24 U	6 U	6 U	5 U	6 U	5 U	6 U	5 U	6 U	
Chloroform	700,000	370	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Chloromethane	----	----	ug/kg	30 U	1100 U	3200 U	6 U	5 U	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	6 U	6 U	5 U	6 U	24 U	6 U	6 U	5 U	6 U	5 U	6 U	5 U	6 U	
cis-1,2-Dichloroethene	1,000,000 °C	250	ug/kg	58	410 J	3200 U	3 U	3	3 U	3 U	10	3 U	0.6 J	1 J	26 U	5	72	6	3 U	3 U	45	3 U	3 U	3 U	0.6 J	3 U	3 U	3 U	12	
cis-1,3-Dichloropropene	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Chlorodibromomethane	----	----	ug/kg	--	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Ethylbenzene	780,000	1,000	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	47	3 U	3 U	5	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Dichloromethane	----	----	ug/kg	33 JB	140 JB	350 JB	2 J	2 J	2 J	0.9 J	2 J	2 J	0.7 J	0.6 J	10 J	3 U	1 J	1 J	2 J	4 J	7 J	2 J	1 J	2 J	8	7	3 U	2 J	0.8 J	
Styrene (Monomer)	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	0.8 J	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Tetrachloroethene	300,000	1,300	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Toluene	1,000,000 °C	700	ug/kg	30 U	1100 U	2500 J	3 U	0.8 J	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	2 J	0.6 J	3 U	12 U	3 U	0.6 J	3 U	3 U	3 U	3 U	3 U	3 U	
trans-1,2-Dichloroethene	1,000,000 °C	190	ug/kg	30 U	1100 U	3200 U	3 U	0.7 J	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	9	1 J	3 U	3 U	15	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
trans-1,3-Dichloropropene	----	----	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	26 U	3 U	3 U	3 U	3 U	12 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	
Trichloroethene	400,000	470	ug/kg	260	24000	100000	3 U	2 J	3 U	1 J	16	0.8 J	3 U	14	26 U	14	25	1 J	2 J	3 U	46	7	3 U	3 U	2 J	3 U	3 U	3 U	1 J	
Vinyl Chloride	27,000	20	ug/kg	30 U	1100 U	3200 U	6 U	0.7 J	5 U	6 U	5 U	6 U	6 U	5 U	52 U	6 U	52	2 J	5 U	6 U	9 J	6 U	6 U	5 U	6 U	5 U	6 U	5 U	6 U	
Total Xylenes	1,000,000 °C	1,600	ug/kg	30 U	1100 U	3200 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	44	3 U	3 U	32	0.6 J	3 U	12	3 U	1 J	3 U	3 U	3 U	3 U	3 U	3 U	

Notes:
New York State Department of Environmental Conservation (NYSDEC), December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.
---- Limits not provided for specific COC in the NYSDEC Standards
c - The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3
Exceeds the NYSDEC Industrial Soil Standards
BOLD- Detected
ug/kg - Micrograms per Kilogram
ppb - Parts per Billion
U- Not Detected
J- Estimated below reporting limit
B- Compound was detected in blank

Appendix D-2
Soil Analytical Results- Metals
Former Philips Display Components Facility
Seneca Falls, NY

Parameter	NYSDEC Industrial Standard [ppm]	NYSDEC Protection of Ecological Resources Standard [ppm]		Building 2 Area												
			Location ID	B2-01	B2-02	B2-03	B2-04	B2-05	B2-06	B2-07	B2-08	CY-01	CY-02	CY-03	CY-04	GRSS-01
			Depth (ft)	2-6	14-16	14-16	10-12	22-24	24-26	12-14	14-16	5.5	10-12	8-10	2-4	0-0.5
			Units/Date	10/19/2000	10/19/2000	10/20/2000	10/20/2000	10/24/2000	10/24/2000	10/25/2000	10/25/2000	10/20/2000	10/20/2000	10/20/2000	10/20/2000	11/2/2000
Aluminum	----	----	mg/kg	10500	8490	6810	8440	9520	8050	9110	9000	7760	7640	8570	18000	16200
Antimony	----	----	mg/kg	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.25 J	0.21 U	0.25 J	0.21 U	0.21 U	0.22 U	0.27 J	1 J
Arsenic	16 ^f	13 ^f	mg/kg	2.7	3.3	2.5	3.6	2.3	2.5	4	2.7	5.8	3.6	3.3	5	5.8
Barium	10000 ^d	433 ^d	mg/kg	66.6	43.2	122	62	92.6	58.5	49.4	85.7	49.8	77.5	64.5	104	156
Beryllium	2700	10	mg/kg	0.49 J	0.41 J	0.35 J	0.43 J	0.45 J	0.41 J	0.45 J	0.43 J	0.43 J	0.39 J	0.41 J	0.79 J	0.6 J
Cadmium	60	4	mg/kg	0.032 U	0.031 U	0.031 U	0.031 U	0.032 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.033 U	0.032 U	26.8
Calcium	***	***	mg/kg	56000	63600	92800	65800	65700	67100	65300	67500	98000	77900	84600	29300	136000
Chromium	800	1 ^e	mg/kg	16.3	11.7	10.3	12.3	13.3	12.1	13.2	13.1	11.3	11.3	11.9	20.9	25.3
Cobalt	----	----	mg/kg	5.9	4.9 J	4.4 J	6.5	4.6	4.7 J	8.5	4.7 J	6	5.3 J	4.6 J	8.3	4.7 J
Copper	270	50	mg/kg	25.5	16	16.2	16.8	19.3	12.2	17.6	14	40.6	17	17.1	23.4	40.6
Fluoride (F-, Anion)	----	----	mg/kg	1.9	2.2	1.7	1.3	3.5	3	6.6	2.2	--	--	--	--	31.9
Iron	***	***	mg/kg	16300	13200	12000	14300	14300	13900	14800	13600	14300	13200	13500	21800	15600
Lead	400	63 ^f	mg/kg	11.9	5.4	5.9	6.1	7.1	6.1	6.4	5.6	6.9	6.8	5.6	8.2	99.7
Magnesium	***	***	mg/kg	18300	23400	21800	24100	22200	23000	21400	22100	19100	22000	34600	14500	10400
Manganese	10000 ^d	1600 ^f	mg/kg	369	331	347	436	361	373	413	344	511	351	446	913	306
Mercury	5.7 ^j	0.18 ^f	mg/kg	0.043 J	0.031 U	0.031 U	0.031 U	0.033 U	0.031 U	0.031 U	0.031 U	0.032 U	0.046 J	0.043 J	0.033 U	0.32
Nickel	10000 ^d	30	mg/kg	14.1	10.4	9.4	13.1	11.9	11.3	15	11.5	12.3	11.2	10.9	25.4	14
Potassium	***	***	mg/kg	2640	2720	2110	2490	3450	2920	3170	3260	2260	2390	2860	3600	6700
Selenium	6800	3.9 ^f	mg/kg	0.48 J	0.41 U	0.85	0.42 J	0.74	0.67	0.72	0.69	0.84	0.7	0.62	0.68	1.2
Silver	6800	2	mg/kg	0.084 U	0.083 U	0.082 U	0.083 U	0.086 U	0.082 U	0.082 U	0.083 U	0.083 U	0.083 U	0.087 U	0.087 U	0.12 J
Sodium	***	***	mg/kg	196	207	214	219	239	216	235	247	180	207	215	177	938
Sulfate	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	----
Thallium	----	----	mg/kg	0.55 U	0.54 U	0.54 U	0.54 U	0.56 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.57 U	0.89 J	0.57 U
Total Organic Carbon	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	---
Vanadium	----	----	mg/kg	19.3	16.4	13.9	16.9	19.5	17	18.4	18	18.2	15.8	16.1	28	34.9
Zinc	10000 ^d	109 ^f	mg/kg	38.2	29.1	32.4	32	32.6	28.7	43	38.9	52.6	32.2	28.5	49	210

Notes:
New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.
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- Both sets of standards referenced in the Table are found in the above document in section 6.8
---- Limits not provided for specific COC in the NYSDEC Standards
*** - Essential nutrients are categorically eliminated as COPC
U- Not Detected
J- Estimated below reporting limit
mg/kg - Milligrams per Kilogram
ppm - Parts per Million
Exceeds the NYSDEC Industrial Soil Standards
d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3
f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department
j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Appendix D-2
Soil Analytical Results- Metals
Former Philips Display Components Facility
Seneca Falls, NY

Parameter	NYSDEC Industrial Standard [ppm]	NYSDEC Protection of Ecological Resources Standard [ppm]		Building 7 Area					Building 11 Area					
			Location ID	B7-01	B7-02	B7-03	B7-04	B7-05	B11-01	B11-02	B11-02	B11-02	B1-03	B11-04
			Depth (ft)	10-12	8-10	2-6	12-14	12-14	4-6	14-16	23-24	24-26	10-14	12-14
			Units/Date	10/19/2000	10/19/2000	10/19/2000	10/19/2000	10/19/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000	10/18/2000
Aluminum	----	----	mg/kg	8120	3160	8080	7590	7720	10900	9940	11600	9890	12000	11100
Antimony	----	----	mg/kg	0.21 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21	0.21 U	0.21 U	0.22 U	0.24 J
Arsenic	16 ^f	13 ^f	mg/kg	3.3	2.2	5	2.3	3.2	3.6	2.3	2.8	2.7	3.7	3.5
Barium	10000 ^d	433 ^d	mg/kg	59.9	28.8	59.8	95	53.9	56	86.4	70	78.2	90.7	74.9
Beryllium	2700	10	mg/kg	0.4 J	0.19 J	0.41 J	0.39 J	0.39 J	0.52 J	0.46	0.52 J	0.47 J	0.57 J	0.51 J
Cadmium	60	4	mg/kg	0.031 U	0.032 U	0.031 U	0.031 U	0.031 U	1.2	0.031	0.031 U	0.031 U	0.033 U	1.4
Calcium	***	***	mg/kg	64400	45100	72300	68100	65500	78900	67900	60100	85800	54200	61800
Chromium	800	1 ^e	mg/kg	11.9	5.5	12	11.2	11	14.5	13.8	15.2	13.3	16.4	14.6
Cobalt	----	----	mg/kg	4.3 J	1.9 J	5.8	4.6 J	6.1	5.7	4.9	5.9	5.3 J	6	5.5 J
Copper	270	50	mg/kg	16.1	9.5	19.4	14.7	17.3	15.5	14.1	12.1	11.9	19.7	18.1
Fluoride (F-, Anion)	----	----	mg/kg	1.6	2.9	1.3	1.2	5	--	--	--	--	--	--
Iron	***	***	mg/kg	13300	8030	14800	12700	13300	17000	13500	16500	13400	17700	15200
Lead	400	63 ^f	mg/kg	5.7	3.1	6.6	5.5	5.9	6.7	5.5	5.9	6	6.4	6.7
Magnesium	***	***	mg/kg	23400	11900	18100	24200	21300	31100	26600	22500	37100	16600	20200
Manganese	10000 ^d	1600 ^f	mg/kg	320	257	378	342	371	759	316	360	367	350	361
Mercury	5.7 ^j	0.18 ^f	mg/kg	0.031 U	0.032 U	0.031 U	0.031 U	0.046 J	0.034 J	0.041	0.037 J	0.032 U	0.074 J	0.04 J
Nickel	10000 ^d	30	mg/kg	10.5	4.1 J	12.4	10.4	12.1	11.8	12	13.8	11.6	15.2	13
Potassium	***	***	mg/kg	2590	776	2430	2340	2360	3430	3630	3870	3380	3790	3620
Selenium	6800	3.9 ^f	mg/kg	0.51 J	0.44 J	0.65	0.82	0.45 J	0.97	0.68	0.56 J	0.87	0.58 J	0.58
Silver	6800	2	mg/kg	0.083 U	0.086 U	0.082 U	0.082 U	0.083 U	0.085 U	0.084	0.084 U	0.084 U	0.087 U	0.085 U
Sodium	***	***	mg/kg	218	170	261	202	256	227	233	244	273	246	229
Sulfate	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Thallium	----	----	mg/kg	0.54 U	0.56 U	0.54 U	0.54 U	0.54 U	0.56 U	0.55	0.55 U	0.55 U	0.57 U	0.55 U
Total Organic Carbon	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--
Vanadium	----	----	mg/kg	16.2	9.6	16	15.4	15.5	20.1	18.9	21.1	18.3	23.5	20.8
Zinc	10000 ^d	109 ^f	mg/kg	35.6	22.7	32	34.8	32.1	34.8	27.2	34.4	28.4	40.6	42.2

Notes:
New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.
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- Both sets of standards referenced in the Table are found in the above document in section 6.8
---- Limits not provided for specific COC in the NYSDEC Standards
*** - Essential nutrients are categorically eliminated as COPC
U- Not Detected
J- Estimated below reporting limit
mg/kg - Milligrams per Kilogram
ppm - Parts per Million
Exceeds the NYSDEC Industrial Soil Standards
d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3
f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department
j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Appendix D-2
Soil Analytical Results- Metals
Former Philips Display Components Facility
Seneca Falls, NY

Parameter	NYSDEC Industrial Standard [ppm]	NYSDEC Protection of Ecological Resources Standard [ppm]		Building 11 Area							OtherSampling Areas			
			Location ID	B11-06	B11-06	B11-08	B11-09	B11-10	B11-10	GRSS-04	B9-01	B9-02	B9-03	B9-04
			Depth (ft)	14-16	14-16	24-26	14-16	14-16	24-26	0-0.5	14-16	12-14	12-14	4-6
			Units/Date	10/18/2000	10/18/2000	10/27/2000	10/27/2000	10/27/2000	10/27/2000	11/2/2000	10/17/2000	10/23/2000	10/23/2000	10/23/2000
Aluminum	----	----	mg/kg	10500	8700	7590	9260	8320	7420	13800	7040	9110	7860	14400
Antimony	----	----	mg/kg	0.21 U	0.25 J	0.21 U	0.21 U	0.21	0.24 J	0.36 J	0.28 J	0.21 U	0.21 U	0.54 J
Arsenic	16 ^f	13 ^f	mg/kg	2.7	3.2	2.1	2.4	3	4.3	4.5	2.7	3.5	2.9	5.5
Barium	10000 ^d	433 ^d	mg/kg	152	47.1	62	71.7	52.8	69.1	77.7	41.8	53.6	52.1	92.2
Beryllium	2700	10	mg/kg	0.49 J	0.42 J	0.37 J	0.45 J	0.41	0.37 J	0.66 J	0.38 J	0.44 J	0.38 J	0.63 J
Cadmium	60	4	mg/kg	0.031 U	0.031 U	0.031 U	0.03 U	0.031	0.03 U	78.3	0.032 U	0.031 U	0.03 U	2.2
Calcium	***	***	mg/kg	68900	65000	118000	66400	60500	91300	27500	49500	66500	61700	58300
Chromium	800	1 ^e	mg/kg	15.1	12.1	9.8	13.4	12.6	10.1	19	10.1	12.9	11.3	18.7
Cobalt	----	----	mg/kg	4.5 J	5.5 J	3.9 J	5.1 J	4.7	5.1 J	7.4	3.4 J	7.4	3.4 J	6.8
Copper	270	50	mg/kg	15.3	16.2	85	16	16.7	13.1	17.6	11.8	15.6	16.3	98.8
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	2.9	--	--	--	--
Iron	***	***	mg/kg	14100	13600	11200	14000	13500	13200	19900	10900	14000	12200	20100
Lead	400	63 ^f	mg/kg	6.4	5.8	4.6	5.8	5.3	6.6	24.6	4.4	6.2	5.1	20.5
Magnesium	***	***	mg/kg	25000	20200	57300	26600	23000	37700	10400	15400	2230	21000	18100
Manganese	10000 ^d	1600 ^f	mg/kg	311	342	464	365	324	376	508	253	400	315	480
Mercury	5.7 ^j	0.18 ^f	mg/kg	0.031 U	0.031 U	0.032 U	0.049 J	0.033	0.05 J	0.034 U	0.044 J	0.062 J	0.031 U	0.072 J
Nickel	10000 ^d	30	mg/kg	12.6	11.1	8.9	12.2	11.1	10.2	14.9	8.2	13.1	8.8	15
Potassium	***	***	mg/kg	3800	3030	2850	3490	2910	2630	2310	2300	3230	2760	2950
Selenium	6800	3.9 ^f	mg/kg	0.51 J	0.67	1.2	0.69	0.75	0.81	0.44 U	0.74	0.63	0.71	0.66
Silver	6800	2	mg/kg	0.082 U	0.082 U	0.084 U	0.082 U	0.083	0.081 U	0.09 U	0.086 U	0.082 U	0.082 U	0.085 U
Sodium	***	***	mg/kg	236	222	350	229	196	249	121	161	222	204	225
Sulfate	----	----	mg/kg	--	--	--	--	--	--	----	--	--	--	--
Thallium	----	----	mg/kg	0.54 U	0.54 U	0.55 U	0.53 U	0.54	0.53 U	0.59 U	0.56 U	0.54 U	0.53 U	0.56 U
Total Organic Carbon	----	----	mg/kg	--	--	--	--	--	--	----	--	--	--	--
Vanadium	----	----	mg/kg	19.8	17.6	15.6	18.2	16.6	14.8	32.8	14.5	18.2	16.3	26
Zinc	10000 ^d	109 ^f	mg/kg	30.1	41	22.2	26	35.1	26	373	27.8	32.8	46.4	84.7

Notes:
New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.
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---- Limits not provided for specific COC in the NYSDEC Standards
*** - Essential nutrients are categorically eliminated as COPC
U- Not Detected
J- Estimated below reporting limit
mg/kg - Milligrams per Kilogram
ppm - Parts per Million
Exceeds the NYSDEC Industrial Soil Standards
d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3
f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department
j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Appendix D-2
Soil Analytical Results- Metals
Former Philips Display Components Facility
Seneca Falls, NY

Parameter	NYSDEC Industrial Standard [ppm]	NYSDEC Protection of Ecological Resources Standard [ppm]		OtherSampling Areas							
			Location ID	B9-05	B9-06	EFF-01	EFF-02	OB-DGW-04	GRSS-02	GRSS-03	GRSS-05
			Depth (ft)	12-16	6-8	6-8	10-14	24-26	0-0.5	0-0.5	0-0.5
			Units/Date	10/23/2000	10/23/2000	10/17/2000	10/17/2000	10/27/2000	11/2/2000	11/2/2000	11/2/2000
Aluminum	----	----	mg/kg	7830	13900	9680	9160	22200	10700	10400	11200
Antimony	----	----	mg/kg	0.21 U	0.24 J	0.21 U	0.21 U	0.36 J	0.35	0.22 U	4.7 J
Arsenic	16 ^f	13 ^f	mg/kg	2.5	3.9	5.6	12.8	4.2	4.1	3.7	10.2
Barium	10000 ^d	433 ^d	mg/kg	61	154	74.1	67.5	161	53.3	62	162
Beryllium	2700	10	mg/kg	0.39 J	0.63 J	0.51 J	0.46 J	1 J	0.49	0.51 J	0.95 J
Cadmium	60	4	mg/kg	0.031 U	0.034 U	0.031 U	32.8	0.034 U	3.5	2.2	4.1
Calcium	***	***	mg/kg	72100	98600	69200	84000	57600	18700	33500	21700
Chromium	800	1 ^e	mg/kg	11.2	16.3	14.1	15.2	26.5	15.1	13.6	23.1
Cobalt	----	----	mg/kg	4 J	6.3	6.4	6.2	10	4.9	5.5 J	7.4
Copper	270	50	mg/kg	14.3	16.2	17.9	17.5	24.5	25.9	15.3	399
Fluoride (F-, Anion)	----	----	mg/kg	--	--	2.9	3.6	--	0.9	35	1.3
Iron	***	***	mg/kg	12600	16300	15300	17200	37300	15900	16400	30500
Lead	400	63 ^f	mg/kg	5.5	6.8	9	8.2	9.3	30.9	14.6	200
Magnesium	***	***	mg/kg	21600	43500	24100	21700	18300	9370	11300	9550
Manganese	10000 ^d	1600 ^f	mg/kg	351	345	385	347	506	282	504	518
Mercury	5.7 ^j	0.18 ^f	mg/kg	0.031 U	0.034 U	0.031 U	0.035 J	0.035 U	0.038	0.034 U	0.22
Nickel	10000 ^d	30	mg/kg	9.2	15	14.5	13.1	24.6	12.5	14.1	23.4
Potassium	***	***	mg/kg	2660	4470	2850	270	7390	1970	1860	1820
Selenium	6800	3.9 ^f	mg/kg	1.2	0.95	0.57	0.59	0.75	0.5	0.44 U	1
Silver	6800	2	mg/kg	0.083 U	0.09 U	0.084 U	0.082 U	0.091 U	0.1	0.089 U	0.13 J
Sodium	***	***	mg/kg	223	326	223	580	338	122	118 J	336
Sulfate	----	----	mg/kg	--	--	--	--	--	----	----	----
Thallium	----	----	mg/kg	0.54 U	0.59 U	0.55 U	0.54 U	0.6 U	0.66	0.58 U	0.63 J
Total Organic Carbon	----	----	mg/kg	--	--	--	--	--	----	----	----
Vanadium	----	----	mg/kg	16.2	25	18.5	20.3	37.3	20.7	20.1	23.6
Zinc	10000 ^d	109 ^f	mg/kg	36.7	42.4	42.6	166	54.9	76.7	66	190

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives.

- Both sets of standards referenced in the Table are found in the above document in section 6.8

---- Limits not provided for specific COC in the NYSDEC Standards

*** - Essential nutrients are categorically eliminated as COPC

U- Not Detected

J- Estimated below reporting limit

mg/kg - Milligrams per Kilogram

ppm - Parts per Million

Exceeds the NYSDEC Industrial Soil Standards

d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3

f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department

j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)



Appendix E

Groundwater Analytical Results

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	B2-01	B2-02	B2-03	B2-04	B2-05	B2-06	B2-07	B2-08	B2-09	B2-10	B2-11	B2A-01	B2A-02	B2A-03	B2A-04	B2-PH01	B2-PH02	B2-PH03	B2-PH04	B2-PH08	B3-SMP-01	B7-01	B7-03	B7-05	B7-05	B7-PH04	B7-PH04	B7-PH06	B7-PH08	B7-PH08	B9-02	
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0-10	--	--	--	--	--	--	--	--	25	32-36	--	--	--	--	
		Units/Date	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/26/2000	10/17/2000	10/17/2000	10/26/2000	10/26/2000	7/22/2005	7/22/2005	8/1/2005	8/2/2005	8/4/2005	10/24/2000	10/20/2000	10/23/2000	10/20/2000	10/23/2000	7/20/2005	7/20/2005	7/19/2005	7/20/2005	7/22/2005	10/25/2000	
1,1,1-Trichloroethane	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 J	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
1,1,2,2-Tetrachloroethane	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	120 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
1,1,2-Trichloroethane	1	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
1,1-Dichloroethane	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.3 J	
1,1-Dichloroethene	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	0.8 J	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
1,2-Dichloroethane	0.6	ug/l	50 U	23 J	23 J	9 J	880 J	9900	1	140	58	18	0.1 J	0.5 U	5 U	0.5 U	1 J	5 U	5.6	500 U	1200 U	20 U	0.5 U	8	9	0.5 U	--	76 H	62	44 H	34	--	0.3 J	
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloropropane	1	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
2-Butanone	50	ug/l	1000 U	1000 U	1000 U	250 U	50000 U	100000 U	20 U	1000 U	500 U	250 U	3 J	10 U	100 U	4 J	50 U	10 U	10 U	1000 U	2500 U	40 U	10 U	10 U	100 U	1 J	--	100 U	12 J	40 U	40 U	--	3 J	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	500 U	500 U	500 U	120 U	25000 U	50000 U	10 U	500 U	250 U	120 U	5 U	5 U	5 U	5 U	25 U	10 U	10 U	1000 U	2500 U	40 U	5 U	5 U	5 U	5 U	--	100 U	50 U	40 U	40 U	--	5 UJ	
Acetone	50	ug/l	1000 U	1000 U	1000 U	250 U	50000 U	100000 U	27	1000 U	500 U	250 U	27	5 J	100 U	29	19 J	12	30	370 JB	1100 JB	9 JB	10 U	8 J	100 U	11	--	45 J	33 J	13 J	22 J	--	16 J	
Benzene	1	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.2 J	2 U	5 U	3.6 J	500 U	1200 U	20 U	0.5 U	0.5 U	1200	0.5 U	--	50 U	25 U	20 U	20 U	--	0.2 J	
Bromodichloromethane	50	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	1	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Bromomethane	5	ug/l	100 U	100 U	100 U	25 U	5000 U	10000 U	2 U	100 U	50 U	25 U	1 U	1 U	10 U	1 U	5 U	5 U	5 U	500 U	1200 U	20 U	1 U	1 U	10 U	1 U	--	50 U	25 U	20 U	20 U	--	1 UJ	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	60	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	19 J	25 U	12 U	0.2 J	0.5 U	5 U	0.2 J	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Carbon Tetrachloride	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
CFC-11	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 U	5 U	--	--	--	--	--	--	--	--	--	50 U	25 U	20 U	20 U	--	--
CFC-12	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5 U	5 U	--	--	--	--	--	--	--	--	--	50 U	25 U	20 U	20 U	--	--
Chlorobenzene	5	ug/l	50 U	50 U	50 U	1 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.2 J	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	4 J	
Chlorodibromomethane	NS	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Chloroethane	5	ug/l	100 U	100 U	100 U	25 U	5000 U	10000 U	2 U	100 U	50 U	25 U	1 U	1 U	10 U	1 U	5 U	5 U	5 U	500 U	1200 U	20 U	1 U	1 U	10 U	1 U	--	50 U	25 U	20 U	20 U	--	0.1 J	
Chloroform	7	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.2 J	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Chloromethane	5	ug/l	100 U	100 U	100 U	25 U	5000 U	10000 U	2 U	100 U	50 U	25 U	1 U	1 U	10 U	1 U	5 U	5 U	5 U	500 U	1200 U	20 U	1 U	1 U	10 U	1 U	--	50 U	25 U	20 U	20 U	--	0.3 J	
cis-1,2-Dichloroethene	5	ug/l	1000	430	430	710	10000	100000	10	4800	520	330	0.8	0.5 U	5 U	13	150	19	150	1800	920 J	27	0.6	0.5 U	5 U	0.5 U	--	450	380	340	13 J	--	3 J	
cis-1,3-Dichloropropene	0.4	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	200 U	200 U	200 U	50 U	10000 U	20000 U	0.3 J	200 U	100 U	5 J	2 U	2 U	20 U	2 U	10 U	5 U	0.48 J	260 JB	660 JB	6.7 JB	2 U	2 U	20 U	2 U	--	6.8 J	3.1 J	3.5 JB	2.5 J	--	2 UJ	
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.1 J	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	560	0.8	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Methyl N-Butyl Ketone	----	ug/l	500 U	500 U	500 U	120 U	25000 U	50000 U	10 U	500 U	250 U	120 U	5 U	5 U	5 U	5 U	25 U	10 U	10 U	1000 U	2500 U	40 U	5 U	5 U	5 U	5 U	--	100 U	50 U	40 U	40 U	--	5 UJ	
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Styrene (Monomer)	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.5 U	5 U	0.5 U	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Tetrachloroethene	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	50 U	25 U	12 U	0.5 U	0.5 U	5 U	0.5 U	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.1 J	5 U	0.1 J	--	50 U	25 U	20 U	20 U	--	0.5 UJ	
Toluene	5	ug/l	50 U	50 U	50 U	12 U	500 J	3200 J	0.3 J	40 J	25 U	12 U	0.2 J	0.2 J	5 U	0.6	2 U	5 U	1 J	500 U	1200 U	20 U	0.5 U	0.3 J	52	0.2 J	--	50 U	25 U	20 U	20 U	--	0.3 J	
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total Xylenes	5	ug/l	50 U	50 U	50 U	12 U	2500 U	5000 U	1 U	120 U	25 U	12 U	3	0.5 U	5 U	0.1 J	2 U	5 U	5 U	500 U	1200 U	20 U	0.5 U	0.6	1300	8	--	50 U	25 U	20 U	20 U	--	0.5 J	
trans-1,2-Dichloroethene	5	ug/l	50 U	50 U	50 U	4 J	25																											

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	B9-03	B9-04	B9-05	B9A-04	B9A-05	B11-01	B11-02	B11-03	B11-04	B11-09	B11-10	B11-PH03	B11-PH04	B11-PH06	B11-PH06	B11-PH07	B11-PH07	B11-PH08
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	11
		Units/Date	10/25/2000	10/25/2000	10/25/2000	10/20/2000	10/20/2000	10/19/2000	10/19/2000	10/19/2000	10/19/2000	10/30/2000	10/30/2000	7/11/2005	7/11/2005	7/12/2005	7/15/2005	7/12/2005	7/15/2005	7/13/2005
1,1,1-Trichloroethane	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.8	120	12 U	120 U	500 U	36	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,1,2,2-Tetrachloroethane	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	250 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,1,2-Trichloroethane	1	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,1-Dichloroethane	5	ug/l	0.5 U	0.1 J	1 U	5 U	0.5 U	6	50 U	12 U	120 U	500 U	31	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,1-Dichloroethene	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,2-Dichloroethane	0.6	ug/l	0.5 U	1	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
2-Butanone	50	ug/l	7 J	1 J	14 J	100 U	2 J	1 J	1000 U	250 U	2500 U	10000 U	250 U	5000 U	4000 U	4000 U	--	10000000 U	100000 U	100 U
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	0.1 J	5 U	10 U	500 U	5 U	5 U	500 U	120 U	1200 U	5000 U	120 U	5000 U	4000 U	4000 U	--	10000000 U	100000 U	100 U
Acetone	50	ug/l	12	9 J	18 J	100 U	13	16	1100	36 J	2500 U	10000 U	250 U	2800 JB	4000 U	4000 U	--	2200000 J	100000 UB	100 UB
Benzene	1	ug/l	0.5 U	0.1 J	0.2 J	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Bromodichloromethane	50	ug/l	0.5 U	0.5 U	1 U	3 J	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Bromomethane	5	ug/l	1 U	1 U	2 U	10 U	1 U	1 U	100 U	25 U	250 U	1000 U	25 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129000	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Carbon Tetrachloride	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
CFC-11	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
CFC-12	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	2000 U 2500 U	--	2000 U	--	5000000 U	50000 U	50 U
Chlorobenzene	5	ug/l	0.4 J	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Chlorodibromomethane	NS	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Chloroethane	5	ug/l	1 U	1 U	2 U	10 U	1 U	1	100 U	25 U	250 U	1000 U	25 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Chloroform	7	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	240 J	12 J	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Chloromethane	5	ug/l	1 U	1 U	2 U	10 U	1 U	1 U	100 U	25 U	250 U	1000 U	25 U	2000 U 2500 U	--	2000 U	--	5000000 U	50000 U	50 U
cis-1,2-Dichloroethene	5	ug/l	20	1	12	770	19	0.3 J	530	84	1600	3200	440	63000	2000 U	2500	--	1300000 J	50000 U	540
cis-1,3-Dichloropropene	0.4	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	----	ug/l	0.2 J	2 U	4 U	20 U	2 U	2 U	200 U	50 U	500 U	2000 U	50 U	2500 UB	200 JB	170 JB	--	1200000 J	50000 UB	50 UB
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.2 J	0.5 U	50 U	12 U	12 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3720	--	--	--
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	216	--	--	--
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl N-Butyl Ketone	----	ug/l	5 U	5 U	10 U	50 U	5 U	5 U	500 U	120 U	1200 U	5000 U	120 U	5000 U	4000 U	4000 U	--	10000000 U	100000 U	100 U
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3290	--	--	--
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23700	--	--	--
Styrene (Monomer)	5	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Tetrachloroethene	5	ug/l	0.7	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Toluene	5	ug/l	0.3 J	0.2 J	0.5 J	5 U	0.5 J	0.2 J	390	12 U	120 U	500 U	12 U	490 J	2000 U	2000 U	--	5000000 U	50000 U	50 U
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes	5	ug/l	0.5 U	0.5 U	1 U	5 U	1	0.1 J	250 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
trans-1,2-Dichloroethene	5	ug/l	0.3 J	0.5 U	0.5 J	15	0.2 J	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
trans-1,3-Dichloropropene	0.4	ug/l	0.5 U	0.5 U	1 U	5 U	0.2 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Tribromomethane	----	ug/l	0.5 U	0.5 U	1 U	5 U	0.5 U	0.5 U	50 U	12 U	120 U	500 U	12 U	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Trichloroethene	5	ug/l	3	1	2	480	17	0.3 J	12000	870	3500	230000	570	65000 B	65000	61000	--	100000000	1000000 B	810 B
Vinyl Acetate	5	ug/l	--	--	--	--	--	--	--	--	--	--	--	2500 U	2000 U	2000 U	--	5000000 U	50000 U	50 U
Vinyl Chloride	2	ug/l	0.8 J	0.4 J	2 J	210	2	1 U	100 U	14 J	250 U	1000 U	12 J	5600	2000 U	2000 U	--	5000000 U	50000 U	14 J

Notes:
NTSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008. Subpart 703.6: Groundwater effluent
limitations for discharges to Class GA waters Standards.
ug/L - Micrograms Per liter
BOLD - Exceeds Detection Limit
---- No specified Standard
U - Not detected
J - Estimated Value
H - Alternate peak selection upon review
M - Sample Result is Matrix suspect
B - Compound was detected in blank
D - Measurement was made in the field
E - Extra samples were taken at composite stations
-- No Data
Exceeds NYSDEC Class GA Standard

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	B11-PH08	B11-PH08	B11-PH08	B11-PH09	B13-TD-01	B13-TD-02	CY-02	CY-04	EFF-FH-01	FLD BLANK	FLD BLANK	FOT-01	FOT-02	FOT-03	FOT-04	IS-01	IS-01	IS-02	IS-03	IS-03	IS-06	MH-1	MH-12	MH-1B	MH-3	MH-3B	MH-4B	MH-5	MH-7	MH-8	MH-9A
		Depth (Feet)	15	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		Units/Date	7/13/2005	7/13/2005	7/19/2005	7/18/2005	10/19/2000	10/19/2000	10/24/2000	10/24/2000	6/28/2001	9/13/2006	9/23/2008	10/17/2000	10/17/2000	10/17/2000	10/17/2000	10/24/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	10/25/2000	9/17/2002	9/16/2002	9/17/2002	9/17/2002	9/16/2002	9/16/2002	9/17/2002	9/17/2002	9/17/2002	9/17/2002
1,1,1-Trichloroethane	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10	7	5 U
1,1,2,2-Tetrachloroethane	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	5 U	5 U *	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1-Dichloroethane	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	10 U	5 U	5 U	5 U
1,1-Dichloroethene	5	ug/l	120 U	30 J	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	4 J	3 J	5 U
1,2-Dichloroethane	0.6	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	2	--	2 J	1 J	--	4	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloroethane-d4	----	ug/l	--	--	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	--	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Butanone	50	ug/l	250 U	400 U	100000000 U	500 U	2 U	10 U	10 U	10 U	10 U	1.3 J	10 U	10 U	7 J	4 J	9 J	2 J	--	50 U	100 U	--	1 J	10 U	10 U	10 U	20 U	10 U	10 U	10 U	20 U	10 U	10 U
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromofluorobenzene	----	ug/l	--	--	----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	250 U	400 U	100000000 U	500 U	5 U	5 U	0.1 J	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	--	25 U	50 U	--	5 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	20 U	10 U	10 U
Acetone	50	ug/l	250 U	90 JB	100000000 U	190 J	49	19	10 U	7 J	1 J	1.5 JB	10 U	2 J	32	9 J	40	13	--	50 U	16 J	--	11	10 U	10 U	10 U	10 U	20 U	10 U	10 U	20 U	10 U	10 U
Benzene	1	ug/l	120 U	200 U	50000000 U	250 U	0.3 J	0.2 J	0.4 J	0.5 U	0.5 U	5 U	5 U	0.2 J	1	1	3	0.1 J	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Bromodichloromethane	50	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Bromomethane	5	ug/l	120 U	200 U	50000000 U	250 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	--	5 U	10 U	--	1 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Calcium	----	ug/l	6440000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.1 J	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	3 J	5 U	5 U	5 U	10 U	5 U	5 U
Carbon Tetrachloride	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
CFC-11	----	ug/l	120 U	200 U	--	250 U	--	--	--	--	--	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CFC-12	----	ug/l	120 U	200 U	--	250 U	--	--	--	--	--	5 U	5 U *	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Chlorodibromomethane	NS	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Chloroethane	5	ug/l	120 U	200 U	50000000 U	250 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	0.3 J	--	5 U	10 U	--	0.1 J	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Chloroform	7	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Chloromethane	5	ug/l	120 U	200 U	50000000 U	250 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1 U	0.4 J	--	5 U	10 U	--	0.3 J	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	ug/l	880	1200	50000000 U	100 J	0.3 J	0.1 J	0.9	4	10	5 U	5 U	0.1 J	0.3 J	4	0.5 U	16	--	63	99	--	0.6	160	3 J	1 J	240	5 U	4 J	18	48	27	5 U
cis-1,3-Dichloropropene	0.4	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	----	ug/l	12 JB	200 UB	14000000 JB	32 JB	2 U	2 U	2 U	2 U	2 U	0.97 JB	5 U	2 U	2 U	2 U	2 U	2 U	--	10 U	20 U	--	2 U	0.9 JB	0.9 J	0.8 JB	2 JB	0.8 JB	1 JB	1 JB	2 JB	0.8 JB	0.8 J
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	2	0.5 U	0.5 U	5 U	5 U	0.2 J	5	6	3	0.1 J	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Iron	----	ug/l	1700000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	----	ug/l	46200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl N-Butyl Ketone	----	ug/l	250 U	400 U	100000000 U	500 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	5 U	0.2 J	--	25 U	50 U	--	5 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	20 U	10 U	10 U
Potassium	----	ug/l	115000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	----	ug/l	28600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene (Monomer)	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Tetrachloroethene	5	ug/l	120 U	200 U	50000000 U	250 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Toluene	5	ug/l	120 U	200 U	6800000 J	35 J	0.6	0.4 J	2	0.4 J	0.3 J	5 U	5 U	0.1 J	0.4 J	0.3 J	0.5 J	0.2 J	--	2 U	5 U	--	0.5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	10 U	5 U	5 U
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes	5	ug/l	120 U																														

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

[illegible]

Notes:
 NYSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008, Subpart 703.6: Groundwater effluent limitations for discharges to Class GA waters Standards.
 ug/L - Micrograms Per liter
 BOLD - Exceeds Detection Limit
 ---- No specified Standard
 U - Not detected
 J - Estimated Value
 H - Alternate peak selection upon review
 M - Sample Result is Matrix suspect
 B - Compound was detected in blank
 D - Measurement was made in the field
 E - Extra samples were taken at composite stations
 -- No Data

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-20											
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--
		Units/Date	10/7/2011	6/14/1993	7/21/1993	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000	11/1/2000	3/28/2001	9/27/2001	3/1/2002
1,1,1-Trichloroethane	5	ug/l	5.9	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
1,1,2-Trichloroethane	1	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
1,1-Dichloroethane	5	ug/l	8.9	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
1,1-Dichloroethene	5	ug/l	1.3 J	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
1,2-Dichloroethane	0.6	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	27	23	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
2-Butanone	50	ug/l	10 U	10 U	10 U	--	--	--	--	--	--	10 U	10 U	--
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	10 U	--	--	--	--	--	--	--	--	--
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	--	--	--	--	--	--	5 U	5 U	--
Acetone	50	ug/l	10 U	10 U	10 U	10 U	--	--	--	--	--	2.2 J	10 U	--
Benzene	1	ug/l	5 U	10 U	10 U	0.16 J	--	--	--	--	--	0.23 J	0.26 J	--
Bromodichloromethane	50	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Bromomethane	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	1 U	1 U	--
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Carbon Tetrachloride	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
CFC-11	----	ug/l	5 U	--	--	--	--	--	--	--	--	--	--	--
CFC-12	----	ug/l	5 U	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
Chlorodibromomethane	NS	ug/l	5 UJ	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Chloroethane	5	ug/l	5 U	10 U	10 U	1 U	--	--	--	--	--	1 U	1 U	--
Chloroform	7	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
Chloromethane	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	1 U	1 U	--
cis-1,2-Dichloroethene	5	ug/l	5 U	27	23	7.2	12	5.5	4.4	6	12	7	11	5 J
cis-1,3-Dichloropropene	0.4	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	----	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.21 J	0.1 J	--
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Methyl N-Butyl Ketone	----	ug/l	10 U	10 U	10 U	--	--	--	--	--	--	5 U	5 U	--
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Styrene (Monomer)	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Tetrachloroethene	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
Toluene	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	0.5 U	--
trans-1,2-Dichloroethene	5	ug/l	5 U	10 U	10 U	0.36 J	--	--	--	--	0.62	0.56	0.83	1 J
trans-1,3-Dichloropropene	0.4	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 U	--
Tribromomethane	----	ug/l	5 UJ	10 U	10 U	--	--	--	--	--	--	0.5 U	0.5 UJ	--
Trichloroethene	5	ug/l	5 U	10 U	10 U	0.5 U	--	--	--	--	--	1.7	0.15 J	--
Vinyl Acetate	5	ug/l	5 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Vinyl Chloride	2	ug/l	5 U	120 U	43	21	35	8	14	21	37	25	39	19

Notes:

NTSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008. Subpart 703.6: Groundwater effluent
*limitations for discharges to Class GA waters Standards.
ug/L - Micrograms Per liter
BOLD - Exceeds Detection Limit
---- No specified Standard
U - Not detected
J - Estimated Value
H - Alternate peak selection upon review
M - Sample Result is Matrix suspect
B - Compound was detected in blank
D - Measurement was made in the field
E - Extra samples were taken at composite stations
-- No Data

Exceeds NYSDEC Class GA Standard

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-20																						MW20-01	MW20-02	MW20-03	MW20-04	MW20-05	MW-21				
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
		Units/Date	9/17/2002	4/23/2003	10/1/2003	3/23/2004	9/20/2004	3/28/2005	6/28/2005	9/20/2005	11/16/2005	3/28/2006	9/13/2006	3/19/2007	9/19/2007	3/25/2008	9/24/2008	3/25/2009	9/24/2009	3/22/2010	9/22/2010	3/22/2011	4/11/2011	10/7/2011	10/17/2000	10/17/2000	10/17/2000	10/23/2000	10/23/2000	6/15/1993	7/21/1993	6/24/1999	9/27/2001	
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	114	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U	--	--	
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
2-Butanone	50	ug/l	10 U	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 J	8 J	9 J	10 U	10 U	10 U	10 U	--	10 U	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	--	--	
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	5 U	
Acetone	50	ug/l	10 U	10 U	10 U	2 U	10 U	1.4 UB	10 UB	10 U	10 U	10 U	10 U M	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	10 U	10 U	10 U	8.3 J	5.2 J	26	30	24	4 J	23	10 U	10 U	10 U	10 U
Benzene	1	ug/l	0.3 J	5 U	0.6 J	0.5 U	5 U	0.4 U	5 U	0.53 J	5 U	5 U	0.4 J	5 U	0.34 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.2 J	0.2 J	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
Bromomethane	5	ug/l	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	--	1 U	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	--	665	662	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.1 J	0.2 J	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
CFC-11	----	ug/l	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	
CFC-12	----	ug/l	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U *	5 U *	5 U	5 U *	5 U	5 U *	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	
Chlorobenzene	5	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
Chloroethane	5	ug/l	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	1 U	1 U	
Chloroform	7	ug/l	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	0.5 U	0.5 U	
Chloromethane	5	ug/l	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	10 U	10 U	--	1 U	
cis-1,2-Dichloroethene	5	ug/l	13	5 J	7	4 J	3 J	2.7 J	3.5 J	5	4.7 J	2.1 J	2.7 J	5 U	2.1 J	5 U	1.4 J	5 U	5 U	5 U	5 U	5 U	5 U	1.1 J	0.5 U	27	0.5 U	2	0.5 U	10 U	10 U	0.5 U	0.5 U	
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U	10 U	--	0.5 U	
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	119	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	1 JB	5 UB	5 UB	0.6 U	5 UB	0.41 U	0.96 U	0.91 JB	5 UB	5 U	5 U	5 U M	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	0.5 U	2 U	
Ethane	----	ug/l	--	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--																		

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-21																				MW-22												
		Location ID																																
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
		Units/Date	9/17/2002	4/23/2003	10/1/2003	3/24/2004	3/28/2005	6/28/2005	9/20/2005	11/16/2005	3/28/2006	9/14/2006	3/20/2007	9/19/2007	3/25/2008	9/24/2008	3/25/2009	9/24/2009	3/23/2010	9/23/2010	3/22/2011	6/16/1993	7/21/1993	7/21/1993	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000	11/1/2000	3/28/2001	9/18/2001	9/28/2001	
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	0.9 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.31 J	--	--	--	--	--	0.65	5 U	0.28 J	
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	0.7 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 U	
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	0.8 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	5 U	0.5 U	
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	0.4 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.65	--	--	--	--	--	0.31 J	5 U	0.56	
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.8 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.19 J	--	--	--	--	--	0.13 J	5 U	0.18 J	
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	0.6 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.19 J	--	--	--	--	--	0.13 J	5 U	0.5 U	
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17	15	16	--	--	--	--	--	--	--	--	--	
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	0.7 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 U	
2-Butanone	50	ug/l	10 U	10 U	10 U	2 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	--	--	--	--	--	--	10 U	10 UB	10 U	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U	--	--	--	--	--	--	--	--	--	
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	112	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	0.9 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	5 U	10 U	5 U	
Acetone	50	ug/l	10 U	10 U	10 U	2 U	1.4 UB	10 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	1.2 J	10 U	10 U
Benzene	1	ug/l	5 U	5 U	5 U	0.5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	5 U	0.5 U	
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	0.7 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.3 U	5 U	0.5 U	
Bromomethane	5	ug/l	5 U	5 U	5 U	3 U	1.2 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U J	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	1 U	5 U	1 UJ	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	500 U	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	60	ug/l	1 J	5 U	5 U	0.4 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 U	
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	0.6 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 U	
CFC-11	----	ug/l	--	5 U	5 U	0.6 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	--	
CFC-12	----	ug/l	--	5 U	5 U	0.7 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U *	5 U *	5 U	5 U *	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	--	
Chlorobenzene	5	ug/l	5 U	5 U	5 U	0.5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	5 U	0.5 U	
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 UJ	
Chloroethane	5	ug/l	5 U	5 U	5 U	2 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U	5 U	5 U	10 U	10 U	10 U	1 U	--	--	--	--	--	1 U	5 U	1 U	
Chloroform	7	ug/l	5 U	5 U	5 U	0.6 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	5 U	0.5 U	
Chloromethane	5	ug/l	5 U	5 U	5 U	1 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	1 U	5 U	1 U	
cis-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.7 U	0.6 U	5 U	5 U	0.84 J	0.67 J	5 U	5 U	3.1 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	17	15	16	21	25	20	11	10	21	8.7	30	18	
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	0.4 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	--	--	--	--	--	--	0.5 U	5 U	0.5 UJ	
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	1 JB	5 UB	5 UB	0.6 U	0.51 U	0.95 U	0.69 JB	5 UB	0.47 JB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.17 J	2 JB	2 U	
Ethane	----	ug/l	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethene	----	ug/l	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5	ug/l	5 U	5 U	5 U	0.5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	5 U	0.5 U	
Iron	----	ug/l	--	--	--	--	341	449	54 U	227	--	--	--	--	--	--	--	--	--															

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID		MW-22																						MW-23									
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
		Units/Date	9/28/2001	3/1/2002	4/24/2003	10/1/2003	3/22/2004	9/21/2004	3/29/2005	6/28/2005	9/21/2005	11/17/2005	3/29/2006	9/15/2006	3/20/2007	9/19/2007	3/26/2008	9/26/2008	3/24/2009	9/24/2009	3/24/2010	9/22/2010	3/24/2011	10/7/2011	3/29/2012	6/16/1993	6/16/1993	7/21/1993	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000		
1,1,1-Trichloroethane	5	ug/l	0.32 J	--	5 U	5 U	0.9 U	5 U	0.57 J	5 U	0.53 JH	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.5 U	--	--	--	--		
1,1,2,2-Tetrachloroethane	5	ug/l	0.5 U	--	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--		
1,1,2-Trichloroethane	1	ug/l	0.5 U	--	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.5 U	--	--	--	--			
1,1-Dichloroethane	5	ug/l	0.56	--	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.5 U	--	--	--	--			
1,1-Dichloroethene	5	ug/l	0.16 J	--	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	1.3	--	--	--	--			
1,2-Dichloroethane	0.6	ug/l	0.5 U	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	64	57	1000 U	38	110	26	36 J	10 J			
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	112	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35	31	1000 U	--	--	--	--	--		
1,2-Dichloropropane	1	ug/l	0.5 U	--	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
2-Butanone	50	ug/l	10 U	--	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	--	--	--	--	--			
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1000 U	--	--	--	--	--			
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
4-Methyl-2-Pentanone	5	ug/l	5 U	--	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1000 U	--	--	--	--	--			
Acetone	50	ug/l	10 UJ	--	10 U	10 U	2 U	10 U	1.4 UB	10 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.8 J	10 U	10 U	1000 U	10 U	--	--	--	--			
Benzene	1	ug/l	0.5 U	--	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.47 J	--	--	--	--			
Bromodichloromethane	50	ug/l	0.5 U	--	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
Bromomethane	5	ug/l	1 U	--	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UJ	10 U	10 U	1000 U	--	--	--	--	--			
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	500 U	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Carbon Disulfide	60	ug/l	0.5 U	--	5 U	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
Carbon Tetrachloride	5	ug/l	0.5 U	--	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
CFC-11	----	ug/l	--	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--			
CFC-12	----	ug/l	--	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U *	5 U *	5 U *	5 U *	5 U	5 U *	5 U	5 U	--	--	--	--	--	--	--	--			
Chlorobenzene	5	ug/l	0.5 U	--	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.5 U	--	--	--	--			
Chlorodibromomethane	NS	ug/l	0.5 U	--	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
Chloroethane	5	ug/l	1 U	--	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	1 U	--	--	--	--			
Chloroform	7	ug/l	0.5 U	--	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 J	4 J	1000 U	2.7	--	--	--	--			
Chloromethane	5	ug/l	1 U	--	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
cis-1,2-Dichloroethene	5	ug/l	17	11	12	22	8	8	5.9	9.1 J	19	6.6	3.9 J	9.4	5 J	25	7.3	33	12	15	6.7	24	6.8	15	4.7 J	35	31	1000 U	260	530	1800	260	300		
cis-1,3-Dichloropropene	0.4	ug/l	0.5 U	--	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	--	--	--	--	--			
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	102	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Dichloromethane	----	ug/l	2 U	--	5 UB	5 UB	0.6 U	5 UB	0.46 U	1 U	0.74 JB	5 UB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.13 J	--	--	17 J	--			
Ethane	----	ug/l	--	--	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Ethene	----	ug/l	--	--	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Ethylbenzene	5	ug/l	0.5 U	--	5 U	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1000 U	0.5 U	--	--	--	--			
Iron	----	ug/l	--	--	--	--	--	--	264	54 U	268	54 U	--	--	--	--	--	--	--	--	--</														

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-23																															
		Location ID																															
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		Units/Date	11/1/2000	3/28/2001	3/28/2001	9/18/2001	9/18/2001	9/28/2001	3/1/2002	4/24/2003	10/1/2003	3/23/2004	9/21/2004	9/21/2004	3/29/2005	3/30/2005	6/28/2005	9/21/2005	11/17/2005	3/30/2006	9/15/2006	3/21/2007	9/19/2007	3/27/2008	9/25/2008	3/24/2009	9/23/2009	3/24/2010	9/22/2010	3/24/2011	4/11/2011	4/11/2011	10/7/2011
1,1,1-Trichloroethane	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	45 U	200 U	250 U	--	40 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,1,2,2-Tetrachloroethane	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	35 U	200 U	250 U	--	40 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,1,2-Trichloroethane	1	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	40 U	200 U	250 U	--	60 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U *	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,1-Dichloroethane	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	20 U	200 U	250 U	--	60 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,1-Dichloroethene	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	40 U	200 U	250 U	--	70 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U *	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,2-Dichloroethane	0.6	ug/l	67	37 J	39	250 U	250 U	25 U	--	250 U	250 U	30 U	200 U	250 U	--	60 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U *	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	35 U	200 U	250 U	--	90 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
2-Butanone	50	ug/l	--	1000 U	500 U	500 UB	500 UB	500 U	--	500 U	500 U	80 U	400 U	500 U	--	220 U	120 U	1000 U	500 U	500 U	500 U	500 U	400 U	100 U	400 U	500 U	250 U	250 U	250 U	250 U	400 U	500 U	100 U
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	--	500 U	250 U	500 U	500 U	250 U	--	500 U	500 U	45 U	400 U	500 U	--	70 U	1000 U	1000 U	500 U	500 U	500 U	500 U	400 U	100 U	400 U	500 U	250 U	250 U	250 U	250 U	400 U	500 U	100 U
Acetone	50	ug/l	--	1000 U	500 U	500 U	500 U	500 U	--	500 U	500 U	100 U	400 U	500 U	--	140 U	160 U	1000 U	500 U	120 JB	500 U	150 J B	200 J B	100 U	400 U	500 U	10 U	250 UJ	250 U	250 U	400 U	500 U	100 U
Benzene	1	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	25 U	200 U	250 U	--	40 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Bromodichloromethane	50	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	35 U	200 U	250 U	--	40 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Bromomethane	5	ug/l	--	100 U	50 U	250 U	250 U	50 UJ	--	250 U	250 U	140 U	200 U	250 U	--	120 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 UJ	200 U	250 U	50 U	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	500 U	--	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	20 U	200 U	250 U	--	90 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U *	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Carbon Tetrachloride	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	30 U	200 U	250 U	--	100 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
CFC-11	----	ug/l	--	--	--	--	--	--	--	250 U	250 U	30 U	200 U	250 U	--	60 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U *	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
CFC-12	----	ug/l	--	--	--	--	--	--	--	250 U	250 U	35 U	200 U	250 U	--	60 U	500 U	500 U	250 U	250 U	250 U	250 U *	200 U *	50 U	200 U *	250 U *	120 U *	120 U	120 U	120 U	200 U	250 U	50 U
Chlorobenzene	5	ug/l	--	50 U	25 U	250 U	250 U	25 U	--	250 U	250 U	25 U	200 U	250 U	--	40 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Chlorodibromomethane	NS	ug/l	--	50 U	25 U	250 U	250 U	25 UJ	--	250 U	250 U	25 U	200 U	250 U	--	50 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 UJ
Chloroethane	5	ug/l	--	100 U	50 U	250 U	250 U	50 U	--	250 U	250 U	85 U	200 U	250 U	--	80 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Chloroform	7	ug/l	--	10 J	7.4 J	250 U	250 U	5.6 J	--	250 U	250 U	30 U	200 U	250 U	--	70 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
Chloromethane	5	ug/l	--	100 U	50 U	250 U	250 U	50 U	--	250 U	250 U	70 U	200 U	250 U	--	50 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U	50 U
cis-1,2-Dichloroethene	5	ug/l	430	230	280	300	250 J	250	210 J	330	340	320	120 J	200 J	--	180 J	160 J	740	170 J	190 J	200 J	150 J B	220	110	140 J	87 J	100 J	93 J	150	71 J	130 J	94 J	560
cis-1,3-Dichloropropene	0.4	ug/l	--	50 U	25 U	250 U	250 U	25 UJ	--	250 U	250 U	20 U	200 U	250 U	--	50 U	500 U	500 U	250 U	250 U	250 U	250 U	200 U	50 U	200 U	250 U	120 U	120 U	120 U	120 U	200 U	250 U</	

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-23	MW-24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID		MW-24																		MW-25																	
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
		Units/Date	3/30/2006	9/15/2006	9/15/2006	3/21/2007	3/21/2007	9/20/2007	9/20/2007	3/27/2008	9/29/2008	3/24/2009	9/23/2009	3/24/2010	9/27/2010	9/27/2010	3/23/2011	4/11/2011	10/7/2011	3/29/2012	6/16/1993	7/21/1993	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000	11/1/2000	3/28/2001	9/18/2001	9/28/2001	3/1/2002	4/24/2003						
1,1,1-Trichloroethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	34	45 J	14	23	15	16	18	24 J	21 J	12 J	8.8 J	7 J	25 U						
1,1,2,2-Tetrachloroethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U *	2500 U	2000 U	1200 U	2000 UJ	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	--	25 U	25 U	12 U	--	25 U							
1,1,2-Trichloroethane	1	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U *	1000 U *	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	0.18 J	--	--	--	--	25 U	25 U	12 U	--	25 U							
1,1-Dichloroethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	44	49 J	31	41	39	32	34	38	36	36	30	23 J	19 J						
1,1-Dichloroethene	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U *	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	17	10 U	7.2	17	14	10 J	1 J	--	12 J	10 J	4.8 J	5 J	25 U						
1,2-Dichloroethane	0.6	ug/l	2500 U	430 J	420 J	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U *	2500 U	2000 U *	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	0.5 U	--	--	--	--	25 U	25 U	12 U	--	25 U							
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2000 U	2100	--	--	--	--	--	--	--	--	--	--	--							
1,2-Dichloropropane	1	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	--	25 U	25 U	12 U	--	25 U							
2-Butanone	50	ug/l	5000 U	4000 U	5000 U	5000 U	5000 U	2000 U	2000 U	2000 U	5000 U *	5000 U	4000 U	2500 U	4000 U	4000 U	2500 U	4000 U	2000 U	2000 U	10 U	10 U	--	--	--	--	--	500 U	50 UB	250 UJ	--	50 U							
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	--	--	--	--	--	--	--	--	--	--	--							
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
4-Methyl-2-Pentanone	5	ug/l	5000 U	4000 U	5000 U	5000 U	5000 U	2000 U	2000 U	2000 U	5000 U	5000 U	4000 U	2500 U	4000 U	4000 U	2500 U	4000 U	2000 U	2000 U	10 U	10 U	--	--	--	--	--	250 U	50 U	120 U	--	50 U							
Acetone	50	ug/l	1700 JB	4000 U	1200 JB	2200 J B	1500 J B	1100 J B	870 J B	2000 U	5000 U	5000 U	4000 U *	2500 UJ	4000 U	4000 U	2500 U	4000 U	2000 U	2000 U	10 U	10 U	10 U	--	--	--	--	500 U	50 U	250 UJ	--	50 U							
Benzene	1	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	3 J	10 U	0.32 J	0.7	0.51	--	--	25 U	25 U	12 U	--	25 U							
Bromodichloromethane	50	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	25 U	25 U	12 U	--	25 U								
Bromomethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 UJ	2000 U	1200 UJ	2000 U	1000 U	1000 UJ	10 U	10 U	--	--	--	--	50 U	25 U	25 U	--	25 U								
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
Carbon Disulfide	60	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U *	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	--	25 U	25 U	12 U	--	25 U							
Carbon Tetrachloride	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	25 U	25 U	12 U	--	25 U								
CFC-11	----	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U *	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1000 U	1000 U	--	--	--	--	--	--	--	--	--	--	--	--	--	25 U						
CFC-12	----	ug/l	2500 U	2000 U	2500 U	2500 U *	2500 U *	1000 U *	1000 U *	1000 U	2500 U *	2500 U *	2000 U *	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	--	--	--	--	--	--	--	--	--	--	--	--	25 U						
Chlorobenzene	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	0.5 U	--	--	--	--	25 U	25 U	12 U	--	25 U							
Chlorodibromomethane	NS	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U *	1200 U	2000 U	2000 U	1200 U	2000 U	1000 UJ	1000 U	10 U	10 U	--	--	--	--	25 U	25 U	12 U	--	25 U								
Chloroethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	0.22 J	--	--	--	--	50 U	25 U	25 U	--	25 U							
Chloroform	7	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	0.5 U	--	--	--	--	25 U	25 U	12 U	--	25 U							
Chloromethane	5	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	50 U	25 U	25 U	--	25 U								
cis-1,2-Dichloroethene	5	ug/l	32000	33000	31000	36000	29000 B	29000	26000	23000	30000	34000	23000	27000	19000	20000	29000	22000	18000	21000 21000	2000	2100	800	1200	850	930	970	1300	840	710	690	490	440						
cis-1,3-Dichloropropene	0.4	ug/l	2500 U	2000 U	2500 U	2500 U	2500 U	1000 U	1000 U	1000 U	2500 U	2500 U	2000 U	1200 U	2000 U	2000 U	1200 U	2000 U	1000 U	1000 U	10 U	10 U	--	--	--	--	25 U	25 U</											

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-25																															
		Location ID																															
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		Units/Date	10/1/2003	3/22/2004	9/22/2004	3/29/2005	6/28/2005	9/19/2005	11/17/2005	3/29/2006	9/14/2006	3/20/2007	9/19/2007	3/26/2008	3/26/2008	9/26/2008	9/26/2008	3/24/2009	3/24/2009	9/24/2009	9/24/2009	3/22/2010	3/23/2010	9/22/2010	3/24/2011	3/24/2011	4/11/2011	10/7/2011	10/7/2011	3/29/2012	3/29/2012	6/15/1993	7/21/1993
1,1,1-Trichloroethane	5	ug/l	25 U	4 U	25 U	6.4 JH	50 U	7.8 JH	5.3 JM	25 U	50 U	50 U	10 U	10 U	20 U	7.3 J	50 U	5 U	50 U	50 U	50 U	3.9 J	20 U	25 U	10 U	20 U	4.1 J	10 U	10 U	2.6 J	25 U	3 J	4 J
1,1,2,2-Tetrachloroethane	5	ug/l	25 U	4 U	25 U	4 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
1,1,2-Trichloroethane	1	ug/l	25 U	4 U	25 U	6 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U *	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
1,1-Dichloroethane	5	ug/l	31	27	23 J	22 J	23 J	27 J	22 J	17 J	26 J	14 J	18	19	19 J	32 J	35 J	5 U	30 J	32 J	30 J	23	23	30	26	25	22 J	25	27	16 J	13 J	10 U	3 J
1,1-Dichloroethene	5	ug/l	9 J	6 J	5 J	7 U	50 U	8.2 J	6.1 J	25 U	7.5 J	50 U	10 U	3 J	3.1 J	10 J	11 J	5 U *	10 J	10 J	8.8 J	4.7 J	5.3 J	6.5 J	6.7 J	5 J	5.8 J	5.7 J	6.5 J	2.6 J	25 U	4 J	3 J
1,2-Dichloroethane	0.6	ug/l	25 U	3 U	25 U	6 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U *	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	98	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	180	180
1,2-Dichloropropane	1	ug/l	25 U	4 U	25 U	9 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
2-Butanone	50	ug/l	50 U	8 U	50 U	20 JB	100 U	100 U	50 U	50 U	100 U	100 U	20 U	20 U	40 U	100 U	100 U	10 U	100 U	100 U	100 U	20 U	40 U	50 U	20 U	40 U	50 U	20 U	20 U	10 U	25 U	10 U	10 U
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	88	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	50 U	4 U	50 U	7 U	100 U	100 U	50 U	50 U	100 U	100 U	20 U	20 U	40 U	100 U	100 U	10 U	100 U	100 U	100 U	20 U	40 U	50 U	20 U	40 U	50 U	20 U	20 U	10 U	50 U	10 U	10 U
Acetone	50	ug/l	50 U	10 U	50 U	14 U	100 UB	100 U	50 U	50 U	31 JB	29 J	5 J B	20 U	40 U	100 U	100 U	10 U	100 U	100 U *	100 U	20 UJ	40 UJ	50 U	20 U	40 U	18 J	20 U	20 U	10 U	50 U	10 U	10 U
Benzene	1	ug/l	25 U	2 U	25 U	6.6 J	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Bromodichloromethane	50	ug/l	25 U	4 U	25 U	4 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Bromomethane	5	ug/l	25 U	14 U	25 U	12 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 UJ	20 UJ	25 U	10 U	10 U	5 U	25 UJ	10 U	10 U
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	500 U	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	25 U	2 U	25 U	9 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U *	50 U *	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Carbon Tetrachloride	5	ug/l	25 U	3 U	25 U	10 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
CFC-11	----	ug/l	25 U	3 U	25 U	6 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	--	--
CFC-12	----	ug/l	25 U	4 U	25 U	6 U	50 U	50 U	25 U	25 U	50 U	50 U *	10 U *	10 U *	20 U	50 U *	50 U *	5 U *	50 U *	50 U *	50 U *	--	--	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	--	--
Chlorobenzene	5	ug/l	25 U	2 U	25 U	23 J	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Chlorodibromomethane	NS	ug/l	25 U	2 U	25 U	5 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U *	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 UJ	10 UJ	5 U	25 U	10 U	10 U
Chloroethane	5	ug/l	25 U	8 U	25 U	8 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Chloroform	7	ug/l	25 U	3 U	25 U	7 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Chloromethane	5	ug/l	25 U	7 U	25 U	5 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
cis-1,2-Dichloroethene	5	ug/l	720	520	500	400	410 J	590	480	380	650	290	360	330	350	680	800	13	490	560	530	380	380	540	370	360	300	310	350	230	190	180	180
cis-1,3-Dichloropropene	0.4	ug/l	25 U	2 U	25 U	5 U	50 U	50 U	25 U	25 U	50 U	50 U	10 U	10 U	20 U	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	25 U	10 U	10 U	5 U	25 U	10 U	10 U
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	104	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	----	ug/l	5 JB	3 U	8 JB	12 U	6.1 U	18 JB	25 UB	7.3 JB	5.7 JB	9.4 JB	1.9 JB	10 U	1.5 J	50 U	50 U	5 U	50 U	50 U	50 U	10 U	20 U	25 U	10 U	20 U	7.8 JB	10 U	10 U	5 U	25 U	10 U	10 U
Ethane	----	ug/l	--	--	--	4 U	4 U																										

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-26																														
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
		Units/Date	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000	11/1/2000	3/28/2001	9/18/2001	9/28/2001	3/1/2002	4/25/2003	9/29/2003	3/23/2004	9/21/2004	3/29/2005	6/27/2005	9/21/2005	11/17/2005	3/29/2006	9/14/2006	3/20/2007	9/19/2007	3/26/2008	9/29/2008	3/25/2009	9/25/2009	3/25/2010	9/22/2010	3/23/2011	10/7/2011	3/29/2012
1,1,1-Trichloroethane	5	ug/l	5 U	--	--	--	--	--	1.9	20 U	1	--	10 U	20 U	2 U	10 U	0.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
1,1,2,2-Tetrachloroethane	5	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	0.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U *	10 U	20 U	5 U	10 U	10 U	10 U	5 U
1,1,2-Trichloroethane	1	ug/l	5 U	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	2 U	10 U	1.2 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U *	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
1,1-Dichloroethane	5	ug/l	1.6 J	--	--	--	--	--	3.7	4 J	3.1	--	3 J	20 U	0.8 U	10 U	1.2 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	2.3 J	1.6 J
1,1-Dichloroethene	5	ug/l	1.8 J	--	--	--	--	--	3.3	4 J	2	--	3 J	5 J	4 J	10 U	1.8 J	2.9 J	20 U	2.8 J	20 U	2.9 J	2 J	1.8 J	1.5 J	20 U	10 U	20 U	1.2 J	2 J	10 U	2.9 J	1.9 J
1,2-Dichloroethane	0.6	ug/l	5 U	1.1	0.73	--	--	--	1.1	1.3	20 U	1.6 J	--	10 U	33	1 U	10 U	1.2 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	0.5 J
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	119	--	--	--	--	--	--
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	1	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	1.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
2-Butanone	50	ug/l	--	--	--	--	--	--	10 U	6 JB	10 U	--	20 U	40 U	3 U	20 U	2.4 UB	40 U	40 U	40 U	40 U	40 U	20 U	20 U	10 U	40 U *	20 U	40 U	10 U	20 U	20 U	20 U	10 U
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-Pentanone	5	ug/l	--	--	--	--	--	--	5 U	40 U	5 U	--	20 U	40 U	2 U	20 U	1.4 U	40 U	40 U	40 U	40 U	40 U	20 U	20 U	10 U	40 U	20 U	40 U	10 U	20 U	20 U	20 U	10 U
Acetone	50	ug/l	100 U	--	--	--	--	--	1.3 J	40 U	10 U	--	20 U	40 U	4 U	20 U	2.8 UB	40 UB	40 U	40 U	40 U	10 JB	6.8 J	7.2 J M B	10 U	40 U	20 U *	40 U	10 UJ	20 U	20 U	20 U	4 J
Benzene	1	ug/l	5 U	--	--	--	--	--	0.13 J	20 U	0.5 U	--	10 U	20 U	1 U	10 U	0.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Bromodichloromethane	50	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	0.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Bromomethane	5	ug/l	--	--	--	--	--	--	1 U	20 U	1 UJ	--	10 U	20 U	5 U	10 U	2.4 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U J	20 U	5 U	10 U	10 UJ	10 U	5 U
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	506	637	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	60	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	0.8 U	10 U	1.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Carbon Tetrachloride	5	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	2 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
CFC-11	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	10 U	20 U	1 U	10 U	1.2 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
CFC-12	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	10 U	20 U	1 U	10 U	1.2 U	20 U	20 U	20 U	20 U	10 U *	10 U *	5 U *	20 U *	10 U	20 U *	5 U	10 U	10 U	10 U	5 U
Chlorobenzene	5	ug/l	5 U	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	0.8 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Chlorodibromomethane	NS	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 UJ	--	10 U	20 U	1 U	10 U	1 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 UJ	5 U
Chloroethane	5	ug/l	10 U	--	--	--	--	--	1 U	20 U	1 U	--	10 U	20 U	3 U	10 U	1.6 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U *	20 U	5 U	10 U	10 U	10 U	5 U
Chloroform	7	ug/l	5 U	--	--	--	--	--	0.5 U	20 U	0.5 U	--	10 U	20 U	1 U	10 U	1.4 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Chloromethane	5	ug/l	--	--	--	--	--	--	1 U	20 U	1 U	--	10 U	20 U	3 U	10 U	1 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
cis-1,2-Dichloroethene	5	ug/l	270	280	270	280	360	410 E	190	420	270	310	330	400	380	180	150	300 J	290	220	230	310	200	220	190	320	200	240	140	250	160	270	170
cis-1,3-Dichloropropene	0.4	ug/l	--	--	--	--	--	--	0.5 U	20 U	0.5 UJ	--	10 U	20 U	0.8 U	10 U	1 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	5 U	20 U	10 U	20 U	5 U	10 U	10 U	10 U	5 U
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	119	--	--	--	--	--	--
Dichloromethane	----	ug/l	5 U	--	--	--	--	--	0.19 J	5 JB	0.11 J	--	10 UB	5 JB	1 U	10 UB	2.2 U	3.6 JB	6.1 JB	20 UB	4.1 JB	2.9 JB	1.7 J B	1.4 J B	5 U	6 J B	5 U	20 U	5 U	10 U	10 U	10 U	5 U
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--										

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

[illegible]

Notes:	
NTSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008, Subpart 703.6: Groundwater effluent limitations for discharges to Class GA waters Standards.	
ug/L - Micrograms Per liter	
BOLD - Exceeds Detection Limit	
---- No specified Standard	
U - Not detected	
J - Estimated Value	
H - Alternate peak selection upon review	
M - Sample Result is Matrix suspect	
B - Compound was detected in blank	
D - Measurement was made in the field	
E - Extra samples were taken at composite stations	
-- No Data	
	Exceeds NYSDEC Class GA Standard

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID		MW-28																				MW-29											
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
		Units/Date	9/17/2002	4/23/2003	9/30/2003	3/23/2004	9/20/2004	3/29/2005	6/28/2005	9/20/2005	11/16/2005	3/29/2006	9/14/2006	3/20/2007	9/19/2007	3/26/2008	9/26/2008	3/24/2009	9/24/2009	3/24/2010	9/27/2010	3/25/2011	10/7/2011	6/16/1993	7/21/1993	6/24/1999	9/1/1999	12/1/1999	3/1/2000	6/1/2000	11/1/2000	9/28/2001	3/1/2002		
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	0.9 U	5 U	0.7 J	5 U	5 U	0.57 JM	5 U	0.83 JH	5 U	5 U	5 U	5 U	5 U *	0.73 J	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--		
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 UJ	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--		
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--			
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	1.1	--	--	--	--	1.2 J	1.4	1 J			
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	69	0.5 U	--	--	--	--	--	0.5 U	--			
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--			
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	116	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	10 U	--	--	--	--	--	--	--	--			
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--			
2-Butanone	50	ug/l	10 U	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	10 U	--			
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	--	--	--	--	--	--	--	--	--			
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	24	10 U	--	--	--	--	--	--	5 U	--			
Acetone	50	ug/l	10 U	10 U	10 U	2 U	10 U	1.4 UB	10 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	5.1 J	38	10 U	10 U	--	--	--	--	--	--	10 U	--		
Benzene	1	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 J	10 U	3.9	3.7	3.6	3.4	3.6	3.3 J	4.7	--			
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--			
Bromomethane	5	ug/l	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	10 U	10 U	--	--	--	--	--	--	1 UJ	--			
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon Dioxide	----	ug/l	--	--	--	--	--	500 U	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--			
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--			
CFC-11	----	ug/l	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--			
CFC-12	----	ug/l	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U *	5 U *	5 U *	5 U *	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--			
Chlorobenzene	5	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--			
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 UJ	--			
Chloroethane	5	ug/l	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 J	10 U	1 U	--	--	--	--	--	1 U	--			
Chloroform	7	ug/l	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--			
Chloromethane	5	ug/l	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	1 U	--			
cis-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.1 J	84	69	18	15	21	22	20	19	11	9			
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 UJ	--			
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	104	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Dichloromethane	----	ug/l	0.9 JB	5 UB	0.9 JB	0.6 U	5 UB	0.45 U	1.1 U	0.91 JB	5 UB	5 U	5 U	0.45 J B	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	2 U	--			
Ethane	----	ug/l	--	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Ethene	----	ug/l	--	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Ethylbenzene	5	ug/l	5 U	5 U	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.53	--	--	--	--	--	0.24 J	--			
Iron	----	ug/l	--	--	--	--	--	54 U	54 U	434	2430	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Methane	----	ug/l	--	--	--	--	--	2 U	2 U	2 U	2 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Methyl N-Butyl Ketone	----	ug/l	10 U	10 U	10 U	0.7 U	10 U	0.8 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	5 UJ	--			
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Styrene (Monomer)	5	ug/l	5 U	5 U	5 U	0.7 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 U	--			
Tetrachloroethene	5	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.5 U	--	--	--	--	--	0.5 U	--			
Toluene	5	ug/l	5 U	5 U	5 U	0.4 U	5 U	0.3 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	250	10 U	190	19	65	350	340	150	7.4	9 J			
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Total Xylenes	5	ug/l	5 U	5 U	5 U	0.9 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 J	10 U	2.2	--	--	--	--	--	1.4	--			
trans-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	0.51	--	--	--	--	--	0.4	--			
trans-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 UJ	--			
Tribromomethane	----	ug/l	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	0.5 UJ	--			
Trichloroethene	5	ug/l	16	5 J	20	12	24	7.6	9.7	11	7.3	7.4	15	5.8	16	3.1 J	11	5.2	10	5 J	12	4.2 J	2.9 J	10 U	10 U	0.5 U	--	--	--	--	0.2 J	--			
Vinyl Acetate	5	ug/l	--	5 U	5 U	2 U	5 U	0.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U	--	--	--	--	--	--	--	--			
Vinyl Chloride	2	ug/l	5 U	5 U	5 U	0.6 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	51	31	14	12	--	14	13	8.1 J	4.2	3 J			

Notes:
 NYSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008, Subpart 703.6: Groundwater effluent limitations for discharges to Class GA waters Standards.
 ug/L - Micrograms Per liter
 BOLD - Exceeds Detection Limit
 ---- No specified Standard
 U - Not detected
 J - Estimated Value
 H - Alternate peak selection upon review
 M - Sample Result is Matrix suspect
 B - Compound was detected in blank
 D - Measurement was made in the field
 E - Extra samples were taken at composite stations
 -- No Data

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-29																								MW-8		MW-BR-01					
		Location ID		Depth (Feet)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		Units/Date	9/17/2002	4/23/2003	10/1/2003	3/24/2004	3/29/2005	6/27/2005	9/20/2005	11/16/2005	3/29/2006	9/14/2006	3/21/2007	9/18/2007	3/26/2008	9/24/2008	3/24/2009	9/24/2009	3/22/2010	9/21/2010	3/22/2011	4/11/2011	10/7/2011	11/18/2011	3/29/2012	6/16/1993	6/24/1999	7/16/2001	9/28/2001	9/19/2002	9/19/2002	4/25/2003	9/30/2003
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	0.9 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	22	3.8	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	0.7 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	0.8 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	0.4 U	0.96 J	1.1 J	1.1 J	1.1 J	5 U	1.1 J	1 J	1.2 JM	5 U	5 U	1.2 J	1.1 J	5 U	5 U	5 U	5 U	10 U	5 U	10 U	1.4	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	0.8 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	0.6 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	105	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10 U	--	--	--	--	--	--	--	
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	0.7 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
2-Butanone	50	ug/l	10 U	10 U	10 U	2 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	--	13	10 U	10 UB	10 UB	10 U	10 U	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	0.9 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	--	5 U	5 U	10 U	10 U	10 U	10 U	
Acetone	50	ug/l	10 U	10 U	10 U	2 U	1.4 UB	10 UB	10 U	10 U	10 U	10 U	3.5 JB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	6.7 J	10 U	20 U	10 U	10 U	10 U	10 U	8 J	8 J	10 U	10 U	
Benzene	1	ug/l	3 J	5 U	3 J	4 J	0.4 U	1.8 J	5 U	5 U	5 U	3.6 J	5 U	4.7 J	5 U	1.3 J	5 U	0.97 J	5 U	0.86 J	5 U	5 U	10 U	5 U	10 U	0.57	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	0.7 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
Bromomethane	5	ug/l	5 U	5 U	5 U	3 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	1 U	1 U	5 U	5 U	5 U	5 U	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	500 U	500 U	500 U	500 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	0.4 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	0.6 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	
CFC-11	----	ug/l	--	5 U	5 U	0.6 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	--	--	--	--	5 U	5 U	
CFC-12	----	ug/l	--	5 U	5 U	0.7 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U *	5 U *	5 U *	5 U *	5 U	5 U *	5 U	5 U	10 U	5 U	--	--	--	--	--	--	5 U	5 U	
Chlorobenzene	5	ug/l	5 U	5 U	5 U	0.5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	
Chloroethane	5	ug/l	5 U	5 U	5 U	2 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	
Chloroform	7	ug/l	5 U	5 U	5 U	0.6 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
Chloromethane	5	ug/l	5 U	5 U	5 U	1 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	1 U	1 U	5 U	5 U	5 U	5 U	
cis-1,2-Dichloroethene	5	ug/l	12	7	15	24	6.8	11 J	8.1	11	6.3	9.9	9.7 B	9.6	8.4	7.9	11	8.1	8.3	9.4	19	20	170	140	61	10 U	0.5 U	0.5 U	5 U	5 U	5 U	5 U	
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	0.4 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	--	0.5 U	0.5 U	5 U	5 U	5 U	5 U		
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	0.9 JB	5 UB	5 UB	0.6 U	0.4 UB	0.98 JB	0.72 JB	5 UB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	10 U	0.5 U	2 U	2 U	5 UB	0.6 JB	5 UB	5 UB	
Ethane	----	ug/l	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethene	----	ug/l	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5	ug/l	5 U	5 U	5 U	0.5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	10 U										

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-BR-01																	MW-BR-02																
		Location ID																																	
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Units/Date	3/23/2004	9/21/2004	3/29/2005	9/21/2005	3/29/2006	9/14/2006	3/21/2007	9/19/2007	3/26/2008	9/25/2008	3/27/2009	9/24/2009	3/24/2010	9/22/2010	3/22/2011	10/7/2011	7/17/2001	9/28/2001	9/19/2002	4/25/2003	10/2/2003	3/24/2004	9/21/2004	3/28/2005	9/20/2005	3/29/2006	9/14/2006	3/21/2007	9/19/2007	3/26/2008	9/25/2008				
1,1,1-Trichloroethane	5	ug/l	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,1,2,2-Tetrachloroethane	5	ug/l	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,1,2-Trichloroethane	1	ug/l	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,1-Dichloroethane	5	ug/l	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,1-Dichloroethene	5	ug/l	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,2-Dichloroethane	0.6	ug/l	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U				
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
1,2-Dichloropropane	1	ug/l	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U				
2-Butanone	50	ug/l	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	10 U	10 U	2 J	10 U	10 UB	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U				
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
4-Methyl-2-Pentanone	5	ug/l	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	5 U	5 U	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U				
Acetone	50	ug/l	2 U	10 U	1.4 U	10 U	10 U	10 U	10 U	10 U	2.8 J B	10 U	10 U	1.1 J	10 U	10 U	10 UJ	4.3 J	10 U	16 U	10 U	10 U	10 U	2 U	10 U	1.4 U	10 U	10 U	10 U	3.9 J B	10 U				
Benzene	1	ug/l	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.2 J	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U				
Bromodichloromethane	50	ug/l	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U				
Bromomethane	5	ug/l	3 U	3 J	1.2 U	5 U	5 U	1.4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	1 U	1 UJ	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U				
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Carbon Disulfide	60	ug/l	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U				
Carbon Tetrachloride	5	ug/l	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U				
CFC-11	----	ug/l	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U				
CFC-12	----	ug/l	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U *	5 U	5 U *	5 U *	5 U	5 U *	5 U	5 U *	5 U	--	--	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U *	5 U	5 U *				
Chlorobenzene	5	ug/l	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U				
Chlorodibromomethane	NS	ug/l	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 UJ	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U				
Chloroethane	5	ug/l	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U				
Chloroform	7	ug/l	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U				
Chloromethane	5	ug/l	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U				
cis-1,2-Dichloroethene	5	ug/l	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U				
cis-1,3-Dichloropropene	0.4	ug/l	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 UJ	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U				
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Dichloromethane	----	ug/l	0.6 U	5 UB	0.4 UB	0.6 JB	5 U	5 U	0.41 J B	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	2 U	5 UB	5 UB	5 UB	0.6 U	5 UB	0.4 U	0.9 JB	5 U	5 U	5 U	5 U	5 U	5 U			
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Ethylbenzene	5	ug/l	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U				
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--																							

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID				MW-BR-02				MW-BR-03																MW-BR-04							
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
		Units/Date	3/27/2009	9/24/2009	3/24/2010	9/22/2010	3/24/2011	4/11/2011	10/7/2011	7/18/2001	9/28/2001	9/19/2002	4/23/2003	10/1/2003	3/24/2004	9/21/2004	3/29/2005	9/20/2005	3/30/2006	9/14/2006	3/21/2007	9/20/2007	3/26/2008	9/25/2008	3/27/2009	9/24/2009	3/24/2010	9/22/2010	3/24/2011	7/17/2001	9/29/2001	9/17/2002	4/25/2003
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
1,2-Dichloroethane-d4	----	ug/l	72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	--	--	
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
2-Butanone	50	ug/l	10 U *	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UB	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Bromofluorobenzene	----	ug/l	88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	10 U	10 U	
Acetone	50	ug/l	10 U	10 U	10 UJ	10 U	10 UJ	6.6 J	10 U	10 U	10 U	10 U	10 U	10 U	2 U	10 U	1.4 U	10 U	10 U	10 U	3.6 JB	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	5 J	10 U
Benzene	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	0.39 J	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 J	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Bromomethane	5	ug/l	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	1 U	1 UJ	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	1 U	1 U	5 U	5 U	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
CFC-11	----	ug/l	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U *	5 U	5 U	--	--	--	5 U	
CFC-12	----	ug/l	5 U	5 U *	5 U	5 U *	5 U	5 U	5 U	--	--	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U *	5 U *	5 U	5 U *	5 U	5 U *	5 U	5 U *	5 U	--	--	--	5 U
Chlorobenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.6 J	5 U	
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	0.1 J	0.5 UJ	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Chloroethane	5	ug/l	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	1 U	1 U	5 U	5 U	
Chloroform	7	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 J	0.5 U	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Chloromethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	
cis-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 UJ	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	
Dibromofluoromethane	----	ug/l	77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	0.16 J	0.5 JB	5 UB	5 UB	0.6 U	5 UB	0.48 U	0.82 JB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	0.18 J	1 JB	5 UB	
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U</																								

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	MW-BR-04																		MW-BR-05																			
		Location ID																																					
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Units/Date	9/30/2003	3/24/2004	9/21/2004	3/30/2005	9/19/2005	3/29/2006	9/14/2006	3/20/2007	9/20/2007	3/27/2008	9/25/2008	3/25/2009	9/25/2009	3/22/2010	9/23/2010	3/25/2011	10/7/2011	7/17/2001	9/29/2001	9/16/2002	4/25/2003	9/30/2003	3/24/2004	9/21/2004	3/30/2005	9/19/2005	3/29/2006	9/14/2006	3/20/2007	9/20/2007	3/27/2008								
1,1,1-Trichloroethane	5	ug/l	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U								
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U								
1,1,2-Trichloroethane	1	ug/l	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U								
1,1-Dichloroethane	5	ug/l	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U								
1,1-Dichloroethene	5	ug/l	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U								
1,2-Dichloroethane	0.6	ug/l	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U								
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	116	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
1,2-Dichloropropane	1	ug/l	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U								
2-Butanone	50	ug/l	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U *	10 U	10 U	10 U	10 U	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U								
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
4-Methyl-2-Pentanone	5	ug/l	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U								
Acetone	50	ug/l	10 U	2 U	10 U	1.4 U	10 U	10 U	10 U	10 U	10 U	1.5 J	10 U	10 UJ	10 U	10 U	4.3 J	10 U	10 UJ	10 U	10 U	10 U	2 U	10 U	1.4 U	10 U	10 U	10 U	2 J B	10 U	10 U								
Benzene	1	ug/l	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U								
Bromodichloromethane	50	ug/l	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U								
Bromomethane	5	ug/l	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U	1 U	1 U	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U								
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Carbon Disulfide	60	ug/l	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U								
Carbon Tetrachloride	5	ug/l	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U								
CFC-11	----	ug/l	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U *	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U *								
CFC-12	----	ug/l	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U *	5 U *	5 U	5 U	5 U	--	--	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U *	5 U								
Chlorobenzene	5	ug/l	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	0.6 J	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U								
Chlorodibromomethane	NS	ug/l	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	0.5 U	0.25 J	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
Chloroethane	5	ug/l	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	0.5 U	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U								
Chloroform	7	ug/l	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	1 U	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U								
Chloromethane	5	ug/l	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	0.5 U	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
cis-1,2-Dichloroethene	5	ug/l	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3	3.7	1 J	1 J	5 U	3 J	0.8 J	4.3 J	6.6	3.6 J	6	1 J	7.2	0.83 J								
cis-1,3-Dichloropropene	0.4	ug/l	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	104	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Dichloromethane	----	ug/l	5 UB	0.6 U	5 UB	0.4 UB	0.98 JB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	2 U	0.5 U	1 JB	5 UB	5 UB	0.6 U	5 UB	0.4 UB	1 JB	5 U	5 U	0.45 J	5 U	5 U								
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Ethylbenzene	5	ug/l	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U								
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Methyl N-Butyl Ketone	----	ug/l	10 U	0.7 U	10 U	0.8 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	10 U	10 U	10 U	0.7 U	10 U	0.8 U	10 U	10 U	10 U	10 U	10 U	10 U								
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Styrene (Monomer)	5	ug/l	5 U	0.7 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.2 J	5 U	5 U	5 U	0.7 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
Tetrachloroethene	5	ug/l	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
Toluene	5	ug/l	5 U	0.4 U	5 U	0.3 UB	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.4 U	5 U	0.3 UB	5 U	5 U	5 U	5 U	5 U	5 U								
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								
Total Xylenes	5	ug/l	5 U	0.9 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.9 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U								
trans-1,2-Dichloroethene	5	ug/l	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U								
trans-1,3-Dichloropropene	0.4	ug/l	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U								
Tribromomethane	----	ug/l	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 UJ	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U								
Trichloroethene	5	ug/l	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.41 J	5 U	5 U	5 U	0.8 U	5 U	0.9 J	1.7 J	0.91 J	1.3 J	5 U	1.2 J	5 U								
Vinyl Acetate	5	ug/l	5 U	2 U	5 U	0.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	2 U	5 U	0.2 U	5 U	5 U	5 U	5 U	5 U	5 U								
Vinyl Chloride	2	ug/l	5 U	0.6 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	5 U	5 U	5 U	0.6 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U								

Notes:	
NTSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008, Subpart 703.6: Groundwater effluent limitations for discharges to Class GA waters Standards.	
ug/L - Micrograms Per liter	
BOLD - Exceeds Detection Limit	
---- No specified Standard	
U - Not detected	
J - Estimated Value	
H - Alternate peak selection upon review	
M - Sample Result is Matrix suspect	
B - Compound was detected in blank	
D - Measurement was made in the field	
E - Extra samples were taken at composite stations	
-- No Data	
	Exceeds NYSDEC Class GA Standard

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-BR-05												MW-BR-06																											
		Depth (Feet)	--	--	--	--	--	--	--	27	37	46.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
		Units/Date	9/25/2008	3/25/2009	9/25/2009	3/22/2010	9/23/2010	3/25/2011	4/11/2011	10/7/2011	10/7/2011	10/7/2011	3/29/2012	7/17/2001	9/29/2001	3/1/2002	9/18/2002	4/26/2003	9/29/2003	3/24/2004	9/21/2004	3/29/2005	6/27/2005	9/20/2005	11/17/2005	3/29/2006	9/14/2006	3/19/2007	9/20/2007	3/25/2008	9/24/2008	3/25/2009	9/25/2009									
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.9 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.8 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.4 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.8 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
1,2-Dichloroethane-d4	----	ug/l	--	113	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	96	--									
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.7 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
2-Butanone	50	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 UB	10 U	10 U	2 U	10 U	1.2 UB	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U									
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
4-Bromofluorobenzene	----	ug/l	--	114	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	--									
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	--	10 U	10 U	10 U	0.9 U	10 U	0.7 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U									
Acetone	50	ug/l	10 U	10 U *	10 U	10 UJ	10 U	10 U	6.7 J	10 U	6.9 J	10 U	5.3 J	10 U	10 UJ	--	10 U	10 U	10 U	2 U	10 U	1.4 UB	10 U	10 U	10 U	10 U	10 U	10 U	1.9 JB	10 U	10 U	10 U *	10 U									
Benzene	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.7 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Bromomethane	5	ug/l	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ	1 U	1 U	--	5 U	5 U	5 U	3 U	5 U	1.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U									
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	0.8 J	5 U	0.4 U	5 U	0.9 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.6 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
CFC-11	----	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	0.6 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
CFC-12	----	ug/l	5 U *	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	5 U	5 U	0.7 U	5 U	0.6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U *	5 U *	5 U	5 U *									
Chlorobenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.5 U	5 U	0.4 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Chloroethane	5	ug/l	5 U	5 U *	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	1 U	--	5 U	5 U	5 U	2 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U *	5 U	5 U									
Chloroform	7	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.6 U	5 U	0.7 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Chloromethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 U	0.21 J	--	5 U	5 U	5 U	1 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
cis-1,2-Dichloroethene	5	ug/l	5 U	7.2	5 U	3.2 J	7.5	7.9	5 U	5 U	1.6 J	5 U	1.1 J	5	1.6	--	2 J	0.7 J	1 J	0.7 U	5 U	1.2 J	1 J	5 U	2 J	5 U	5 U	5 U	2.2 J	0.7 J	2.2 J	2.8 J	2.4 J									
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U										
Dibromofluoromethane	----	ug/l	--	117	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	101	--									
Dichloromethane	----	ug/l	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	2 U	2 U	--	2 JB	5 UB	5 UB	0.6 U	5 UB	0.46 U	2.7 J	0.74 JB	5 UB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4 U	4 U	4 U	4 U	--	--	--	--	--	--	--	--	--									
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3 U	3 U	3 U	3 U	--	--	--	--	--	--	--	--	--										
Ethylbenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.5 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54 U	54 U	313	54 U	--	--	--	--	--	--	--	--	--									
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2 U	2 U	2 U	3	--	--	--	--	--	--	--	--	--									
Methyl N-Butyl Ketone	----	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 U	5 U	--	10 U	10 U	10 U	0.7 U	10 U	0.8 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U									
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
Styrene (Monomer)	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.7 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Tetrachloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	0.5 J	5 U	0.4 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Toluene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.4 U	5 U	0.3 UB	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Toluene-d8	----	ug/l	--	119	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--									
Total Xylenes	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.9 U	5 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
trans-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
trans-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 U	--	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Tribromomethane	----	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.5 U	0.5 UJ	--	5 U	5 U	5 U	0.8 U	5 U	0.8 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U									
Trichloroethene	5	ug/l	5 U	1.2 J	5 U	5 U	1.2 J	1 J	5 U	5 U	5 U	5 U	48 D	27	10	28 U	14	19	11	16	13	9.4	6.6	19	11	4.8 J	6.6	27	9.8	15	13	15										
Vinyl Acetate	5	ug/l	5 U																																							

Notes:
 NYSDEC Class GA Standard - New York State Department of Environmental Conservation, January 17, 2008, Subpart 703.6: Groundwater effluent limitations for discharges to Class GA waters Standards.
 ug/L - Micrograms Per liter
 BOLD - Exceeds Detection Limit
 ---- No specified Standard
 U - Not detected
 J - Estimated Value
 H - Alternate peak selection upon review
 M - Sample Result is Matrix suspect
 B - Compound was detected in blank
 D - Measurement was made in the field
 E - Extra samples were taken at composite stations
 -- No Data

Appendix E
Historical Groundwater VOC Concentrations
Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Class GA Standard [ug/l]	Location ID	MW-BR-06							OB-DGW-01		OB-DGW-02		OB-DGW-03	OB-DGW-04		OB-SGW-01	OB-SGW-02	OB-SGW-03	
		Depth (Feet)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		Units/Date	3/25/2010	9/22/2010	3/22/2011	4/11/2011	10/7/2011	3/29/2012	10/20/2000	10/23/2000	10/20/2000	10/23/2000	10/19/2000	10/20/2000	10/30/2000	10/19/2000	10/19/2000	10/20/2000	10/24/2000	
1,1,1-Trichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	1	25 U	0.5 U	0.5 U	25 U	2	--	
1,1,2,2-Tetrachloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
1,1,2-Trichloroethane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
1,1-Dichloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	5	25 U	0.5 U	0.5 U	25 U	1	--	
1,1-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	2	25 U	0.5 U	0.5 U	25 U	0.9	--	
1,2-Dichloroethane	0.6	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	99	--	0.5 U	190	0.5 U	0.5 U	25 U	0.5 U	--	
1,2-Dichloroethane-d4	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloroethene, Total	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2-Dichloropropane	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
2-Butanone	50	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	500 U	--	100 U	--	7 J	500 U	10 U	2 J	500 U	10 U	--	
2-Chloroethyl Vinyl Ether	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Bromofluorobenzene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4-Methyl-2-Pentanone	5	ug/l	10 U	10 U	10 UJ	10 U	10 U	10 U	250 U	--	50 U	--	5 U	250 U	5 U	5 U	250 U	5 U	--	
Acetone	50	ug/l	10 UJ	10 U	10 U	8.9 J	4.5 J	4.8 J	500 U	--	100 U	--	25	500 U	10 U	8 J	500 U	9 J	--	
Benzene	1	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.7	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Bromodichloromethane	50	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Bromomethane	5	ug/l	5 U	5 U	5 UJ	5 U	5 U	5 U	50 U	--	10 U	--	1 U	50 U	1 U	1 U	50 U	1 U	--	
Calcium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Dioxide	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Carbon Disulfide	60	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Carbon Tetrachloride	5	ug/l	5 U	5 U	5 U	5 U *	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
CFC-11	----	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	
CFC-12	----	ug/l	5 U	5 U *	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	
Chlorobenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Chlorodibromomethane	NS	ug/l	5 U	5 U	5 U	5 U *	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Chloroethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	50 U	--	10 U	--	1 U	50 U	1 U	1 U	50 U	1 U	--	
Chloroform	7	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Chloromethane	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	50 U	--	10 U	--	1	50 U	1 U	1 U	50 U	1 U	--	
cis-1,2-Dichloroethene	5	ug/l	2.6 J	4 J	6.1	6.9	12	9.2	44	--	140	--	390	1400	0.5 U	0.5 U	820	200	--	
cis-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Dibromofluoromethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dichloromethane	----	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	100 U	--	20 U	--	2 U	100 U	2 U	2 U	100 U	2 U	--	
Ethane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethene	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Iron	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Manganese	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Methane	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Methyl N-Butyl Ketone	----	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	250 U	--	50 U	--	5 U	250 U	5 U	5 U	250 U	5 U	--	
Potassium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sodium	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Styrene (Monomer)	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Tetrachloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.3 J	25 U	0.5 U	0.5 U	25 U	0.3 J	--	
Toluene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	4	25 U	0.2 J	0.2 J	25 U	0.1 J	--	
Toluene-d8	----	ug/l	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total Xylenes	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.3 J	25 U	0.5 U	0.4 J	25 U	0.5 U	--	
trans-1,2-Dichloroethene	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	2	25 U	0.5 U	0.5 U	25 U	2	--	
trans-1,3-Dichloropropene	0.4	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Tribromomethane	----	ug/l	5 U	5 U	5 UJ	5 U	5 U	5 U	25 U	--	5 U	--	0.5 U	25 U	0.5 U	0.5 U	25 U	0.5 U	--	
Trichloroethene	5	ug/l	9.8	12	11	12	18	10	2400	--	30	--	53	260	10	0.3 J	40	85	--	
Vinyl Acetate	5	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--	--	--	--	--	--	
Vinyl Chloride	2	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	50 U	--	45	--	84	220	1 U	1 U	190	18	--	

Notes:
NTSDEC Class GA Standard - New York State Department of Environmental
Conservation. January 17, 2008. Subpart 703.6: Groundwater effluent
*limitations for discharges to Class GA waters Standards.
ug/L - Micrograms Per liter
BOLD - Exceeds Detection Limit
---- No specified Standard
U - Not detected
J - Estimated Value
H - Alternate peak selection upon review
M - Sample Result is Matrix suspect
B - Compound was detected in blank
D - Measurement was made in the field
E - Extra samples were taken at composite stations
-- No Data
Exceeds NYSDEC Class GA Standard



Appendix F

Historical Outfall Soil and Sediment
Analytical Results

Appendix F-1
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Standards [ppb]	NYSDEC Protection of Ecological Resources Standard [ppb]	Location ID	B3-01	HO1-01	HO1-02A	HO1-02B	HO2-01	HO2-02A	HO2-02B	ITO-01	ITO-02A	ITO-02B
			Depth (ft)	0-0.5	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1
			Units/Date	10/24/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000
1,1,1-Trichloroethane	1,000,000 ^c	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1,2,2-Tetrachloroethane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1,2-Trichloroethane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1-Dichloroethane	480,000	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,1-Dichloroethene	1,000,000 ^c	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,2-Dichloroethane	60,000	10,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
1,2-Dichloropropane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
2-Butanone (MEK)	1,000,000 ^c	100,000 ^a	ug/kg	20 U	11 U	4 J	13 U	21 U	13 U	14 U	12 U	12 U	12 U
2-Hexanone	----	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
4-Methyl-2-Pentanone (MIBK)	----	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Acetone	1,000,000 ^c	2,200	ug/kg	5 J	4 J	14 U	3 J	21 U	13 U	14 U	12 U	12 U	12 U
Benzene	89,000	70,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Bromodichloromethane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Tribromomethane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Bromomethane	----	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Carbon Disulfide	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Carbon Tetrachloride	74,000	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chlorobenzene	1,000,000 ^c	40,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chloroethane	----	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Chloroform	700,000	12,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chloromethane	----	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
cis-1,2-Dichloroethene	1,000,000 ^c	----	ug/kg	1 J	3 U	4 U	3 U	5 U	3 U	1 J	3 U	3 U	3 U
cis-1,3-Dichloropropene	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Chlorodibromomethane	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Ethylbenzene	780,000	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Dichloromethane	----	----	ug/kg	1 J	1 J	4 U	1 J	5 U	3 U	4 U	3 U	3 U	3 U
Styrene (Monomer)	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Tetrachloroethene	300,000	2,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Toluene	1,000,000 ^c	36,000	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
trans-1,2-Dichloroethene	1,000,000 ^c	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
trans-1,3-Dichloropropene	----	----	ug/kg	5 U	3 U	4 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Trichloroethene	400,000	2,000	ug/kg	6	3 U	4 U	1 J	5 U	2 J	6	3 U	3 U	3 U
Vinyl Chloride	27,000	----	ug/kg	10 U	5 U	7 U	6 U	10 U	7 U	7 U	6 U	6 U	6 U
Total Xylenes	1,000,000 ^c	260	ug/kg	5 U	3 U	4 U	1 J	5 U	3 U	4 U	3 U	3 U	3 U

Notes:

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006. Subpart 375-6: Remedial Program Soil Cleanup Objectives.

---- Limits not provided for specific COC in the NYSDEC Standards

c - The SCO's for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3

Exceeds the NYSDEC Industrial Soil Standards

ug/kg - Micrograms per Kilogram

ppb - Parts per Billion

U- Not Detected

J- Estimated below reporting limit

**Appendix F-2
Historical Outfall Soil and Sediment Sampling Analytical Results**

**Former Philips Display Components Facility
Seneca Falls, New York**

Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Location ID	HO1-01	HO1-02A	HO1-02B	HO2-01	HO2-02A	HO2-02B	HO3-01	HO4-01	HO5-01	HO6/7-01	ITO-01	ITO-02A	ITO-02B
			Depth (ft)	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1
			Units/Date	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000	11/2/2000
Aluminum	----	----	mg/kg	6480	10800	9130	6410	7150	10200	9100	15400	12800	17900	11700	11700	12500
Antimony	----	----	mg/kg	0.24 J	0.32 J	0.4 J	0.4 U	1.1 J	0.41 J	0.21 U	0.87 J	0.39 J	0.29 U	0.23 U	0.22 U	0.61 J
Arsenic	16 ^f	13	mg/kg	3.7	4.5	4.2	3	4.3	4.6	2.7	3.5	4.3	4.8	3	3.4	2.9
Barium	10000 ^d	433	mg/kg	36.2	95.2	51.1	55.4	56.1	104	94	430	99.8	122	23.5	26.9	21.4
Beryllium	2700	10	mg/kg	0.47 J	0.47 J	0.47 J	0.33 J	0.37 J	0.45 J	0.44 J	0.67 J	0.64 J	0.91 J	0.64 J	0.64 J	0.65 J
Cadmium	60	4	mg/kg	1.4	254	2.4	63.5	3	250	27	82.8	545	93.2	0.079 J	0.12 J	0.032 U
Calcium	***	***	mg/kg	46600	24200	26100	33300	27700	36200	56400	41700	27700	4700	47600	43900	61200
Chromium	800	41	mg/kg	8.7	23	3.9	11.6	12.1	23.1	14.2	56.5	30.3	23.8	21.7	21.5	22.2
Cobalt	----	----	mg/kg	5.5	6 J	0.6	3.9 J	5.5 J	6.7 J	5.2 J	7.6	8.2	7.3 J	6 J	6	5.5 J
Copper	270	50	mg/kg	13.8	34.8	30.7	17.6	25.8	35.4	11.6	20.4	21.4	93.9	14.2	13.9	13.5
Fluoride (F-, Anion)	----	----	mg/kg	1.4	4.7	1.7	2.1	1.3	6.1	4.9	5.7	5.7	2.7	2.2	2.8	3.3
Iron	***	***	mg/kg	17500	16400	17200	11100	14700	15600	13000	17200	17300	22400	16100	16000	15000
Lead	400	63	mg/kg	19.1	52.4	36.2	22.8	29.4	57.7	36.5	32.2	18.9	125	35.1	51	20.3
Magnesium	***	***	mg/kg	16000	8300	10900	8060	10400	8560	23600	31300	15300	4280	33300	30600	40900
Manganese	10000 ^d	1600	mg/kg	567	354	391	267	503	322	297	160	436	517	189	200	181
Mercury	5.7 ^f	0.18	mg/kg	0.031 U	0.054 J	0.12 J	0.059 U	0.037 U	0.045 J	0.071 J	0.07 J	0.05 J	0.3	0.035 U	0.033 J	0.033 U
Nickel	10000 ^d	30	mg/kg	8.9	23.1	13.4	11	13.2	24.8	11.2	24.5	16.6	17.4	19.1	18.3	18
Percent Solids	----	----	mg/kg							--	--	--	--			
Potassium	***	***	mg/kg	1330	2690	1490	1760	1360	2620	3150	5390	3820	2430	3820	3990	4290
Selenium	6800	3.9	mg/kg	0.4 U	0.52 U	0.48 U	0.77 U	0.49 U	0.7 J	0.4 U	0.44 U	0.46 U	0.59 J	0.46 U	0.43 U	0.43 U
Silver	6800	2	mg/kg	0.082 U	1 J	0.096 U	0.16 U	0.098 U	1.3 J	0.082 U	0.09 U	0.094 U	0.11 U	0.093 U	0.088 U	0.087 U
Sodium	***	***	mg/kg	165	166	147	382	174	187	173	249	215	98.9 J	265	260	294
Thallium	----	----	mg/kg	0.54 U	0.69 U	0.63 U	1 U	0.64 U	0.7 U	0.53 U	0.59 U	0.61 U	0.89 J	0.6 U	0.57 U	0.57 U
Vanadium	----	----	mg/kg	20.4	22.2	20.7	14	17.4	21.6	18.6	37.7	67.4	44.8	20	19.8	20.5
Zinc	10000 ^d	109	mg/kg	51.5	900	78.1	207	85.3	792	115	324	1560	511	88.4	80.7	47.9

Notes

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

- Both sets of standards referenced in the Table are found in the above document in section 6.8

---- Limits not provided for specific COC in the NYSDEC Standards

*** - Essential nutrients are categorically eliminated as COPC

d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3

f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC Industrial Soil Standards

Bold

Exceeds the NYSDEC Protection of Ecological Resources Standards

U- Not Detected

J- Estimated below reporting limit

B- Compound was detected in blank

N- Spike recovery exceeds control limits

mg/kg - Milligrams per Kilogram

ppm - Parts per Million

* - Duplicate analysis not within control limits.

**Appendix F-2
Historical Outfall Soil and Sediment Sampling Analytical Results**

**Former Philips Display Components Facility
Seneca Falls, New York**

Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Location ID	H01-SS-03	H01-SS-04	H01-SS-04	H01-SS-05	H01-SS-05	H01-SS-06	H01-SS-06	H01-SS-07	H02-SS-03	H02-SS-03	H02-SS-04	H02-SS-05	H02-SS-05	H02-SS-06	H02-SS-07	H03-SS-02	H03-SS-03	H03-SS-03	H03-SS-04	
			Depth (ft)	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0.5-1.0
			Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004
Aluminum	----	----	mg/kg	7040	4760	7260	6510	5740	10800	5920	5750	5610	5530	5560	5290 EJ	6360	5800	6410	8610	7790 EJ	6370	10800 EJ	
Antimony	----	----	mg/kg	1.7 UNJ	1.4 UNJ	1.8 UNJ	1.6 UNJ	1.6 UNJ	1.7 UNJ	1.8 UNJ	1.4 UNJ	1.9 UNJ	1.9 UNJ	3.1 UNJ	2 UNJ	2.5 UNJ	1.6 UNJ	1.3 UNJ	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.5 UNJ	
Arsenic	16 ^f	13	mg/kg	4.2 B	2.6 B	5.5 B	3.6 B	5.3 B	5.7 B	3.1 B	4.3 B	4.2 B	3.5 B	4.1 B	5.2 BJ	4.8 B	4.8 B	3.9 B	7 B	6.1 B	6 B	6.9 B	
Barium	10000 ^d	433	mg/kg	55.3	33.4	44.5	52.4	55.5	87.6	46	44.1	85.4	62.3	103	134	124	90.8	51.4	98.2	99	81.4	128	
Beryllium	2700	10	mg/kg	0.76 U	0.63 U	0.77 U	0.69 U	0.7 U	0.73 U	0.78 U	0.63 U	0.83 U	0.83 U	1.3 U	0.9 U	1.1 U	0.71 U	0.58 U	0.6 U	0.68 U	0.77 U	0.68 U	
Cadmium	60	4	mg/kg	2.4 B	1.4 B	1.7 B	1.4 U	2.6 B	3.9 B	1.7 B	1.4 B	46.6	18.5	60.5	111 *	70.9	89.6	21.6	21.3	53.2 *	37.2	43.7 *	
Calcium	***	***	mg/kg	33500	31500	46700	36000	29700	44400	32500	29600	58200	84400	89200	48400 J	82100	47100	48300	66600	54000 J	104000	32500	
Chromium	800	41	mg/kg	11.9 UNJ	7.7 UNJ	11.4 UNJ	9.4 UNJ	10.8 UNJ	16.1 UNJ	8.8 UNJ	8.5 UNJ	18.9 UNJ	13.2 UNJ	16.2 UNJ	19.5 UJ	16.4 UNJ	17 UNJ	10.2 UNJ	31 UNJ	13.3 U	11 UNJ	18.5 U	
Cobalt	----	----	mg/kg	6.8	5.1	7.7	7	7	8.7	6	6.8	6.1	5.8	6	6.6	7.2	6.4	5.9	7.7	6.8	5.2	9.6	
Copper	270	50	mg/kg	22.8	14.5	21.7	19.2	48.7	53.3	20	16.9	52.7	32	49.9	50.3 *J	47.4	35.4	23.4	101	120 *J	70.6	77.3 *	
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	***	***	mg/kg	13800	9390	16800	13000	17500	21100	11200	12100	17000	12400	13100	18200	15400	14600	13300	25400	18100	14900	24000	
Lead	400	63	mg/kg	49.3	22	25.4	20.3	39	39.6	24.4	23.4	56.4	37.8	51.9	62.1 *J	57.4	64.6	31.8	82	69.9 *J	78.2	102 *J	
Magnesium	***	***	mg/kg	11800	9900	15100	13200	12100	16800	13200	12000	14200	16700	13500	11300	13000	12800	15700	27200	12500	10600	13400	
Manganese	10000 ^d	1600	mg/kg	323	259	496	673	468	710	492	510	440	598	780	1490	1150	625	533	614	516	390	757	
Mercury	5.7 ^f	0.18	mg/kg	0.06 B	0.037 B	0.039 B	0.042 B	0.057	0.072	0.052 B	0.04 B	0.063	0.038 B	0.057 B	0.069	0.07 B	0.087	0.044	0.12	0.074	0.079	0.092	
Nickel	10000 ^d	30	mg/kg	14.8	9.8	17	13.4	13.3	20	12.2	11.4	15.6	14.1	24.1	23.7 *NJ	21.2	21.9	14.3	45.8	29.3 *NJ	26.6	40.5 *NJ	
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Potassium	***	***	mg/kg	997	636	886	928	845	1630	852	672	878	818	975	864	1160	919	1000	1540	1320	1270	1770	
Selenium	6800	3.9	mg/kg	2.4 U	2 U	2.5 U	2.2 U	2.2 U	2.3 U	2.5 U	2 U	2.6 U	2.7 U	4.3 U	2.9 U	3.5 U	2.3 U	1.8 U	1.9 U	2.2 U	2.5 U	2.2 U	
Silver	6800	2	mg/kg	0.49 U	0.4 U	0.49 U	0.44 U	0.45 U	0.47 U	0.5 U	0.41 U	0.53 U	0.53 U	0.86 U	0.57 U	0.7 U	0.78 B	0.37 U	0.38 U	0.44 U	0.49 U	0.43 U	
Sodium	***	***	mg/kg	179 NJ	164 NJ	167 NJ	139 NJ	122 BNJ	185 NJ	111 BNJ	164 NJ	215 NJ	223 NJ	311 NJ	252 NJ	292 NJ	125 BNJ	100 BNJ	133 NJ	114 BNJ	155 NJ	97.7 BNJ	
Thallium	----	----	mg/kg	3 U	2.5 U	3 U	2.7 U	2.8 U	2.9 U	3.1 U	2.5 U	3.3 U	3.3 U	5.3 U	3.6 UNJ	4.3 U	2.8 U	2.3 U	2.4 U	2.7 UNJ	3 U	2.7 UNJ	
Vanadium	----	----	mg/kg	15.4	10.7	16	12.5	14.5	21.2	12.1	12.3	12.9	11.3	13.3	15.4	19	13.4	12.1	18.4	19.8	13.3	22.9	
Zinc	10000 ^d	109	mg/kg	86.6	42.2	62.5	46.4	89.4	111	53.6	44.6	281	133	288	411 *J	321	386	145	241	223 *J	187	286 *	

Notes

New York State Department of Environmental Conservation (NYSDEC), December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

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f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department an

survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Bold

U - Not Detected

J - Estimated below reporting limit

B - Compound was detected in blank

N - Spike recovery exceeds control limits

mg/kg - Milligrams per Kilogram

ppm - Parts per Million

* - Duplicate analysis not within control limits.

Appendix F-2
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Location ID	H03-SS-04	H03-SS-05	H03-SS-06	H04-SS-02	H04-SS-02	H04-SS-03	H04-SS-04	H04-SS-05	H04-SS-06	H04-SS-06	H04-SS-06	H05-SS-02	H05-SS-03	H05-SS-04	H05-SS-04	H05-SS-05	H05-SS-06	H05-SS-07	H06-SS-00	H06-SS-01	
			Depth (ft)	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1.0
			Units/Date	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/4/2004	8/5/2004	8/5/2004
Aluminum	----	----	mg/kg	6380	9400 EJ	13600	6110 EJ	7000 EJ	7930 EJ	7650 EJ	12100 EJ	14100	13700 EJ	9310 EJ	7110 EJ	9690 EJ	4920 EJ	7100 EJ	7530 EJ	9240 EJ	9190 EJ	5250	6050	
Antimony	----	----	mg/kg	1.7 UNJ	1.5 UNJ	1.7 UNJ	1.1 UNJ	1.3 UNJ	1.3 UNJ	1 UNJ	1.5 UNJ	1.7 UNJ	1.2 UNJ	1.3 UNJ	1.2 UNJ	1.2 UNJ	1.4 UNJ	1.2 UNJ	1.4 UNJ	1.6 UNJ	1.8 UNJ	1.4 UJ	1.4 UJ	
Arsenic	16 ^f	13	mg/kg	5.7 B	6.8 B	7.2 B	2.6 B	3.2 B	3.1 B	2.4 B	5.5 B	6.3 B	5.4 B	3.7 B	6.1 BJ	5.9 BJ	2.4 BJ	3.8 B	5.7 BJ	3.7 BJ	3.7 BJ	3 B	3 B	
Barium	10000 ^d	433	mg/kg	83.5	119	763	32.1	208	74.5	198	126	153	148	254	67.5	83.9	44.2	85.4	72	68	76	65.6	50.6	
Beryllium	2700	10	mg/kg	0.74 U	0.67 U	0.76 U	0.49 U	0.56 U	0.56 U	0.46 U	0.66 U	0.77 B	0.72 B	0.56 U	0.52 U	0.51 B	0.63 U	0.54 U	0.61 U	0.69 U	0.77 U	0.63 U	0.62 U	
Cadmium	60	4	mg/kg	34.5	27.4 *	226	15.1 *	682 *	159 *	265 *	163 *	210	217 *	505 *	65.9 *	56.8 *	49.5 *	115 *	104 *	48 *	59.7 *	13.6 J	1.2 UJ	
Calcium	***	***	mg/kg	54600	55000	28500	68100 J	60900 J	65700 J	35200 J	12600 J	5870	7540 J	53800 J	42900 J	36500 J	53800 J	82500 J	33800 J	33400 J	52100 J	107000	70600	
Chromium	800	41	mg/kg	14.8 UNJ	16.1 U	20.5 UNJ	10.1 U	14.7 U	12.3 U	13.3 U	18.9 U	19.3 UNJ	19 U	15 U	11.7 UJ	15 UJ	7.4 UJ	16.6 U	13.5 UJ	13.8 UJ	16 UJ	8.1 U	8.9 U	
Cobalt	----	----	mg/kg	6.3	8.2	8.9	5.3	6.8	6.6	5.1	9.5	10.4	11.9	9	8.4	8.8	5.6	7.6	8.6	8.6	8.8	4.9	5.7	
Copper	270	50	mg/kg	75	63.3 *	83.1	18.7 *J	28.1 *J	20.4 *J	21.7 *J	33.9 *J	32.1	31.2 *J	18.8 *J	21.7 *J	24 *J	16.6 *J	94.3 *J	52.1 *J	24.3 *J	22.7 *J	39.9 J	21.8 J	
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	***	***	mg/kg	17700	21400	25900	11100	12200	13100	12200	23400	25200	23800	16700	13800	18100	10100	13100	19000	17500	17400	10400	12300	
Lead	400	63	mg/kg	105	75.2 *J	142	6.5 B*J	46 *J	13.7 *J	22.3 *J	16.5 *J	15.1	17.2 *J	30.1 *J	19.7 *J	12.6 *J	10 B*J	14.4 *J	17.6 *J	14.5 *J	16.4 *J	13	7.4 B	
Magnesium	***	***	mg/kg	11800	14400	9180	26200	19500	23500	13000	9980	5580	5990	21800	11000	12700	19200	8740	7580	17000	17100	20600	24900	
Manganese	10000 ^d	1600	mg/kg	488	622	588	377	566	399	205	409	406	420	459	414	593	476	424	380	392	439	347	431	
Mercury	5.7 ⁱ	0.18	mg/kg	0.084	0.069	0.14	0.023 B	0.12	0.041 B	0.055	0.04 B	0.072	0.078	0.54	0.02 B	0.025 B	0.024 B	0.025 B	0.032 B	0.036 B	0.035 B	0.025 BNJ	0.016 UNJ	
Nickel	10000 ^d	30	mg/kg	32.6	31.8 *NJ	61.6	12 *NJ	14.9 *NJ	14.2 *NJ	13.9 *NJ	23.7 *NJ	24.5	24.6 *NJ	17.3 *NJ	14.9 *NJ	18.8 *NJ	9.8 *NJ	13.9 *NJ	16.8 *NJ	18.1 *NJ	19.3 *NJ	11.2	13	
Percent Solids	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Potassium	***	***	mg/kg	1190	1590	2040	1490	1460	2040	1240	1630	1640	1650	1720	1010	1300	692	1070	961	1510	1470	1030	1220	
Selenium	6800	3.9	mg/kg	2.4 U	2.2 U	2.4 U	1.6 U	1.8 U	1.8 U	1.5 U	2.1 U	2.4 U	1.7 U	1.8 U	1.7 U	1.6 U	2 U	1.7 U	2 U	2.2 U	2.5 U	2 UJ	2 UJ	
Silver	6800	2	mg/kg	0.47 U	0.43 U	0.49 U	0.31 U	0.36 U	0.36 U	0.29 U	0.42 U	0.49 U	0.34 U	0.36 U	0.33 U	0.33 U	0.4 U	0.35 U	0.39 U	0.44 U	0.49 U	0.4 U	0.4 U	
Sodium	***	***	mg/kg	106 BNJ	128 NJ	157 NJ	155 NJ	139 NJ	152 NJ	99 NJ	76.3 BNJ	58.3 BNJ	61.4 BNJ	139 NJ	93.5 BNJ	96.2 NJ	96.2 BNJ	96.7 BNJ	73.2 BNJ	90.8 BNJ	108 BNJ	145 J	136 J	
Thallium	----	----	mg/kg	2.9 U	2.7 UNJ	3 U	1.9 UNJ	2.2 UNJ	2.2 UNJ	1.8 UNJ	2.6 UNJ	3 U	2.1 UNJ	2.2 UNJ	2.1 UNJ	2 UNJ	2.5 UNJ	2.1 UNJ	2.4 UNJ	2.7 UNJ	3 UNJ	2.5 U	2.4 U	
Vanadium	----	----	mg/kg	15.8	19.5	25.9	11.6	19.7	15.8	15.5	22.5	22.3	22.3	18.7	15.5	18.3	10.2	13.7	19.5	17.8	17.8	11.2	11.8	
Zinc	10000 ^d	109	mg/kg	317	180 *	653	73.9 *J	1830 *J	427 *J	910 *J	731 *J	442	513 *J	1400 *J	295 *J	244 *J	209 *J	354 *J	423 *J	252 *J	248 *J	178	40.6 J	

Notes

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

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Exceeds the NYSDEC Industrial Soil Standards

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U- Not Detected

J- Estimated below reporting limit

B- Compound was detected in blank

N- Spike recovery exceeds control limits

mg/kg - Milligrams per Kilogram

ppm - Parts per Million

- Duplicate analysis not within control limits.

**Appendix F-2
Historical Outfall Soil and Sediment Sampling Analytical Results**

**Former Philips Display Components Facility
Seneca Falls, New York**

Parameter	NYSDEC Industrial Soil Cleanup Objective [ppm]	Protection of Ecological Resources SCO [ppm]	Location ID	H06-SS-01	H06-SS-01	H06-SS-02	H06-SS-03	H06-SS-03	H06-SS-04	H07-SS-01	H07-SS-02	H07-SS-02	H07-SS-03	H07-SS-04	H07-SS-05	H07-SS-05
			Depth (ft)	0.5-1.0	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5	0-0.5	0-0.5	0.5-1.0	0-0.5
			Units/Date	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004	8/5/2004
Aluminum	----	----	mg/kg	5270	6120	7240	7100	7240	8550	10700	6810	19900	10900	8800	6470	6440
Antimony	----	----	mg/kg	1.4 UJ	1.4 UJ	1.4 UJ	1.3 UJ	1.5 UJ	1.5 UJ	1.7 UJ	1.2 UJ	1.8 UJ	1.6 UJ	1.6 UJ	1.2 UJ	1.3 UJ
Arsenic	16 ^f	13	mg/kg	2.8 B	3.1 B	3.6 B	3.6 B	3.2 B	4.1 B	4.3 B	3.9 B	4.7 B	4.1 B	2.7 B	3.2 B	3.2 B
Barium	10000 ^d	433	mg/kg	43.5	49.8	59.7	62.7	63.8	69.6	94.5	67.4	228	122	89.9	46.5	44.5
Beryllium	2700	10	mg/kg	0.59 U	0.62 U	0.62 U	0.56 U	0.67 U	0.65 U	0.76 U	0.54 U	1.2 B	0.68 U	0.69 U	0.54 U	0.56 U
Cadmium	60	4	mg/kg	1.2 UJ	9 J	9.2 J	3.7 J	8.8 J	14.5 J	93.3	1.1 UJ	13.4 J	1.4 UJ	1.4 BJ	1.1 BJ	1.1 UJ
Calcium	***	***	mg/kg	60100	66400	74300	70600	75700	67500	35700 J	73800	15700	80500	71100	71900	76900
Chromium	800	41	mg/kg	8.2 U	9.5 U	12 U	10.4 U	11.4 U	12.7 U	15.4 U	10.2 U	24.7 U	14.6 U	12.3 U	9.8 U	9.9 U
Cobalt	----	----	mg/kg	5.7	5.6	6.5	6.3	6	7	8.9	6.7	12.9	8.1	6.2	5.8	6
Copper	270	50	mg/kg	17.9 J	30.6 J	24.6 J	22.6 J	49.5 J	48 J	59.7 J	21.2 J	30 J	28 J	22 J	22.6 J	22.7 J
Fluoride (F-, Anion)	----	----	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	***	***	mg/kg	11000	12000	13900	13900	13600	15400	18800	14100	29000	18100	16100	12500	12400
Lead	400	63	mg/kg	5.8 B	12.7	8 B	8.1 B	17.8	16.9	36.2	6.8 B	15.4	9 B	7.7 B	6.9 B	8 B
Magnesium	***	***	mg/kg	21900	26100	22600	25200	28000	27000	13700	32800	11100	22500	21900	26200	29100
Manganese	10000 ^d	1600	mg/kg	364	387	428	394	423	408	382	719	972	596	312	415	383
Mercury	5.7 ^f	0.18	mg/kg	0.013 BNJ	0.033 BNJ	0.018 BNJ	0.019 BNJ	0.075 NJ	0.029 BNJ	1.2 NJ	0.043 BNJ	0.21 NJ	0.041 BNJ	0.034 BNJ	0.065 NJ	0.049 NJ
Nickel	10000 ^d	30	mg/kg	12.1	12.7	14.8	15.2	14.5	15.7	18.6	14.5	29.1	19.7	16.5	14.1	14.1
Percent Solids	----	----	mg/kg	--	87.1	--	--	--	--	--	--	--	--	--	--	--
Potassium	***	***	mg/kg	968	1120	1350	1370	1440	1620	1300	1140	2110	1690	1530	1290	1200
Selenium	6800	3.9	mg/kg	1.9 UJ	2 UJ	2 UJ	1.8 UJ	2.1 UJ	2.1 UJ	2.4 UJ	1.7 UJ	2.5 UJ	2.2 UJ	2.2 UJ	1.7 UJ	1.8 UJ
Silver	6800	2	mg/kg	0.38 U	0.4 U	0.39 U	0.36 U	0.43 U	0.42 U	0.49 U	0.34 U	0.51 U	0.44 U	0.44 U	0.35 U	0.36 U
Sodium	***	***	mg/kg	115 J	131 J	131 J	136 J	139 J	164 J	91.1 BJ	143 J	92.2 BJ	147 J	127 BJ	136 J	140 J
Thallium	----	----	mg/kg	2.4 U	2.5 U	2.4 U	2.2 U	2.6 U	2.6 U	3 U	2.1 U	3.1 U	2.7 U	2.7 U	2.2 U	2.2 U
Vanadium	----	----	mg/kg	10.2	13.4	13.6	12.8	15.6	16.7	26.1	13.1	30.1	18	16.4	11.7	11.6
Zinc	10000 ^d	109	mg/kg	31	156 J	73.4	57.9	154	187	692	39.2	156	50.3	44.2	45.7	43.3

Notes

New York State Department of Environmental Conservation (NYSDEC). December 14, 2006.

Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).

- Both sets of standards referenced in the Table are found in the above document in section 6.8

---- Limits not provided for specific COC in the NYSDEC Standards

*** - Essential nutrients are categorically eliminated as COPC

d - The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3

f - For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

j - This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts)

Exceeds the NYSDEC Industrial Soil Standards

Bold Exceeds the NYSDEC Protection of Ecological Resources Standards

U- Not Detected

J- Estimated below reporting limit

B- Compound was detected in blank

N- Spike recovery exceeds control limits

mg/kg - Milligrams per Kilogram

ppm - Parts per Million

* - Duplicate analysis not within control limits.

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 1						Transect 2						Transect 3							
Parameter	Location ID	T1-SD1	T1-SD1	T1-SD1	T1-SD2	T1-SD3	T1-SD4	T2-SD1	T2-SD1	T2-SD1	T2-SD2	T2-SD3	T2-SD4	T3-SD1	T3-SD1	T3-SD1	T3-SD2	T3-SD3	T3-SD4	T3-SD5	
	Depth (feet)	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0-0.5	
	Units/Date	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/20/05	05/21/05	05/21/05	05/21/05	05/20/05	05/20/05	05/20/05	05/20/05
Aluminum	mg/kg	8450	7590	8760	3910	3620	6130	7000	7510	8220	6370	3640	3370	12900	11200	11900	3520	3380	5830	7040	
Arsenic	mg/kg	3.41 J	3.86 BN	4.08 BN	2.41 BN	2.62 BN	3.82 BN	4.83 BN	3.94 BN	4.46 BN	3.47 BN	2.98 BN	2.69 BN	13.3 N	6.65 BN	9.35 BN	2.03 BN	2.63 BN	2.75 BN	5.36 BN	
Cadmium	mg/kg	1.08 UJ	1.39 U	1.43 U	7.1	1.25 U	2.2 B	5.69	1.83 B	1.18 U	1.5 B	1.24 U	1.27 U	1.14 U	1.11 U	1.25 U	1.31 U	1.26 U	1.62 U	1.83 U	
Chromium	mg/kg	17.8 J	15.7 N	19.7 N	9.48 N	9.09 N	13.4 N	17.8 N	16 N	20.2 N	13.4 N	9.07 N	7.55 N	28.1	25.6	26.5	7.5 N	9.07 N	12 N	15.8 N	
Copper	mg/kg	15.7 J	13.7	36.2	34.1	45	41.7	20.7	17.9	20.1	43.4	27.4	28	35.9	29.3	96.3	23.5	20.9	54.6	37.9	
Iron	mg/kg	15400	16000	16300	8790	8750	12800	15400	15300	16000	13300	12300	8280	26000	20700	25300	7860	7830	14600	15500	
Manganese	mg/kg	314	300	212	165	177	191	192	230	225	208	199	142	258	263	289	144	155	218	236	
Mercury	mg/kg	0.0421	0.0598	0.114	0.0901	0.1	0.253	0.0621	0.0395 B	0.0471	0.186	0.0624 B	0.108	0.218 N	0.0805 N	0.163 N	0.162	0.0936	0.205	0.18	
Nickel	mg/kg	24.7 J	22.6	26.6	12.9	11.3	15.8	19.5	20.9	21.4	18.1	10.5	11.1	56.5	38.9	40.4	11.3	10.1	14.2	20.9	
Zinc	mg/kg	50.2 J	42	22.2 B	156	140	216	214	96.5	84.8	226	179	119	52.4	32.3	29.6	124	117	174	153	
SEM Cadmium	umole/g	0.0026 J			0.011 B	0.0098 B	0.0054 B	0.0077 B			0.0068 B	0.0026 B	0.005 B	0.0033 J			0.0057 B	0.0047 B	0.013 B	0.0065 B	
SEM Copper	umole/g	0.18 J			0.25	0.29	0.34	0.1 B			0.19	0.16 B	0.29	0.14 J			0.14 B	0.14 B	0.52	0.02 U	
SEM Lead	umole/g	0.052 J			0.12	0.17	0.14	0.051			0.1	0.083	0.14	0.044 J			0.12	0.12	0.18	0.18	
SEM Nickel	umole/g	0.066 J			0.15 B	0.092 B	0.095 B	0.065 B			0.058 B	0.063 B	0.078 B	0.11 J			0.065 B	0.07 B	0.12 B	0.11 B	
SEM Zinc	umole/g	0.3 J			2	2.8	2.5	0.85			1.5	1.3	1.9	0.6 J			1.9	2.3	3.5	3.8	
Acid Volatile Sulfide	umole/g	0.58 UJ			22	11.9	31	11			6.1	5.6	21.9	0.75 J			11.7	13.8	46.5	47.4	
SEM/AVS Ratio	unitless	0			0.11	0.29	0.1	0.1			0.31	0.29	0.11	1.2			0.19	0.19	0.092	0.086	
Sulfate	mg/kg	51.1	90.1	56.9	127	151	78	723	466	446	376	28	104	292	130	131	61.3	38.5	129	285	
Total Sulfide	mg/kg	34.4 U	33.2 U	36.2 U	858	51.3	523	41.2 U	89.9	43.5	435	681	923	25.9 J	9.1 U	11.6	294	692	1150	3090	
Ammonia	mg/kg	4.3	4.5	3.5	60	60	150	32	21	23	150	110	97	23	8	5.3	100	140	240	130	
TOC	mg/kg	39600	44600	48000	36800	45500	63300	40300	46700	49400	66000	58100	93200	39500	45600	40300	33000	56700	106000	67800	
Clay	%	0.1		11.1	4.2	4.5	12.2	0.8		4.2	9.3	6.5	8.8	0.4		11	8.5	7.8	14.7	5.1	
Silt	%	4.5		41.6	55.1	22.5	41.4	4.8		14.1	52.1	20.3	10.5	10.2		14.6	18.5	11	29	21.4	
Fine Sand	%	0.4		15	38.8	70.2	34.6	0.8		3.4	35.6	70.8	77.2	0.8		7.2	70.6	77	46.6	6.2	
Medium Sand	%	0.2		22.1	1.7	2.7	3.7	2.1		9.7	2.9	2.2	3.5	2.3		14.3	2.3	4	9.7	7.4	
Coarse Sand	%	0.3		5.3	0.1	0.1	0.6	4.4		14.4	0.1	0.2	0	6.4		13.6	0	0.1	0.1	14.5	
Gravel	%	94.5		4.8	0	0	7.5	87.1		54.3	0	0	0	79.8		39.2	0	0	0	45.3	
% Moisture	%	11.8	11.6	14.1	34	37.2	46.5	14.7	10.8	12.7	48.6	45.2	37.2	17.7	13.6	15.2	36.9	41.8	52.9	37.5	
% Solids	%	88.2	88.4	85.9	66	62.8	53.5	85.3	89.2	87.3	51.4	54.8	62.8	82.3	86.4	84.8	63.1	58.2	47.1	62.5	
Specific Gravity		2.654		2.758	2.648	2.629	2.225	2.712		2.758	2.653	2.616	2.615	2.721		2.772	2.658	2.626	2.647	2.198	

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 4						Transect 5								
Parameter	Location ID	T4-SD1	T4-SD2	T4-SD2	T4-SD2	T4-SD3	T4-SD4	T5-SD1	T5-SD1	T5-SD2	T5-SD2	T5-SD2	T5-SD2	Dup. X-1	T5-SD3	T5-SD4
	Depth (feet)	0-0.5	0-0.5	0.5-1	1-2	0-0.5	0-0.5	0-0.5	0.5-1	0-0.5	0.5-1	1-2	2-2.5	2-2.5	0-0.5	0-0.5
	Units/Date	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05	05/21/05
Aluminum	mg/kg	8330	6710	9280	8870	5940	4940	9140	7160	4540	9770	8300	9090	9050	3330	3010
Arsenic	mg/kg	3.78 BN	4.82 BN	6.29 BN	6.61 BN	6.4 BN	3.35 BN	7.48 BN	5.28 BN	3.84 BN	5.25 BN	5.53 BN	6.96 BN	7.48 BN	3.23 BN	2.81 BN
Cadmium	mg/kg	3.77	1.65 U	2.08 U	9.17	2.04 U	1.48 B	5.58	2.25 B	1.48 U	1.66 U	1.8 U	3.6 B	4.42	1.19 U	1.5 U
Chromium	mg/kg	15.4	14.2	18.7	22.4	15.5	9.41	39.3	15.1	10.3	19	18.2	39.1	32.9	7.86	13.4
Copper	mg/kg	19.7	41.6	51.9	49.7	43.6	26.7	17	13.8	29.9	54.2	61.3	82.9	76.9	18.7	15.9
Iron	mg/kg	13500	14200	19000	18600	15300	10400	21100	14100	10300	19900	18100	18700	19000	8930	7550
Manganese	mg/kg	226	218	272	297	289	253	243	286	177	283	292	306	358	189	163
Mercury	mg/kg	0.0486 BN	0.157 N	0.255 N	0.358 N	0.126 N	0.0682 BN	0.0625 N	0.026 BN	0.147 N	0.225 N	0.19 N	0.457 N	0.388 J	0.0772 N	0.199 N
Nickel	mg/kg	16.4	17.6	24.7	21.8	19.5	12.4	26.7	26.2	13	22.9	23.2	21.5	22.1	10.7	7.31 B
Zinc	mg/kg	94.8	196	243	392	221	91.7	186	37.9	162	250	264	377	383	111	89.4
SEM Cadmium	umole/g	0.043	0.0037 B			0.0063 B	0.0036 B	0.013 B		0.0036 B					0.0049 B	0.0044 B
SEM Copper	umole/g	0.29	0.13 B			0.24	0.18 B	0.21 B		0.15					0.19	0.29
SEM Lead	umole/g	0.078 J	0.097 J			0.11 J	0.065 J	0.054 J		0.12 J					0.11 J	0.19 J
SEM Nickel	umole/g	0.36	0.055 B			0.078 B	0.061 B	0.13 B		0.046 B					0.055 B	0.097 B
SEM Zinc	umole/g	0.86	1.4			1.6	0.91	0.92		0.82					1	1.3
Acid Volatile Sulfide	umole/g	1.2	18.3			8.4	1.2	1.1		0.69 U					5.6	2.2
SEM/AVS Ratio	unitless	1.3	0.093			0.24	1	1.2		0					0.25	0.86
Sulfate	mg/kg	431	107	82.2	417	27.1	106	230	135	285	592	646	593	448	69.4	35.4
Total Sulfide	mg/kg	127	496	500	790	251	57.3	81.5	21.5	48.6	1290	968	400		63.9	16.4 U
Ammonia	mg/kg	240	150	280	140	120	120	51	10	120	260	140	84	120	62	99
TOC	mg/kg	173000	55700	69400	70500	78900	178000	53800	46200	690000	83200	74900	74300	71000	98200	157000
Clay	%	21	12.3	33.5	26.8	9.7	10.9	31.8		6.6		14.9			8.7	16.1
Silt	%	63.2	7.2	49.9	39.6	14.8	8.5	14.6		7.1		24.4			6.9	8.7
Fine Sand	%	4.4	78.4	12.9	20.4	71.2	30.7	11.8		69.1		31.6			72.8	57.7
Medium Sand	%	6.9	2.2	1.3	5.8	4.1	4.6	10.8		15.7		15			10.4	16.2
Coarse Sand	%	0.1	0	0.1	4	0.2	3.2	7.5		0.3		7.6			0.2	0.2
Gravel	%	4.5	0	2.4	3.3	0	42.1	23.5		1.2		6.5			1.1	1
% Moisture	%	54.8	42.7	43.3	31.5	43.3	51.5	20.5	11	40.3	48.8	41	32.1	32.6	37.6	42.1
% Solids	%	45.2	57.3	56.7	68.5	56.7	48.5	79.5	89	59.7	51.2	59	67.9	67.4	62.4	57.9
Specific Gravity		2.692	2.66	2.617	2.668	2.654	2.6	2.706		2.693		2.673			2.637	2.287

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 6								Transect 7			
Parameter	Location ID	T6-SD1	T6-SD1	T6-SD2	T6-SD2	T6-SD2	T6-SD3	T6-SD3	T6-SD4	T7-SD1	T7-SD1	T7-SD2	T7-SD3
	Depth (feet)	0-0.5	0.5-1	0-0.5	0.5-1	1-2	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	0-0.5	0-0.5
	Units/Date	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/22/05	05/21/05	05/22/05	05/22/05	05/22/05	05/22/05
Aluminum	mg/kg	10700	10800	6510	7330	7410	7110	5550	4720	12700	8620	737	5080
Arsenic	mg/kg	5.28 BN	5.09 BN	4.22 BN	17.6 N	4.77 BN	4.56 BN	5.19 BN	3.22 BN	3.97 BN	3.4 BN	2.12 UN	3.27 BN
Cadmium	mg/kg	1.3 U	1.26 U	1.2 U	1.42 B	2.4 B	1.69 U	1.31 B	2.34 U	8.36	3.48	1.74 U	1.15 U
Chromium	mg/kg	21.7 U	22.6 U	15.1 U	18.1 U	17.3 U	14.7 U	13.1 U	8.29	28.8 N	21.1 N	1.01 U	9.83 U
Copper	mg/kg	12.2	15.5	49	83.7	24	19.8	43.5	15	17.1	33	4.64 B	26.2
Iron	mg/kg	19100	19000	16400	16100	14800	15600	13900	9030	15600	14300	1460 U	10300
Manganese	mg/kg	349	864	275	264	223	302	248	228	221	237	167	237
Mercury	mg/kg	0.0199 B	0.0228 B	0.0521	0.122	0.147	0.0461 B	0.0585	0.0377 BN	0.043	0.0546	0.0195 U	0.0249 B
Nickel	mg/kg	26.3	28.2	28.7	19.9 U	19.7 U	19.8 U	31.6	10.6 B	20.4	19.2	2.62 U	20.3
Zinc	mg/kg	30.7	28	143	147	190	87.8	133	62.9	57.9	28.7	14.6 B	92.8
SEM Cadmium	umole/g	0.0022 U		0.0079 B			0.0038 U		0.0028 U	0.13		0.008 U	0.0023 U
SEM Copper	umole/g	0.083 B		0.26			0.11 B		0.17 B	0.13		0.11 B	0.033 B
SEM Lead	umole/g	0.012		0.13			0.01 U		0.064 J	0.11		0.021 U	0.0058 U
SEM Nickel	umole/g	0.049 B		0.089 B			0.036 U		0.07 B	0.21		0.077 U	0.022 U
SEM Zinc	umole/g	0.15		1.3			0.41		0.65	0.79		0.47	0.13 B
Acid Volatile Sulfide	umole/g	0.84 U		2.1			5.3		2.9	0.75		3 U	0.85 U
SEM/AVS Ratio	unitless	0		0.86			0.098		0.33	1.9		0	0
Sulfate	mg/kg	72.7	98	135	317	250	92.8	73.3	85.3	124	141	42.1	30.6
Total Sulfide	mg/kg	14.3 U	9.2 U	69.1	39.6	200	35	17.7	16.8 U	8.6 U	13.7	46.4 U	14.4 U
Ammonia	mg/kg	9.6	4.1	13	43	27	86	16	190	5.9	7.3	300	59
TOC	mg/kg	37700	42300	62500	44800	70200	99100	56100	158000	58100	59900	179000	82000
Clay	%	0.8		6.1		14.6	13.8		10.3	1.8		5	4.6
Silt	%	2.2		8.4		31.4	21.7		16.2	7.9		41.6	17.4
Fine Sand	%	1.3		14		19.9	16.3		15	6.1		10.7	15.2
Medium Sand	%	2.9		10.1		9.4	21.9		24.5	12		20.5	15.7
Coarse Sand	%	5.7		3.9		7	6.8		9.5	10.6		15.5	6.5
Gravel	%	87.1		57.6		17.7	19.5		24.6	61.6		6.7	40.5
% Moisture	%	11	14.2	16.2	21.5	24.1	39	11.5	54.7	12.1	14.2	34.1	14.1
% Solids	%	89	85.8	83.8	78.5	75.9	61	88.5	45.3	87.9	85.8	65.9	85.9
Specific Gravity		2.788		2.693		2.748	2.365		2.702	2.772		2.732	2.741

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 8															
Parameter	Location ID	T8-SD1	T8-SD1	T8-SD1	T8-SD1	T8-SD2	Dup. X-2	T8-SD2	T8-SD2	Dup. X-6	T8-SD3	T8-SD3	T8-SD3	T8-SD4	T8-SD4	T8-SD4	Dup. X-5
	Depth (feet)	0-0.5	0.5-1	1-2	2-2.5	0-0.5	0-0.5	0.5-1	1-2	1-2	0-0.5	0.5-1	1-1.5	0-0.5	0.5-1	1-2	1-2
	Units/Date	05/22/05	05/23/05	05/23/05	05/23/05	05/22/05	05/22/05	05/25/05	05/25/05	05/25/05	05/22/05	05/25/05	05/25/05	05/22/05	05/25/05	05/25/05	05/25/05
Aluminum	mg/kg	4260	5050	5240	6820	11200	9470	8330	11000	13200	13300	12600	8340	12900	12300	8360	7370
Arsenic	mg/kg	3.76 BN	5.84 BN	3.79 BN	4.14 BN	5.71 BN	3.98 BN	7.23 BN	10.2 J	8.24 BN	4.62 BN	6.18 BN	6.27 BN	4.97 J	6.64 BN	7.67 BN	7.84 BN
Cadmium	mg/kg	1.64 U	1 B	1.2 U	1.14 U	1.93 U	1.88 U	9.15	30.5	48.3	2.08 U	15.2	13.5	2.04 U	1.64 B	1.97 B	1.94 B
Chromium	mg/kg	7.58 U	13.3	8.62	9.2	19.1 U	17.3 U	18.7	30.8	27.1	22.7 U	25.4	18.5	21.5 UJ	23.2	17.9	16.3
Copper	mg/kg	15.9	94.9	50.3	21.5	44.3	43.3	51.9	64.2	68.2	49.6	77	60	46.7	65.8	55.6	53.9
Iron	mg/kg	11500	37700	15400	13800	19500	18000	22900	74800	25400	22800	30400	16000	22000	24300	27500	25800
Manganese	mg/kg	224	378	337	421	296	287	195	419	219	331	326	231	329	325	269	248
Mercury	mg/kg	0.0371 B	0.0127 U	0.174	0.0144 B	0.176	0.153	0.429 N	0.606 J	0.976 N	0.177	0.581 N	0.675 N	0.174	0.39 N	0.374 N	0.459 N
Nickel	mg/kg	9.39 U	13.6	10.8	13.3	24.1 U	22.8 U	19.8	27	27.2	28.4 U	28.4	17.8 U	27.4 U	28.5	19.5 U	17.8 U
Zinc	mg/kg	57.9	95.5	61.4	41	176	172	938	1410	2210	192	1440	1200	193	469	1060	1010
SEM Cadmium	umole/g	0.0018 U				0.0032 U					0.0038 U			0.0026 U			
SEM Copper	umole/g	0.082 B				0.29					0.35			0.29			
SEM Lead	umole/g	0.023				0.064					0.08			0.066			
SEM Nickel	umole/g	0.043 B				0.14 B					0.18 B			0.11 B			
SEM Zinc	umole/g	0.28				1					1.2			1.1			
Acid Volatile Sulfide	umole/g	0.67 U				1.2					1.4 U			0.95 U			
SEM/AVS Ratio	unitless	0				1.2					0			0			
Sulfate	mg/kg	33.9	18.3	9.5 B	6.9 B	49.2		39.9 U	59.1 U		131	29.1 U	270 U	42.1	56.3 U	183 U	
Total Sulfide	mg/kg	10.5 U	43.8 U	34.7 U	34.4 U	445		2590	1740		428	49.7	1190	501	85	1630	
Ammonia	mg/kg	57	11	19	19	190		150	220		150	160	150	210	210	160	
TOC	mg/kg	59500	50600	34500	30700	101000	94300	57100	65300	55800	122000	52000	69100	107000	61200	52600	54500
Clay	%	1.7		13.7		46.6		18.7	41.4		56.6	42	42	50.4	28.9	17.5	
Silt	%	3.5		18.6		47.1		51.4	50.7		40.7	36.3	34.8	40.8	57.5	56.5	
Fine Sand	%	8.1		20.7		5.3		25.1	6.5		2	18.4	20	8.1	10.4	25.7	
Medium Sand	%	6.4		9.1		0.8		4.2	1		0.6	2.9	2.2	0.7	2.8	0.2	
Coarse Sand	%	4.6		6.8		0.2		0.2	0		0.1	0.4	0.3	0	0.4	0.2	
Gravel	%	75.8		31.1		0		0.3	0.5		0	0	0.7	0	0	0	
% Moisture	%	26.9	16.8	13.9	13.4	127.4	54.4	41.6	41.4	39.8	64.4	37	38.1	58.6	42.4	40.3	37.8
% Solids	%	73.1	83.2	86.1	86.6	39.9	45.6	58.4	58.6	60.2	35.6	63	61.9	41.4	57.6	59.7	62.2
Specific Gravity		2.733		2.75		2.631		2.605	2.636		2.63	2.619	2.602	2.64	2.604	2.647	

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 9																
Parameter	Location ID	T9-SD1	T9-SD1	T9-SD1	T9-SD1	T9-SD2	T9-SD2	T9-SD2	T9-SD2	T9-SD2	T9-SD3	T9-SD3	T9-SD3	T9-SD3	T9-SD3	T9-SD4	T9-SD4	T9-SD4
	Depth (feet)	0-0.5	0.5-1	1-2	2-3	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-1.5
	Units/Date	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05	05/24/05	05/24/05	05/24/05	05/24/05	05/23/05	05/25/05	05/25/05	05/25/05	05/25/05	05/23/05	05/25/05	05/25/05
Aluminum	mg/kg	5340	4700	5680	7960	12500	8870	5210	6560	3700	14700	6460	5080	3130	3260	8750	5950	14100
Arsenic	mg/kg	5.62 BN	3.57 BN	3.87 BN	4.61 BN	6.35 BN	3.53 BN	2.37 BN	5.33 BN	2.03 BN	7.19 BN	2.84 BN	2.47 BN	2.28 BN	1.44 BN	5.34 BN	4.66 BN	7.95 BN
Cadmium	mg/kg	1.06 U	4.87	78.4	15.9	2.27 U	2.06 U	1.65 U	6.08	6.98	2.01 U	1.09 U	1.12 U	1.38 U	1.07 U	2.63 B	1.08 U	1.76 B
Chromium	mg/kg	11	7.39	16.1	16.8	21.3	14.9	9.45	13.1	6.61	23.2	9.27	7.6	4.43 U	4.67	17.5	26	40.5
Copper	mg/kg	19.5	17.5	23.3	19.3	47.4	33.5	21.6	35.2	12.9	44.6	23.6	35.8	15.2	15.3	49.1	34	66.3
Iron	mg/kg	12300	11000	10900	14500	22200	15800	9550	16800	7700	25700	13700	10200	7930	7840	15400	11800	25200
Manganese	mg/kg	284	241	222	242	343	242	143	219	219	509	536	333	349	346	232	181	398
Mercury	mg/kg	0.0161 B	0.0401 B	0.116	0.192	0.171	0.173 N	0.162 N	0.224 N	0.123 N	0.121	0.0211 BN	0.0149 UN	0.127	0.0151 U	0.655	0.113 N	0.297 N
Nickel	mg/kg	15.1	11	14.7	19.8	26	19.1	12.2	15.7	7.66	28.9	13.9	10.1 U	8.33 U	8.12 U	18	12 U	28.8
Zinc	mg/kg	48.1	113	499	374	183	129	95.1	711	56.4	174	37.1	28.4	26.3 B	27.8	1430	113	238
SEM Cadmium	umole/g	0.0024 U				0.0064 B					0.006 U					0.0058 U		
SEM Copper	umole/g	0.049 B				0.39					0.4					0.36		
SEM Lead	umole/g	0.02 J				0.091 J					0.099 J					0.091 J		
SEM Nickel	umole/g	0.1 B				0.16 B					0.18 B					0.26 B		
SEM Zinc	umole/g	0.25				1.4					1.4					1.3		
Acid Volatile Sulfide	umole/g	0.68 U				1.5 U					2.5					2.4		
SEMI/AVS Ratio	unitless	0				0					0.84					0.83		
Sulfate	mg/kg	30.2	70.7	32.2	76.7	41.9	617	273	203	7.8 U	31.9	23.3 U	25.4 U	26.9 U	25.2 U	16.2 B	523 U	6.9 U
Total Sulfide	mg/kg	39.1 U	44.2 U	65.4	94.5	508	355	355	384	104	96	34.5 U	33.9 U	33.8 U	34.1 U	131	1250	852
Ammonia	mg/kg	14	43	36	36	300	260	220	190	81	250	26	22	9.2	6.7	160	150	140
TOC	mg/kg	75800	40900	43000	41700	120000	95900	85500	61800	32600	117000	30600	39000	27600	28000	69800	46100	57300
Clay	%	4.3		8.3	8.7	42.6		20.5	28.5	18.1	22.8	18.2	24.8	22.6	22.1	28.7	28.3	46.3
Silt	%	13.9		15.4	27.1	53.9		63.6	64.3	28.7	37.7	21.8	31.8	26.6	27.9	55.9	68.8	48.8
Fine Sand	%	15.4		23.3	18.9	2.1		14.1	6.5	23.6	3.6	21.4	24.1	24.8	23.1	13.1	2.7	4.7
Medium Sand	%	6.9		9.8	10.9	1.4		1.5	0.7	6.3	1.7	7.7	7.7	8.7	9.8	2	0.1	0.2
Coarse Sand	%	9.5		12.3	9.6	0		0.3	0.1	8	1.1	5.5	4.9	5.3	7.5	0.3	0	0
Gravel	%	50		31	24.9	0		0	0	15.2	33.1	25.3	6.7	11.9	9.7	0	0	0
% Moisture	%	12.9	28.6	31.5	20.3	63.6	56.7	49.6	42.2	18.8	65.9	10.7	10.9	12	10.9	49.1	28	33.1
% Solids	%	87.1	71.4	68.5	79.7	36.4	43.3	50.4	57.8	81.2	34.1	89.3	89.1	88	89.1	50.9	72	66.9
Specific Gravity		2.725		2.708	2.833	2.686		2.605	2.628	2.688	2.718	2.846	2.625	2.47	2.527	2.556	2.191	2.158

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 10														
Parameter	Location ID	T10-SD1	T10-SD1	T10-SD2	Dup X-3	T10-SD2	T10-SD2	T10-SD3	T10-SD3	T10-SD3	T10-SD3	T10-SD3	T10-SD4	T10-SD4	T10-SD4	T10-SD4
	Depth (feet)	0-0.5	0.5-1	0-0.5	0-0.5	0.5-1	1-1.2	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	2-3
	Units/Date	05/23/05	05/23/05	05/23/05	05/23/05	05/25/05	05/25/05	05/23/05	05/26/05	05/26/05	05/26/05	05/26/05	05/23/05	05/26/05	05/26/05	05/26/05
Aluminum	mg/kg	8200	8220	13600	15900	10200	12300	13000	8220	10700	8510	8870	14000	8670	9840	10400
Arsenic	mg/kg	4.91 BN	5.02 BN	4.14 BN	6.98 BN	5.53 BN	4.86 BN	4.95 BN	3.15 UN	9.3 J	7.83 BN	4.59 BN	6.94 J	3.61 BN	6.96 BN	2.44 BN
Cadmium	mg/kg	1.07 U	1.19 U	3.39 U	2.26 U	6.92	2.03 U	1.91 U	2.58 U	6.5	9.99	1.9 B	3.33 U	1.92 U	6.51	5.17 B
Chromium	mg/kg	14.5	18.5	22.3	25.9	26.8	52.4	23	16.3	25	20	22.4	22.7	19.1	23.4	22.4
Copper	mg/kg	14.1	18.9	46.6	54.1	52.7	57.1	46.2	44.9	89.9	60.3	61.1	46.2	62.8	91.3	60.2
Iron	mg/kg	15400	24200	24100	27200	24600	25900	23700	17400	39800	18000	18300	25200	19100	32600	22100
Manganese	mg/kg	482	342	364	408	268	285	384	275	275	202	222	425	285	293	250
Mercury	mg/kg	0.0803	0.0788	0.153	0.205	0.484	0.603	0.335	0.163	0.545	0.689	1.01	0.147	0.281	0.531	1.24
Nickel	mg/kg	15.3	17.2	26.7 U	32.3	24 U	26.6	25.8	21.4	27.5	21.9	20.2	28.4 U	24.6	25.3	23.9
Zinc	mg/kg	58.5	246	177	202	539	247	384	190	1410	2700	406	171	320	1130	1870
SEM Cadmium	umole/g	0.0022 U		0.0051 U				0.0055 U					0.0052 U			
SEM Copper	umole/g	0.14		0.37				0.34					0.32			
SEM Lead	umole/g	0.027 J		0.087 J				0.091 J					0.09 J			
SEM Nickel	umole/g	0.28		0.2 B				0.18 B					0.18 B			
SEM Zinc	umole/g	0.36		1.3				1.3					1.3			
Acid Volatile Sulfide	umole/g	0.63 U		2.1				3.1					2.9			
SEM/AVS Ratio	unitless	0		0.95				0.61					0.66			
Sulfate	mg/kg	16.7	16.8	28 B		7.3 U	13.5 U	20.3 B	233	59.4	24.3	8.9 B	34.6	16.6 B	29.5	16.3 B
Total Sulfide	mg/kg	36.3 U	38.5 U	210		185	45.3	414	478	538	452	772	195	42.2	180	1020
Ammonia	mg/kg	30	15	330		300	310	260	290	290	330	330	340	310	220	260
TOC	mg/kg	59800	56800	129000	122000	60300	65200	105000	84300	76200	61900	64800	144000	73800	70500	61900
Clay	%	16.9		50.2		33.4		50.8		31.8	43.6	48.4	45.4		36.3	43.5
Silt	%	21.9		45.6		65.1		35.3		49.5	51.7	48.3	52.3		28.5	44.8
Fine Sand	%	9.5		3		1.5		10		14.7	3.9	1.2	1.2		4.3	4.2
Medium Sand	%	6.3		1.2		0.1		3.6		4	0.9	0.2	1.2		2.4	4.6
Coarse Sand	%	4.2		0		0		0.3		0.1	0	0.9	0		1.1	1.9
Gravel	%	41.1		0		0		0		0	0	1	0		27.4	1
% Moisture	%	25.9	26.2	64.5	66	40.3	44.4	59.7	56	44.6	38.1	39	67.4	45.7	46.2	40.3
% Solids	%	74.1	73.8	35.5	34	59.7	55.6	40.3	44	55.4	61.9	61	32.6	54.3	53.8	59.7
Specific Gravity		2.739		2.627		2.626		2.618		2.678	2.192	2.446	2.646		2.67	2.652

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 11														
Parameter	Location ID	T11-SD1	T11-SD2	T11-SD2	T11-SD2	T11-SD2	T11-SD2	T11-SD3	T11-SD3	T11-SD3	Dup. X-4	T11-SD4	T11-SD4	T11-SD4	T11-SD4	T11-SD4
	Depth (feet)	0-0.5	0-0.5	0.5-1	1-2	2-3	3-4	0-0.5	0.5-1	1-2	1-2	0-0.5	0.5-1	1-2	2-3	3-4
	Units/Date	05/24/05	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05	05/24/05	05/24/05	05/24/05	05/24/05	05/23/05	05/23/05	05/23/05	05/23/05	05/23/05
Aluminum	mg/kg	5980	8830	8040	9040	6660	8570	2380	4040	2500	3290	6070	7400	7990	9670	7680
Arsenic	mg/kg	2.31 BN	4.87 BN	5.16 BN	10.5 BN	8.59 BN	8.01 BN	2.51 UJ	3.43 BN	2.35 BN	3.61 BN	4.06 BN	6.51 BN	4.97 BN	5.36 BN	4.13 BN
Cadmium	mg/kg	1.87 U	2.65 U	1.43 U	1.85 B	1.74 B	2.32 B	2.06 UJ	2.03 UN	1.46 U	1.28 U	1.62 UN	1.98 UN	2.55 BN	1.91 UN	1.48 UN
Chromium	mg/kg	9.42	18	17.9	19.7	15.8	20.3	5.68 J	9.74 N	4.72	6.9	13.4 N	17.4 N	17.7 N	23 N	24.7 N
Copper	mg/kg	16.6	43.4	49.7	69.5	56.9	69	13.6	27.8	13.4	13.4	39.9	53	50.9	48.2	33.7
Iron	mg/kg	10200	17000	15500	40900	33300	25600	5250	10100	6450	8600	15000	21300	14800	17300	13800
Manganese	mg/kg	166	257	220	298	224	224	82.5 J	139 N	137	217	189 N	181 N	208 N	233 N	225 N
Mercury	mg/kg	0.103 N	0.166	0.315	0.488	0.697	0.618	0.383 N	0.278 N	0.0499 BN	0.087 N	0.534 N	0.546 N	1.05 N	1.78 N	0.54 N
Nickel	mg/kg	12.3	27	26	24	17.8	20.6	7.84 J	12.6 N	6.46 B	7.96	16.6 N	17.4 N	17.5 N	19.8 N	16.1 N
Zinc	mg/kg	67.1	181	210	2240	1250	1040	98.4 J	281 N	107	183	420 N	1050 N	2030 N	615 N	161 N
SEM Cadmium	umole/g	0.0029 U	0.0044 U					0.0042 U				0.0036 UJ				
SEM Copper	umole/g	0.28 J	0.36					0.28				0.28 J				
SEM Lead	umole/g	0.078 J	0.095 J					0.078				0.098 J				
SEM Nickel	umole/g	0.14 B	0.16 B					0.13 B				0.13 J				
SEM Zinc	umole/g	1.1	1.5					1.4				1.2 J				
Acid Volatile Sulfide	umole/g	3.8	8.5					8.2				2 J				
SEM/AVS Ratio	unitless	0.42	0.25					0.23				0.85				
Sulfate	mg/kg	133	66.2	26.3	34	13.5 B	6.5 B	26	16 B	15.1 U		50.9	23.7	18.1	14.5 B	6.4 B
Total Sulfide	mg/kg	21.8	600	120	392	689	310	241	393	58.6		196	13.1 U	283	433	173 J
Ammonia	mg/kg	210	280	230	270	300	400	190	250	180		150	200	230	390	380
TOC	mg/kg	82800	104000	67400	79000	73700	78400	59400	77600	70500	57200	63400	62600	55900	71400	72400
Clay	%	36.2	25.4		18.3	9.7	19.8	20.4		23.4		14.3	18.4	20.8	35.3	27.5
Silt	%	20.7	60.8		68	71.2	69.7	51.9		40.2		60.5	54.3	55.6	61.2	67.4
Fine Sand	%	11.4	11.1		10.1	17.8	9.2	26.4		14.9		23.4	25	22.1	3	4.8
Medium Sand	%	6.7	2.7		1.6	1.3	1.2	1.2		3.7		1.7	2.1	1.5	0.5	0.3
Coarse Sand	%	12.9	0		0.3	0	0	0		4.8		0	0.2	0	0	0
Gravel	%	12.1	0		1.7	0	0	0		13.1		0	0	0	0	0
% Moisture	%	53	58.7	44.1	46.4	45.4	44.1	42.1	45.1	41.7	23.5	40.8	41	37.5	39.9	36.7
% Solids	%	47	41.3	55.9	53.6	54.6	55.9	57.9	54.9	58.3	76.5	59.2	59	62.5	60.1	63.3
Specific Gravity		2.668	2.596		2.676	2.665	2.66			2.741		2.646	2.659	2.62	2.534	2.681

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon

Appendix F-3
Historical Outfall Soil and Sediment Sampling Analytical Results

Former Philips Display Components Facility
Seneca Falls, New York

		Transect 12												
Parameter	Location ID	T12-SD1	T12-SD1	T12-SD1	T12-SD1	T12-SD2	T12-SD2	T12-SD2	T12-SD3	T12-SD3	T12-SD3	T12-SD4	T12-SD4	T12-SD4
	Depth (feet)	0-0.5	0.5-1	1-2	2-3	0-0.5	0.5-1	1-2	0-0.5	0.5-1	1-2	0-0.5	0.5-1	1-1.5
	Units/Date	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05	05/24/05
Aluminum	mg/kg	10600	7990	2150	1500	4370	5060	4760	4750	3980	3280	7520	8480	5040
Arsenic	mg/kg	6.13 BN	4.45 BN	2.2 BN	1.59 UN	3.48 BN	5.17 BN	3.77 BN	3.1 BN	2.8 BN	2.56 BN	3.3 BN	7.39 BN	5.59 BN
Cadmium	mg/kg	2.46 UN	1.87 UN	1.42 UN	1.3 UN	1.42 UN	1.46 UN	1.3 UN	1.37 UN	1.19 UN	1.21 UN	1.83 UN	1.55 UN	1.35 UN
Chromium	mg/kg	19.3 N	14.9 N	3.91 BN	3.2 BN	9.58 N	12 N	16.5 N	9.79 N	8.18 N	5.28 N	15.3 N	19.4 N	10.9 N
Copper	mg/kg	39.1	30.1	5.39 B	5.92 B	26.4	38.2	28	36.3	17.3	7.45	39	54.8	34.6
Iron	mg/kg	19000	17300	5210	3600	9800	14900	10100	9670	8710	7980	14700	24900	21300
Manganese	mg/kg	389 N	349 N	186 N	113 N	162 N	198 N	266 N	178 N	278 N	319 N	170 N	236 N	143 N
Mercury	mg/kg	0.164 N	0.126 N	0.0142 UN	0.0167 UN	0.153 N	0.453 N	0.163 N	0.103 N	0.193 N	0.19 N	0.131 N	0.337 N	0.23 N
Nickel	mg/kg	25 N	21.5 N	5.36 BN	3.64 BN	14 N	13.8 N	10.9 N	14 N	10 N	7.93 N	19.6 N	22.6 N	13.1 N
Zinc	mg/kg	171 N	149 N	37.5 N	51.9 N	190 N	794 N	165 N	150 N	210 N	289 N	224 N	1260 N	810 N
SEM Cadmium	umole/g	0.0046 U				0.0029 U			0.0029 U			0.0036 U		
SEM Copper	umole/g	0.3				0.18			0.23			0.35		
SEM Lead	umole/g	0.086				0.082			0.19			0.097		
SEM Nickel	umole/g	0.17 B				0.09 B			0.089 B			0.18 B		
SEM Zinc	umole/g	1.3				1.1			2.2			1.4		
Acid Volatile Sulfide	umole/g	3.3				2.7			2.4			7.1		
SEM/AVS Ratio	unitless	0.58				0.56			1.1			0.28		
Sulfate	mg/kg	36.3	65.4	8.5 B	5.9 U	36.3	9.9 U	6.5 U	48.8	66.9	5.2 U	121	113	49.6
Total Sulfide	mg/kg	382	414	11.3	12.2	79.2	443	122	102	239	54.7	216	178	300
Ammonia	mg/kg	260	270	30	34	110	160	220	110	110	67	220	190	110
TOC	mg/kg	132000	91300	17600	16600	57600	85800	93300	45500	45600	128000	146000	62900	58500
Clay	%	27.6		2.3	2.3	11.1		10.9	9.3		8.6	43.5		
Silt	%	51.4		4.1	24.6	36.1		27.9	48.7		11.1	46.4		
Fine Sand	%	19.5		37.4	72	50.1		34.3	36.4		8.3	8.5		
Medium Sand	%	1.6		4	1	2		4.7	2.2		2.9	1.5		
Coarse Sand	%	0		3.7	0.1	0.4		3.3	1.4		5.6	0		
Gravel	%	0		48.5	0	0.3		19	2.1		63.5	0		
% Moisture	%	65.7	51.9	16.8	17.3	34.3	40.9	32.6	34.9	25	17.7	42	39.9	33.1
% Solids	%	34.3	48.1	83.2	82.7	65.7	59.1	67.4	65.1	75	82.3	58	60.1	66.9
Specific Gravity		2.622		2.683	2.664	2.614		2.559	2.328		2.392	2.73		

Notes:

U - Not detected greater than reporting limit.

B - Estimated less than reporting limit.

N - Spike recovery exceeds control limits.

J - Estimated by Validator.

mg/kg - Miligram per Kilogram

umole/g - Micromole per Gram

SEM - Simultaneously Extracted Metals

AVS - Acid Volatile Sulfide

TOC - Total Organic Carbon



Appendix **G**

Costing Summary Sheets

Appendix G. Costing Summary Sheets
Former Philips Display Components Facility, Seneca Falls, New York
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Building Demolition	AOC 4	6
Capping	AOC 5	7

Appendix G. Costing Summary Sheets
Site Management Plan
Former Philips Display Components Facility, Seneca Falls, New York

Assumptions

Number of Additional Monitoring Wells to install	0
Number of Wells Monitored	15
Frequency of Groundwater sampling	2 events per year
Frequency of Institutional Controls Inspections	4 events per year

Capital Costs

SMP Implementation	\$100,000 Oversight, design, permitting
Indoor Air Protection Establishment	\$120,000 Quarterly VOC analysis of Indoor air to establish SMP
Total Capital Costs	\$220,000 Annual

Capital per AOC (1-3 & 5)	\$20,000 SMP Implementation
Capital for AOC 4	\$140,000 SMP Implementation & Indoor Air Analysis

Periodic Costs (included in capital cost totals)

Site Abandonment and Restoration	\$40,000 Mob costs, labor, equipment
Site Closure Negotiation and Reporting	\$35,000 Reporting
Total Periodic Costs	\$75,000

Periodic per AOC (1-5)	\$15,000

O&M Costs - Annual

Direct Annual Sampling Operating Costs	\$10,800 Mob costs, labor, equipment
Annual Analytical Costs	\$3,800 VOC analytical
Annual Disposal Costs	\$2,400 Purge water disposal - non haz
Direct Annual Inspections Operating Costs	\$5,100 20% of direct costs
Annual Reporting and Operating Costs	\$5,600 Quarterly updates, administrative charges, and annual reports
Total O&M Costs	\$28,000 Annual
O&M Cost per AOC (1-3)	\$7,900 Groundwater Monitoring and Controls Inspections
O&M Cost per AOC (4 & 5)	\$2,140 Controls Inspections

Cost assumes that area is clear and accessible

SMP cost were divided between AOC 1, AOC 2, AOC 3, AOC 4 and AOC 5 according to activities related to each AOC.

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)

Appendix G. Costing Summary Sheets
Excavation Portion
Former Philips Display Components Facility, Seneca Falls, New York

AOC 1 Building 2 Area

<i>Area above Industrial Standard</i>	<i>2,600 ft²</i>
<i>Excavation Depth</i>	<i>33 ft</i>

Capital Costs

Site Preparation	\$25,000 Erosion control, well abandonment
Excavation Activities	\$462,000 Excavation, mob/demob, air monitoring
Shoring	\$426,000 Steel trench sheeting
Dewatering	\$43,000 Well point system with onsite treatment by a rental sytem
T & D	\$662,000 Waste characterization and disposal including transport
Restoration Activities	\$10,000 Restore to grade with stabilization, no asphalt replacement
Indirect Costs	\$115,000 Includes design, bidding, permitting, project management
Total Capital Costs	\$1,743,000

AOC 3 Building 11 Area

<i>Area above Industrial Standard</i>	<i>780 ft²</i>
<i>Excavation Depth</i>	<i>30 ft</i>

Capital Costs

Site Preparation	\$16,000 Erosion control, well abandonment
Excavation Activities	\$291,650 Cason excavation with backfill assuming 20% overlap
T & D	\$269,500 Waste characterization and disposal including transport
Indirect Costs	\$20,000 Includes design, bidding, permitting, project management
Total Capital Costs	\$598,000

AOC 5 Historical Outfalls

<i>Area above Industrial Standard</i>	<i>1,050 ft²</i>
<i>Excavation Depth</i>	<i>2 ft</i>

Capital Costs

Site Preparation	\$8,500 Erosion control, well abandonment
Excavation Activities	\$40,000 Excavation, mob/demob, air monitoring
Restoration Activities	\$5,000
Indirect Costs	\$5,000 Includes design, bidding, permitting, project management
Total Capital Costs	\$59,000

Notes

Cost assumes that area is clear and accessible

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)

non-hazardous waste

Assumes that Site preperation will be completed at the same time for all three areas resulting in cost savings

Appendix G. Costing Summary Sheets
Thermal Remediation, Portion
Former Philips Display Components Facility, Seneca Falls, New York

AOC 1 Building 2 Area

Area above Industrial Standard *2,600 ft²*
Treatment Duration *12 months*

Capital Costs

Installation Costs	\$810,000	Electrical profiling, modeling, system installation and testing
Operation and System Maintenance	\$1,387,000	Subcontractor cost
Site Restoration	\$120,821	Subcontractor cost
Electricity Costs	\$232,000	Electricity, etc
Indirect Costs	\$360,999	Includes design, bidding, permitting, project management
Total Capital Costs	\$2,911,000	

AOC 3 Building 11 Area

Area above Industrial Standard *780 ft²*
Treatment Duration *12 months*

Capital Costs

Installation Costs	\$296,000	Electrical profiling, modeling, system installation and testing
Operation and System Maintenance	\$507,000	Subcontractor cost
Site Restoration	\$44,179	Subcontractor cost
Electricity Costs	\$85,000	Electricity, etc
Indirect Costs	\$132,001	Includes design, bidding, permitting, project management
Total Capital Costs	\$1,065,000	

Notes

Cost assumes that area is clear and accessible

Reporting costs are not included

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)

Assumes that system installation will be completed at the same time for both areas resulting in cost savings

Appendix G. Costing Summary Sheets
Sub-Slab Depressurization System
Former Philips Display Components Facility, Seneca Falls, New York

SSD Systems in Buildings 1, 1A, 2, 3, 4, 6, 7, 8, 9, 10, 10A and 11

Number of New SSD Systems	8
Number of Existing SSD Systems to Modify	4

Capital Costs

Installation and Modification Costs	\$560,000 Design and Implementation

O&M Costs - Annual

Annual O & M of SSDS	\$76,900 Mob costs, labor, equipment
Annual Electrical Costs	\$11,600
Total O&M Costs	\$88,500 Annual

SSD Systems in Buildings 1, 1A, 7, 8, 9, 10, 10A and 11

Number of New SSDS	4
Number of Existing SSDS to Modify	4

Capital Costs

Installation and Modification Costs	\$388,000 Design and Implementation

O&M Costs - Annual

Annual O & M of SSDS	\$67,300 Mob costs, labor, equipment
Annual Electrical Costs	\$10,800
Total O&M Costs	\$78,100 Annual

Notes

Cost assumes that area is clear and accessible

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)

Assumes that system installation will be completed at the same time for all areas resulting in cost savings

Appendix G. Costing Summary Sheets

Building Demolition

Former Philips Display Components Facility, Seneca Falls, New York

Demolition of Buildings 2 through 6

Number of Buildings	5

Capital Costs

Demolition of Buildings	\$1,800,000	Design and Implementation
Disposal of slab and foundation	\$360,000	
Total	\$2,160,000	

Notes

Cost assumes that area is clear and accessible

No building construction is included in the above costs

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)

Appendix G. Costing Summary Sheets
Capping Portion
Former Philips Display Components Facility, Seneca Falls, New York

AOC 5 Historical Outfalls

<i>Area above Industrial Standard</i>	<i>1,050 ft²</i>
<i>Cap Thickness</i>	<i>1 ft</i>

Capital Costs

Site Preparation	\$12,500 Erosion control and surface preparation
Capping Activities	\$12,500 Installation of a geomembrane and rip-rap for stabilization
Restoration Activities	\$5,000 Removal of erosion control and restoration of staging areas
Indirect Costs	\$5,000 Includes design, bidding, permitting, project management
Total Capital Costs	\$35,000

Notes

Cost assumes that area is clear and accessible

All costs are rounded to the nearest \$1000, except for values under \$100,000 that were rounded to the nearest \$100

All costs are based on an accuracy of +50/-30% (USEPA, 2000)