US Army, Engineering & Support Center
Huntsville, AL

Seneca Army Depot Activity
Romulus, NY

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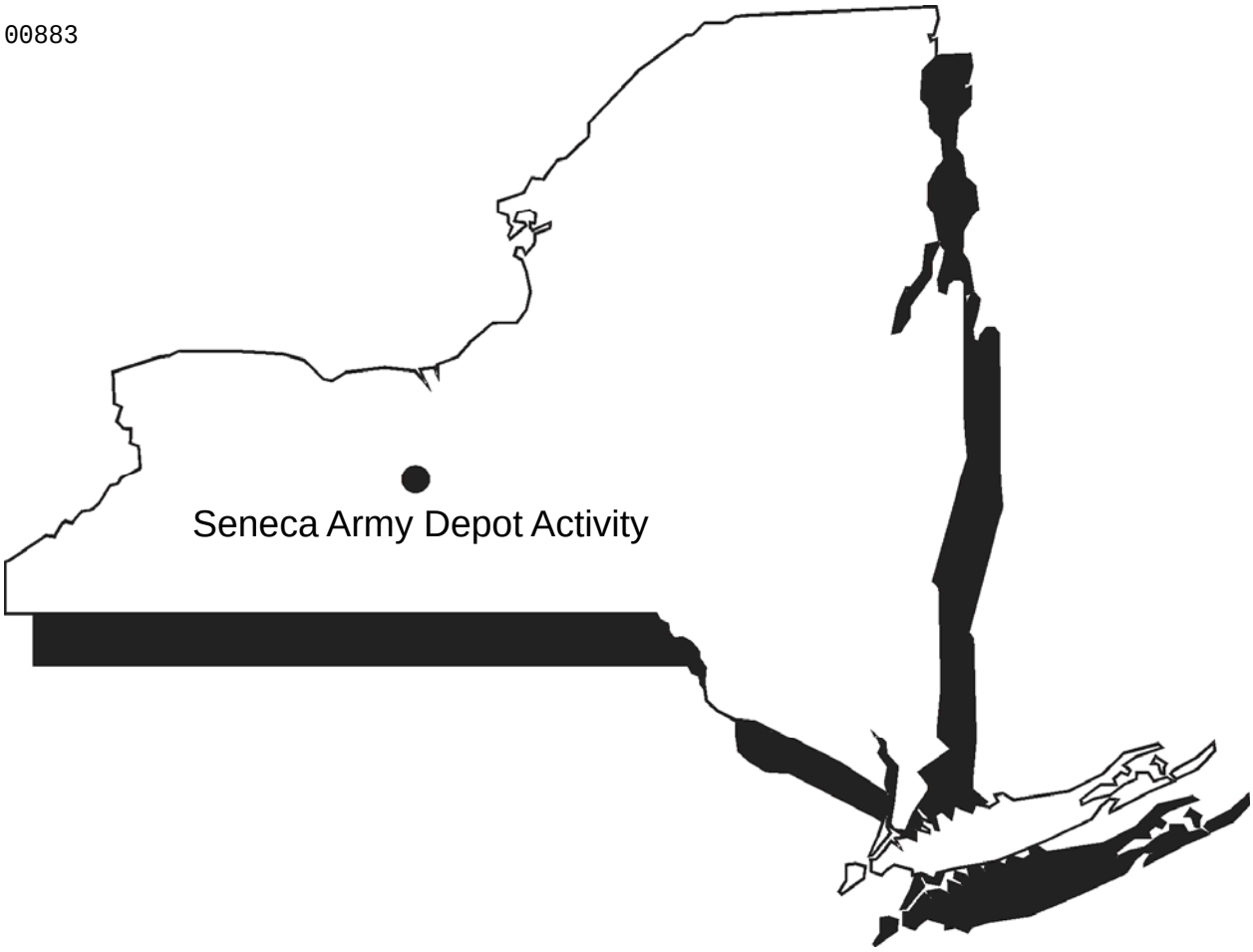

FINAL
ANNUAL REPORT AND YEAR 6 REVIEW
ASH LANDFILL OPERABLE UNIT
SENECA ARMY DEPOT ACTIVITY

Contract No. W912DY-08-D-0003
Task Order No. 0012
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

PARSONS

April 2014

FINAL

ANNUAL REPORT AND YEAR 6 REVIEW

FOR THE

ASH LANDFILL OPERABLE UNIT
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Prepared for:

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1.0 INTRODUCTION

This Annual Report is for the Ash Landfill Operable Unit (OU), located at the Seneca Army Depot Activity (SEDA or the Depot) in Romulus, New York (**Figure 1**). This report provides a review of the sixth year of long-term groundwater monitoring of the full-scale biowall system installed in 2006. This report also provides recommendations for future long-term monitoring at the site. This report is based on an annual review of the effectiveness of the remedy implemented in 2006, and includes the following:

- A comparison of the groundwater data to the long-term groundwater monitoring (LTM) objectives, listed below in **Section 1.1**;
- An evaluation of the need to recharge (i.e., add substrate) the biowalls, as outlined in the Remedial Design Report (RDR) (Parsons, 2006c) in **Section 3.4**; and
- An assessment of the remedy's compliance with the United States Environmental Protection Agency's (USEPA's) "Guidance for Evaluation of Federal Agency Demonstrations (Section 12(h)(s))."

A remedial action (RA) was completed in October and November 2006 in accordance with the Record of Decision (ROD) for the Ash Landfill OU (Parsons, 2004), the Remedial Design Work Plan (Parsons, 2006b), and the RDR (Parsons, 2006c), The RA involved the following:

- Installation of three dual biowall systems, A1/A2, B1/B2, and C1/C2, to address volatile organic compounds (VOCs) in groundwater that exceed New York State Department of Environmental Conservation's (NYSDEC's) Class GA groundwater standards;
- Construction and establishment of a 12-inch vegetative cover over the Ash Landfill and the Non-Combustible Fill Landfill (NCFL) to prevent ecological receptors from coming into direct contact with the underlying soils that are contaminated with metals and polycyclic aromatic hydrocarbons (PAHs);
- Excavation and disposal of Debris Piles A, B, and C; and
- Re-grading of the Incinerator Cooling Water Pond to promote positive drainage.

As part of the RA at the Ash Landfill OU, LTM is being performed as part of the post-closure operations. Groundwater monitoring is required as part of the remedial design, which was formulated to comply with the ROD. The first of four rounds of groundwater sampling were performed in the first year of LTM and were completed in January 2007, March, 2007, June 2007, and November 2007.

The analytical and geochemical results were presented in four letter reports. The results of the Year 1 LTM were reported and evaluated in the "Annual Report and One-Year Review for the Ash Landfill" (Parsons, 2008a). As part of the Year 1 report, the Army recommended that the frequency of LTM events

at the Ash Landfill OU be reduced from quarterly to semi-annually; this recommendation was approved by the USEPA and NYSDEC.

Year 2 semi-annual monitoring, referred to as Rounds 5 and 6, were completed in June and December 2008, and the results were presented in separate semiannual letter reports for each sampling event. The results of Year 2 of the LTM program were presented in the "Annual Report and Year Two Review" (Parsons, 2009). Year 3 semi-annual monitoring, referred to as Rounds 7 and 8, was completed in June and December 2009 and the results are presented in separate letter reports for each sampling event. The results of Year 3 of the LTM program were presented in the "Annual Report and Year Three Review" (Parsons, 2010). Year 4 semi-annual monitoring, referred to as Rounds 9 and 10, was completed in June and December 2010 and the results were presented in separate letter reports. Year 5 semi-annual monitoring, referred to as rounds 11 and 12, was completed in July and December 2011, and the results were presented in separate letter reports for each sampling event. Year 6 semi-annual monitoring, referred to as rounds 13 and 14, was completed in June and December 2012, respectively, and the results were presented in separate letter reports for each sampling event.

This Annual Report reviews the results of the sixth year of the LTM program as part of the ongoing evaluation of the remedy and provides conclusions and recommendations about the effectiveness of the remedial action, including the groundwater remedy and the vegetative landfill covers.

1.1 Long-Term Groundwater Monitoring Objectives

Three types of long-term groundwater monitoring are being performed: 1) plume performance monitoring, 2) biowall process monitoring, and 3) off-site compliance monitoring. On-site performance monitoring is being conducted to measure groundwater contaminant concentrations and to evaluate the effectiveness of the biowall remedy for the Ash Landfill OU. The objectives of performance and compliance monitoring are as follows:

- Confirm that there are no exceedances of groundwater standards for contaminants of concern (COCs) at the off-site compliance monitoring well MW-56;
- Document the effectiveness of the biowalls to remediate and attenuate the chlorinated ethene plume; and
- Confirm that groundwater concentrations throughout the plume are decreasing to eventually meet NYSDEC Class GA groundwater standards.

Biowall process monitoring is being conducted at two locations (shown in **Figure 2**) to determine if, and when, any biowall maintenance activities should be performed. The first location is within Biowalls B1/B2 (MWT-27 and MWT-28) in the segment that runs along the pilot-scale biowalls that were installed in July 2005. The second location is within Biowall C2 (MWT-23), the furthest downgradient biowall.

The objectives of biowall process monitoring for operations and maintenance (O&M) activities are as follows:

- Monitor the long-term performance and sustainability of the biowalls;
- Monitor substrate depletion and geochemical conditions under which the effectiveness of the biowalls may decline; and
- Determine if, and when, the biowalls need maintenance (i.e., need to be recharge with additional organic substrate).

2.0 SITE BACKGROUND

2.1 Site Description

SEDA is a 10,587-acre former military facility located in Seneca County near Romulus, New York, that was owned by the United States Government and operated by the Department of the Army from 1941 until 2000. In 2000, the Army assumed a caretaker role at the SEDA, and since this time more than 8,500 acres of the property have been transferred to other parties. SEDA is located between Seneca Lake and Cayuga Lake and is bordered by New York State Highway 96 to the east, New York State Highway 96A to the west, and sparsely populated farmland to the north and south.

The location of the Ash Landfill OU, also referred to as the Ash Landfill, is composed of five historic solid waste management units (SWMUs). As shown in **Figure 3**, the five SWMUs that comprise the Ash Landfill OU are the Incinerator Cooling Water Pond (SEAD-3), the Ash Landfill (SEAD-6), the NCFL (SEAD-8), the former Debris Piles (SEAD-14), and the former Abandoned Solid Waste Incinerator Building (SEAD-15).

Prior to the Army's purchase of land for construction of the SEDA, the area of the Ash Landfill OU was used for farming. From 1941 (the date SEDA was constructed) to 1974, uncontaminated trash was burned in a series of burn pits located near the former abandoned incinerator building (Building 2207). According to the U.S. Army Environmental Hygiene Agency (USAEHA) Interim Final Report, Groundwater Contamination Survey No. 38-26-0868-88 (July 1987), the ash from the refuse burning pits was buried in the Ash Landfill (SEAD-6) from date of inception until the late 1950s or early 1960s.

The incinerator was built in 1974. Between 1974 and 1979, materials intended for disposal were transported to the incinerator. Each week the Depot generated approximately 18 tons of refuse, the majority of which was incinerated. The source for the refuse was domestic waste from Depot activities and family housing. Large items that could not be burned were disposed at the NCFL (SEAD-8). The NCFL encompasses approximately three acres located southeast of the former incinerator building, immediately south of a SEDA railroad line. The NCFL was used as a disposal site for non-combustible materials, including construction debris, from 1969 until 1977.

Ash and other residue from the former incinerator were temporarily disposed in an unlined cooling pond immediately north of the incinerator building. The cooling pond consisted of an unlined depression approximately 50 feet in diameter and approximately 6 to 8 feet deep. When the pond filled, the fly ash and residues were removed, transported, and buried in the adjacent ash landfill east of the cooling pond. The refuse was dumped in piles and occasionally spread and compacted. No daily or final cover was applied during operation. According to an undated aerial photograph of the incinerator during operation, the active area of the Ash Landfill extended at least 500 feet north of the incinerator building, near a bend in a dirt road. A fire destroyed the incinerator on May 8, 1979, and the landfill was subsequently closed. Post-closure the landfill was apparently covered with native soil of various thicknesses, but was not closed with an engineered cover or cap. Other areas at the site were used as a grease pit and for burning debris.

2.2 Site Geology/Hydrogeology

The site is underlain by a broad north-to-south trending series of rock terraces covered by a mantle of glacial till. As part of the Appalachian Plateau, the region is underlain by a tectonically undisturbed sequence of Paleozoic rocks consisting of shale, sandstone, conglomerate, limestone and dolostone. At the Ash Landfill site, these rocks (the Ludlowville Formation) are characterized by gray, calcareous shale and mudstone and thin limestone with numerous zones of abundant invertebrate fossils. Locally, the shale is soft, gray, and fissile. The shale, which has a thin weathered zone at the top, is overlain by 2 to 3 feet of Pleistocene-age[1] till deposits. The till matrix varies locally, but generally consists of unsorted silt, clay, sand, and gravel.

The thickness of the till at the Ash Landfill OU generally ranges from 4 to 15 feet. At the location of the biowalls, the thickness of the till and weathered shale is approximately 10 to 15 feet. Groundwater is present in both the shallow till/weathered shale layer and in the deeper competent shale layer. In both water-bearing units, the predominant direction of groundwater flow is to the west, toward Seneca Lake. Based on the historical data, the wells at the Ash Landfill site exhibit rhythmic and seasonal fluctuations in the water table and the saturated thickness. Historic data at the Ash Landfill OU indicate that the saturated interval is thin (generally between 1 and 3 feet thick) in the month of September and is thickest (generally between 6 and 8.5 feet thick) between December and March.

The average linear velocity of the groundwater in the till/weathered shale layer was calculated during the Remedial Investigation (RI) in 1994 using the following parameters: 1) average hydraulic conductivity of 4.5×10^{-4} centimeters per second (cm/sec) (1.28 feet per day [ft/day]), 2) estimated effective porosity of 15% to 20%, and 3) groundwater gradient of 1.95×10^{-2} feet per foot (ft/ft) (Parsons Engineering Science, Inc., 1994). The average linear velocity was calculated as 0.166 ft/day or 60.7 feet per year (ft/yr) at 15% effective porosity and 0.125 ft/day or 45.5 ft/yr at 20% effective porosity. The actual velocity of on-site

[1] The Pleistocene Age, also known as the Late Wisconsin Age, occurred 20,000 years before present.

groundwater may be locally influenced by zones of higher-than-average permeability; these zones are possibly associated with variations in the porosity of the till/weathered shale.

2.3 Soil and Groundwater Impacts

The nature and extent of the COCs at the Ash Landfill OU were evaluated through a comprehensive RI program. It was determined that surface water and sediment were not media of concern and did not require remediation. A groundwater contaminant plume that emanated from the northern end of the Ash Landfill was delineated during the RI. The primary COCs in groundwater at the Ash Landfill are VOCs; the primary COCs in soil at the Ash Landfill are chlorinated and aromatic compounds, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), and, to a lesser degree, metals. Release of the COCs is believed to have occurred during the former activities at the Ash Landfill OU (described above).

Soil

VOCs, specifically trichloroethene (TCE), were detected in the soil in the "Bend in the Road" area. Located northwest of the Ash Landfill, this area is believed to be the source of the groundwater plume. Between 1994 and 1995, the Army conducted a Non-Time Critical Removal Action (NTCRA), also known as an Interim Removal Measure (IRM), to address VOC and PAH contamination in soil near the "Bend in the Road." The excavation limits of the NTCRA are shown on **Figure 3**. The NTCRA successfully reduced the risk associated with potential exposure to contaminated soil, and prevented continued leaching of VOCs to groundwater. Since the NTCRA, concentrations of VOCs in groundwater near the original source area have decreased by two orders of magnitude. Further remediation for VOCs in the soil at the "Bend in the Road" was not required.

The other COCs detected in the soil were PAHs and metals. PAHs were detected at concentrations above NYSDEC's Technical and Administrative Guidance Memorandum (TAGM #4046) values in the NCFL and the Debris Piles present around the former Ash Landfill. In general, the highest PAH concentrations were detected in the NCFL and small Debris Pile surface soils. The metals that were detected at elevated concentrations (significantly above TAGMs) in soils were copper, lead, mercury, and zinc. These elevated concentrations were found in the Ash Landfill, the NCFL, and the Debris Piles, with the highest concentrations of metals detected at the surface of the Debris Piles. These piles were small, localized, surface features that were visibly discernible and did not extend into the subsurface. The former debris piles were excavated and disposed offsite during the RA in 2006.

Groundwater

The primary potential impact to human health and the environment is a groundwater contaminant plume containing dissolved chlorinated solvents, primarily TCE, isomers of dichloroethene (DCE), and vinyl chloride (VC). The plume originates in the "Bend in the Road" area near the northwestern edge of the Ash Landfill and is approximately 1,100 feet long by 625 feet wide. The nearest exposure points for

groundwater are three farmhouse wells located approximately 1,250 feet from the leading edge of the plume near the farmhouse. The location of the farmhouse relative to the plume at the Ash Landfill is shown on **Figure 4**. Two of the farmhouse wells draw water from the till/weathered shale aquifer and the remaining well draws water from the bedrock aquifer. As discussed in Section 4.4 of the RI (Parsons, 1994), plume profiles were constructed for geologic cross sections at the Ash Landfill; based on these profiles it was determined that the plume is vertically restricted to the upper till/weathered shale aquifer and is not present in the deeper competent shale aquifer. As noted above, the source area of the plume was removed by the NTCRA.

2.4 Summary of the Remedial Action

2.4.1 Biowalls

Three biowall pairs were installed to address groundwater contamination on-site, as documented in the Construction Completion Report (Parsons, 2007). The biowalls were constructed by excavating a linear trench to competent bedrock then backfilling the trench to the ground surface with a mixture of mulch and sand.

Biowalls A1/A2, B1/B2, and C1/C2 (as shown in **Figure 2**) were constructed perpendicular to the chlorinated solvent plume at the locations prescribed in the RDR. The entire length of Biowalls A1/A2 and the northern portion of B1/B2 were combined into a single double-width trench (minimum of 6 feet in width) due to unstable soil conditions that caused trench widening. Approximately 2,840 linear feet (lf) of biowalls were constructed in the areas downgradient of the Ash Landfill at depths ranging from 7 feet below ground surface (bgs) to 18.5 feet bgs.

A 12-inch soil cover was placed over the entire length of the biowalls to impede surface water from preferentially flowing into the biowall trenches. Trench spoils were used as the cover material and were compacted with a backhoe. A site visit in December 2010 confirmed that the mulch backfill in the trenches has settled to ground surface.

2.4.2 Incinerator Cooling Water Pond

As specified in the RDR, the Incinerator Cooling Water Pond (ICWP) was re-graded to meet the surrounding grade to prevent the accumulation of water in this inactive pond. Prior to re-grading, the vegetation on the berms surrounding the ICWP was removed with an excavator. The soil berm was then regraded with a dozer to match the surrounding grade. The ICWP was seeded with a standard meadow mix to promote vegetation and to prevent erosion.

2.4.3 Ash Landfill and NCFL Vegetative Cover

A soil cover comprised of mulch, biowall trench spoils that met the site cleanup criteria, and off-site topsoil was placed over the 2.2 acres of the Ash Landfill. The Ash Landfill was covered with 4,380 cubic yards (cy) of fill to achieve a minimum cover thickness of 12 inches. Biowall trench spoils that met the

site cleanup criteria and off-site topsoil were placed over the 3.4 acre NCFL. The NCFL was covered with 6,015 cy of fill to achieve a minimum cover thickness of 12 inches. The purpose of the covers is to prevent terrestrial wildlife from directly contacting or incidentally ingesting metal-impacted soils.

2.4.4 Debris Pile Removal

During the RA, approximately 200 cy of debris was removed from Debris Piles B and C. Approximately 1,000 cy of debris was removed from within and beyond the staked limits of Debris Pile A. The total volume of debris removed was approximately 1,200 cy (1,548 tons).

2.5 Description of Technology Used in Biowalls

Reductive dechlorination is the most important process for natural biodegradation of highly chlorinated solvents (USEPA, 1998) (see **Figure 5**). Complete dechlorination of TCE and other chlorinated solvents is the goal of anaerobic biodegradation via mulch biowall technology.

Biodegradation causes measurable changes in groundwater geochemistry that can be used to evaluate the effectiveness of substrate addition in stimulating biodegradation. For anaerobic reductive dechlorination to be an effective process, generally groundwater must be sulfate-reducing or methanogenic. Thus, groundwater in which anaerobic reductive dechlorination is occurring should have the following geochemical signature:

- Depleted concentrations of dissolved oxygen (DO), nitrate, and sulfate;
- Elevated concentrations of manganese, ferrous iron, methane, carbon dioxide, chloride, and alkalinity; and
- Reduced oxidation reduction potential (ORP).

Treatment of chlorinated ethenes in groundwater using a biowall relies on the flow of groundwater under a natural hydraulic gradient through the biowall to promote contact with slowly-soluble organic matter. As the groundwater flows through the organic matter in the biowall, an anaerobic treatment zone is established in the biowall. The treatment zone may also be established downgradient of the biowall as soluble organic matter migrates with groundwater and stimulates microbial processes.

Solid-phase organic substrates used to stimulate anaerobic biodegradation of chlorinated ethenes include plant mulch and compost. To enhance microbial activity, the mulch may be composted prior to emplacement to more readily degraded material, or mulch may be mixed with an outside source of compost. Mulch is primarily composed of cellulose and lignin, and contains “green” plant material that provides nitrogen and nutrients for microbial growth. These substrates are mixed with coarse sand and placed in a trench or excavation in a permeable reactive biowall configuration. Biodegradable vegetable oil may be added to the mulch mixture to increase the availability of soluble organic carbon.

Degradation of the organic substrate by microbial processes in the subsurface provides a number of breakdown products, including metabolic acids (e.g., butyric and acetic acids). The breakdown products and acids produced by degradation of mulch in a saturated subsurface environment provide secondary fermentable substrates for the generation of molecular hydrogen, which is the primary electron donor utilized in anaerobic reductive dechlorination of chlorinated ethenes. Thus, a mulch biowall has the potential to stimulate reductive dechlorination of chlorinated ethenes for many years. If necessary, mulch biowalls can be periodically recharged with liquid substrates (e.g., emulsified vegetable oils) to extend the life of the biowall. Vegetable oil is a substrate that is readily available to microorganisms as a carbon source that helps establish and continually develop the microbial population. Used in combination with mulch, vegetable oil has the potential to enhance and extend the duration of organic carbon release.

3.0 LONG-TERM MONITORING DATA ANALYSIS AND GROUNDWATER REMEDY EVALUATION

3.1 Sample Collection

Four rounds of sampling were conducted during the first year of LTM, as follows:

- The first quarter, referred to as 1Q2007, was completed between January 3, 2007 and January 4, 2007;
- The second quarter, referred to as 2Q2007, was completed between March 15, 2007 and March 17, 2007;
- The third quarter, referred to as 3Q2007, was completed between June 5, 2007 and June 7, 2007; and
- The fourth quarter, referred to as 4Q2007, was completed between November 13, 2007 and November 15, 2007.

Two rounds of sampling were conducted during the second year of LTM, as follows:

- Round five, referred to as 5R2008, was completed between June 24, 2008 and June 26, 2008; and
- Round six, referred to as 6R2008, was completed between December 11, 2008 and December 15, 2008.

Two rounds of sampling were conducted during the third year of LTM, as follows:

- Round seven, referred to as 7R2009, was completed between June 1, 2009 and June 4, 2009; and
- Round eight, referred to as 8R2009, was completed between December 14, 2009 and December 18, 2009.

Two rounds of sampling were conducted during the fourth year of LTM, as follows:

- Round nine, referred to as 9R2010, was completed between June 28, 2010 and July 2, 2010; and
- Round ten, referred to as 10R2010, was completed between December 14, 2010 and December 19, 2010.

Two rounds of sampling were conducted during the fifth year of LTM, as follows:

- Round eleven, referred to as 11R2011, was completed between July 18, 2011 through July 22, 2011; and
- Round twelve, referred to as 12R2011, was completed between December 12, 2011 and December 15, 2011.

Two rounds of sampling were conducted during the sixth year of LTM, as follows:

- Round thirteen, referred to as 13R2012, was completed between June 18, 2012 through June 22, 2012; and
- Round fourteen, referred to as 14R2012, was completed between December 10, 2012 and December 14, 2012.

The first year of sampling was quarterly, and at that time, the sampling rounds were identified as xQyyyy, where "x" is the round number, and "yyyy" is the 4 digit year. After the first year, the sample frequency was modified to semiannual. An "R" was used to replace the "Q" to denote the round. The round number has been used sequentially since the first quarterly round.

Groundwater samples were collected using low flow sampling techniques during each of the 2012 sampling rounds. Bladder pumps were used to purge the wells and collect the samples during these rounds. Sampling procedures, sample handling and custody, holding times, and collection of field parameters were conducted in accordance with the "Final Sampling and Analysis Plan for Seneca Army Depot Activity (SAP)" (Parsons, 2006a). Field forms for 13R2012 and 14R2012 are included in **Appendix A** on a CD.

Fourteen monitoring wells were sampled and classified into three groups (listed in **Table 1**): eleven on-site plume performance monitoring wells, one off-site compliance monitoring well, and five biowall process monitoring wells. The off-site performance monitoring well, MW-56, is monitored on a semi-annual basis, and was monitored in January 2007, June 2007, June 2008, December 2008, June 2009, December 2009, June 2010, December 2010, October 2011, December 2011, June 2012, and December 2012. The well locations are shown on **Figure 6**.

Three of the biowall process monitoring wells are also plume performance wells (MWT-23, MWT-28, and MWT-29). These five wells are either within or immediately upgradient or downgradient of the biowalls and are used to assess if, and when, the biowalls may require additional substrate. The Annual Report – Year 1 recommended that groundwater samples collected from monitoring wells PT-17 and MWT-7 be analyzed for additional geochemical parameters that are included for the process monitoring wells to better monitor the progress of the treatment zone.

Samples were submitted to Test America Laboratories, Inc. in Buffalo, New York for Rounds 1 through 8 and to Test America Laboratories, Inc. in Savannah, Georgia for Rounds 13 through 14 to be analyzed for VOCs by USEPA SW846 Method 8260B. As indicated in **Table 1**, samples from the wells in the biowall process monitoring group (MWT-23, MWT-26, MWT-27, MWT-28, and MWT-29) and from two wells from the on-site plume performance group (PT-17 and MWT-7) were also submitted to Test America for analysis of the following:

- Sulfate by USEPA Method 300.1
- Total organic carbon (TOC) by USEPA SW846 Method 9060A

Samples from these wells were also submitted to Microseeps, Inc. located in Pittsburgh, Pennsylvania for analysis for methane, ethane, and ethene (MEE) by AM20GAX, Microseeps' version of Method RSK 175.

During sampling in the field, the following geochemical parameters were recorded for the duration of low-flow sampling for each groundwater sample:

- pH, ORP, and conductivity were measured with a Horiba U-52 multi-parameter instrument;
- DO and temperature were measured with a YSI 85 meter; and
- Turbidity was measured with a Lamotte 2020 turbidity meter.

In addition, a HACH® DR/850 Colorimeter was used in the field to measure manganese and ferrous iron at PT-17, MWT-7, MWT-23, MWT-26, MWT-27, MWT-28, and MWT-29. Manganese and ferrous iron were measured by USEPA Method 8034 and USEPA Method 8146, respectively. A summary of the samples collected is presented in **Table 1**.

3.2 Groundwater Elevations

Historic groundwater elevations and groundwater elevations from the four years of LTM rounds are presented in **Figure 7** and **Table 2**. Groundwater contours and groundwater flow direction based on fourteenth round measurements taken on December 10, 2012 are provided in **Figure 8**; these data show that groundwater levels were higher during the fourteenth sampling event than the thirteenth sampling event.

3.3 Geochemical Data

Biodegradation causes measurable changes in groundwater geochemistry that can be used to evaluate the effectiveness of substrate addition in stimulating biodegradation. For anaerobic reductive dechlorination to be an effective process, typically groundwater will be sulfate-reducing or methanogenic. As mentioned above, geochemical parameters collected in the field that also serve as water quality indicators (i.e., pH, ORP, DO, conductivity, and temperature) were recorded for all the wells in the LTM program. Analysis for the additional geochemical parameters of TOC, sulfate, and MEE, and field tests for ferrous iron and manganese, were completed at PT-17, MWT-7, MWT-23, MWT-26, MWT-27, MWT-28, and MWT-29. According to USEPA guidance on natural attenuation of chlorinated solvents (USEPA, 1998), analysis of these geochemical parameters conditions are conducive for anaerobic reductive dechlorination to occur if the following geochemical signatures are identified:

- Depleted concentrations of DO and sulfate;
- Elevated concentrations of methane;
- Reduced ORP;
- Elevated concentrations of soluble organic substrate as defined by TOC in groundwater; and
- An increase in the concentrations of ferrous iron and manganese relative to background conditions.

Geochemical parameter results are shown in **Table 3,** which is organized with the most upgradient well listed first and the most downgradient well listed last. A comparison of the geochemical parameters for wells MWT-26 (upgradient of Biowall B1) to MWT-28 (in Biowall B2) for Year 6, summarized below, demonstrates the change in geochemistry across the B1/B2 Biowalls.

Dissolved Oxygen

DO is the most favored electron acceptor (i.e., yields the most energy) used by microbes during biodegradation of organic carbon, and its presence can inhibit the anaerobic degradation of chlorinated ethenes. In the wells sampled within Biowalls B1/B2 and Biowall C2, DO levels are depleted (less than 1.0 milligrams per liter [mg/L]) in both Year 6 events (see **Table 3**). DO is depleted due to the biological activity encouraged by the biowall substrate. The depletion of DO enhances the potential for anaerobic degradation of chlorinated ethenes in groundwater.

Sulfate

Sulfate is used as an electron acceptor during sulfate reduction, competing with anaerobic reductive dechlorination for available substrate/electron donor. Sulfate levels lower than 20 mg/L are desired to prevent inhibition of reductive dechlorination of chlorinated ethenes (USEPA, 1998). In Year 6,

concentrations were less than 20 mg/L in Biowall B1 (MWT-27), Biowall B2 (MWT-28) and Biowall C2 (MWT-23). The sulfate levels detected within the biowalls (at MWT-27, MWT-28, and MWT-23) were orders of magnitude lower than the concentration of sulfate detected upgradient of Biowalls B1/B2 at MWT-26 (see **Table 3**). These conditions indicate that sulfate is being depleted and that sulfate should not inhibit anaerobic dechlorination within the biowalls.

Methane

The presence of methane in groundwater is indicative of strongly reducing methanogenic conditions. An increase in the concentrations of methane indicates that reducing conditions are optimal for anaerobic reductive dechlorination to occur. Methane was detected in the well upgradient of Biowall B1/B2 (MWT-26) at a concentration of 230 micrograms per liter (µg/L) in Round 13 and at a concentration of 9.4 µg/L in Round 14. Compared to this concentration, concentrations of methane were orders of magnitude greater at the process wells located within biowall B1, B2, and C2 (see **Table 3**). These data demonstrate that there is an increase in the level of methanogenic activity within the biowalls and in downgradient areas, compared to upgradient locations.

Oxidation-Reduction Potential

ORP indicates the level of electron activity in groundwater and the tendency of groundwater to accept or transfer electrons. Low ORP, considered to be less than -100 millivolts (mV), is conducive for anaerobic reductive dechlorination to occur (USEPA, 1998). During Rounds 13 and 14, ORP values upgradient of Biowall B1/B2 were significantly higher than ORP values in the wells within the biowalls, ranging from -120 to -73 which are less than or close to -100 mV (see **Table 3**). These ORP values recorded in the biowalls may not currently support significant sulfate reduction, methanogenesis, and anaerobic reductive dechlorination since some of the readings are greater than the -100mV value. However, since the values are significantly lower than the upgradient value, indicating a change in conditions within the biowalls compared to the upgradient conditions, it remains that the environment in the biowalls is still conducive to anaerobic reductive dechlorination. The ORP data alone may be inconclusive and result in relying on the other lines of evidence (e.g., other geochemical parameters and chemistry) in the analysis of the effective operation of the biowall system.

Total Organic Carbon

The presence of organic substrate is necessary to stimulate and sustain anaerobic degradation processes. In biowalls, organic carbon acts as an energy source for anaerobic bacteria and drives reductive dechlorination. Typically concentrations of TOC greater than 20 mg/L are sufficient to maintain sulfate reducing and methanogenic conditions (USEPA, 1998). As shown in **Table 3**, the TOC concentration in Biowall B1 was greater than the TOC concentrations upgradient of the biowalls. In Biowall C2, the TOC concentration decreased below the threshold value of 20 mg/L, but remained greater than the concentration at upgradient well, MWT-26. There is a decrease in the concentration of TOC as readily degraded organics (i.e., vegetable oil and cellulose) in the mulch mixture are consumed; however, TOC

concentrations on-site remain sufficiently high enough to serve as an energy source for anaerobic bacteria in the biowalls. As discussed below, the change in TOC concentrations has little impact on the efficiency at which chlorinated organics are degraded within the biowalls and does not indicate that the biowalls need to be recharged at this time. Since the TOC concentrations are lower, a conclusion on the continuing effectiveness of the biowalls will be made relying on the other lines of evidence (e.g., other geochemical parameters and chemistry) in the analysis of the effective operation of the biowall system

Ferrous Iron and Manganese

As described in USEPA (1998), Iron III (ferric iron) is an electron acceptor used by iron-reducing bacteria under anaerobic conditions; Iron II (ferrous iron) is the product. Iron III is relatively insoluble in groundwater relative to Iron II. Therefore, an increase in concentrations of Iron II in groundwater is a clear indication that anaerobic iron reduction is occurring. Similarly, USEPA (1998) states that manganese (IV) is an electron acceptor used by manganese-reducing bacteria under anaerobic environments; soluble manganese (II) is the product. Under anaerobic conditions like those at the Ash Landfill, the presence of manganese and ferrous iron in the biowalls at concentrations above those found at upgradient locations, or locations unaffected by the biowalls, demonstrates that manganese reduction and iron reduction are occurring at the site (e.g., Table 3, MWT-27 vs. upgradient MWT-26). These data support the conclusion that conditions within the biowalls are anaerobic and conducive to the degradation of chlorinated ethenes.

Summary

Monitoring data for wells within the biowalls during the sixth year of LTM indicate the following:

- DO remains below 1.0 mg/L at Biowalls B1/B2 and Biowall C2;
- Concentrations of TOC remain elevated in the biowalls, and greater than at the upgradient well;
- ORP values ranged from -120 mV to -71 mV;
- Sulfate remains below 20 mg/L;
- Methane concentrations range from 11 mg/L to 18 mg/L; and
- Ferrous iron concentrations are stable in the biowalls, indicating that conditions are conducive to the degradation of chlorinated ethenes.

A multiple lines-of-evidence approach that evaluates geochemical parameters together with the analytical data indicates that conditions in the biowalls are sufficient to support anaerobic degradation processes. Substrate in the biowalls has not been significantly depleted and biodegradation continues to occur within the biowalls. Highly anaerobic conditions persist within the biowalls and sufficient levels of organic

carbon, ORP, sulfate, and methane are being sustained for effective anaerobic degradation of chlorinated ethenes.

3.4 Chemical Data Analysis and Groundwater Remedy Evaluation

Table 4 summarizes the concentrations of chlorinated ethenes detected in groundwater during the fourteen rounds of LTM. **Table 4** is organized with the most upgradient well listed first and the most downgradient well listed last. A complete presentation of the groundwater data is provided in **Appendix B**. **Figure 6** presents the chlorinated ethene data for the fourteen rounds. The discussion below focuses on data collected during Year 6 (Rounds 13 and 14) of the LTM program, and addresses how the remedial action objectives are being achieved.

Achievement of first performance monitoring objective:

- *Confirm that there are no exceedances of groundwater standards for contaminants of concern (COC) at the off-site trigger monitoring well MW-56.*

Concentrations of chlorinated ethenes at off-site well MW-56 remain low or non-detect, with concentrations of TCE, cis-DCE, and VC meeting regulatory standards. As shown in **Table 4**, the sixth year of LTM confirmed that there were no exceedances of COC groundwater standards at MW-56. VC and TCE were not detected in any of the rounds at MW-56; cis-DCE was detected at MW-56 below its Class GA groundwater standard (5 µg/L) during Year 6.

Achievement of second performance monitoring objective:

- *Document the effectiveness of the biowalls to remediate and attenuate the chlorinated ethene plume.*

TCE remains above the Class GA groundwater standard (5 µg/L) at PT-18A (upgradient of biowalls). Concentrations of TCE at PT-18A varied from a maximum of 2,700 µg/L in the fourth round to a minimum of 220 µg/L in the fifth round over the first three years. In the past three years (2010, 2011, and 2012), the concentration of TCE has fluctuated, showing a decrease to 120 µg/L in the ninth round, further decreasing to 6.3 µg/L in the tenth round, not detected in the eleventh round, increasing to 7.3 µg/L in the twelfth round, increasing to 3,800 µg/L in the thirteenth round, and decreasing to 8 µg/L in the fourteenth round (see **Table 4**). Concentrations of TCE at well MWT-25 (upgradient of Biowall A) have consistently decreased from 50 µg/L in the first quarter to below the Class GA groundwater standard at a concentration of 1.3 µg/L in Round 14.

Concentrations of TCE and cis-DCE within the biowalls at MWT-27 (in Biowall B1), MWT-28 (in Biowall B2), and MWT-23 (in Biowall C2) remain below Class GA standards, which is an expected performance measure. Cis-DCE was reported below Class GA standards in the biowalls in all rounds. In thirteenth and fourteenth round, concentrations of VC within the biowalls were also below the Class GA

standards. Continued sampling is necessary to confirm any trend for VC at MWT-27 in subsequent monitoring events.

The reduction in concentrations of TCE, coupled with concentrations of cis-DCE and VC not being elevated within the biowalls, suggests that complete mineralization of chlorinated ethenes is occurring. Therefore, the biowalls are operating as expected with no loss of performance within the biowalls.

Ethene, a final product of reductive dechlorination, is only slightly elevated within the biowalls. This suggests that multiple anaerobic degradation processes may be occurring within in the biowalls. For example, ethene is not produced by anaerobic oxidation of cis-DCE or VC, nor by abiotic transformation of chlorinated ethenes by reduced iron sulfides. Alternatively, concentrations of ethene may be low since ethene can be further reduced under highly anaerobic conditions or can off-gas with carbon dioxide or methane since it is volatile.

The overall trend in the concentrations of TCE, cis-DCE, and VC at well MWT-26 (between Biowalls A1/A2 and Biowalls B1/B2) is decreasing over time. Concentrations of cis-DCE and VC at this well increased during the Summer 2012 monitoring event, and decreased in the Winter 2012 event. Concentrations of TCE also increased during the Summer 2012 monitoring event and increased slightly in the Winter 2012 event. The area downgradient of MWT-26 is bounded by Biowalls B1/B2 in which the concentrations of TCE, cis-DCE, and VC are non-detect or below their respective Class GA standards. The Army will continue to monitor well MWT-26 to see if a trend in concentrations persists.

Concentrations at MWT-24 (downgradient of Biowall C2) show an overall decline over time, with some seasonal variation in TCE (from 0.94 J µg/L in the first quarter to 5.6 µg/L in the eleventh round) and cis-DCE (from 210 µg/L in the first quarter to 25 µg/L in the fourteenth round), and substantial decline in VC (from 45 µg/L in the second quarter to below the Class GA groundwater standard at 0.31 J µg/L in the fourteenth round). TCE has been at or below the Class GA groundwater standard (5 µg/L) at MWT-24 in all rounds, with the exception of 6.0 µg/L in Round 6 and 5.6 µg/L in Round 11, which were likely due to seasonal fluctuation (i.e., the effects of desorption during a period with frequent precipitation and subsequent high water levels).

The correlation of increasing concentration during the winter season is specific to TCE, observed at MWT-22, MWT-29, PT-22, MWT-24, and PT-17. The data show that cis-DCE and VC, the daughter compounds generated during the degradation of TCE exhibit the opposite seasonal fluctuation trend with increased concentrations occurring during the summer events. The consistent correlation between the higher groundwater levels, the season, and the concentration of TCE at these wells (which decreases in the summer months) leads to a reasonable conclusion that the observed data variations are not a result of overall increasing concentrations of TCE.

The changes in groundwater concentrations of TCE, cis-DCE, and VC as the groundwater passes through the biowalls are shown in **Figures 9A** through **9N** for Rounds 1 through 14, respectively. These figures show that the concentrations of TCE in groundwater within the biowalls are reduced to concentrations

near or below detection limits. The concentration of TCE rebounds with distance downgradient of Biowalls C1/C2; this increase may be due to residual TCE that is desorbing from aquifer soils, diffusing out of low permeability soils, localized conditions, as well as the effect of desorption on the groundwater concentrations observed during winter months when groundwater levels were high which may drive the actual time required to reach compliance. The seasonal variations in COC concentrations are not an indicator of weakened biowall effectiveness and these results indicate that the biowalls treat the water within the biowalls and create a measurable improvement in downgradient water quality.

Anaerobic degradation of TCE may also occur in areas of the aquifer formation that are downgradient of the biowalls, where the presence of soluble organic carbon released from the biowalls enhances reductive dechlorination processes. In these downgradient areas, the concentrations of cis-DCE and VC are higher than they are within the biowalls. This suggests that sequential biotic reductive dechlorination of chlorinated organics is the primary degradation process in the downgradient reaction zones, with the presence of low concentrations of TCE being due to desorption from the aquifer matrix or from back diffusion of contaminated groundwater from low permeability soils. The elevated concentration of ethene, 38 µg/L and 0.8 µg/L observed at MWT-29 in Round 13 and 14 respectively, as compared to the upgradient concentration of 0.5 µg/L and 0.0069 at MWT-26, also indicates that downgradient biotic reductive dechlorination is occurring. Further downgradient, TCE concentrations continued to decrease at MWT-7, which is 310 feet downgradient of Biowalls C1/C2. TCE was detected at a concentration of 280 µg/L in both Round 13 and Round 14.

Achievement of third performance monitoring objective:

- *Confirm that groundwater concentrations throughout the plume are decreasing to eventually meet GA standards.*

In general, concentrations of TCE, cis-DCE, and VC decreased over the twelve sampling events at the wells within and downgradient of the biowalls. Time plots for monitoring wells MWT-25, MWT-26, MWT-27, MWT-28, MWT-29, MWT-22, PT-22, MWT-23, MWT-24, and PT-24 are presented in **Figures 10A** through **10J**, respectively. These plots show an overall decreasing trend for the COCs. **Figures 10E**, **10F**, and **10G** show that the concentrations at MWT-29, MWT-22, and PT-22, respectively, which are located downgradient of Biowalls B1/B2, show an overall decrease during Year 6 of LTM compared to previous years. This confirms that the higher concentrations of TCE that were observed during the winter monitoring event were likely due to limiting factors such as desorption and back diffusion from low permeability soils. In addition, the effect of desorption on the groundwater concentrations observed during winter months when groundwater levels were high may drive the actual time required to reach compliance and do not reflect an overall increasing concentration trend.

An exponential regression, which models first-order decay typical in biological processes, has been calculated for each monitoring well. The regression serves as a means of estimating the time required for the concentrations of chlorinated organics to meet their respective GA groundwater standards. Time plots with regression lines are included as **Appendix C**. Higher concentrations of TCE were observed in

MWT-29 and PT-22 in the winter, while concentrations of cis-DCE and VC were greater in the summer than in the winter months. The time plots with regression lines are presented in **Appendix C** show a graphical representation that as TCE concentrations decrease, the concentrations of VC and cis-DCE increase. At MWT-22 cis-DCE and VC concentrations tend to demonstrate the opposite trend and are greater in the winter than summer month. This may be attributed to low detections of TCE at this well; hence cis-DCE and VC do not follow the seasonal pattern. The regression plots continue to indicate that there are no trends for some COC concentrations at PT-22 and MWT-22.

Table 5 summarizes the trend for each contaminant in each well and includes expected remedial timeframes, when possible. Remediation time estimates were calculated by solving the regression equations for when each COC would achieve its respective Class GA standard. The regression calculations, with the exception of PT-22 and MWT-22, show that all other wells are expected to reach Class GA groundwater standards prior to 2055. Due to variations in data, some of the regression curves show stronger correlations (as indicated by the R^2 values shown on the Appendix C figures) than others. The COCs for which PT-22 and MWT-22 are not expected to comply with Class GA groundwater standards by 2055 tend to exhibit poor correlation. Additional data at these well locations will need to be collected to establish COC trends.

Time plots of the concentration of TCE, cis-DCE, and VC for wells PT-18A, PT-17, and MWT-7 are provided in **Figures 11A**, **11B**, and **11C**, respectively; these plots include historic data prior to the installation of the biowalls. **Figures 11A**, **11B,** and **11C** indicate that there is an overall decreasing trend for TCE, cis-DCE, and VC at PT-18A. There is no trend for cis-DCE or VC at PT-17 and MWT-7. At MWT-7, there is a decreasing trend for TCE. Since PT-18A is located in the Ash Landfill source area upgradient of all biowalls, decreasing trends at this location reflect natural attenuation processes.

PT-17 and MWT-7 are located 150 ft and 310 ft from Biowalls C1/C2, respectively. As such, it is possible that treatment zones have not been established this far downgradient of the biowalls. Nevertheless, an increasing trend for cis-DCE paired with a decreasing trend for TCE may indicate that reductive dechlorination is occurring at these locations. To date, concentrations at these wells are within historic levels and the Army will continue to evaluate any impacts of the biowalls on this portion of the plume.

Other Compounds

Non-chlorinated organics were detected in the groundwater at the Ash Landfill OU, and the data are presented in **Appendix B**. During Round 13, non-chlorinated ethenes (benzene, ethyl benzene, and toluene) were each detected at concentrations below their respective Class GA standards. Benzene was detected at PT-18A at a concentration of 0.48 J µg/L, ethyl benzene was detected at MWT-23 at a concentration of 0.13 J µg/L. Both ethyl benzene and toluene were detected at MWT-28 at concentrations of 0.12 J µg/L and 0.64 J µg/L, respectively. The values detected in MWT-28 represent the average of the sample and the duplicate sample. In Round 14, ethyl benzene, was detected in two wells at concentrations below its respective Class GA standard. Ethyl benzene was detected at MWT-23 at an estimated

concentration of 0.20 J µg/L and at MWT-28 at an estimated concentration of 0.12 J µg/L. The values detected in MWT-23 are the average of the sample and the duplicate sample taken. None of these detected compounds are historical COCs, and their detections are not believed to be associated with historic site operations.

3.5 Biowall Recharge Evaluation

The RDR calls for a recharge evaluation at the end of each year of monitoring. The evaluations completed at the end of Year 1, Year 2, Year 3, Year 4, Year 5 concluded that recharge was not required and that a recharge evaluation would be performed again at the end of Year 6.

Recharge Evaluation Process

A recharge evaluation, defined on Figure 7-3 of the RDR and described below, is the determination of the need to recharge a biowall segment. The evaluation consists of the following:

- Determining the need to recharge a biowall segment requires a review of chemical concentrations and geochemical parameters by an experienced professional. A specific, absolute set of conditions or parameter values are not appropriate to determine the need to recharge. Rather, a lines-of-evidence approach will be used to correlate a decrease in the efficiency of the system to degrade chloroethenes with geochemical evidence that indicates the cause is due to substrate depletion. No single criteria should be used to determine the efficacy of the biowall, thus influencing the decision to recharge or not.

- The following parameters will be evaluated annually using at least two consecutive rounds of sampling data in order to determine if recharge of the biowalls is necessary:

  - COC concentrations in the biowalls (e.g., MWT-27, MWT-28, and MWT-23). Detected COC concentrations that are increasing to levels above Class GA standards in consecutive sample rounds indicates that recharge may need to be considered. Concentrations within the biowalls, not at downgradient locations, will be used to make this evaluation so that the effectiveness of the wall itself is being measured without the interference of effects such as desorption and mixing.

  - Geochemical parameters, specifically ORP, TOC, and DO, in the biowalls (e.g., at MWT-27, MWT-28, and MWT-23). Benchmark values will be used initially to evaluate anaerobic conditions in the groundwater. The benchmarks are:

    - ORP < -100 mV
    - TOC > 20 mg/L
    - DO < 1.0 mg/L

Parameters described in the bullets above are guidelines and will be considered in evaluating if, and when, a depletion of bioavailable organic substrate results in a rebound in geochemical redox conditions under which effective anaerobic degradation of chlorinated ethenes does not occur.

Recharge Evaluation for Year 6

The recharge evaluation for Year 6 indicates that recharging the biowalls is not necessary at this time.

Section 3.2 presents the geochemical data for Year 6. The values of geochemical parameters measured in Year 5 support the interpretation that reductive dechlorination is occurring in Biowalls A1/A2, B1/B2, and C1/C2. The tables below show that the geochemical parameters for the wells within the biowalls meet or are close to the benchmark values and that groundwater conditions remain highly reducing.

Parameter	Benchmark Value	MWT-27 (Qs 1, 2, 3, 4, Rs 5, 6, 7, 8, 9, 10, 11, 12, 13, 14)
ORP (mV)	< -100	-158, -145, -141, -166, -133, -126, -128, -102, -121, -111, -109, -71, -82, -120
TOC (mg/L)	> 20	2050, 1350, 755, 167, 89, 54, 81.7, 50, 61, 32, 42, 35, 28, 35
DO (mg/L)	< 1.0	0.25, 0.08, 0, 0.06, 0.18, 0.13, 0.06, 0.15, 0.05, 0.05, 0.01, 0.08, 0.03, 0.03

Parameter	Benchmark Value	MWT-28 (Qs 1, 2, 3, 4, Rs 5, 6, 7, 8, 9, 10, 11, 12, 13, 14)
ORP (mV)	< -100	-150, -113, -131, -151, -91, -95, -135, -148, -104, -100, -135, -125.9, -76, -73
TOC (mg/L)	> 20	1775, 171, 309, 92, 49, 28, 28.2, 25.5, 21, 12, 17, 12, 18, 25
DO (mg/L)	< 1.0	0.16, 0.09, 0, 0.08, 0.15, 0.10, 0.18, 0.29, 0.06, 0.07, 0.28, 0.02, 0.06, 0.07

Parameter	Benchmark Value	MWT-23 (Qs 1, 2, 3, 4, Rs 5, 6, 7, 8, 9, 10, 11, 12, 13, 14)
ORP (mV)	< -100	-122, -109, -87, -144, -129, -104, -117, -90, -115, -103, -136, -104.1, -71, -91
TOC (mg/L)	> 20	260, 210, 303, 151, 29, 20, 15.6, 17.4, 11, 5.9, 6.2, 6.3, 4.9, 11
DO (mg/L)	< 1.0	0.26, 0.35, 0, 0.12, 0.15, 0.20, 0.07, 0.63, 0.04, 0.29, 0.85, 0.08, 0.08, 0.11

Section 3.3 presents the analytical data for Year 6. As shown in the table below, concentrations of TCE and cis-DCE in the biowalls remain below their respective Class GA standard and have not exceeded their screening criteria since the second round of sampling (e.g., 11 µg/L, cDCE in MW-23). VC has remained below its Class GA standard since R12 when it slightly exceed its screening criteria in one biowall well (MWT-27). None of the COC concentrations have exhibited a consistent increase above their respective Class GA standard in consecutive sample rounds. Further, the ability of the biowalls to sustain a high degree of reductive dechlorination is well established.

		TCE (µg/L)	cis-DCE (µg/L)	VC (µg/L)
MWT-27	Q1	ND	ND	ND
	Q2	ND	ND	ND
	Q3	ND	ND	ND
	Q4	ND	ND	ND
	R5	ND	ND	ND
	R6	ND	ND	ND
	R7	ND	ND	ND
	R8	ND	ND	3.1 J
	R9	ND	0.18 J	ND
	R10	0.51 J	1.1	2.1
	R11	ND	0.21 J	ND
	R12	ND	1.4	3.0
	R13	ND	0.42 J	0.61 J
	R14	ND	ND	ND
MWT-28	Q1	ND	ND	ND
	Q2	ND	ND	ND
	Q3	ND	ND	ND
	Q4	ND	ND	ND
	R5	ND	ND	ND
	R6	ND	ND	ND
	R7	ND	ND	ND
	R8	ND	ND	ND
	R9	ND	ND	ND
	R10	ND	0.51 J	0.64 J
	R11	ND	ND	ND
	R12	ND	0.28 J	0.56 J
	R13	ND	ND	ND
	R14	ND	ND	ND
MWT-23	Q1	ND	60	23
	Q2	ND	11	4.8
	Q3	ND	3.1	ND
	Q4	ND	3.6 J	3.65
	R5	ND	ND	ND
	R6	0.4	2.4	2.8
	R7	ND	0.42 J	ND
	R8	ND	0.47 J	ND
	R9	ND	0.41 J	ND
	R10	0.29 J	4.6	5.3
	R11	ND	0.57 J	0.33 J
	R12	0.18 J	2.0	1.85
	R13	ND	0.55 J	0.33 J
	R14	ND	1.9	1.65

The analytical data at MWT-27 shows TCE was not detected in Rounds 13 and 14. Concentrations of cis-DCE and VC were measured below the Class GA groundwater standards in Round 13, and were below detection limits in Round 14. The Army will continue to monitor MWT-27 in subsequent monitoring events to determine any trend for VC at this well.

At MWT-28, concentrations of cis-DCE, TCE, and VC for the past two rounds of sampling were below detections limits. For the past two round of sampling at MWT-23, TCE, cis-DCE, and VC concentrations were below Class GA groundwater standards.

Overall, the multiple lines-of-evidence approach that evaluates geochemical parameters together with the chemical analytical data indicates that conditions in the biowalls are sufficiently anaerobic to support reductive chlorination of chlorinated ethenes. Substrate in the biowalls has not been significantly depleted and biodegradation continues to occur. Although TOC levels are below the benchmark value at MWT-28 and MWT-23, they remain higher than TOC concentrations in the upgradient well. Low DO concentrations and overall low ORPs indicate that highly reducing conditions are being maintained with the current levels of TOC. Reductions in sulfate and the production of methane further indicate that highly anaerobic conditions are being sustained. There is no singular value that can be specified for any one parameter, in this case TOC, where crossing that value would indicate the need to recharge. Both an increasing trend in VOC concentrations and consistent negative trends in multiple geochemical parameters would need to be observed to consider that recharge is required.

There are some geochemical parameters that are not as strong in the last couple of monitoring rounds and there are some relatively low variations in VOC concentrations. However, recharge should be considered when conditions are such that consistent trends develop that show the geochemical parameters continue to weaken and that concentrations of TCE and cis-DCE are increasing above the GA standard over multiple events.

Based on the review of the analytical and geochemical data, the biowalls do not need to be recharged at this time, and the biowall system continues to meet the long-term monitoring objectives established in the RDR (Parsons, 2006).

3.6 Soil Remedy Evaluation

Part of the remedial action was installing a 12-inch vegetative cover over the Ash Landfill and the NCFL. The covers were inspected and field observations from Year 6 note that the landfills were vegetated with grass and clover. At the NCFL, visual observations noted a small burrow and the presence of deer trails; however, the erosion and the trails cut less than 6 inches into the cover. Therefore, underlying soil has not been exposed to the environment and corrective action is not required. The Army will continue to monitor the integrity of the covers and ensure that the vegetative covers have not been breached and that the underlying soil is not exposed.

3.7 Land Use Controls (LUCs)

The remedy for the Ash Landfill OU requires the implementation and maintenance of land use controls (LUCs). The LUC requirements are detailed in the "Land Use Control Remedial Design for SEAD-27, 66, and 64A, *Addendum 3*" (2008b). The selected LUCs for the Ash Landfill OU are as follows:

- Prevent access to or use of the groundwater until cleanup levels are met;
- Maintain the integrity of any current or future remedial or monitoring system, such as monitoring wells and permeable reactive barriers;
- Prohibit excavation of the soil or construction of inhabitable structures (temporary or permanent) above the area of the existing groundwater plume; and
- Maintain the vegetative soil layer over the ash fill areas and the NCFL to limit ecological contact.

As part of the LTM program, the Army inspected the site to determine that the LUCs are being maintained. While performing the groundwater sampling, it was confirmed that no prohibited facilities have been constructed and no access to or use of groundwater was evident other than that needed for monitoring. As discussed in **Section 3.5**, the vegetative covers are limiting ecological contact with the underlying soil.

During 13R2012 and 14R2012, groundwater monitoring wells were inspected by field personnel. The integrity of all wells at the Ash Landfill is intact and each well is viable for groundwater elevation readings and groundwater sampling, where appropriate. Monitoring wells not required as part of the LTM were decommissioned between September 2010 and January 2011.

3.8 Operating Properly and Successfully

The implemented design has met the requirements for "operating properly and successfully" (OPS) as outlined in Section 12(h)(s) of the USEPA "Guidance for Evaluation of Federal Agency Demonstrations" (USEPA, 1996). Parsons submitted a letter on behalf of the Army to USEPA, dated June 6, 2008, declaring that the Army had determined that the remedy met the OPS requirements. The Army submitted a letter under separate cover on February 26, 2009 further certifying that the "information, data and analysis provided in Parsons' June 6, 2008 letter was true and accurate." On March 11, 2009, the USEPA transmitted a letter to the Army approving the Army's OPS demonstration. The data for Year 6 of the LTM program are consistent with the data for Year 1, Year 2, Year 3, Year 4, and Year 5 and demonstrate that the remedy is OPS, as described below.

The remedial action is operating "properly."

The USEPA guidance describes that "a remedial action is operating 'properly' if it is operating as designed." The Construction Completion Report (CCR) (Parsons, 2007) details that the vegetative covers

were installed as designed, meeting or exceeding the 12-inch of soil cover requirement. **Section 3.5** describes that the covers are intact and effectively prevent ecological contact with the underlying soil; therefore, the vegetative covers are operating properly.

The CCR also details the construction of the biowalls. Deviation from the intended design resulted in wider-than-intended biowalls that required the emplacement of additional mulch; since this is an enhancement of the design, it is fair to say that the biowalls were constructed as designed. The geochemical data presented and discussed in **Section 3.1** indicate that conditions that are favorable to anaerobic reductive dechlorination have been established within and near the biowalls, which was the expectation of the design of the biowall system.

The remedial action is operating "successfully."

A remedial action may receive the USEPA's designation of "operating successfully" (1) if "a system will achieve the cleanup levels or performance goals delineated in the decision document" and (2) if the remedy is protective of human health and the environment. The data presented in **Section 3.3** demonstrate that concentrations of VOCs are decreasing and will eventually meet the Class GA groundwater standards. The time plots presented in **Figures 10A** through **10J** show a decreasing trend for the COCs at the Ash Landfill OU; **Table 5** summarizes the trends in concentrations of COCs over time, demonstrating that the concentrations in groundwater will eventually meet the groundwater standards.

Recent inspection of the vegetative covers at the Ash Landfill and the NCFL indicate that the covers are preventing ecological receptors from contacting the underlying soil; therefore, there is no threat to the environment. The LUCs have been maintained and no one is accessing the groundwater; therefore, there is no threat to human health. Based on a review of the site data, an inspection of the condition of the vegetative covers, and a confirmation that the LUCs are being maintained, the Army believes that the remedial action is operating successfully.

Based on an assessment of the design and construction of the remedial action, as well as an evaluation of the geochemical and analytical data from the three years of groundwater monitoring, the Army believes that the remedial action at the Ash Landfill meets the requirements to be designated as "operating properly and successfully".

4.0 LONG-TERM MONITORING CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Based on the results of the long-term monitoring at the Ash Landfill since the installation of the full-scale biowalls, the Army has made the following conclusions:

- TCE within the biowalls remains below or close to detection limits;

- TCE, cis-DCE, and VC are present in the groundwater at the site at concentrations above respective Class GA groundwater standards;

- Chemical results indicate that the concentrations of chlorinated ethenes are decreasing as they pass through the biowall systems;

- Geochemical parameters indicate that groundwater redox conditions are highly conducive for reductive dechlorination to occur within the biowalls;

- Concentrations of chlorinated ethenes at off-site well MW-56 are below Class GA groundwater standards;

- Continued monitoring is required to determine trends in concentrations of COCs at PT-18A, PT-17, and MWT-7;

- Recharge of the biowalls is not necessary at this time;

- The remedial action continues to meets the requirements of the USEPA's "operating properly and successfully" designation; and

- The Army will continue to monitor the performance of the biowall system, including semi-annual periodic evaluations of the potential need to recharge the biowalls.

4.2 Recommendations

Based on the first six years of long-term monitoring at the Ash Landfill OU, the Army recommends continuing the semi-annual frequency of monitoring based on the process shown in **Figure 12** (which is also Figure 7-3 of the RDR). The recommendations for LTM during year six of monitoring are as follows:

- Biowall process monitoring wells (MWT-26, MWT-27, MWT-28, MWT-29, and MWT-23) will be monitored on a semi-annual basis. Each year a recharge evaluation will be completed. As stated in the RDR (Parsons, 2006b), if a recharge is conducted, MWT-26, MWT-27, and MWT-29 would be excluded from the LTM program, as detailed in **Figure 12**. MWT-28 and MWT-23 will continue to be monitored as part of the performance monitoring wells to supplement data that will be used to determine whether additional biowall recharge is required. The recharge evaluation(s) conducted each year after the first biowall recharge would review the chemical and geochemical data at MWT-28 and MWT-23, and determine if the contaminant increase is a result of poor biowall performance or due to other issues such as seasonal variations in groundwater levels, unusual precipitation events, or desorption and back diffusion;

- Performance monitoring wells (PT-17, PT-18A, PT-22, PT-24, MWT-7, MWT-22, MWT-24, and MWT-25) will continue to be monitored on a semi-annual basis in a manner consistent with the

Year 3 LTM program. In the six years of LTM events at the Ash Landfill OU, the concentrations of COCs in the wells downgradient of the source area (near PT-18A) have decreased;

- The off-site performance monitoring well (MW-56) will continue to be monitored on a semi-annual basis;

- The vegetative covers at the Ash Landfill and the NCFL will be inspected annually to ensure that they remain intact and protective of ecological receptors; and

- The frequency of monitoring and the need to recharge the biowalls will be reviewed in the annual report submitted after the completion of the six year of LTM, based on the process outlined in **Figure 12**.

5.0 REFERENCES

Kampbell, D.H. and J.T. Wilson, 1998. Analysis of dissolved methane, ethane, ethene in groundwater by a standard gas chromatographic technique. *Journal of Chromatography*, Vol. 36:253-256.

Parsons, 1994. Remedial Investigation Report at the Ash Landfill Site, Final, July 1994.

Parsons, 2004. Record of Decision for the Ash Landfill Operable Unit, Final, July 2004.

Parsons, 2006a. Final Sampling and Analysis Plan for Seneca Army Depot Activity (SAP), October 2006.

Parsons, 2006b. Remedial Design Work Plan for the Ash Landfill Site at Seneca Army Depot Activity, July 2006.

Parsons, 2006c. Remedial Design Report for the Ash Landfill Operable Unit, August 2006.

Parsons, 2008a. Land Use Control Remedial Design for SEAD-27, 66, and 64A, Addendum 3, 2008.

Parsons, 2008b. Annual Report and One Year Review for the Ash Landfill Operable Unit, May 2008.

Parsons, 2009. Annual Report and Year Two Review for the Ash Landfill Operable Unit, June 2009.

Parsons, 2010. Annual Report and Year Three Review for the Ash Landfill Operable Unit, August 2010.

Parsons, 2011. Annual Report and Year Four Review for the Ash Landfill Operable Unit, November 2011.

Parsons, 2012. Annual Report and Year Five Review for the Ash Landfill Operable Unit, November 2012.

US Army Environmental Hygiene Agency (USAEHA), 1987. Interim Final Report, Groundwater Contamination Survey No. 38-26-0868-88, July 1987.

United Stated Environmental Protection Agency (USEPA), 1996. Guidance for Evaluation of Federal Agency Demonstrations that Remedial Actions are Operating Properly and Successfully, Interim, August 1996.

USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water. EPA/600/R-98/128, September 1998.

TABLES

Table 1
Groundwater Sample Collection
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

	Monitoring Well Group			Laboratory Analysis				Field Test	
Monitoring Wells	**On-Site Plume Performance Monitoring**	**Biowall Process Monitoring**	**Off-Site Performance Monitoring**	VOC 8260B	TOC 9060A	MEE RSK-175	Sulfate EPA 300.1	Ferrous Iron (mg/L)	Manganese (mg/L)
PT-18A	X			X					
MWT-25	X			X					
MWT-26		X		X	X	X	X	X	X
MWT-27		X		X	X	X	X	X	X
MWT-28	X	X		X	X	X	X	X	X
MWT-29	X	X		X	X	X	X	X	X
MWT-22	X			X					
PT-22	X			X					
MWT-23	X	X		X	X	X	X	X	X
MWT-24	X			X					
PT-17	X			X	X	X	X	X	X
MWT-7	X			X	X	X	X	X	X
PT-24	X			X					
MW-56			X	X					

Notes:
1. All samples were analyzed for field parameters including pH, ORP, dissolved oxygen, conductivity, temperature and turbidity.
2. All samples were collected in Round 13 between June 18, 2012 and June 22, 2012 and in Round 14 between December 12, 2012 and December 14, 2012.

Table 2
Groundwater Elevation Data
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Monitoring Well	Top of Riser Elevation (ft)	Well Depth (rel. TOC) (ft)	LTM R14 - December 2012			Historical Data		
			Saturated Thickness (ft)	Depth to Groundwater (ft)	Water Level Elevation (ft)	Groundwater Elevation (ft)		
						Maximum	Minimum	Range
PT-18A	659.05	12.78	5.52	7.26	651.79	653.25	649.65	3.60
MWT-25	654.507	13.16	9.27	3.89	650.62	650.65	645.93	4.72
MWT-26	652.191	13.13	9.35	3.78	648.41	648.59	644.58	4.01
MWT-27	652.993	12.70	6.51	6.19	646.80	648.23	644.27	3.96
MWT-28	652.685	12.79	6.17	6.62	646.07	647.84	644.20	3.65
MWT-29	651.816	12.99	7.70	5.29	646.53	647.39	643.18	4.21
MWT-22	650.663	14.83	9.31	5.52	645.14	648.13	642.29	5.84
PT-22	648.61	11.90	3.94	7.96	640.65	644.30	637.47	6.83
MWT-23	646.772	13.65	5.21	8.44	638.33	640.45	636.40	4.05
MWT-24	641.564	12.91	5.92	6.99	634.57	635.84	632.11	3.73
PT-17	640.14	7.52	4.50	3.02	637.12	637.50	632.74	4.76
MWT-7	638.34	13.66	7.92	5.74	632.60	633.50	626.58	6.92
PT-24	636.40	11.86	6.92	4.94	631.46	632.76	627.80	4.96
MW-56	630.51	6.48	2.99	3.49	627.02	627.58	624.39	3.19

Table 3
Groundwater Geochemical Data
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Well ID	Location Description	Sample ID	Sample Round	pH	Turbidity (NTU)	Specific Conductance (mS/cm)	DO (mg/L)	ORP (mV)	TOC (mg/L)	Sulfate (mg/L)	Ethane (ug/L)	Ethene (ug/L)	Methane (ug/L)	Manganese (ug/L)	Ferrous Iron (ug/L)
PT-18A	upgradient of walls	ALBW20059	1Q2007	6.63	141	1.69	1.33	93							
		ALBW20074	2Q2007	6.44	110	2.87	0.76	-177							
		ALBW20088	3Q2007	6.71	5	1.66	0	-23							
		ALBW20103	4Q2007	6.41	0.0	1.25	0.04	-5							
		ALBW20117	5R2008	6.36	1.9	1.75	0.22	-10						8.2	> 3.3
		ALBW20132	6R2008	6.58	0.56	2.04	1.76	83							
		ALBW20147	7R2009	6.77	0.45	2.01	0.12	66							
		ALBW20162	8R2009	6.71	0.00	2.04	0.62	154							
		ALBW02177	9R2010	6.7	1.00	2.05	0.1	62						1.5	0.15
		ALBW20192	10R2010	6.66	1.50	1.25	0.16	84							
		ALBW20207	11R2011	6.62	3.30	1.27	0.19	-17							
		ALBW20222	12R2011	6.62	0.40	1.75	0.09	59.9							
		ALBW20237	13R2012	6.80	4.25	1.06	0.12	78							
		ALBW20252	14R2012	6.84	1.83	1.33	4.22	74							
MWT-25	upgradient of Biowall A	ALBW20064	1Q2007	8	9.6	0.29	2.83	63							
		ALBW20079	2Q2007	7.27	14	2.20	2.8	52							
		ALBW20093	3Q2007	7.36	6.2	2.43	4.14	100							
		ALBW20108	4Q2007	6.9	0	1.20	0.21	65							
		ALBW20123	5R2008	6.91	0.52	1.47	0.15	-41						1.4	0.75
		ALBW20138	6R2008	6.69	1.32	1.36	2.91	90							
		ALBW20153	7R2009	7.03	1.6	1.46	0.1	-31							
		ALBW20168	8R2009	7.21	0	0.79	3.35	98							
		ALBW20183	9R2010	7.06	0.7	1.48	0.2	-116							
		ALBW20198	10R2010	7.11	2.59	1.23	0.48	-94							
		ALBW20213	11R2011	6.72	13	1.13	0.03	13							
		ALBW20228	12R2011	7	5.2	1.50	1.5	-54.9							
		ALBW20243	13R2012	7.13	1.71	0.93	0.01	18							
		ALBW20258	14R2012	7.5	3.08	0.88	6.63	32							
MWT-26	**upgradient of Biowalls B1/B2**	ALBW20066	1Q2007	6.89	10	2.01	1.84	-3	3.9 J	958	ND	ND	ND		
		ALBW20081	2Q2007	7.26	9	1.90	0.48	-135	15.2	738	0.4	7.8	210	2.1	> 3.3
		ALBW20095	3Q2007	6.89	2.2	1.94	0.21	-170	10.3	473	1	13	390	3.1	> 3.3
		ALBW20111	4Q2007	7.08	50	1.90	0.89	-40	6.1	1060	0.16	0.4	44	0.0	1.09
		ALBW20126	5R2008	7.05	0.67	1.88	0.31	-71	5.6	600	0.82	2.9	210	1.3	0.81
		ALBW20141	6R2008	7.01	28.7	1.58	3.54	60	4.4	541	0.046	0.028	10	0.6	0.22
		ALBW20156	7R2009	6.95	2.7	1.75	0.34	-11	6.9	570	3.2	2.7	1,100	0.5	0.71
		ALBW20171	8R2009	7.01	10	2.45	4.66	71	5.6	912	2.2	1.8	610	0.7	0.18
		ALBW20186	9R2010	6.99	1.4	2.04	0.14	-81	4.6	680	2.2	0.71	740	1.7	2.67
		ALBW20202	10R2010	6.77	0.6	1.71	0.5	109	5.5	690	3.7	3.3	1600	0	0.13
		ALBW20216	11R2011	6.64	2.4	1.67	0.07	-31	6.3	510	4.5	1	960	6.3	0.89
		ALBW20232	12R2011	7.05	2.2	1.87	0.54	12.1	4.5	860	0.23	ND	39	0.5	0
		ALBW20246	13R2012	7.26	8.72	1.02	0.48	2	4.4	640	1	0.5	230	0.6	0.09
		ALBW20262	14R2012	7.37	1.5	0.91	5.47	103	4.5	430	0.096	0.069	9.4	0	0.01
MWT-27	**in Biowall B1**	ALBW20067	1Q2007	6.34	120	5.31	0.25	-158	2,050 J	ND	ND	ND			
		ALBW20082	2Q2007	6.65	87	4.37	0.08	-145	1350	ND	0.15	2.7	15,000	> 22	> 3.3
		ALBW20096	3Q2007	6.59	154	3.35	0	-141	755	1.9 J	0.081	0.33	13,500	> 22	> 3.3
		ALBW20112	4Q2007	6.43	58	5.76	0.06	-166	167	31.7	ND	0.014 J	13,000	> 22	2.19
		ALBW20127	5R2008	6.49	40	3.07	0.18	-133	88.9	ND	2.3	0.049	13,000	> 22	3.23
		ALBW20142	6R2008	5.95	24.5	2.59	0.13	-126	53.5	24	1.6	0.13	15,000	> 22	3.05
		ALBW20157	7R2009	6.68	38	2.99	0.06	-128	81.7	0.93 J	5.1	0.15	14,000	22	1.88
		ALBW20172/73	8R2009	6.32	5.1	2.38	0.15	-102	50.0	14.0	4.35	1.2	15,500	9	1.26
		ALBW20187	9R2010	6.52	1.4	2.55	0.05	-121	61	0.95 J	3.8	0.12	13,000	> 22	2.54
		ALBW20203	10R2010	6.42	8.91	2.22	0.05	-111	32	25.0	3	0.88	18,000	48	3.30
		ALBW20217/18	11R2011	6.3	3.2	1.75	0.01	-109	42	0.69 J	6.2	0.077	14,000	>22	>3.3
		ALBW20233	12R2011	5.55	16	1.98	0.08	-71	35	19.0	2	1.6	16,000	>22	1.23
		ALBW20247	13R2012	6.68	15.3	1.81	0.03	-82	28	1.4	8.4	0.68	14,000	22	1.80
		ALBW20263	14R2012	6.62	15.6	2.26	0.03	-120	35	2.5	0.88	0.051	13,000	47.5	2.17
MWT-28	**in Biowall B2**	ALBW20068	1Q2007	7.5	163	0.61	0.16	-150	1,775 J	1.7	ND	ND	12,500 J		
		ALBW20083	2Q2007	6.6	21	2.30	0.09	-113	171	ND	0.67	0.48	19,000	7.5	> 3.3
		ALBW20098	3Q2007	6.56	100	2.74	0	-131	309	ND	0.01 J	0.057	11,000	> 22	> 3.3
		ALBW20113	4Q2007	6.48	10	1.72	0.08	-151	92	ND	0.014 J	ND	11,000	> 22	2.15
		ALBW20128	5R2008	6.31	14	2.16	0.15	-91	49.2	ND	0.65	0.044	12,000	> 22	> 3.3
		ALBW20144	6R2008	5.76	17	1.58	0.10	-95	27.9	48.3	2	0.12	19,000	5.3	1.98
		ALBW20158/59	7R2009	6.49	8.5	1.73	0.18	-135	28.2	ND	1.8	0.064	13,000	20.8	2.87
		ALBW20174	8R2009	6.4	10.8	1.88	0.29	-148	25.5	3.16	1.6	0.12	15,000	6.5	2.15
		ALBW20188/89	9R2010	6.36	5.5	1.62	0.06	-104	21	ND	1.55	0.059	13,500	18.6	0.57
		ALBW20204	10R2010	6.28	4.5	0.80	0.07	-100	12	4.8	1.4	0.17	12,000	5.8	2.58
		ALBW20219	11R2011	6.14	3.93	1.44	0.28	-135	17	0.63 J	0.9	0.0085 J	8,800	8.9	>3.3
		ALBW20234	12R2011	5.76	6.2	0.77	0.02	-125.9	12	19	1.6	ND	12,000	1.1	0.48
		ALBW20248/49	13R2012	6.46	7.41	1.16	0.06	-76	18	0.58	3.1	0.069	14,000	16.4	1.65
		ALBW20264	14R2012	6.27	16.3	1.38	0.07	-73	25	1.1	0.38	0.074	11,000	36	2.79
MWT-29	**downgradient of Biowall B2**	ALBW20070	1Q2007	6.49	7.2	2.10	0.33	-76	25.1 J	113	ND	ND	ND		
		ALBW20084/5	2Q2007	6.8	1.7	2.21	0.39	-53	36.7	173	25	150	8,100	7.5	> 3.3
		ALBW20099	3Q2007	6.64	1.8	1.68	0.11	-79	15.7	151	13	160	2,800	8.1	2.84
		ALBW20114	4Q2007	7.04	12.2	1.88	0.21	-101	20.9	289	19	200	2,600	8.6	> 3.3
		ALBW20129/30	5R2008	6.44	2.7	1.85	0.17	-115	14.1	174	14.5	140	3,100	0.0	> 3.3
		ALBW20145	6R2008	6.57	3.69	1.58	1.32	67	13.6	312	14	19	2,700	3.3	0.20
		ALBW20160	7R2009	6.8	1.9	1.80	0.15	-105	11.8	300	10	47	3,000	6.8	2.97
		ALBW20175	8R2009	6.87	0	2.05	0.58	-75	8.2	644	6.7	12	1,500	6.3	0.96
		ALBW20190	9R2010	6.77	2	1.74	0.06	-86	10	170	18	88	5,400	9.1	2.54
		ALBW20205	10R2010	6.71	1.07	1.31	0.56	22	7.4	300	5.1	7.9	3,100	6.4	2.60
		ALBW20220	11R2011	6.55	2.8	1.37	0.05	-90	7.7	170	8.3	47	3,100	12.1	0.03
		ALBW20235	12R2011	6.26	1.9	0.90	0.29	-30.2	4.9	210	1.7	7.3	760	1	0.04
		ALBW20250	13R2012	6.78	1.05	1.05	0.07	-29	8.2	95	10	38	5,200	19.6	2.88
		ALBW20265	14R2012	6.96	1.58	0.61	4.99	312	4.8	130	0.58	0.8	180	1.2	0.00
MWT-22	downgradient of Biowall B2	ALBW20071	1Q2007	7.7	4.5	0.13	0.09	-80							
		ALBW20075	2Q2007	6.72	41	2.16	0.3	-65							
		ALBW20100	3Q2007	6.45	2.7	2.03	0.05	-107							
		ALBW20115	4Q2007	6.53	7.5	1.81	0.18	-132							
		ALBW20121	5R2008	6.38	14	2.21	0.3	-34						18.2	> 3.3
		ALBW20136	6R2008	6.44	8.17	1.86	0.57	-19							
		ALBW20151	7R2009	6.59	13	2.14	0.31	-91							
		ALBW20166	8R2009	6.5	15	0.90	0.34	-65							
		ALBW20181	9R2010	6.52	16.8	2.20	0.22	-63							
		ALBW20196	10R2010	6.39	6.8	1.34	0.07	-58							
		ALBW20211	11R2011	6.2	3.6	1.27	0.16	-71							
		ALBW20226	12R2011	5.65	7.7	1.81	0.05	10							
		ALBW20241	13R2012	6.41	8.78	1.37	0.17	-27							
		ALBW20256	14R2012	6.54	12	1.53	0.11	-55							
PT-22	between Biowalls B and C	ALBW20060	1Q2007	7.70	4.5	0.13	0.09	-80							
		ALBW20086	2Q2007	6.78	7	1.18	0.78	-54							
		ALBW20089	3Q2007	6.67	0	1.44	0.09	-97							
		ALBW20104	4Q2007	6.73	5.1	1.26	0.17	-166							
		ALBW20118	5R2008	6.69	7.4	1.38	0.29	-119						0.3	1.38
		ALBW20133	6R2008	6.79	1.96	1.20	0.69	-37							
		ALBW20148	7R2009	6.76	11	1.53		-123							
		ALBW20163	8R2009	6.74	6.3	1.45	1.0	-73							
		ALBW20178	9R2010	6.87	3.6	1.39	0.4	-75							
		ALBW20193	10R2010	6.75	0.8	1.14	0.18	15							
		ALBW20208	11R2011	6.65	2	0.88	0.39	-62							
		ALBW20223	12R2011	5.95	0.38	1.57	0.27	205.8							
		ALBW20238	13R2012	6.74	8.4	0.90	2.50	12							
		ALBW20253	14R2012	6.98	1.44	0.73	5.36	201							

Table 3
Groundwater Geochemical Data
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Seneca Army Depot Activity

Well ID	Location Description	Sample ID	Sample Round	pH	Turbidity (NTU)	Specific Conductance (mS/cm)	DO (mg/L)	ORP (mV)	TOC (mg/L)	Sulfate (mg/L)	Ethane (ug/L)	Ethene (ug/L)	Methane (ug/L)	Manganese (ug/L)	Ferrous Iron (ug/L)
MWT-23	**in Biowall C2**	ALBW20065	1Q2007	7.2	5	0.20	0.26	-122	260 J	ND	ND	ND	12,000		
		ALBW20080	2Q2007	6.51	30	1.80	0.35	-109	210	ND	45	5.9	23,000	5.4	2.73
		ALBW20094	3Q2007	6.3	69.3	1.82	0	-87	303	ND	4.1	0.28	18,000	> 22	2.99
		ALBW20109	4Q2007	6.32	21	2.21	0.12	-144	151	2.8	0.58	0.35	16,000	> 22	2.32
		ALBW20125	5R2008	6.27	29	1.54	0.15	-129	28.4	ND	0.53	0.048	18,000	> 22	> 3.3
		ALBW20140	6R2008	6.44	32	1.86	0.20	-104	20.1	6.3	4.6	1.2	19,000	> 22	2.75
		ALBW20155	7R2009	7.72	16	1.50	0.07	-117	15.6	ND	1.6	0.16	21,000	22	2.08
		ALBW20170	8R2009	6.78	10	2.10	0.63	-90	17.4	ND	1	0.058	18,000	7	3.3
		ALBW20185	9R2010	6.38	9	1.57	0.04	-115	11	ND	2.4	0.038	18,000	>22	1.71
		ALBW20200/201	10R2010	6.41	2.8	1.07	0.29	-103	5.9	16	16	2.85	16,000	13	> 3.3
		ALBW20215	11R2011	6.21	5.97	1.20	0.85	-136	6.2	1.5	2.3	0.1	15,000	8	>3.3
		ALBW20230/231	12R2011	5.64	6.7	1.00	0.08	-104.1	6.3	14	8.9	1.2	16,000	12.6	1.17
		ALBW20245	13R2012	6.52	6.14	0.92	0.08	-71	4.8	1.5	5	0.26	18,000	31.1	3.3
		ALBW20260	14R2012	6.33	8.56	1.07	0.11	-91	11	13	2.6	0.64	15,500	46.1	2.18
MWT-24	downgradient of Biowalls C1/C2	ALBW20063	1Q2007	7.02	10	0.76	0.27	-160							
		ALBW20078	2Q2007	6.91	59	1.08	0.32	-146							
		ALBW20092	3Q2007	6.8	5.4	1.48	0.03	-115							
		ALBW20107	4Q2007	6.81	134	1.32	0.41	-114							
		ALBW20122	5R2008	6.65	45	1.21	0.35	-43						9.1	1.54
		ALBW20137	6R2008	6.40	10	1.31	0.09	40							
		ALBW20152	7R2009	6.81	6.7	1.34	0.11	-20							
		ALBW20164	8R2009	6.61	23	0.56	1.31	59							
		ALBW20182	9R2010	6.63	6.8	1.45	0.06	-21							
		ALBW20197	10R2010	6.78	8.9	0.92	0.14	10							
		ALBW20212	11R2011	6.67	75	0.74	0.39	27							
		ALBW20227	12R2011	6.56	8.67	0.63	0.10	46.2							
		ALBW20242	13R2012	7.22	10.2	0.75	0.11	3							
		ALBW20257	14R2012	6.69	9.47	0.69	0.55	181							
PT-17[1]	downgradient of biowalls	ALBW20058	1Q2007	8	3.8	92.00	0.23	-111							
		ALBW20073	2Q2007	7.1	14	0.73	0.76	-151							
		ALBW20087	3Q2007	6.99	0.4	0.73	0.9	-157							
		ALBW20102	4Q2007	7.12	8.7	2.00	NS	-24							
		ALBW20116	5R2008		70		0.24		6	15.2	98	66	5700		
		ALBW20131	6R2008	6.68	0.85	0.80	0.30	26	2.6	45.8	6.9	6.6	380	2.8	0.43
		ALBW20146	7R2009	7.19	0.2	1.00	0.30	-20	4.9	28	50	56	8300	7.5	0.53
		ALBW20161	8R2009	6.75	4	0.35	0.58	-52	2.4	46.2	9.9	5	1,500	2.1	0.07
		ALBW20176	9R2010	6.73	0.9	0.82	0.11	-13	2.4	36	16	20	4,300	5.8	0.29
		ALBW20191	10R2010	6.72	0.45	0.62	0.21	42	1.5	31	4.8	3.5	900	4.0	0.06
		ALBW20206	11R2011	6.57	4	0.57	0.85	-22	3.4	24	1.8	3.8	780	>22	0.64
		ALBW20221	12R2011	6.73	3.03	0.69	2.63	91	1.6	27	1.7	2.4	810	0.6	0.01
		ALBW20236	13R2012	7.09	2.8	0.69	0.17	28	2.8	25	10	12	8,200	4.6	0
		ALBW20251	14R2012	6.74	0.51	0.57	3.44	52	1.7	35	2.2	2.4	810	2.2	0.08
MWT-7	immed. upgradient of ZVI wall	ALBW20062	1Q2007	6.8	19.6	0.58	0.01	62							
		ALBW20077	2Q2007	6.95	8	0.76	0.76	52							
		ALBW20091	3Q2007	6.91	4	0.59	0.19	22							
		ABLW20106	4Q2007	6.88	0	0.90	0.16	14							
		ALBW20120	5R2008	6.85	15	0.97	0.43	37	2.3	29.1	6.7	2	400	0.2	0.09
		ALBW20135	6R2008	6.85	7.37	0.86	0.28	66	29.1	3	11	0.27	670	0.8	0.16
		ALBW20150	7R2009	7.61	2.6	0.79	0.05	16	3.1	27	7.8	0.76	1100	0	0.05
		ALBW20165	8R2009	7.12	0.9	0.56	0.46	32	4.5	29.3	17	0.52	2,900	0.01	0.14
		ALBW20180	9R2010	6.85	1.35	1.04	0.02	-21	1.5	29	9	0.55	1,700	0.2	0.19
		ALBW20195	10R2010	6.85	3.3	0.76	0.06	35	1.3	31	4.5	0.2	400	1.1	0.18
		ALBW20210	11R2011	6.7	0.85	0.78	0.08	-85	2	39	4.9	0.21	1,600	0.4	0.45
		ALBW20225	12R2011	6.56	3.9	0.62	0.17	197	1.7	26	0.84	ND	79	0.2	0.05
		ALBW20240	13R2012	6.86	3.67	0.64	0.24	-35	1.6	28	3.1	0.33	1,600	0.1	0
		ALBW20255	14R2012	6.85	1.74	0.60	2.84	34	1.6	29	0.64	0.067	96	0	0.1
PT-24	downgradient of ZVI wall	ALBW20061	1Q2007	8.1	10	70.00	0.37	-59							
		ALBW20076	2Q2007	7.58	0	0.46	2.2	-59							
		ALBW20090	3Q2007	7.22	1.3	0.56	0.13	-80							
		ALBW20105	4Q2007	7.35	9.7	2.38	0.19	-46							
		ALBW20119	5R2008	6.99	4.3	0.90	0.16	-104						0.5	0.55
		ALBW20134	6R2008	6.84	5.8	0.66	0.11	-10							
		ALBW20149	7R2009	7.14	4.1	0.68	0.05	-101							
		ALBW20164	8R2009	7.32	1	0.41	0.34	-192						1.9	0.2
		ALBW20179	9R2010	7.07	8.3	0.78	0.19	-37							
		ALBW20194	10R2010	7.05	6.14	0.57	0.09	-29							
		ALBW20208	11R2011	6.69	1.6	0.53	0.82	-16							
		ALBW20224	12R2011	6.79	0.48	0.39	0.13	26.2							
		ALBW20239	13R2012	7.47	8.9	0.55	0.14	-55							
		ALBW20254	14R2012	6.95	1.23	0.43	1.19	77							
MW-56 [2]	off-site well	ALBW20072	1Q2007	6.85	3.30	0.46	0.37	-102							
		ALBW20101	3Q2007	6.90	0.00	0.60	NS	-65							
		ALBW20124	5R2008	6.73	2.00	0.76	0.18	-132						0.4	1.18
		ALBW20139	6R2008	6.85	6.00	0.55	0.81	-125							
		ALBW20154	7R2009	7.01	0.10	0.62	0.23	-186							
		ALBW20169	8R2009	6.59	7.30	0.31	1.86	-149							
		ALBW20184	9R2010	6.85	3.19	0.40	0.16	-131							
		ALBW20199	10R2010	6.88	1.26	0.66	0.32	-105							
		ALBW20214	11R2011	6.89	4.80	0.66	0.21	-105							
		ALBW20229	12R2011	7.15	5.50	0.42	0.45	-74.2							
		ALBW20244	13R2012	7.00	1.20	0.52	0.23	-283							
		ALBW20259	14R2012	6.95	3.16	0.50	0.93	-69							

Notes:
> = The concentration exceeded the range of the Hach DR/850 Colorimeter field kit.
J = the reported value is an estimated concentration.
ND = Non-detect.
NS = Not sampled; water level was below the indicator probe.

1Q2007 - First round of LTM (January 2007)
2Q2007 - Second round of LTM (March 2007)
3Q2007 - Third round of LTM (June 2007)
4Q2007 - Fourth round of LTM (November 2007)
5R2008 - Fifth Round of LTM (June 2008)
6R2008 - Sixth Round of LTM (December 2008)
7R2009 - Seventh Round of LTM (June 2009)
8R2009 - Eighth Round of LTM (December 2009)
9R2010 - Ninth Round of LTM (June 2010)
10R2010 - Tenth Round of LTM (December 2010)
11R2011 - Eleventh Round of LTM (July 2011)
12R2011 - Twelfth Round of LTM (December 2011)
13R2012 - Thirteenth Round of LTM (June 2012)
14R2012 - Fourteenth Round of LTM (December 2012)

Empty cells indicate that the specified analysis was not completed for that well. The bolded wells are the five wells included in the biowall process monitoring group.
Analysis of TOC, sulfate, methane, ethane, and ethene were completed for the biowall process wells only.
1. During the 5R2008 event the water level in PT-17 was extremely low and water quality readings were not collected.
2. During the 11R2011 event, data was collected at MW-56 in October 2011.

Table 4
Chlorinated Organics in Groundwater
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Upgradient

Sample Identification		Sample Date	PCE (ug/L)	TCE (ug/L)	1,1-DCE (ug/L)	cis-DCE (ug/L)	trans-DCE (ug/L)	VC (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)
		Class GA Standard (ug/L)	5	5	5	5	5	2	5	0.6
PT-18A	upgradient of walls	3-Jan-07	1 U	2000	0.64 J	220	1.6	2.4	1 U	1 U
		17-Mar-07	1 U	1000	0.73 J	170	1.4	2.9	1 U	1 U
		5-Jun-07	1 U	1100	1.4	430	3.3	3.3	1 U	1 U
		15-Nov-07	1 U	2700	2.1	720	3.4	8.2	1 U	1 U
		24-Jun-08	1 U	220	1 U	200	0.9 J	1.4	1 U	1 U
		12-Dec-08	0.36 U	1400	1.3	510	2.4	4.6	0.75 U	0.21 U
		4-Jun-09	0.36 U	810 J	0.8 J	260	1.8	2.6	0.75 U	0.21 U
		17-Dec-09	1.5 U	2100	1.5 U	630	3.5 J	7.1	2 J	0.86 U
		1-Jul-10	0.15 U	120	0.11 U	28	0.2 U	0.18 U	0.25 U	0.1 U
		19-Dec-10	0.15 U	6.3	0.11 U	0.54 J	0.2 U	0.18 U	0.25 U	0.1 U
		22-Jul-11	1 U	0.13 U	1.5	15	0.2 U	120	62	0.1 U
		15-Dec-11	0.15 U	7.3	0.11 U	0.53 J	0.2 U	0.18 U	0.25 U	0.1 U
		21-Jun-12	0.15 U	3800	2.6	820	4.7	10	0.25 U	0.1 UJ
		12-Dec-12	0.15 U	8	0.11 U	0.8 J	0.2 U	0.18 U	0.25 U	0.1 U
MWT-25	upgradient of Biowall A	3-Jan-07	1 U	50	1 U	41	0.56 J	1.6	1 U	1 U
		17-Mar-07	1 U	55	1 U	84	1.2	9.6	1 U	1 U
		6-Jun-07	1 U	28	1 U	36	0.5 J	2.1	1 U	1 U
		15-Nov-07	1 U	26	1 U	17	1 U	0.64 J	1 U	1 U
		24-Jun-08	1 U	19	1 U	17	1 U	1 U	1 U	1 U
		15-Dec-08	0.36 U	3.2	0.29 U	0.63 J	0.13 U	0.24 U	0.75 U	0.21 U
		3-Jun-09	0.36 U	12	0.29 U	10	0.13 U	0.24 U	0.75 U	0.21 U
		17-Dec-09	0.36 U	4.2	0.38 U	3.3	0.42 U	0.24 U	0.29 U	0.21 U
		30-Jun-10	0.15 U	7.7	0.11 U	13	0.49 J	0.18 U	0.25 U	0.1 U
		19-Dec-10	0.15 U	1.9	0.11 U	0.97 J	0.2 U	0.18 U	0.25 U	0.1 U
		20-Jul-11	0.15 U	4.4	0.11 U	14	0.45 J	0.72 J	0.25 U	0.1 U
		15-Dec-11	0.15 U	1.6	0.11 U	0.30 J	0.20 U	0.18 U	0.25 U	0.1 U
		21-Jun-12	0.15 U	6.1	0.11 U	6.80	0.20 U	0.18 U	0.25 U	0.1 UJ
		12-Dec-12	0.15 U	1.3	0.11 U	0.39 J	0.20 U	0.18 U	0.25 U	0.1 U
MWT-26	**upgradient of Biowalls B1/B2**	3-Jan-07	1 U	10	1 U	19	0.6 J	2	1 U	1 U
		17-Mar-07	1 U	11	1 U	17	1	6.1	1 U	1 U
		5-Jun-07	1 U	3.2	1 U	11	0.7 J	4.4	1 U	1 U
		15-Nov-07	1 U	2.8	1 U	2.8	1 U	1 U	1 U	1 U
		24-Jun-08	1 U	1.7	1 U	3.3	1 U	1 U	1 U	1 U
		15-Dec-08	0.36 U	1.9	0.29 U	1	0.13 U	0.24 U	0.75 U	0.21 U
		3-Jun-09	0.36 U	3.6	0.29 U	6	0.13 U	3.5	0.75 U	0.21 U
		17-Dec-09	0.36 U	5.8	0.38 U	8.1	0.42 U	4.2	0.29 U	0.21 U
		29-Jun-10	0.15 U	1.7	0.11 U	5.5	0.37 J	0.18 U	0.25 U	0.1 U
		19-Dec-10	0.15 U	4.2	0.11 U	12	0.67 J	7.6	0.25 U	0.1 U
		20-Jul-11	0.15 U	1.6	0.11 U	9.8	0.81 J	4.4	0.25 U	0.1 U
		15-Dec-11	0.15 U	1.2	0.11 U	1.1	0.2 U	0.47 J	0.25 U	0.1 U
		20-Jun-12	0.15 U	1.6	0.11 U	4.4	0.24 J	1.1	0.25 U	0.1 UJ
		14-Dec-12	0.15 U	2.1	0.11 U	3.1	0.2 U	0.56 J	0.25 U	0.1 U
MWT-27	**in Biowall B1**	3-Jan-07	20 U	20 UJ	20 UJ	49 J	20 UJ	20 UJ	20 UJ	20 UJ
		16-Mar-07	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
		5-Jun-07	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
		15-Nov-07	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
		24-Jun-08	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
		15-Dec-08	3.6 U	1.8 U	2.9 U	1.6 U	1.3 U	2.4 U	7.5 U	2.1 U
		3-Jun-09	3.6 U	1.8 U	2.9 U	1.6 U	1.3 U	2.4 U	7.5 U	2.1 U
		16-Dec-09	1.8 U	2.3 U	1.9 U	1.9 U	2.1 U	3.1 J	1.5 U	1.1 U
		29-Jun-10	0.15 U	0.13 U	0.11 U	0.18 J	0.2 U	0.18 U	0.25 U	0.1 U
		20-Dec-10	0.15 U	0.51 J	0.11 U	1.1	0.2 U	2.1	0.25 U	0.1 U
		20-Jul-11	0.15 U	0.13 U	0.11 U	0.21 J	0.28 J	0.18 U	0.25 U	0.1 U
		14-Dec-11	0.15 UJ	0.13 U	0.11 U	1.4	0.2 U	3.0	0.25 U	0.1 U
		20-Jun-12	0.15 U	0.13 U	0.11 U	0.42 J	0.2 U	0.61 J	0.25 U	0.1 UJ
		13-Dec-12	0.15 U	ND	0.11 U	ND	0.2 U	0.18 U	0.25 U	0.1 U
MWT-28	**in Biowall B2**	3-Jan-07	20 U	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ
		16-Mar-07	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
		5-Jun-07	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
		15-Nov-07	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
		25-Jun-08	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
		15-Dec-08	3.6 U	1.8 U	2.9 U	1.6 U	1.3 U	2.4 U	7.5 U	2.1 U
		3-Jun-09	0.36 U	0.18 U	0.29 U	0.16 U	0.13 U	0.24 U	0.75 U	0.21 U
		18-Dec-09	1.8 U	2.3 U	1.9 U	1.9 U	2.1 U	1.2 U	1.5 U	1.1 U
		29-Jun-10	0.15 U	0.13 U	0.11 U	0.15 U	0.2 U	0.18 U	0.25 U	0.1 U
		18-Dec-10	0.15 U	0.13 U	0.11 U	0.51 J	0.2 U	0.64 J	0.25 U	0.1 U
		19-Jul-11	0.15 U	0.13 U	0.11 U	0.15 U	0.2 U	0.18 U	0.25 U	0.1 U
		14-Dec-11	0.15 UJ	0.13 U	0.11 U	0.28 J	0.2 U	0.56 J	0.25 U	0.1 U
		20-Jun-12	0.15 U	0.13 U	0.11 U	0.15 U	0.2 U	0.18 U	0.25 U	0.1 UJ
		14-Dec-12	0.15 U	ND	0.11 U	ND	0.2 U	0.31 J	0.25 U	0.1 U
MWT-29	**downgradient of Biowall B2**	3-Jan-07	2 U	22	2 U	280	6.5	140	2 U	2 U
		16-Mar-07	4 U	19	4.5 U	220	7.75	165	4.5 U	5 U
		5-Jun-07	2 U	7.6	2 U	100	2.1	81	2 U	2 U
		14-Nov-07	1 U	4.4	1 U	96	0.83 J	74	1 U	1 U
		25-Jun-08	1 U	3.3	1 U	84	0.65 J	74	1 U	1 U
		15-Dec-08	0.36 U	6.6	0.29 U	91	0.6 J	80	0.75 U	0.21 U
		3-Jun-09	0.36 U	4.5	0.29 U	61	0.67 J	43	0.75 U	0.21 U
		16-Dec-09	0.36 U	3.5	0.38 U	37	0.65 J	29	0.29 U	0.21 U
		30-Jun-10	0.15 U	1.3	0.26 J	78	1.1	69	0.25 U	0.1 U
		19-Dec-10	0.15 U	2.1	0.4 J	38	0.77 J	27	0.25 U	0.1 U
		20-Jul-11	0.15 U	0.79 J	0.11 U	33	1.6	43	0.25 U	0.1 U
		14-Dec-11	0.15 UJ	2.4	0.11 U	8.5	0.26 J	5.9	0.25 U	0.1 U
		20-Jun-12	0.15 U	0.69 J	0.11 U	36	0.59 J	49	0.25 U	0.1 UJ
		14-Dec-12	0.15 U	3.3	0.11 U	25	0.44 J	11	0.25 U	0.1 U
MWT-22	downgradient of Biowall B2	3-Jan-07	2 U	5.2	2 U	130	2.7	98	2 U	2 U
		17-Mar-07	4 U	3.8 J	4 U	90	4 U	64	4 U	4 U
		6-Jun-07	1 U	6.5	1 U	120	3.2	81	1 U	1 U
		14-Nov-07	1 U	2.6	1 U	99	0.85 J	180	1 U	1 U
		25-Jun-08	5 U	3 J	5 U	68	5 U	42	5 U	5 U
		15-Dec-08	1.8 U	5.9	1.4 U	160	0.65 U	140	3.8 U	1 U
		3-Jun-09	0.36 U	2.2	0.29 U	66	0.77 J	89	0.75 U	0.21 U
		16-Dec-09	1.8 U	2.3 U	1.9 U	57	2.1 U	52	1.5 U	1.1 U
		1-Jul-10	0.15 U	0.6 J	0.12 J	41	1.3	57	0.25 U	0.1 U
		17-Dec-10	0.15 U	1.8	0.66 J	130	2.8	98	0.25 U	0.25 J
		20-Jul-11	0.15 U	0.32 J	0.11 U	23	2.0	59	0.25 U	0.1 U
		14-Dec-11	0.15 UJ	2.3	0.38 J	140	3.9	83	0.25 U	0.29 J
		21-Jun-12	0.15 U	0.48 J	0.11 U	57	5.0	90	0.25 U	0.1 UJ
		12-Dec-12	0.15 U	0.73 J	0.11 U	86	3.8	100	0.25 U	0.22 J
PT-22	between Biowalls B and C	3-Jan-07	1 U	11	1 U	57	0.86 J	22	1 U	3.3
		15-Mar-07	1 U	16	1 U	41	0.51 J	13	1 U	2.4
		5-Jun-07	1 U	8.5	1 U	61	0.72 J	32	1 U	5.6
		14-Nov-07	1 U	9.7	1 U	30	0.67 J	11	1 U	5
		26-Jun-08	1 U	4.1	1 U	26	0.57 J	13	1 U	3.9
		15-Dec-08	0.36 U	35	0.29 U	52	0.41 J	1.3	0.75 U	2.8
		2-Jun-09	0.36 U	6.9	0.29 U	41	0.81 J	11	0.75 U	4
		16-Dec-09	0.36 U	8.7	0.38 U	29	0.42 U	9.5	0.29 U	3
		30-Jun-10	0.15 U	4.6	0.11 U	43	0.75 J	11	0.25 U	3.2
		17-Dec-10	0.15 U	29	0.11 U	42	0.48 J	2.1	0.25 U	1.9
		22-Jul-11	0.15 U	31	0.11 U	42	0.2 U	0.18 U	0.25 U	0.1 U
		14-Dec-11	0.15 UJ	34	0.11 U	32	0.37 J	0.68 J	0.25 U	1.9
		21-Jun-12	0.15 U	7.9	0.11 U	31	0.84 J	4	0.25 U	2.1
		13-Dec-12	0.15 U	28	0.11 U	26	0.2 U	0.46 J	0.25 U	1.6

Table 4
Chlorinated Organics in Groundwater
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Sample Identification		Sample Date	PCE (ug/L)	TCE (ug/L)	1,1-DCE (ug/L)	cis-DCE (ug/L)	trans-DCE (ug/L)	VC (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)
		Class GA Standard (ug/L)	5	5	5	5	5	2	5	0.6
MWT-23	**in Biowall C2**	3-Jan-07	4 U	4 U	4 U	60	4 U	23	4 U	2.3 J
		16-Mar-07	4 U	4 U	4 U	11	4 U	4.8	4 U	4 U
		6-Jun-07	2 U	2 U	2 U	3.1	2 U	2 U	2 U	1.6 J
		16-Nov-07	7 U	7 U	2.6 U	3.6 J	7 U	3.7 J	7 U	7 U
		25-Jun-08	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J
		12-Dec-08	0.36 U	0.41 J	0.29 U	2.4	0.13 U	2.8	0.75 U	0.6 J
		2-Jun-09	0.36 U	0.18 U	0.29 U	0.42 U	0.13 U	0.24 U	0.75 U	0.64 J
		15-Dec-09	0.36 U	0.46 U	0.38 U	0.47 J	0.42 U	0.24 U	0.29 U	0.21 U
		29-Jun-10	0.15 U	0.13 U	0.11 U	0.41 J	0.2 U	0.18 U	0.25 U	0.66 J
		19-Dec-10	0.15 U	0.29 J	0.11 U	4.6	0.49 J	5.3	0.52 J	1.6
		19-Jul-11	0.15 U	0.13 U	0.11 U	0.57 J	0.22 J	0.33 J	0.25 U	1
		14-Dec-11	0.15 UJ	0.16 J	0.11 U	2.0	0.35 J	1.8	0.33 J	1.3
		20-Jun-12	0.15 U	0.13 U	0.11 U	0.55 J	0.42 J	0.33 J	0.25 U	0.65 J
		13-Dec-12	0.15 U	ND	0.11 U	1.9	0.29 J	1.65	0.25 U	0.72 J
MWT-24	downgradient of Biowalls C1/C2	3-Jan-07	1 U	0.94 J	1 U	210	2.1	19	0.81 J	1 U
		15-Mar-07	1 U	1 U	1 U	68	0.88 J	45	0.83 J	1 U
		5-Jun-07	2 U	2 U	2 U	19	2 U	22	1.1 J	2 U
		13-Nov-07	1 U	1.6	1 U	6.7	1 U	3.8	1 U	1 U
		26-Jun-08	5 U	5 U	5 U	31	5 U	5 U	5 U	5 U
		12-Dec-08	0.36 U	6	0.29 U	52	0.13 U	3.6	0.75 U	0.21 U
		2-Jun-09	0.36 U	4.8	0.29 U	38	0.13 U	7.3	0.75 U	0.21 U
		15-Dec-09	0.36 U	4.7	0.7 J	32	0.42 U	4	0.29 U	0.21 U
		1-Jul-10	0.15 U	5	0.11 U	31	0.41 J	7.5	0.79 J	0.1 U
		17-Dec-10	0.15 U	3.3	0.11 U	23	1	4.3	0.58 J	0.1 U
		21-Jul-11	0.15 U	5.6	0.11 U	39	1.6	17	0.25 U	3.3
		13-Dec-11	0.15 U	3.1	0.11 U	16	0.39 J	2.3	0.44 J	0.1 U
		19-Jun-12	0.15 U	2.7	0.11 U	28	1.5	5.3	0.8 J	0.1 UJ
		12-Dec-12	0.15 U	4.1	0.11 U	25	0.2 U	0.31 J	0.57 J	0.1 U
PT-17	downgradient of biowalls	2-Jan-07	1 U	6	1 U	62	1 U	21	1 U	1 U
		15-Mar-07	2 U	11	2 U	26	2 U	21	2 U	2 U
		5-Jun-07	1 U	3.4	1 U	43	0.77 J	9.9	1 U	1 U
		13-Nov-07	1 U	15	1 U	27	0.54 J	22	1 U	1 U
		26-Jun-08	1 U	8.5	1 U	21	1 U	23	1 U	1 U
		11-Dec-08	0.36 U	9.2	0.29 U	24	0.46 J	10	0.75 U	0.21 U
		2-Jun-09	0.36 U	8	0.29 U	56	1.1	55	0.75 U	0.21 U
		15-Dec-09	0.36 U	7.8	0.38 U	65	1.8	20	0.29 U	0.21 U
		1-Jul-10	0.15 U	3	0.24 J	81	3.2	53	0.25 U	0.1 U
		18-Dec-10	0.15 U	8.1	0.42 J	39	2.2	16	0.25 U	0.1 U
		21-Jul-11	1 U	4.5	0.11 U	94	7.0	56	0.25 UJ	0.1 U
		13-Dec-11	0.15 U	11	0.11 U	25	1.8	12	0.25 U	0.1 U
		19-Jun-12	0.15 U	6.9	0.37 J	170	18.0	66	0.25 U	0.1 UJ
		13-Dec-12	0.15 U	12	0.18 J	68	8.3	21	0.25 U	0.1 U
MWT-7	immed. upgradient of ZVI wall	4-Jan-07	1 U	490	1 U	35	1 U	0.51 J	1 U	1 U
		15-Mar-07	1 U	440	1 U	42	1 U	9.7	1 U	1 U
		5-Jun-07	1 U	410	1 U	61	1 U	18	1 U	1 U
		13-Nov-07	1 U	510	1 U	90	1 U	24	1 U	1 U
		25-Jun-08	1 U	440	1 U	90	1 U	12	1 U	1 U
		15-Dec-08	0.36 U	410	0.29 U	79	0.13 U	13	0.75 U	0.21 U
		2-Jun-09	0.36 U	330	0.29 U	68	0.13 U	9.3	0.75 U	0.21 U
		15-Dec-09	0.36 U	350	0.38 U	140	0.55 J	21	0.48 J	0.21 U
		1-Jul-10	0.15 U	330	0.78 J	170	0.91 J	15	0.25 U	0.1 U
		18-Dec-10	0.15 U	310	0.98 J	120	0.75 J	15	0.25 U	0.1 U
		22-Jul-11	0.15 U	0.52 J	0.11 U	12	0.34 J	2.6	0.94 J	0.1 U
		13-Dec-11	0.15 U	2.3	0.11 U	56	0.24 J	4.3	1.2	0.1 U
		19-Jun-12	0.15 U	280	0.59 J	140	0.64 J	11	0.25 U	0.1 UJ
		13-Dec-12	0.15 U	280	0.5 J	100	0.33 J	5.9	0.25 U	0.1 U
PT-24	downgradient of ZVI wall	2-Jan-07	1 U	4	1 U	54	0.86 J	0.6 J	0.68 J	1 U
		15-Mar-07	1 U	2.8	1 U	38	0.81 J	1 U	1 U	1 U
		5-Jun-07	1 U	3.1	1 U	60	1.6	2.6	0.75 J	1 U
		13-Nov-07	1 U	3.8	1 U	39	1 U	1 U	0.56 J	1 U
		26-Jun-08	1 U	2.4	1 U	48	1.1	1.9	0.69 J	1 U
		12-Dec-08	0.36 U	2.2	0.29 U	34	0.36 J	0.26 J	0.75 U	0.21 U
		2-Jun-09	0.36 U	1.7	0.29 U	32	0.83 J	2	0.75 U	0.21 U
		15-Dec-09	0.36 U	1.7	0.38 U	28	0.61 J	1.6	0.29 U	0.21 U
		30-Jun-10	0.15 U	0.39 J	0.11 U	33	1.1	3.8	0.54 J	0.1 U
		17-Dec-10	0.15 U	0.53 J	0.11 U	30	1.4	7.7	0.54 J	0.1 U
		21-Jul-11	0.15 U	0.38 J	0.11 U	37	1.4	7.9	0.78 J	0.1 U
		13-Dec-11	0.15 U	0.82 J	0.11 U	21	0.63 J	2.9	0.48 J	0.1 U
		19-Jun-12	0.15 U	0.87 J	0.11 U	30	0.84 J	2.8	0.57 J	0.1 UJ
		12-Dec-12	0.15 U	1.1	0.11 U	18	0.38 J	0.18 U	0.32 J	0.1 U
MW-56	off-site well	4-Jan-07	1 U	1 U	1 U	1.2	1 U	1 U	1 U	1 U
		6-Jun-07	1 U	1 U	1 U	1.7	1 U	1 U	1 U	1 U
		26-Jun-08	1 U	1 U	1 U	1.3	1 U	1 U	1 U	1 U
		11-Dec-08	0.36 U	0.33 J	0.29 U	0.4 J	0.13 U	0.24 U	0.75 U	0.21 U
		4-Jun-09	0.36 U	0.18 U	0.29 U	1	0.13 U	0.24 U	0.75 U	0.21 U
		18-Dec-09	0.36 U	0.46 U	0.38 U	0.56 J	0.42 U	0.24 U	0.29 U	0.21 U
		1-Jul-10	0.15 U	0.13 U	0.11 U	0.61 J	0.2 U	0.18 U	0.25 U	0.1 U
		19-Dec-10	0.15 U	0.13 U	0.11 U	0.86 J	0.2 U	0.18 U	0.25 U	0.1 U
		4-Oct-11	0.15 U	0.13 U	0.11 U	2.3	0.2 U	0.18 U	0.25 U	0.1 U
		12-Dec-11	0.15 U	0.13 U	0.11 U	0.95 J	0.2 U	0.18 U	0.25 U	0.1 U
		18-Jun-12	0.15 U	0.13 U	0.11 U	2.2	0.2 U	0.18 U	0.25 U	0.1 UJ
		14-Dec-12	0.15 U	ND	0.11 U	0.85 J	0.2 U	0.18 U	0.25 U	0.1 U

Downgradient

Notes:
1. Sample duplicate pairs were collected at MWT-28 in Jan-07, June-10, and June-12; MWT-29 in Mar-07, Jun-08, and Dec-09; MWT-27 in Jun-07, Dec-08, Dec-09, July-11; and MWT-23 in Nov-07, Dec-10, Dec-11 and Dec-12. If an analyte was detected in the sample but not detected in the duplicate (or vice versa) the non-detect value was taken at half the detection limit averaged with the detect value.
2. Wells in bold are the biowall process monitoring wells.
3. Grey shading indicates that the concentration was detected above its Class GA groundwater standard. The Class GA Groundwater standard for TCE and cis-DCE is 5 ug/L; for VC the Class GA standard is 2 ug/L.

U = compound was not detected.
J = the reported value is an estimated concentration.
UJ = the compound was not detected; the associated reporting limit is approximate.

Table 5
Groundwater Trends
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Sampled Wells	Location			TCE	cis-DCE	VC
PT-18A	upgradient of walls	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		8 Decreasing 14-Jul-2041	0.8 J Compliant	0.18 U Compliant
MWT-25	upgradient of Biowall A	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		1.3 Compliant	0.39 J Compliant	0.18 U Compliant
MWT-26	upgradient of Biowalls B1/B2	Sample Date: 14-Dec-12 Trend: Est. Date[2]:		2.1 Compliant	3.1 Compliant	0.56 J Compliant
MWT-27	in Biowall B1	Sample Date: 13-Dec-12 Trend: Est. Date[2]:		0.13 U Compliant	0.15 U Compliant	0.18 U Compliant
MWT-28	in Biowall B2	Sample Date: 14-Dec-12 Trend: Est. Date[2]:		0.13 U Compliant	0.15 U Compliant	0.31 J Compliant
MWT-29	downgradient of Biowall B2	Sample Date: 14-Dec-12 Trend: Est. Date[2]:		3.3 Compliant	25 Decreasing 3-Sep-2021	11 Decreasing 24-Jun-2016
MWT-22	downgradient of Biowall B2	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		0.73 J Compliant	86 Decreasing 19-Sep-2017	100 No Trend
PT-22	between Biowalls B and C	Sample Date: 13-Dec-12 Trend:		28 Increasing	26 Decreasing 5-Sep-2028	0.46 J Compliant
MWT-23[1]	in Biowall C2	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		0.13 U Compliant	1.9 Compliant	1.65 Compliant
MWT-24	downgradient of Biowalls C1/C2	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		4.1 Compliant	25 Decreasing 11-Jun-2031	0.31 J Compliant
PT-17	downgradient of biowalls	Sample Date: 13-Dec-12 Trend: Est. Date[2]:		12 Decreasing	68 No Trend	21 No Trend
MWT-7	immed. upgradient of ZVI wall	Sample Date: 13-Dec-12 Trend: Est. Date[2]:		280 Decreasing 9-Nov-2024	100 No Trend	5.9 No Trend
PT-24	downgradient of ZVI wall	Sample Date: 12-Dec-12 Trend: Est. Date[2]:		1.1 Compliant	18 Decreasing	0.18 U Compliant
MW-56	off-site well	Sample Date: 14-Dec-12 Trend:		0.13 U Compliant	0.85 J Compliant	0.18 U Compliant

Notes:

1. The concentrations presented were an average of the sample duplicate pair.
2. The date that the groundwater standard will be achieved is estimated based on an exponential regression of the time plots for each well. The dates are rough estimates that indicate that the groundwater concentrations will eventually reach the GA standard and are not intended to represent a definitive timeframe in which the GA standards will be achieved.
3. Overall concentrations follow a decreasing trend; however further monitoring is needed to elucidate the dates at which compounds can be expected to reach groundwater standards.

U = compound was not detected.

J = the reported value is an estimated concentration.

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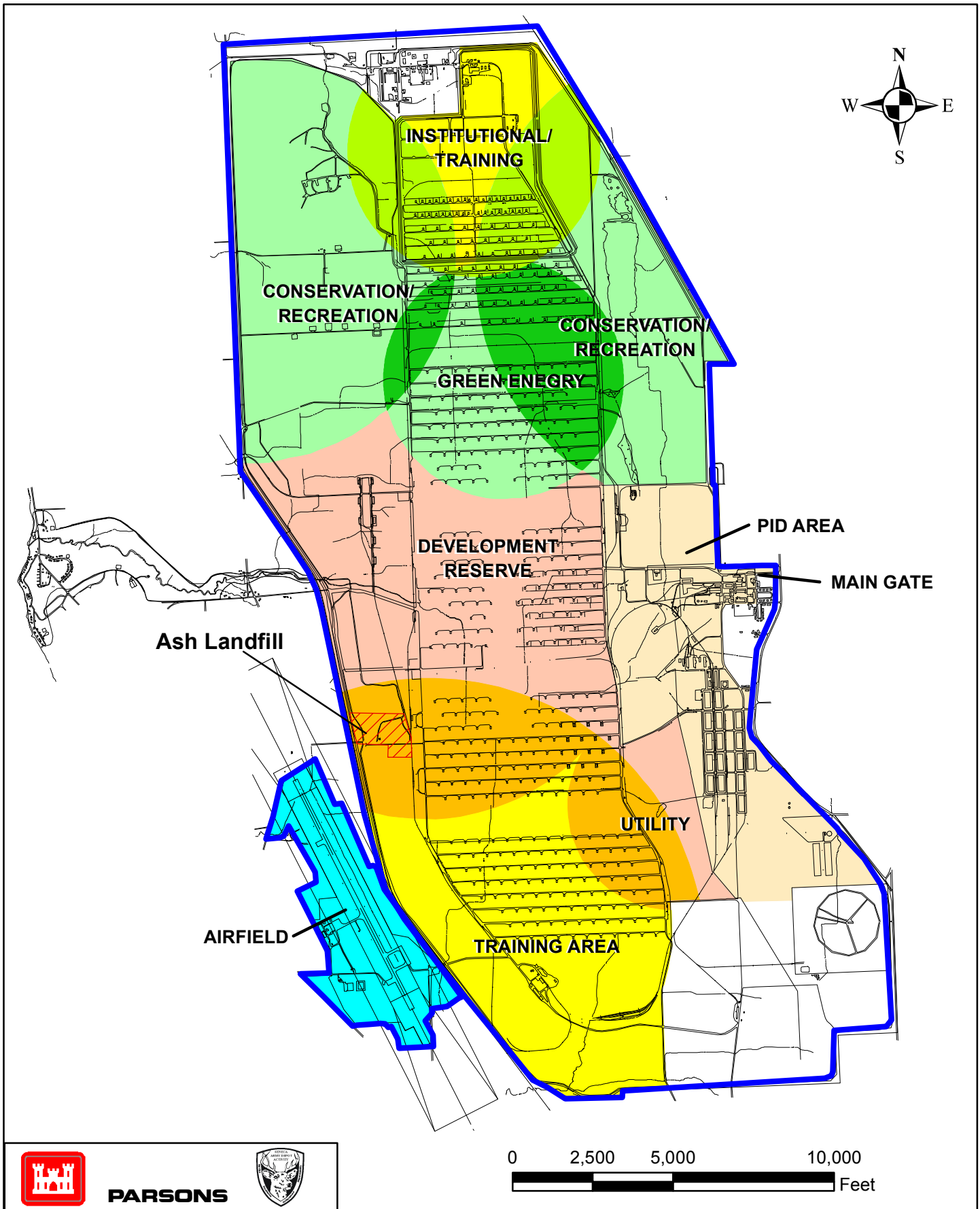
FIGURES



PARSONS

SENECA ARMY DEPOT ACTIVITY

ASH LANDFILL ANNUAL REPORT

FIGURE 1
ASH LANDFILL LOCATION AT SEDA

APRIL 2013

Seneca Army Depot Boundary

Ash Landfill (SEADs 3, 6, 8, 14 & 15)
Operational Unit Boundary

Path: P:\PIT\Projects\Huntsville Cont W912DY-08-D-0003\TO#12 - Ash Landfill\Annual Report Yr6\Figures\CAD\FIGURE 1.mxd

N

W-A

W-B

W-C

W-D

W-E

W-F

NON-COMBUSTIBLE FILL LANDFILL (NCFL) (SEAD-8) 3.4 ACRES

ASH LANDFILL (SEAD-6) 2.2 ACRES

FORMER INCINERATOR

APPROXIMATE LOCATION OF 6" WATER MAIN

APPROXIMATE LOCATION OF 6" WATER MAIN

WEST SMITH FARM ROAD

WEST PATROL ROAD

ZERO VALENT IRON WALL

SEDA PROPERTY BOUNDARY

A1/A2

B1

B2

C1

C2

SEAD-1 EL.630.90'

SEAD-2 EL.634.91'

PT-10 PT-16 PT-17 PT-18A PT-19 PT-20 PT-22 PT-24

MW-39 MW-40 MW-44A MW-46 MW-48 MW-56 MW-58D

MWT-1, -3 MWT-4, -5, -6 MWT-7, -8, -9 MWT-10 MWT-12R MWT-17R MWT-22 MWT-23 MWT-24 MWT-25 MWT-26 MWT-27 MWT-28 MWT-29 MWT-32

MW-29

650 660 670 680 640 630

LEGEND:

- PAVED ROAD
- DIRT ROAD
- GROUND CONTOUR AND ELEVATION
- TREE
- WETLAND & DESIGNATION
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SURVEY MONUMENT
- MONITORING WELL AND DESIGNATION
- RAILROAD TRACKS
- WATER MAIN
- POST CONSTRUCTION AS BUILT GROUND ELEVATION CONTOUR
- PILOT STUDY BIOWALL (2005)
- SINGLE BIOWALL (2006)
- DOUBLE-WIDE BIOWALL (2006)
- ZERO VALENT IRON WALL (1998)
- LIMITS OF LANDFILL
- SEDA PROPERTY BOUNDARY
- OU BOUNDARY

100 0 100 200
(feet)

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

ASH LANDFILL

ASH LANDFILL ANNUAL REPORT

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	

FIGURE 2

ASH LANDFILL

SITE PLAN

SCALE	DATE	REV
	APRIL 2013	-

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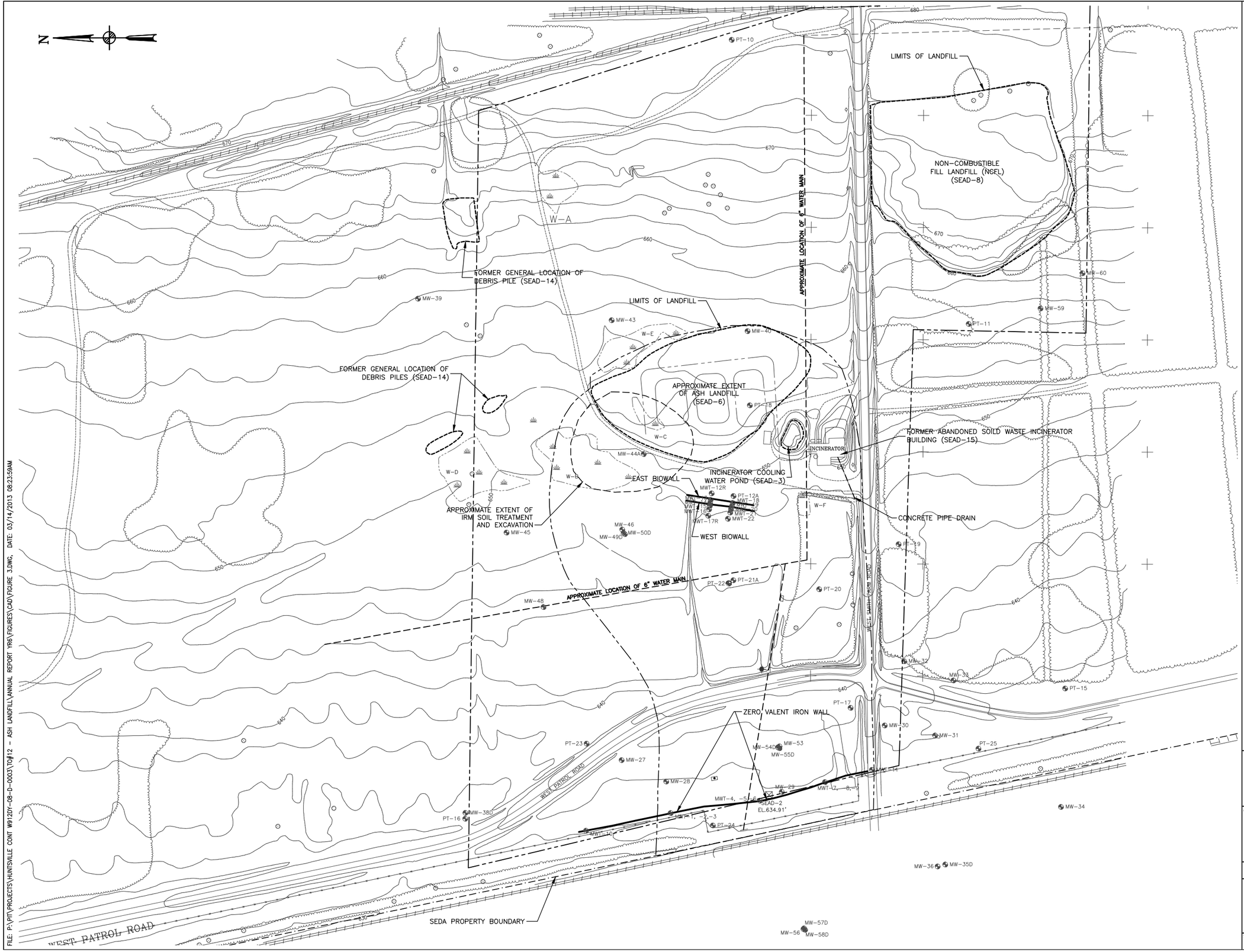

LEGEND:

- PAVED ROAD
- DIRT ROAD
- GROUND CONTOUR AND ELEVATION
- TREE
- WETLAND & DESIGNATION
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SURVEY MONUMENT
- MONITORING WELL AND DESIGNATION
- RAILROAD TRACKS
- WATER MAIN
- APPROXIMATE EXTENT OF IRM SOIL TREATMENT AND EXCAVATION
- APPROXIMATE AREA REQUIRING LAND USE CONTROLS
- SEDA PROPERTY BOUNDARY
- OU BOUNDARY

NOTE:

FIGURE SHOWS PRE-CONSTRUCTION CONDITIONS

100 0 100 200
(feet)

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT
ASH LANDFILL
ASH LANDFILL ANNUAL REPORT

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	

FIGURE 3
ASH LANDFILL
HISTORIC SITE MAP

SCALE	DATE	REV
	APRIL 2013	

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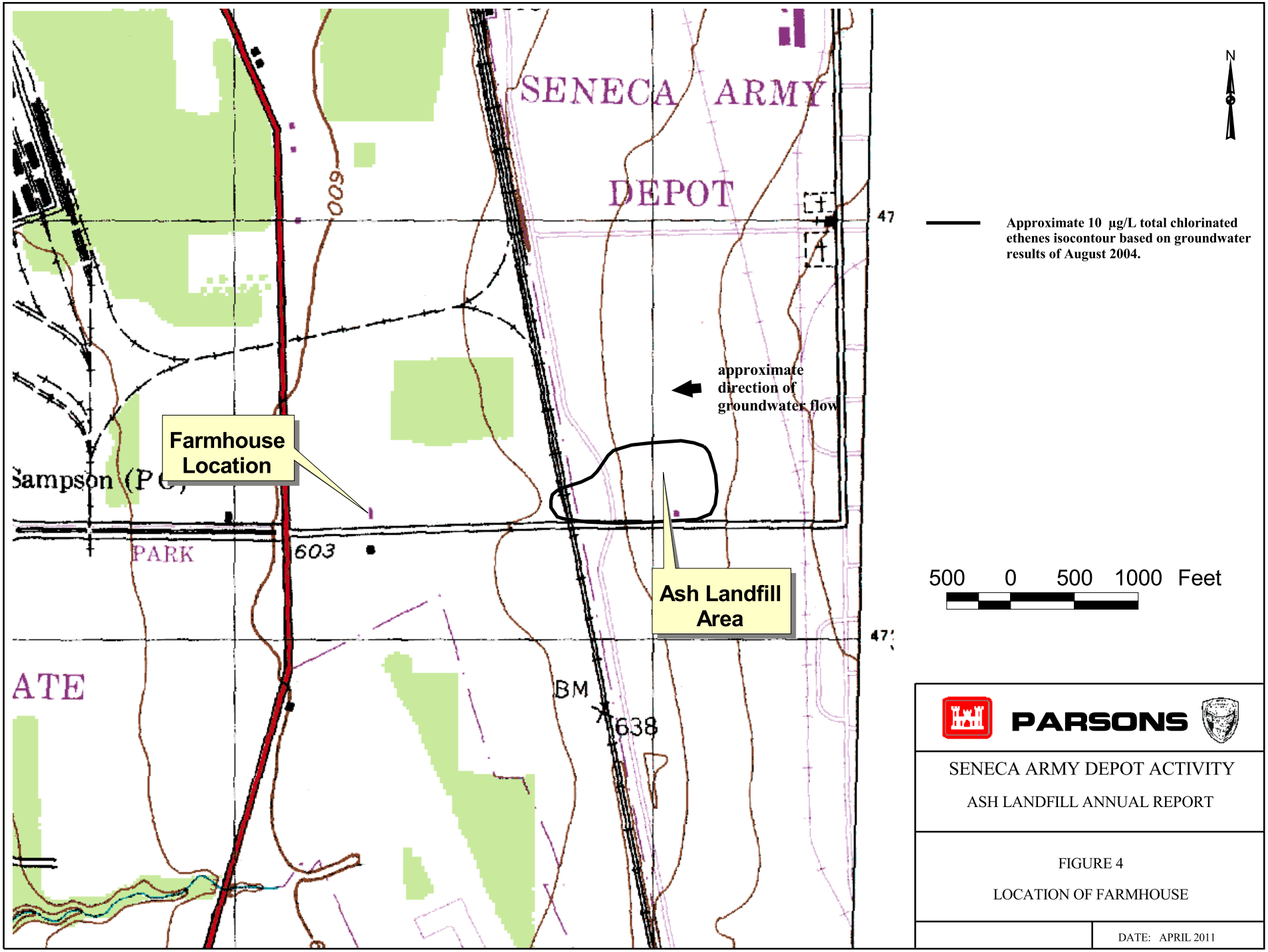

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PARSONS

SENECA ARMY DEPOT ACTIVITY

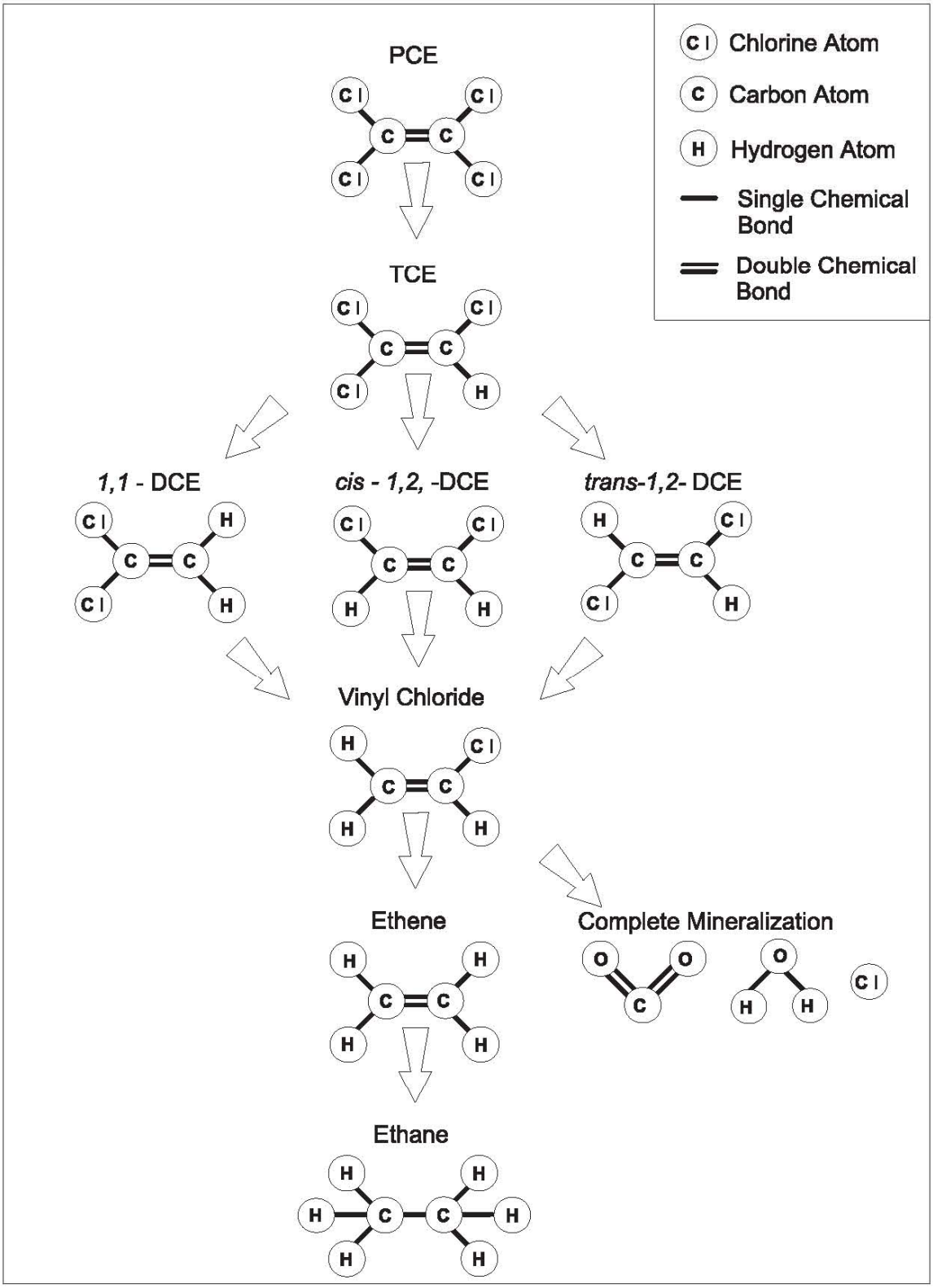
ASH LANDFILL ANNUAL REPORT

FIGURE 4

LOCATION OF FARMHOUSE

DATE: APRIL 2011

Figure 5
Reductive Dechlorination of Chlorinated Ethenes
Ash Landfill Annual Report
Seneca Army Depot Activity



(USEPA, 1998)

N

GROUNDWATER FLOW DIRECTION

ASH LANDFILL

10

100

650

640

A1/A2

B1

B2

C1

C2

W-B

W-C

W-E

W-F

MW-40

MW-44A

MW-46

MW-48

MW-27

MW-32

MW-33

MW-29

MWT-10

PT-18

PT-18A

PT-12A

MWT-12R

MWT-17R

MWT-25

MWT-26

MWT-27

MWT-28

MWT-22

MWT-29

PT-21A

PT-22

PT-20

PT-19

MWT-23

MWT-24

PT-17

MWT-7

MWT-8,-9

MWT-4, -5, -6

MWT-1, -2, -3

PT-24

SEAD-2
EL.634.91'

MW-56

MW-58D

APPROXIMATE LOCATION OF 6" WATER MAIN

WEST PATROL ROAD

SEDA PROPERTY BOUNDARY

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	2000	220	2.4
Mar-07	1000	170	2.9
Jun-07	1100	430	3.3
Nov-07	2700	720	8.2
Jun-08	220	200	1.4
Dec-08	1400	510	4.6
Jun-09	810 J	260	2.6
Dec-09	2100	630	7.1
Jun-10	120	28	ND
Dec-10	ND	0.54 J	ND
Jul-11	ND	15	120
Dec-11	7.3	0.53 J	ND
Jun-12	3800	820	10
Dec-12	8	0.8 J	ND

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	50	41	1.6
Mar-07	55	84	9.6
Jun-07	28	36	2.1
Nov-07	26	17	0.64 J
Jun-08	19	17	ND
Dec-08	3.2	0.63 J	ND
Jun-09	12	10	ND
Dec-09	4.2	3.3	ND
Jun-10	7.7	13	ND
Dec-10	1.9	0.97 J	ND
Jul-11	4.4	14	0.72 J
Dec-11	1.6	0.3 J	ND
Jun-12	6.1	6.8	ND
Dec-12	1.3	0.39 J	ND

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	10	19	2
Mar-07	11	17	6.1
Jun-07	3.2	11	4.4
Nov-07	2.8	2.8	ND
Jun-08	1.7	3.3	ND
Dec-08	1.9	1	ND
Jun-09	3.6	6	3.5
Dec-09	5.8	8.1	4.2
Jun-10	1.7	5.5	ND
Dec-10	4.2	12	7.6
Jul-11	1.6	9.8	4.4
Dec-11	1.2	1.1	0.47 J
Jun-12	1.6	4.4	1.1
Dec-12	2.1	3.1	0.56 J

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	ND	49 J	ND
Mar-07	ND	ND	ND
Jun-07	ND	ND	ND
Nov-07	ND	ND	ND
Jun-08	ND	ND	ND
Dec-08	ND	ND	ND
Jun-09	ND	ND	ND
Dec-09	ND	ND	3.1 J
Jun-10	ND	0.18 J	ND
Dec-10	0.51 J	1.1	2.1
Jul-11	ND	0.21 J	ND
Dec-11	ND	1.4	3.0
Jun-12	ND	0.42 J	0.61 J
Dec-12	ND	ND	ND

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	ND	ND	ND
Mar-07	ND	ND	ND
Jun-07	ND	ND	ND
Nov-07	ND	ND	ND
Jun-08	ND	ND	ND
Dec-08	ND	ND	ND
Jun-09	ND	ND	ND
Dec-09	ND	ND	ND
Jun-10	ND	ND	ND
Dec-10	ND	0.51 J	0.64 J
Jul-11	ND	ND	ND
Dec-11	ND	0.28 J	0.56 J
Jun-12	ND	ND	ND
Dec-12	ND	ND	0.31 J

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	5.2	130	98
Mar-07	3.8 J	90	64
Jun-07	6.5	120	81
Nov-07	2.6	99	180
Jun-08	3 J	68	42
Dec-08	5.9	160	140
Jun-09	2.2	66	89
Dec-09	ND	57	52
Jun-10	0.6 J	41	57
Dec-10	1.8	130	98
Jul-11	0.32 J	23	59
Dec-11	2.3	140	83
Jun-12	0.48 J	57	90
Dec-12	0.73 J	86	100

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	22	280	140
Mar-07	19	220	165
Jun-07	7.6	100	81
Nov-07	4.4	96	74
Jun-08	3.3	84	73.5
Dec-08	6.6	91	80
Jun-09	4.5	61	43
Dec-09	3.5	37	29
Jun-10	1.3	78	69
Dec-10	2.1	38	27
Jul-11	0.79 J	33	43
Dec-11	2.4	8.5	5.9
Jun-12	0.69 J	36	49
Dec-12	3.3	25	11

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	11	57	22
Mar-07	16	41	13
Jun-07	8.5	61	32
Nov-07	9.7	30	11
Jun-08	4.1	26	13
Dec-08	35	52	1.3
Jun-09	6.9	41	11
Dec-09	8.7	29	9.5
Jun-10	4.6	43	11
Dec-10	29	42	2.1
Jul-11	31	42	ND
Dec-11	34	32	0.68 J
Jun-12	7.9	31	4
Dec-12	28	26	0.46 J

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	ND	60	23
Mar-07	ND	11	4.8
Jun-07	ND	3.1	ND
Nov-07	ND	3.6 J	3.7 J
Jun-08	ND	ND	ND
Dec-08	0.41 J	2.4	2.8
Jun-09	ND	0.42 J	ND
Dec-09	ND	0.47 J	ND
Jun-10	ND	0.41 J	ND
Dec-10	0.29 J	4.6	5.3
Jul-11	ND	0.57 J	0.33 J
Dec-11	0.19 J	2.0	1.9
Jun-12	ND	0.55 J	0.33 J
Dec-12	ND	1.9	1.65

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	0.94 J	210	19
Mar-07	ND	68	45
Jun-07	ND	19	22
Nov-07	1.6	6.7	3.8
Jun-08	ND	31	ND
Dec-08	6	52	3.6
Jun-09	4.8	38	7.3
Dec-09	4.7	32	4
Jun-10	5	31	7.5
Dec-10	3.3	23	4.3
Jul-11	5.6	39	17
Dec-11	3.1	16	2.3
Jun-12	2.7	28	5.3
Dec-12	4.1	25	0.31 J

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	6	62	21
Mar-07	11	26	21
Jun-07	3.4	43	9.9
Nov-07	15	27	22
Jun-08	8.5	21	23
Dec-08	9.2	24	10
Jun-09	8	56	55
Dec-09	7.8	65	20
Jun-10	3	81	53
Dec-10	8.1	39	16
Jul-11	4.5	94	56
Dec-11	11	25	12
Jun-12	6.9	170	66
Dec-12	12	68	21

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	490	35	0.51 J
Mar-07	440	42	9.7
Jun-07	410	61	18
Nov-07	510	90	24
Jun-08	440	90	12
Dec-08	410	79	13
Jun-09	330	68	9.3
Dec-09	350	140	21
Jun-10	330	170	15
Dec-10	310	120	15
Jul-11	0.52 J	12	2.6
Dec-11	2.3	56	4.3
Jun-12	280	140	11
Dec-12	280	100	5.9

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	4	54	0.6 J
Mar-07	2.8	38	ND
Jun-07	3.1	60	2.6
Nov-07	3.8	39	ND
Jun-08	2.4	48	1.9
Dec-08	2.2	34	0.26 J
Jun-09	1.7	32	2
Dec-09	1.7	28	1.6
Jun-10	0.39 J	33	3.8
Dec-10	0.53 J	30	7.7
Jul-11	0.38 J	37	7.9
Dec-11	0.82 J	21	2.9
Jun-12	0.87 J	30	2.8
Dec-12	1.1	18	ND

Date	TCE ug/L	cis-DCE ug/L	VC ug/L
Jan-07	ND	1.2	ND
Jun-07	ND	1.7	ND
Jun-08	ND	1.3	ND
Dec-08	0.33 J	0.4 J	ND
Jun-09	ND	1	ND
Dec-09	ND	0.56 J	ND
Jun-10	ND	0.61 J	ND
Dec-10	ND	0.86 J	ND
Oct-11	ND	2.3	ND
Dec-11	ND	0.95 J	ND
Jun-12	ND	2.2	ND
Dec-12	ND	0.85 J	ND

NOTE:

ND = NON-DETECT

50 25 0 50 100

SCALE (FT.)

LEGEND:

- PAVED ROAD
- DIRT ROAD
- 650 GROUND CONTOUR AND ELEVATION
- TREE
- W-B WETLAND & DESIGNATION
- PT-22 MONITORING WELL AND DESIGNATION
- RAILROAD TRACKS
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SEAD-1 EL.630.90' SURVEY MONUMENT
- APPROXIMATE LOCATION OF WATER MAIN
- PILOT STUDY BIOWALL (2005)
- SINGLE BIOWALL (2006)
- DOUBLE-WIDE BIOWALL (2006)
- ZERO VALENT IRON WALL (1998)
- 10 GROUNDWATER ISOCONTOUR (UG/L) BASED ON JANUARY 2000 DATA
- MW-56 OFF-SITE PERFORMANCE MONITORING WELL IN L.T.M. PROGRAM
- PT-22 ON-SITE PLUME PERFORMANCE MONITORING WELL IN L.T.M. PROGRAM
- MWT-26 BIOWALL PROCESS MONITORING WELL IN L.T.M. PROGRAM

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

ASH LANDFILL

ASH LANDFILL ANNUAL REPORT

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No.

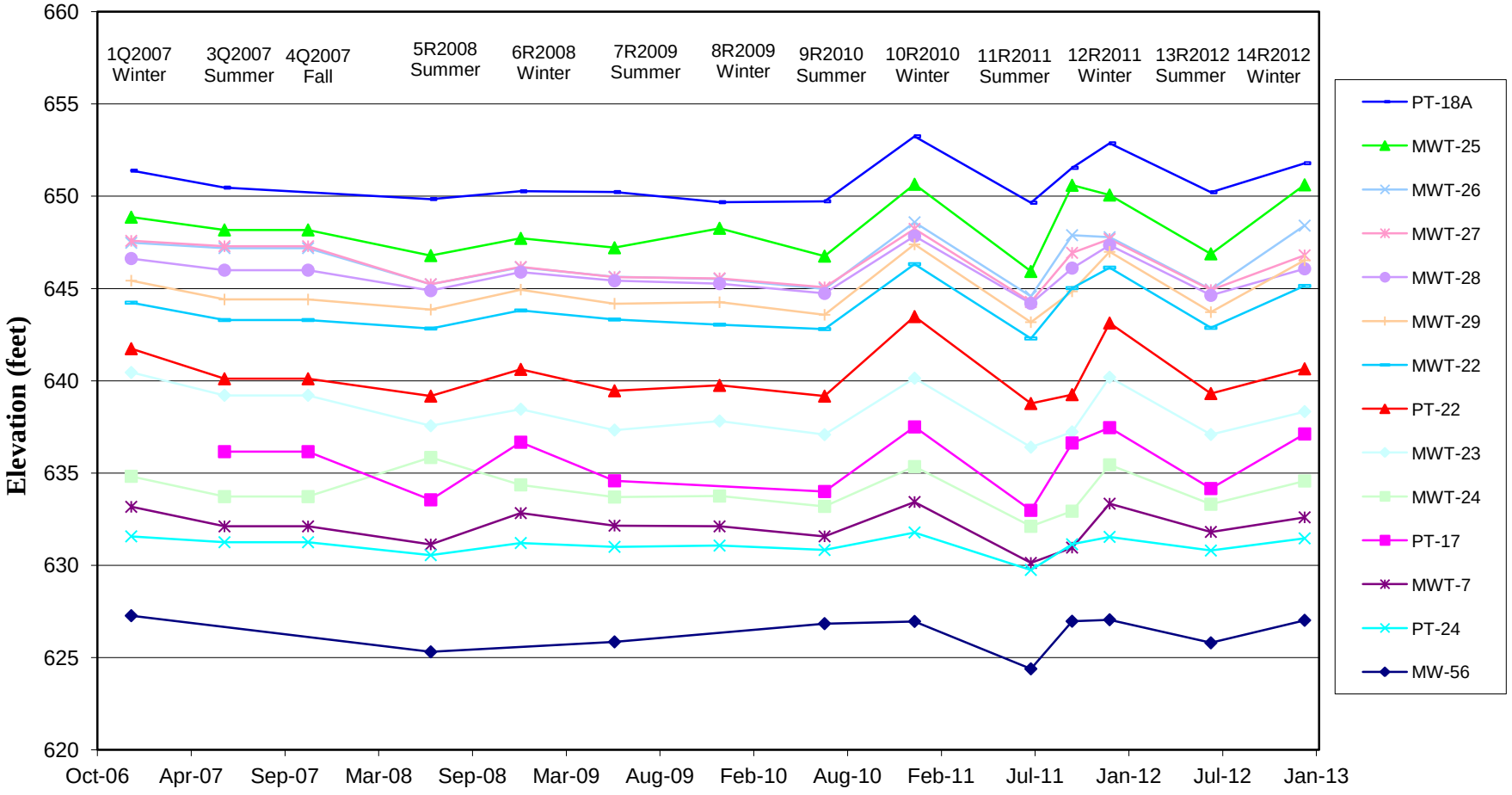
FIGURE 6

CHLORINATED ETHENES CONCENTRATIONS IN GROUNDWATER

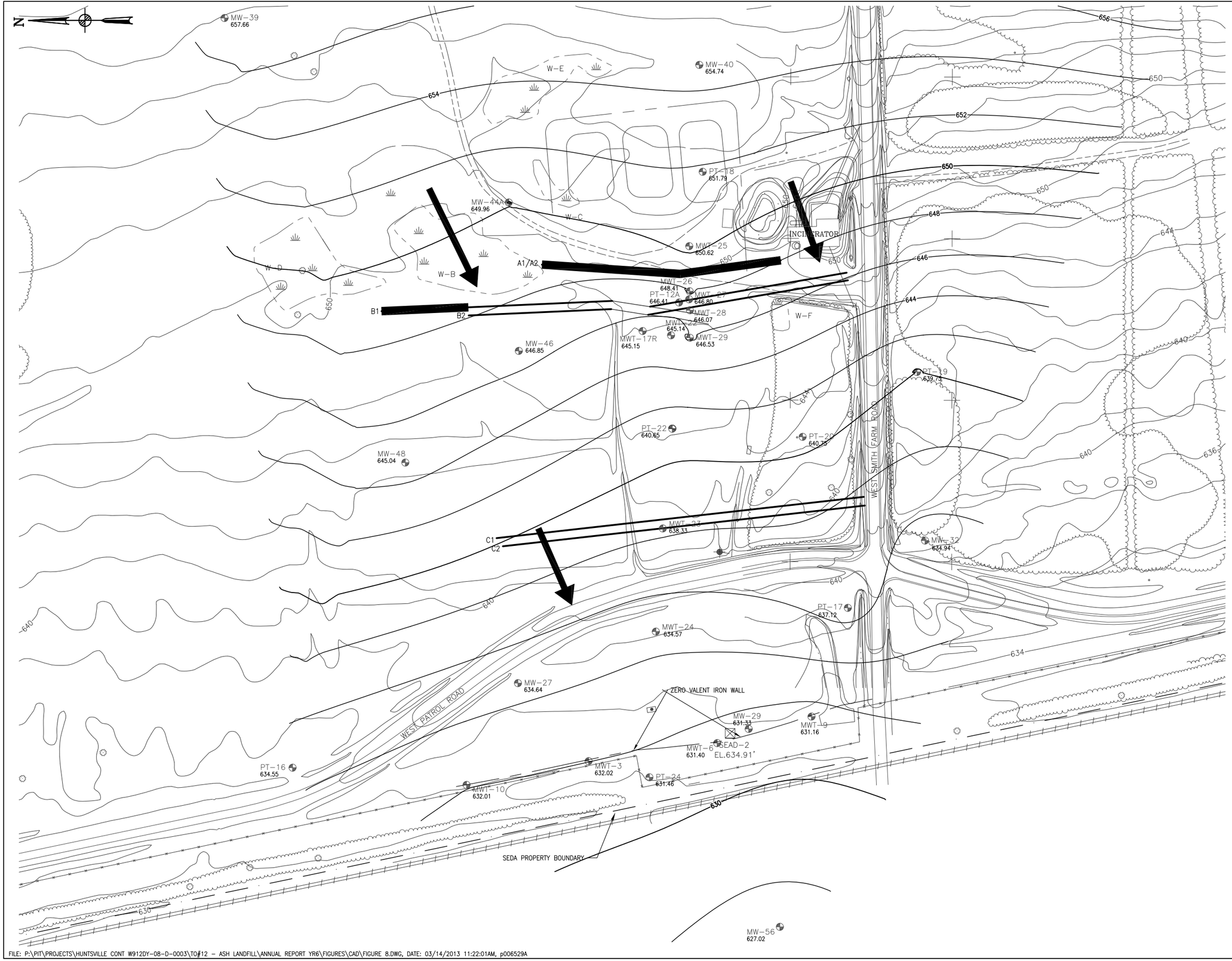
SCALE | DATE APRIL 2013 | REV -

FILE: P:\PIT\PROJECTS\HUNTSVILLE CONT W912DY-08-D-0003\TO#12 - ASH LANDFILL\ANNUAL REPORT YR6\FIGURES\CAD\FIGURE 6.DWG, DATE: 03/14/2013 08:42:03AM, p0018397

Figure 7
Groundwater Elevations
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Notes: Groundwater levels were measured on: December 12-15, 2006; June 4, 2007; November 7, 2007; June 23, 2008; December 23, 2008; June 1, 2009; December 14, 2009; June 28, 2010, December 13, 2010, December 12, 2011, June 18, 2012, and December 10, 2012. In Round 11, Groundwater levels were collected on July 18, 2011, and again on October 3, 2011 when Parsons returned to sample MW-56. Groundwater elevations were not measured at well MW-56 during 3Q2007, 4Q2007, 6R2008, or 8R2009; at PT-17 during 1Q2007 or 8R2008; or at PT-18A during 4Q2007. Groundwater levels were not recorded during 2Q2007.



LEGEND:

- PAVED ROAD
- DIRT ROAD
- GROUND CONTOUR AND ELEVATION
- TREE
- WETLAND & DESIGNATION
- MONITORING WELL AND DESIGNATION
- RAILROAD TRACKS
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- FUEL OR UNDERGROUND STORAGE TANK
- SURVEY MONUMENT
- ABANDONED MONITORING WELL
- APPROXIMATE LOCATION OF WATER MAIN
- PILOT STUDY BIOWALL (2005)
- SINGLE BIOWALL (2006)
- DOUBLE-WIDE BIOWALL (2006)
- ZERO VALENT IRON WALL (1998)
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

70 0 70 140
(FEET)

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT
ASH LANDFILL
ANNUAL REPORT

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	

FIGURE 8
ASH LANDFILL GROUNDWATER CONTOURS & GROUNDWATER FLOW DIRECTION DEC. 2012

SCALE	DATE	REV
	APRIL 2013	–

FILE: P:\PIT\PROJECTS\HUNTSVILLE CONT W912DY-08-D-0003\TO#12 - ASH LANDFILL\ANNUAL REPORT YR6\FIGURES\CAD\FIGURE 8.DWG, DATE: 03/14/2013 11:22:01AM, p006529A

Figure 9A
Concentrations of VOCs Along the Biowalls - Quarter 1, 2007
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

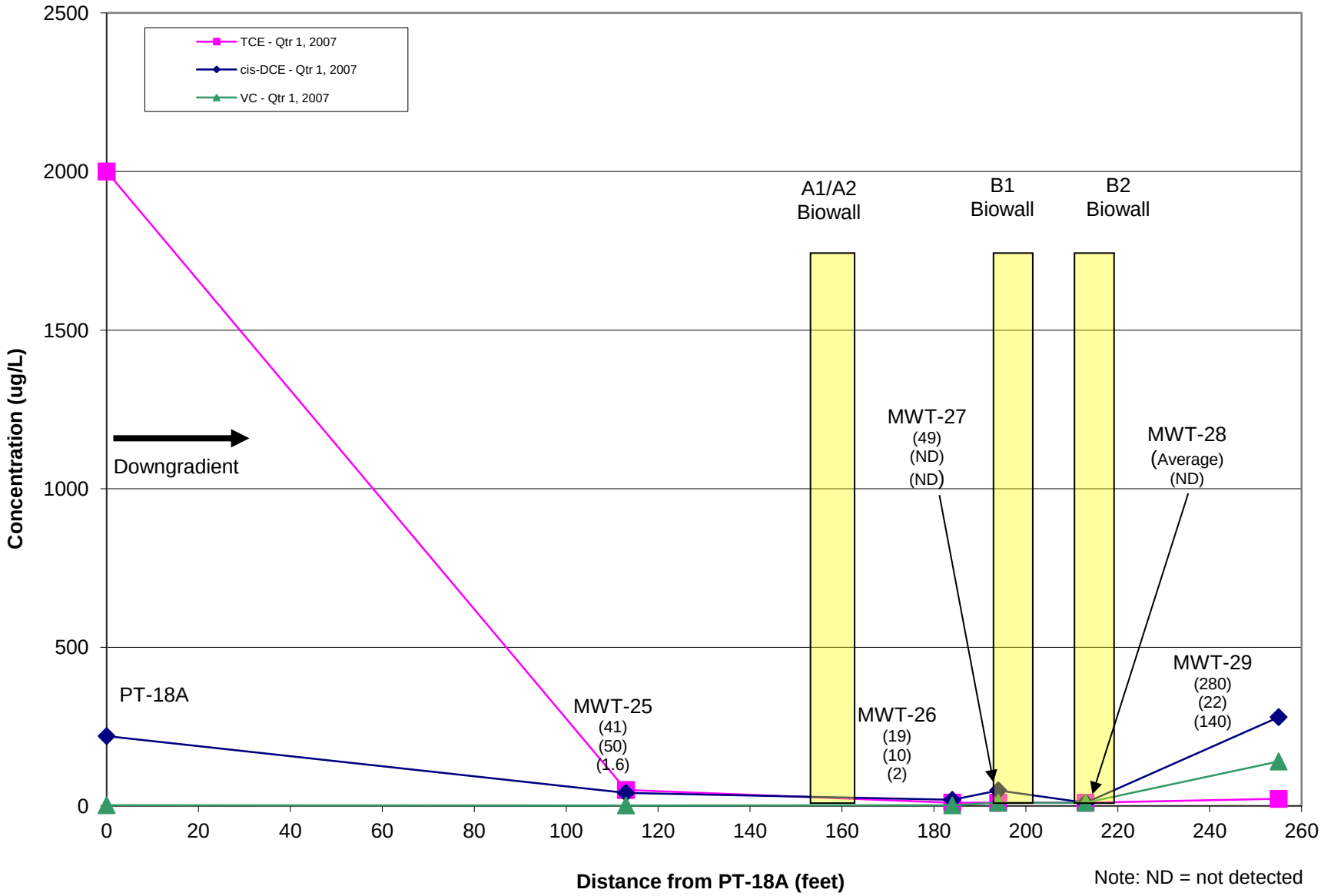


Figure 9B
Concentrations of VOCs Along the Biowalls - Quarter 2, 2007
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

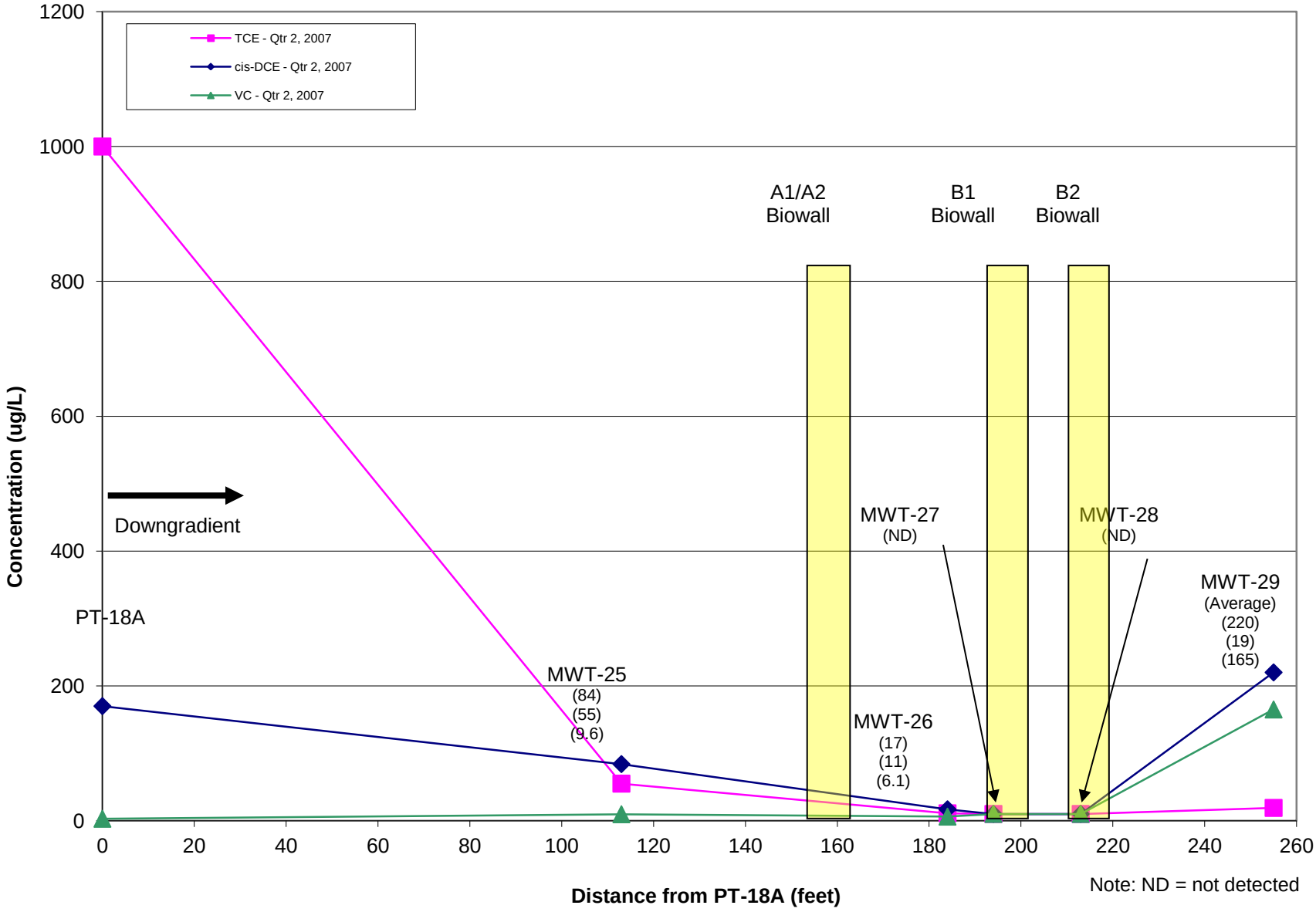


Figure 9C
Concentrations of VOCs Along the Biowalls - Quarter 3, 2007
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

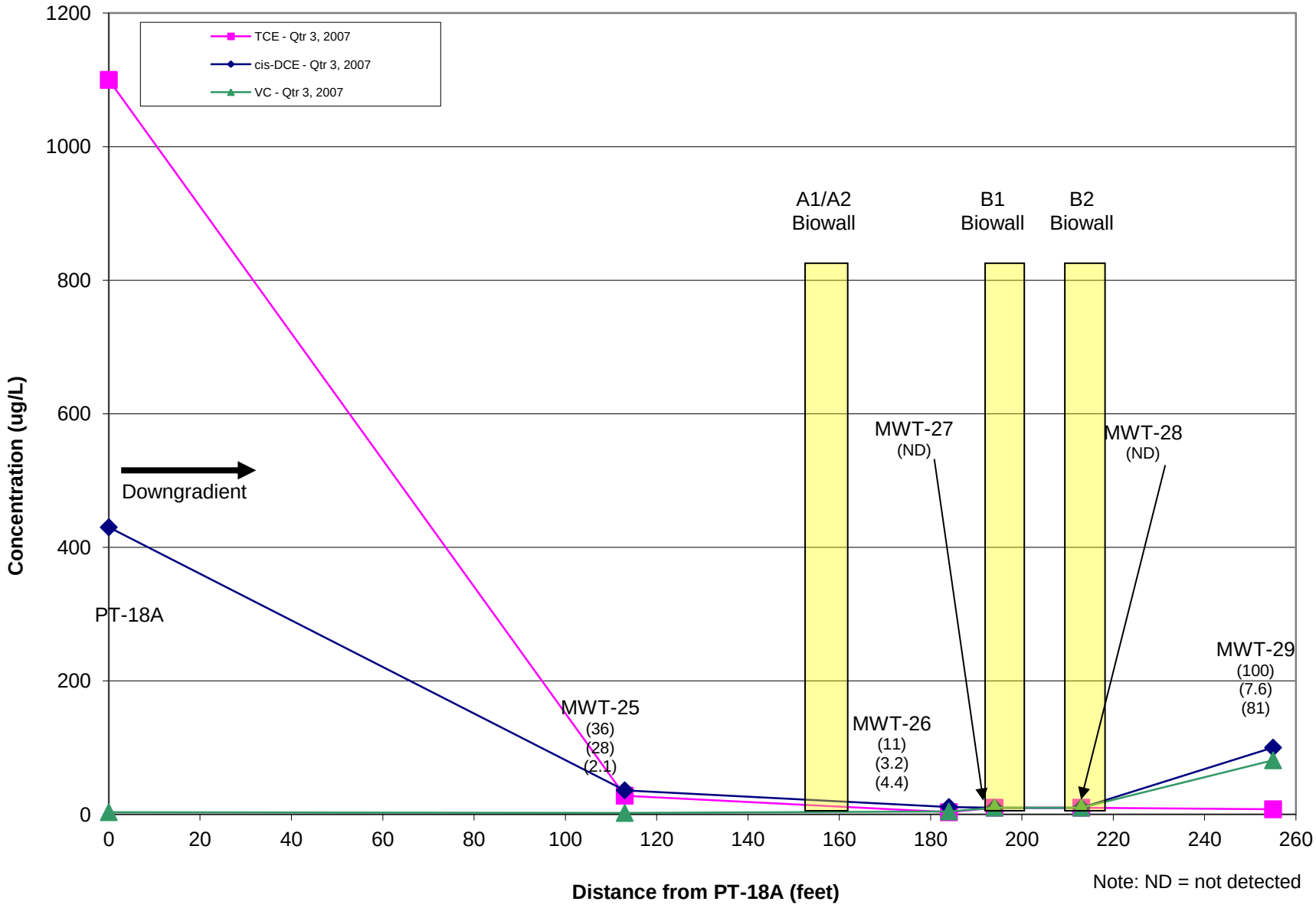


Figure 9D
Concentrations of VOCs Along the Biowalls - Quarter 4, 2007
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

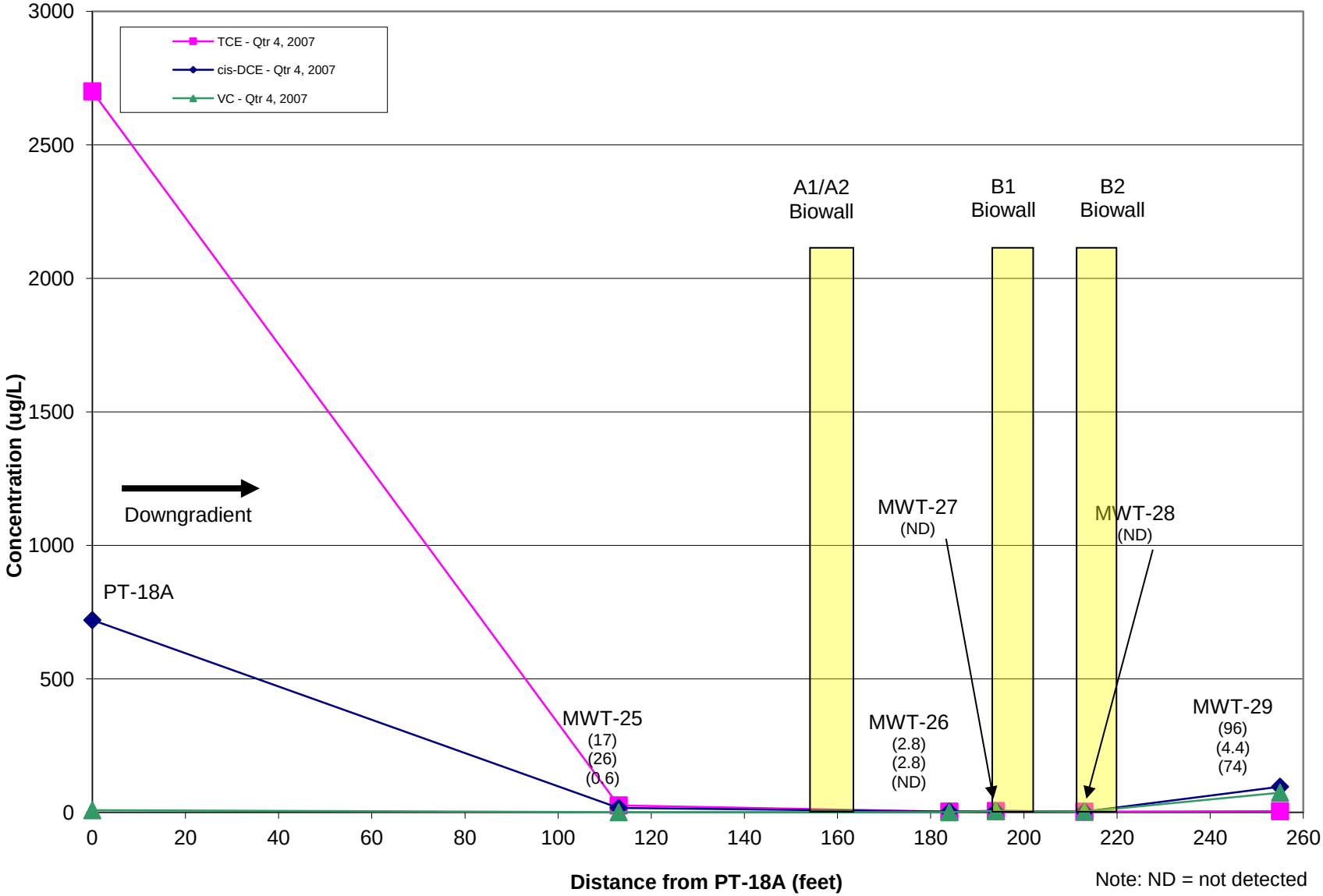


Figure 9E
Concentrations of VOCs Along the Biowalls - Round 5, 2008
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

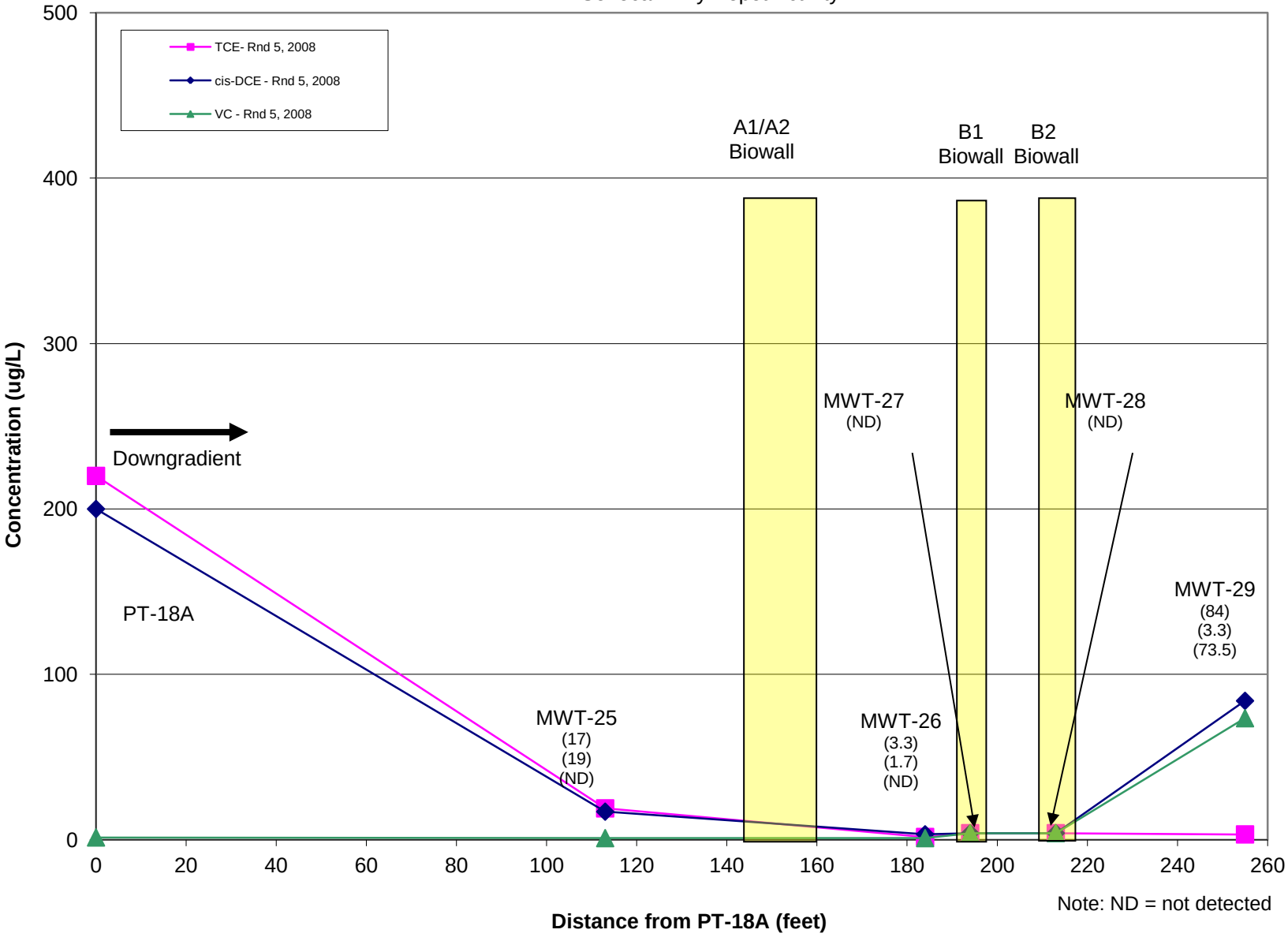


Figure 9F
Concentrations of VOCs Along the Biowalls - Round 6, 2008
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

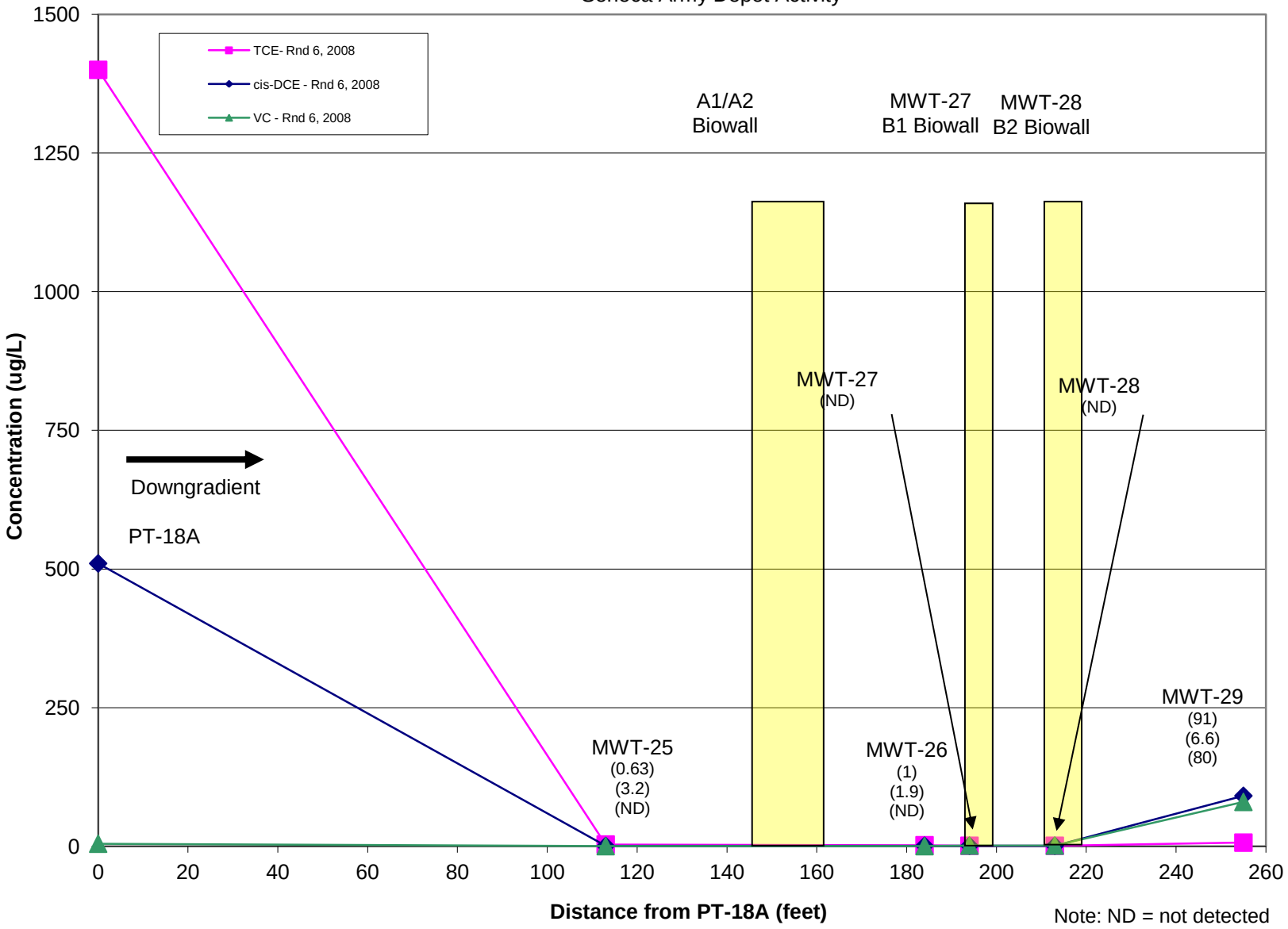


Figure 9G
Concentrations of VOCs Along the Biowalls - Round 7, 2009
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

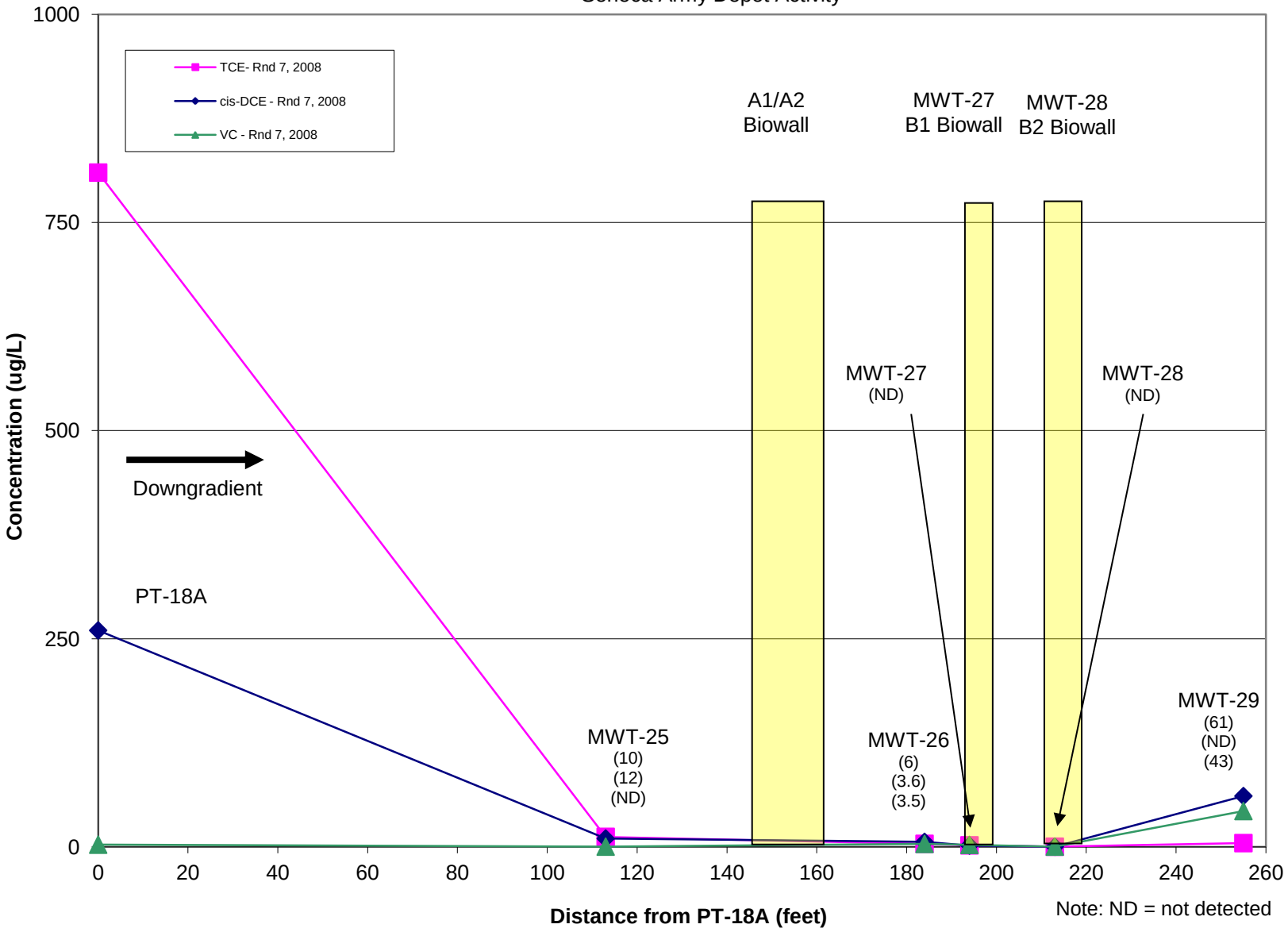
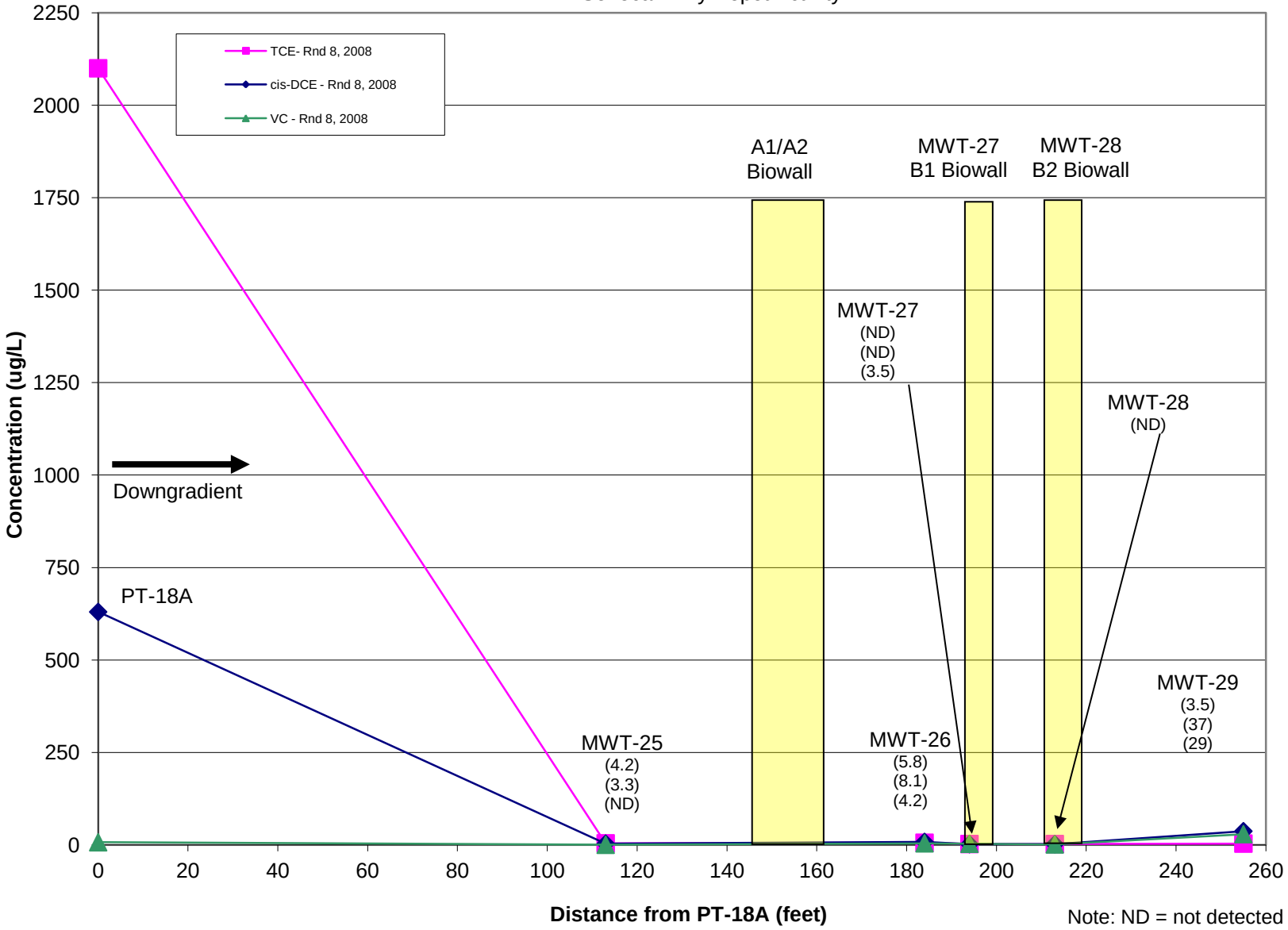
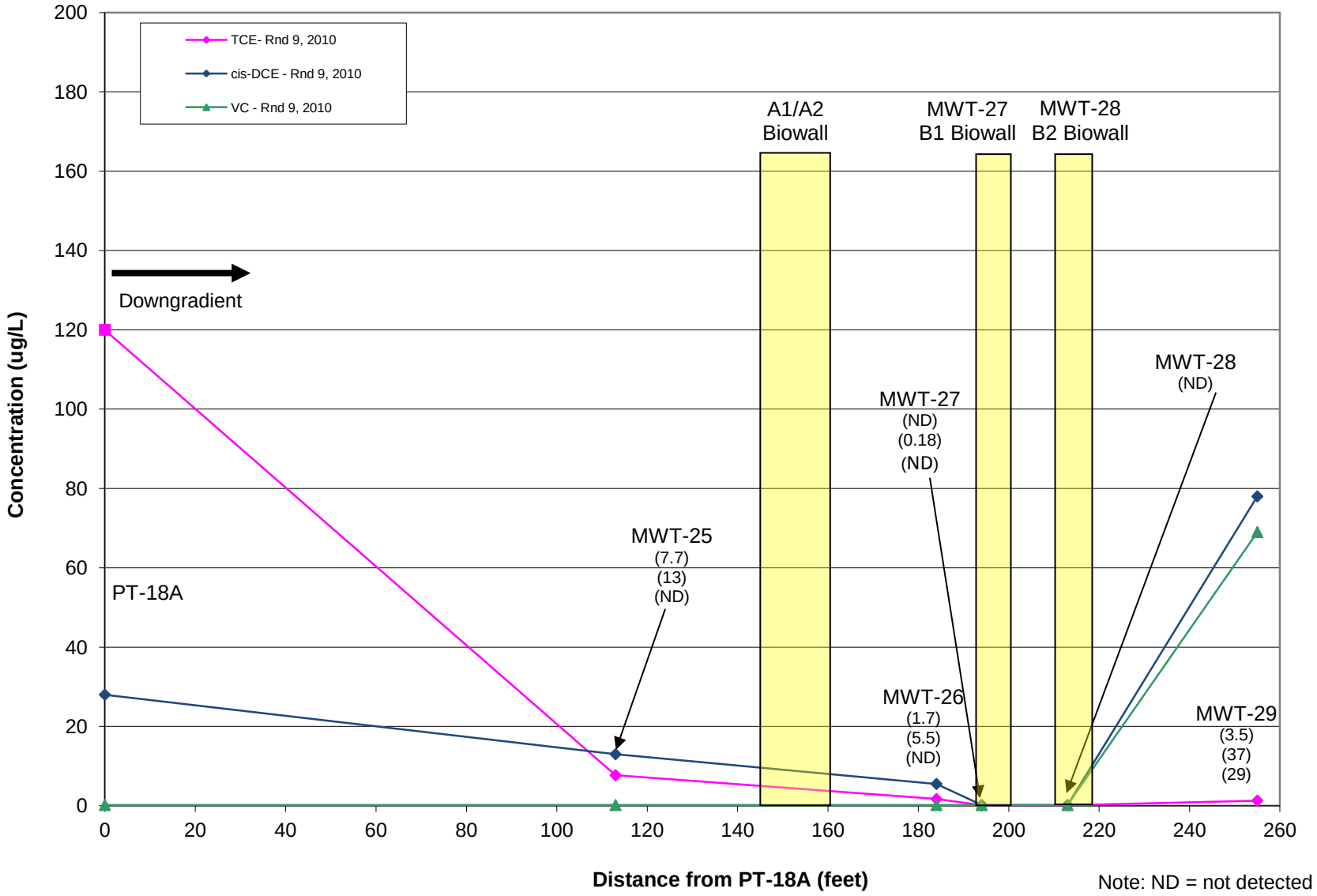


Figure 9H
Concentrations of VOCs Along the Biowalls - Round 8, 2009
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note: ND = not detected

Figure 9I
Concentrations of VOCs Along the Biowalls - Round 9, 2010
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note: ND = not detected

Figure 9J
Concentrations of VOCs Along the Biowalls - Round 10, 2010
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

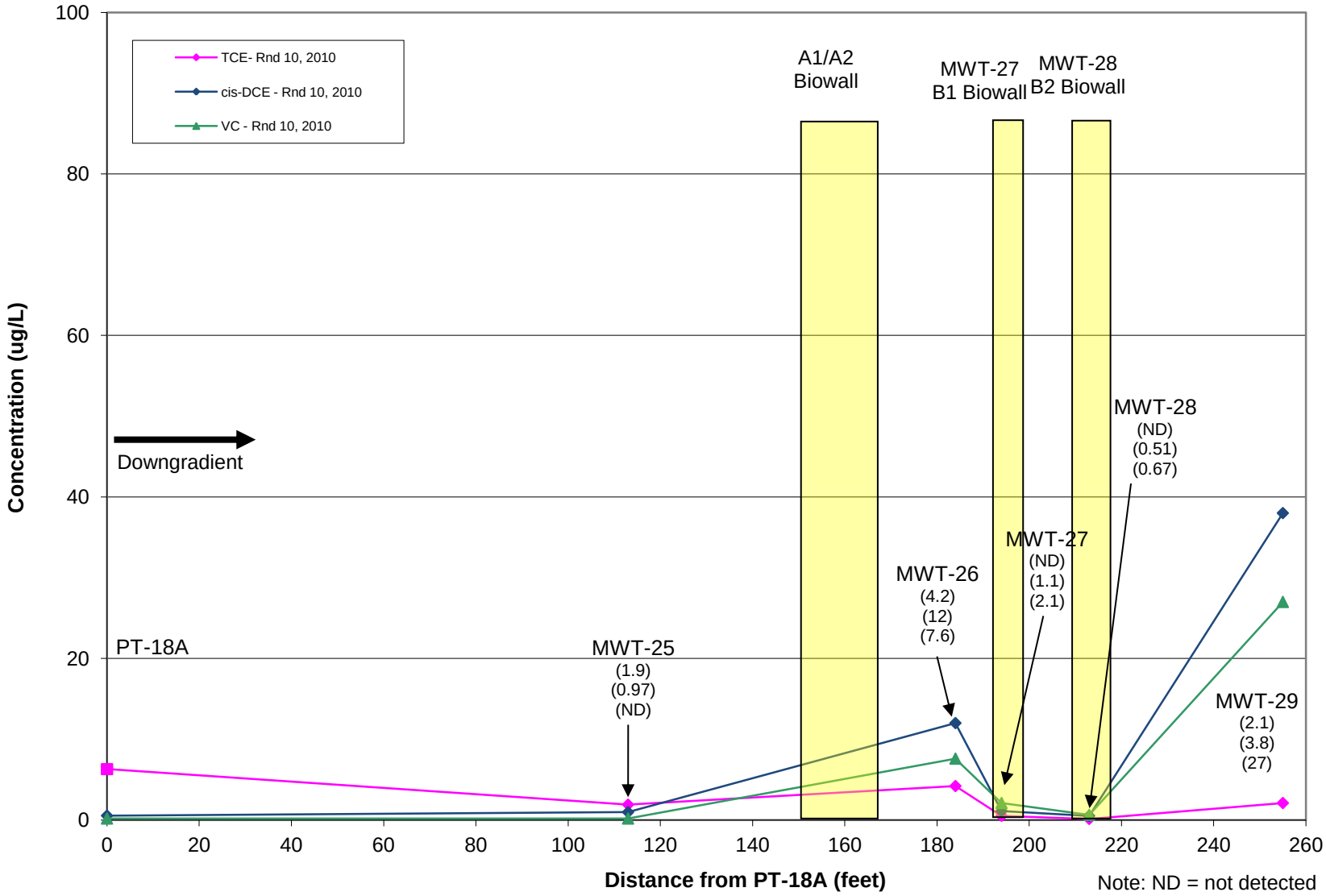
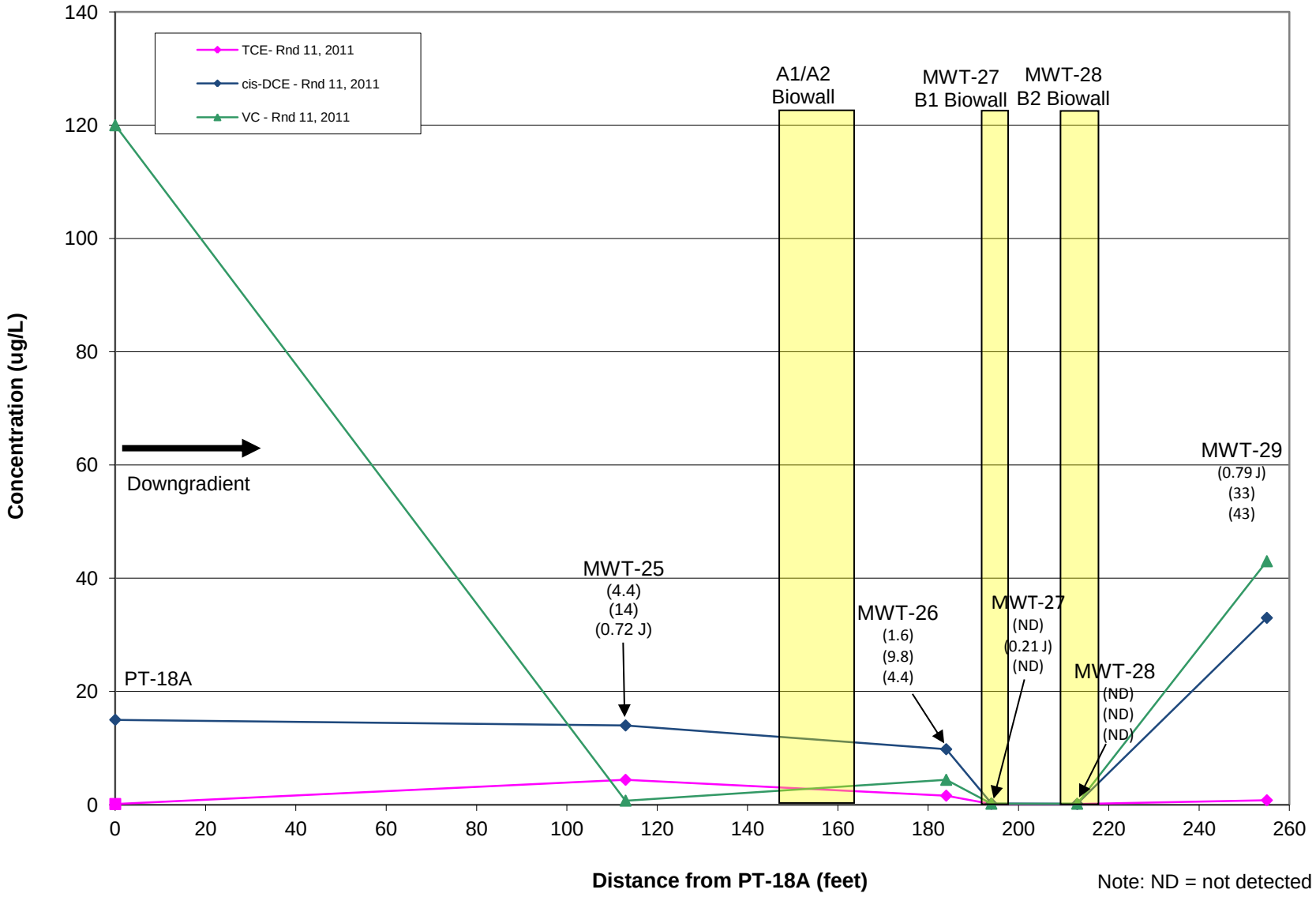
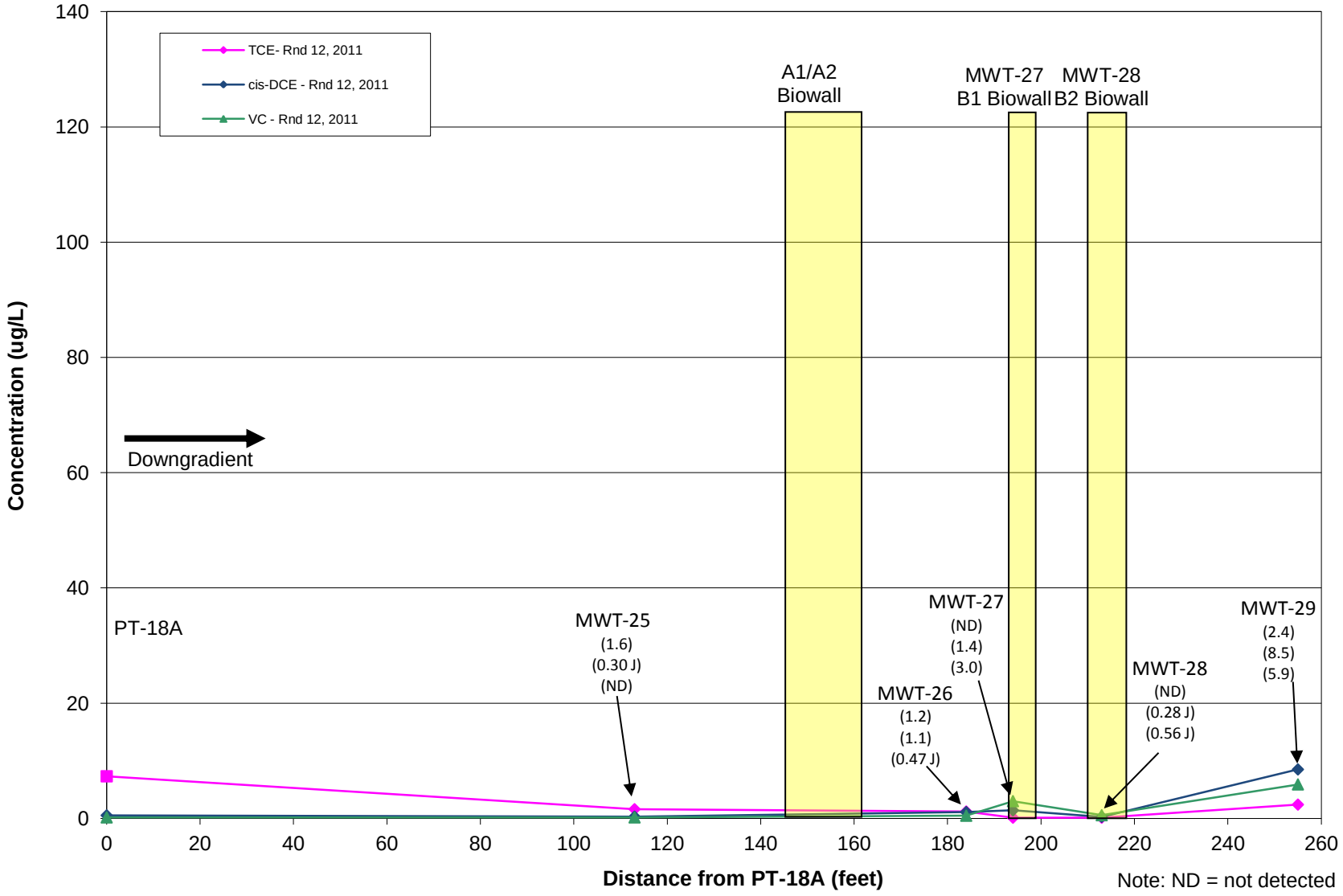


Figure 9K
Concentrations of VOCs Along the Biowalls - Round 11, 2011
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



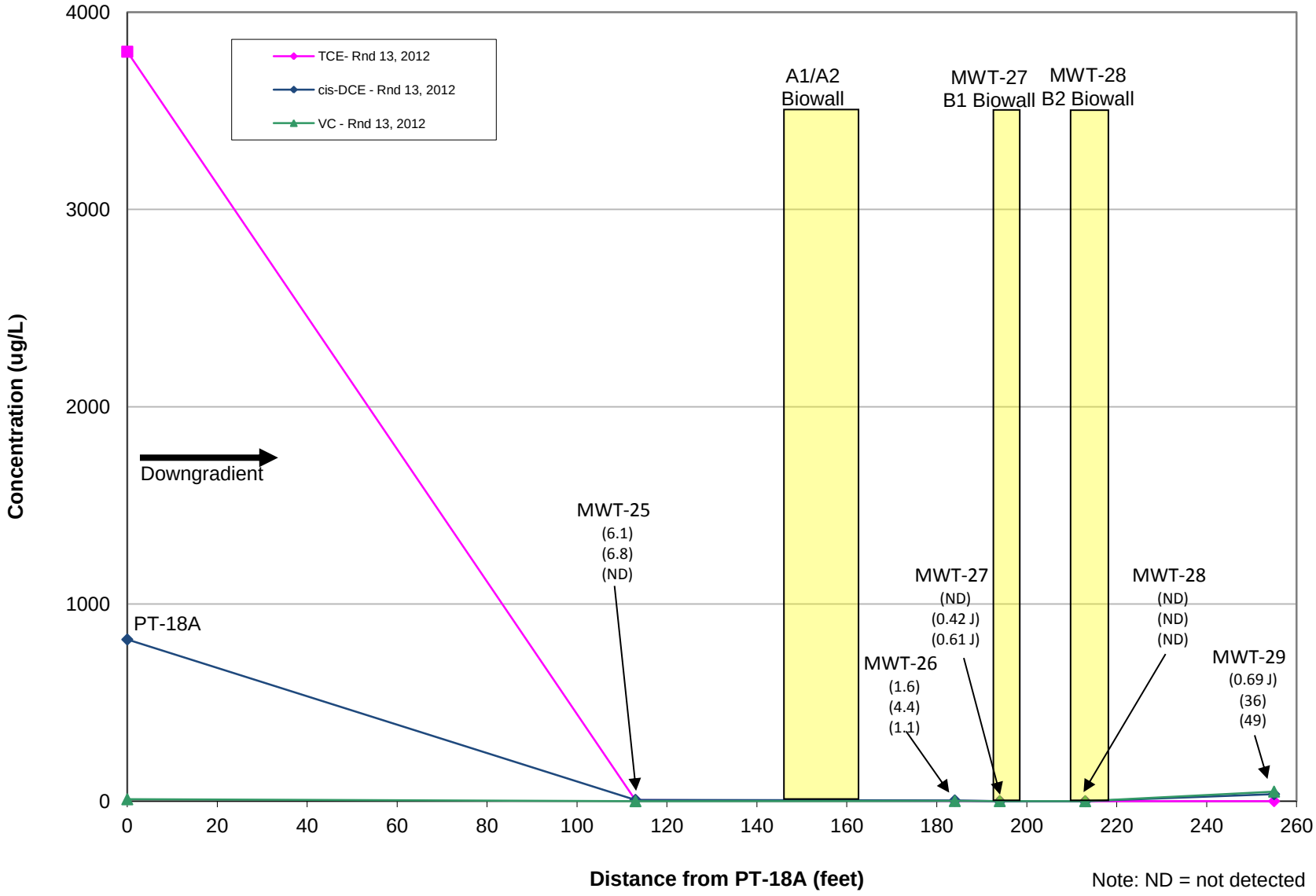
Note: ND = not detected

Figure 9L
Concentrations of VOCs Along the Biowalls - Round 12, 2011
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



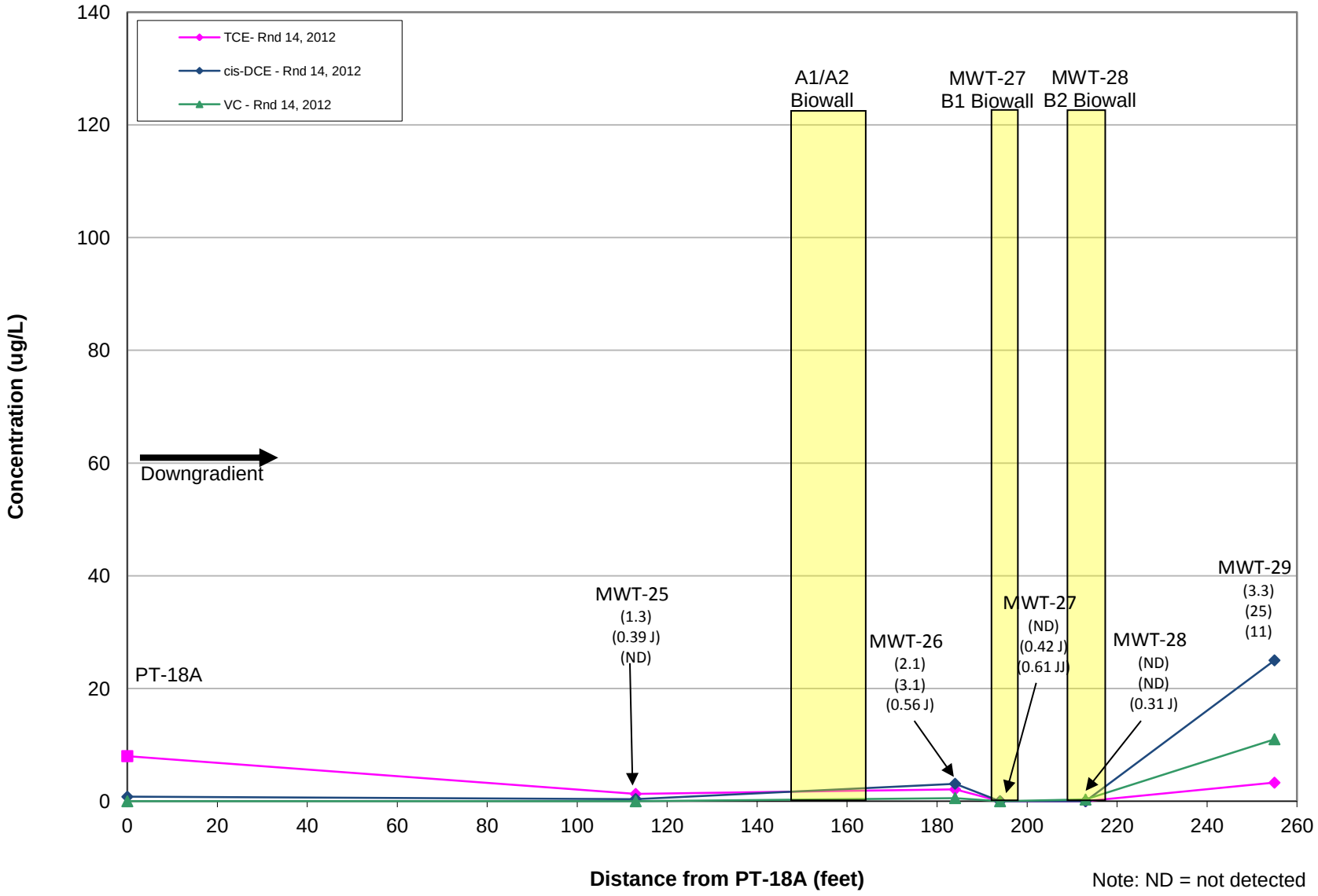
Note: ND = not detected

Figure 9M
Concentrations of VOCs Along the Biowalls - Round 13, 2012
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



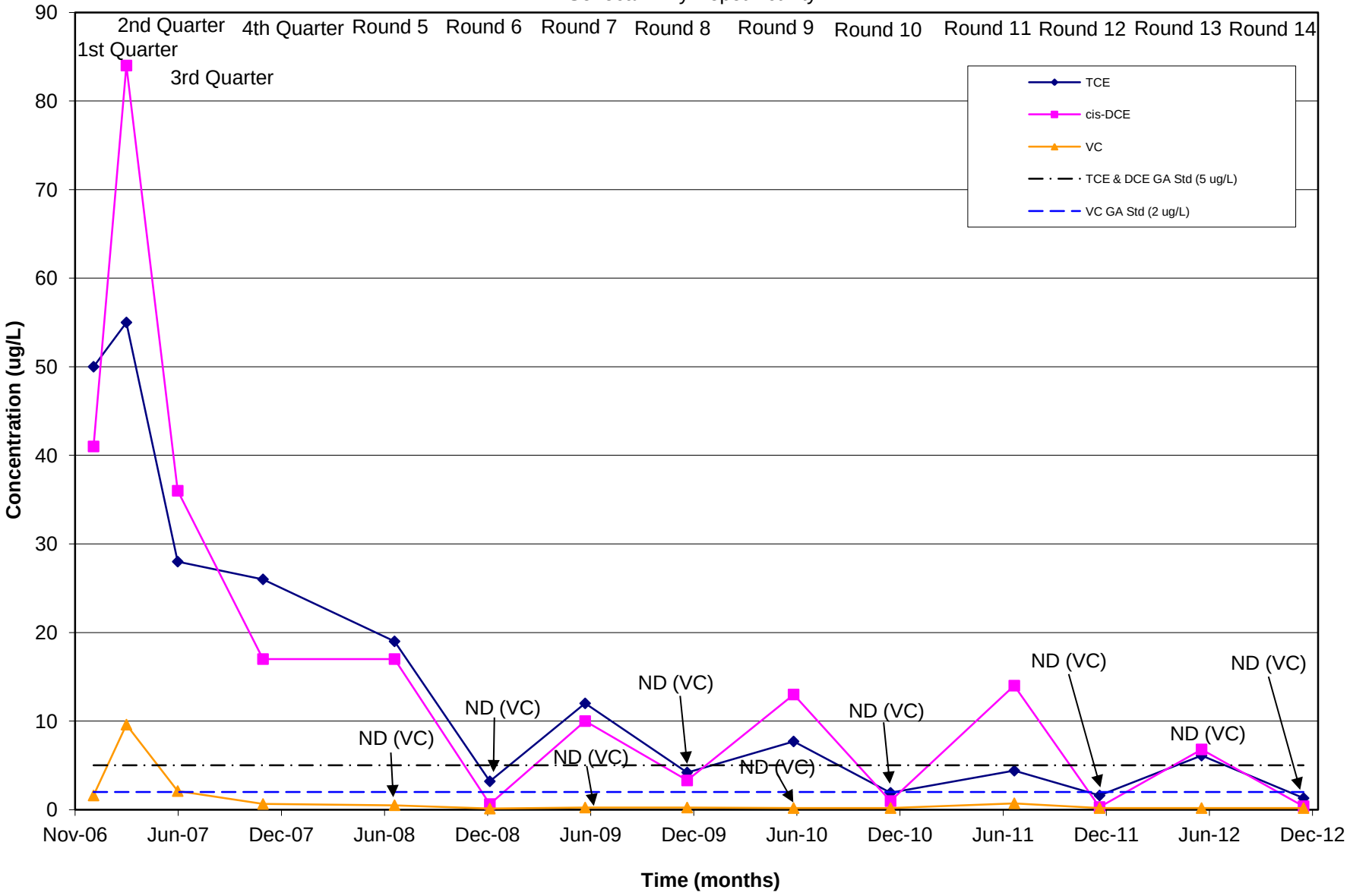
Note: ND = not detected

Figure 9N
Concentrations of VOCs Along the Biowalls - Round 14, 2012
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



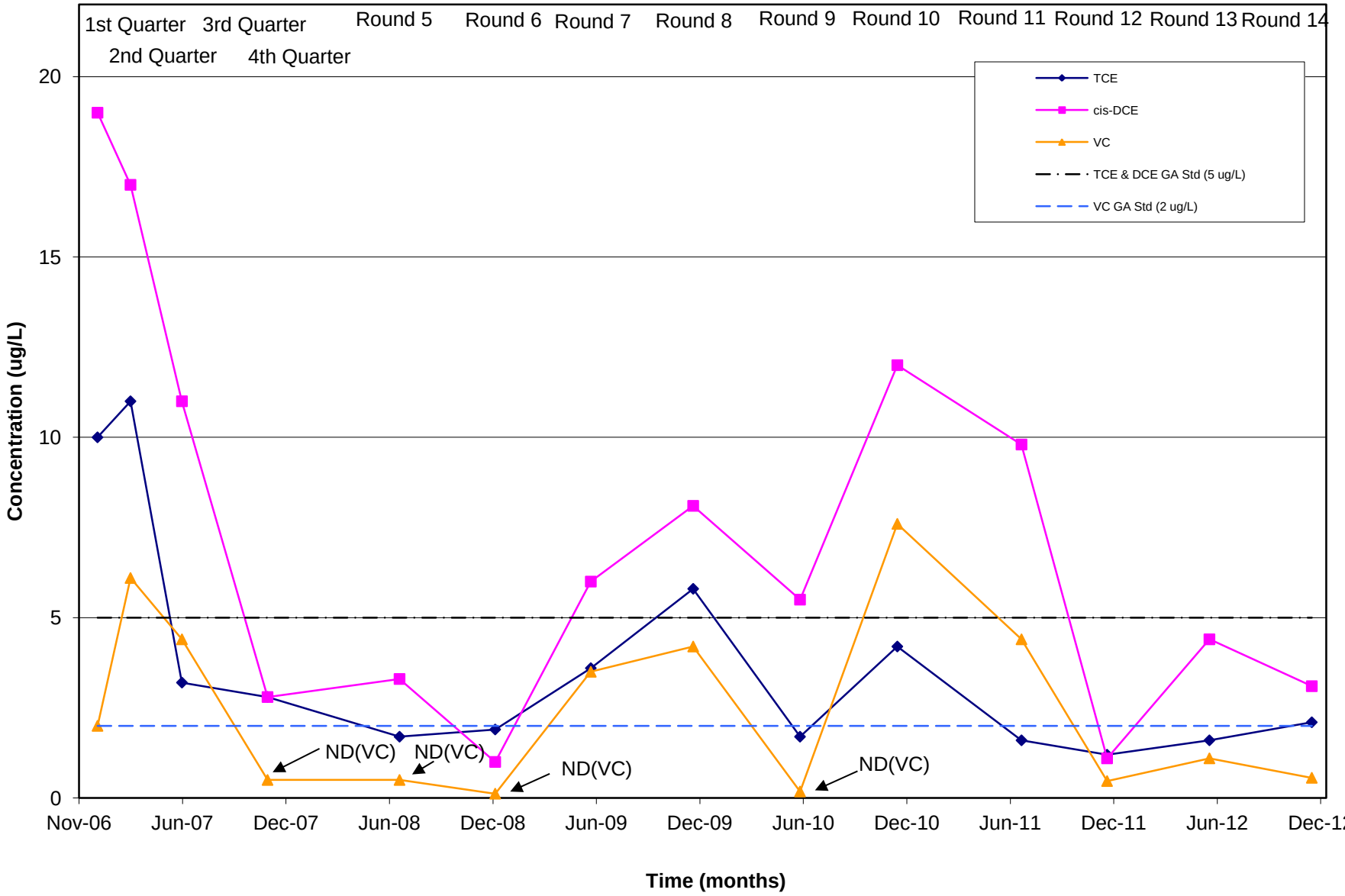
Note: ND = not detected

Figure 10A
Concentrations of Chlorinated Organics Over Time at MWT-25
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
ND = not detected.

Figure 10B
Concentrations of Chlorinated Organics Over Time at MWT-26
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
ND = not detected.

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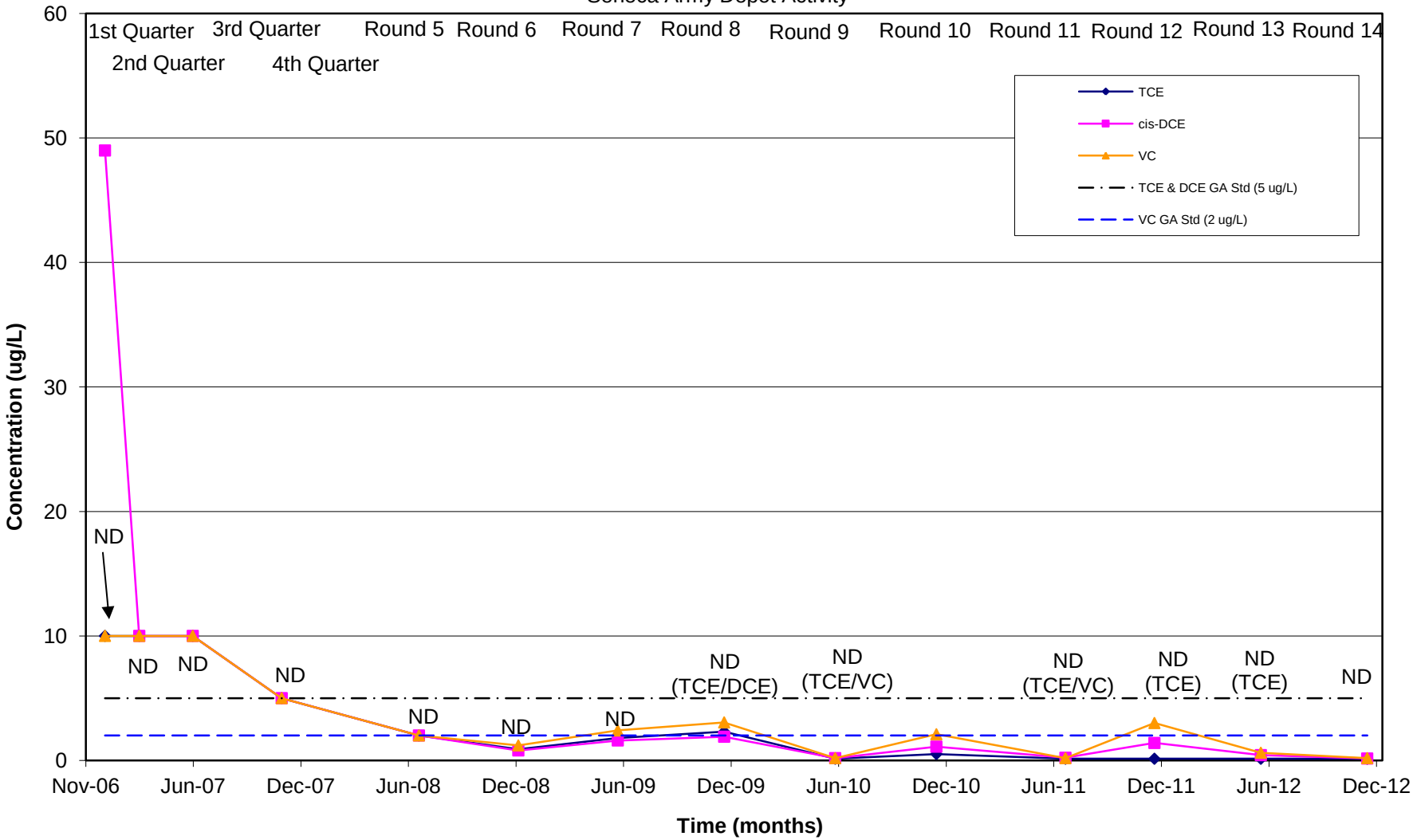
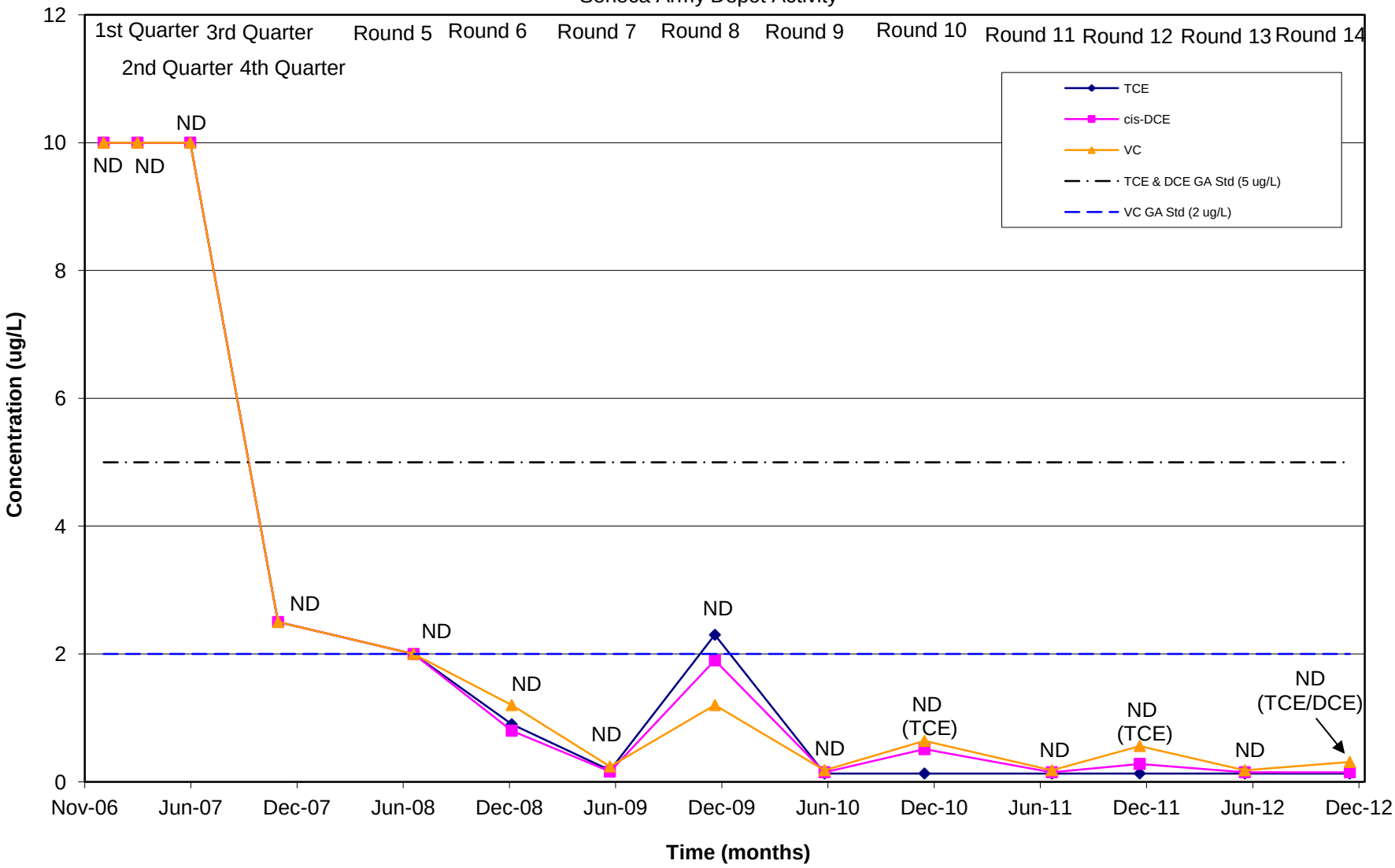
Figure 10C
Concentrations of Chlorinated Organics Over Time at MWT-27
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



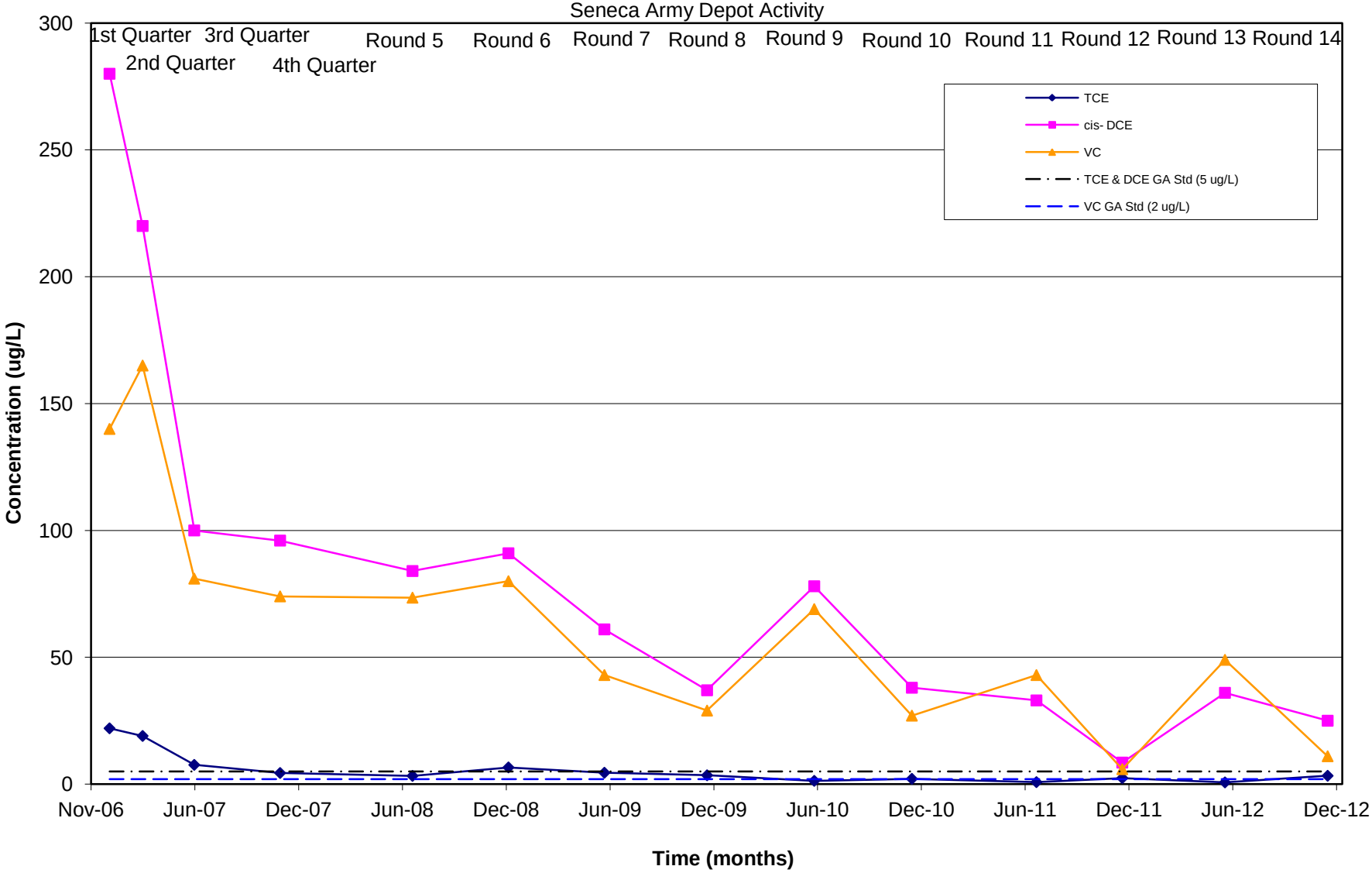
Note:
Round 3 and Round 6 data is the average of the sample and its duplicate.
ND = not detected.

Figure 10D
Concentrations of Chlorinated Organics Over Time at MWT-28
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
Round 3 and Round 6 data is the average of the sample and its duplicate.
ND = not detected.

Figure 10E
Concentrations of Chlorinated Organics Over Time at MWT-29
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
Round 2 and Round 5 data is the average of the sample and its duplicate.

Figure 10F
Concentrations of Chlorinated Organics Over Time at MWT-22
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

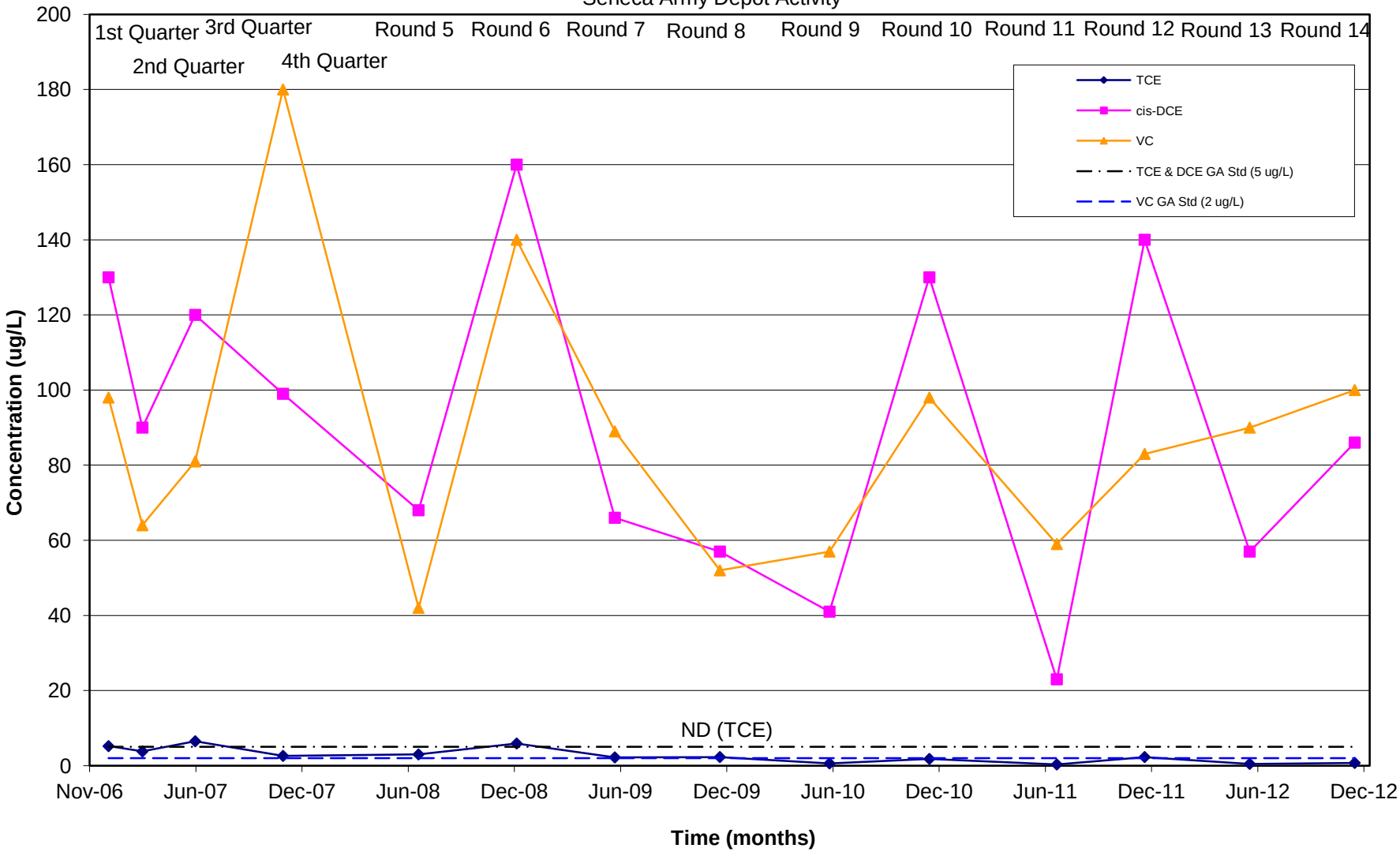
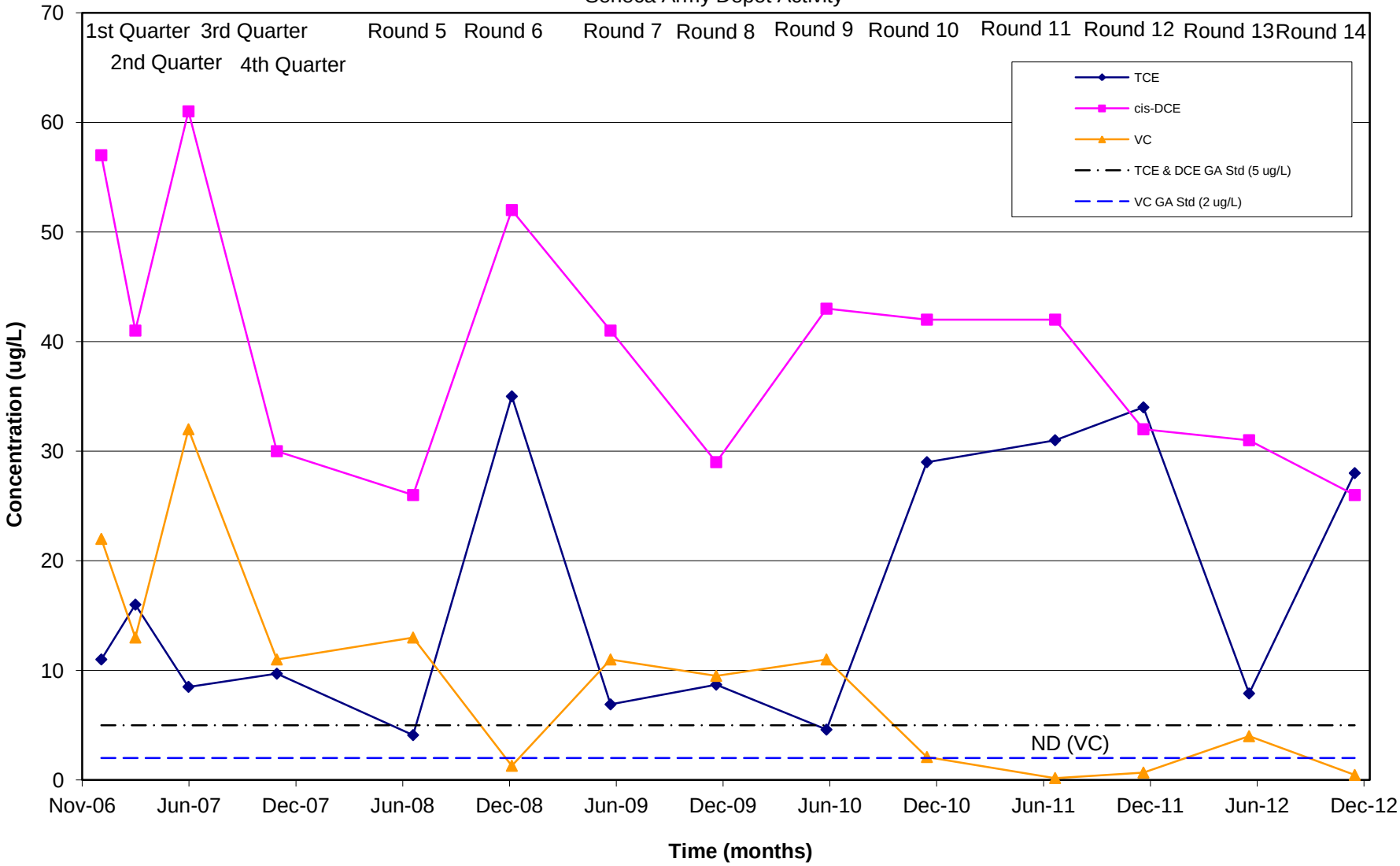


Figure 10G
Concentrations of Chlorinated Organics Over Time at PT-22
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
ND= not detected.

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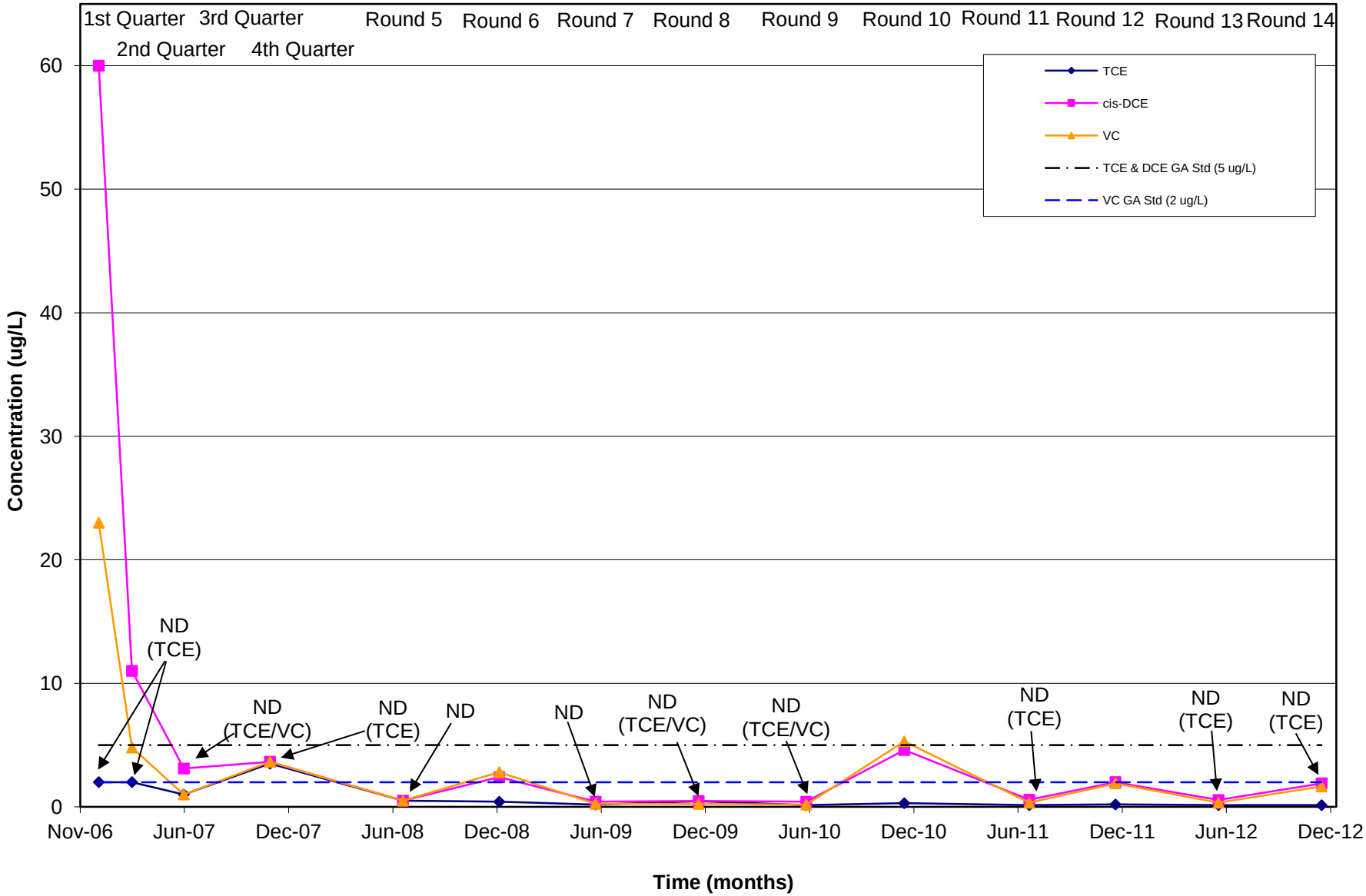
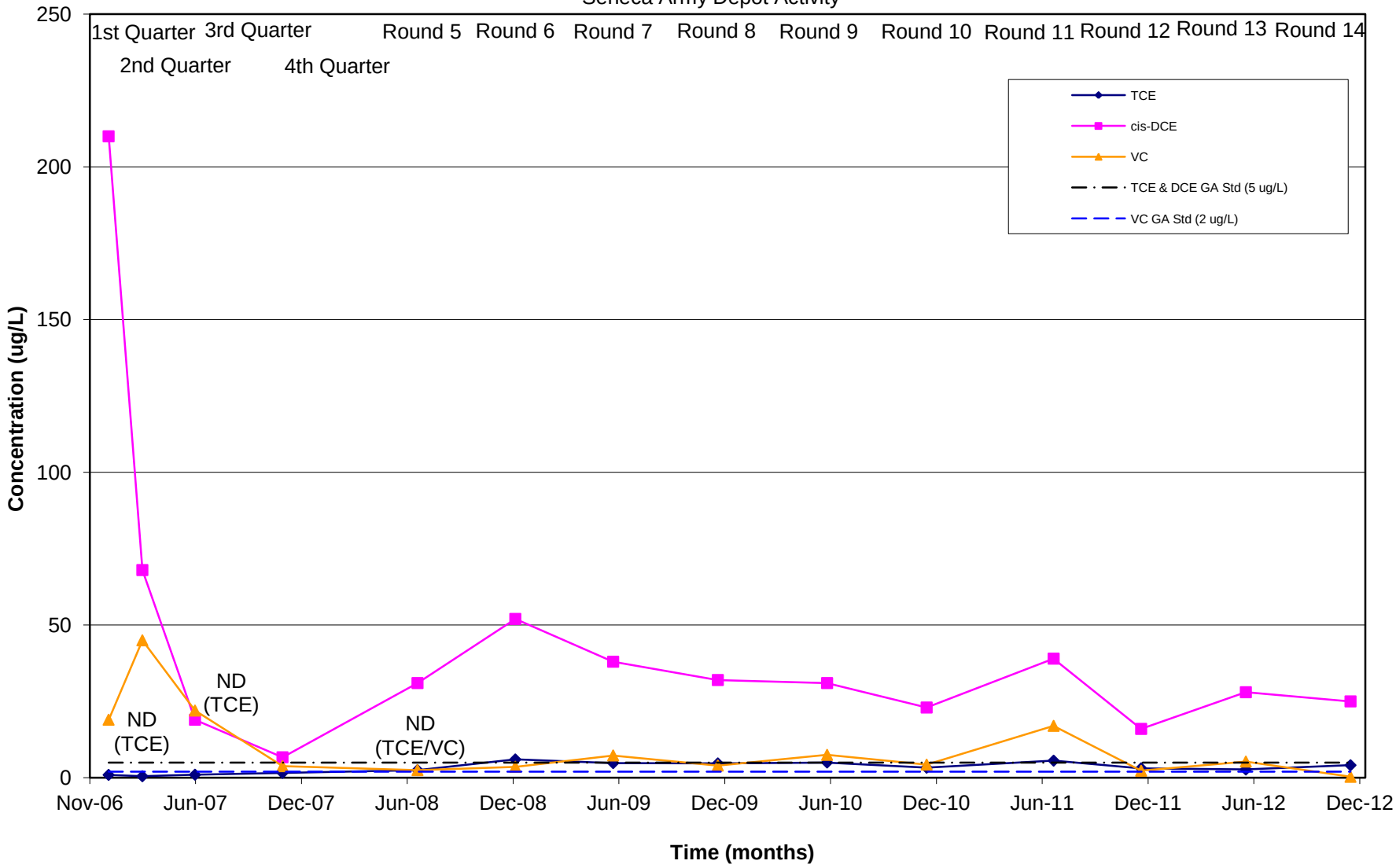
Figure 10H
Concentrations of Chlorinated Organics Over Time at MWT-23
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
Round 4 data is the average of the sample and its duplicate.
ND = not detected.

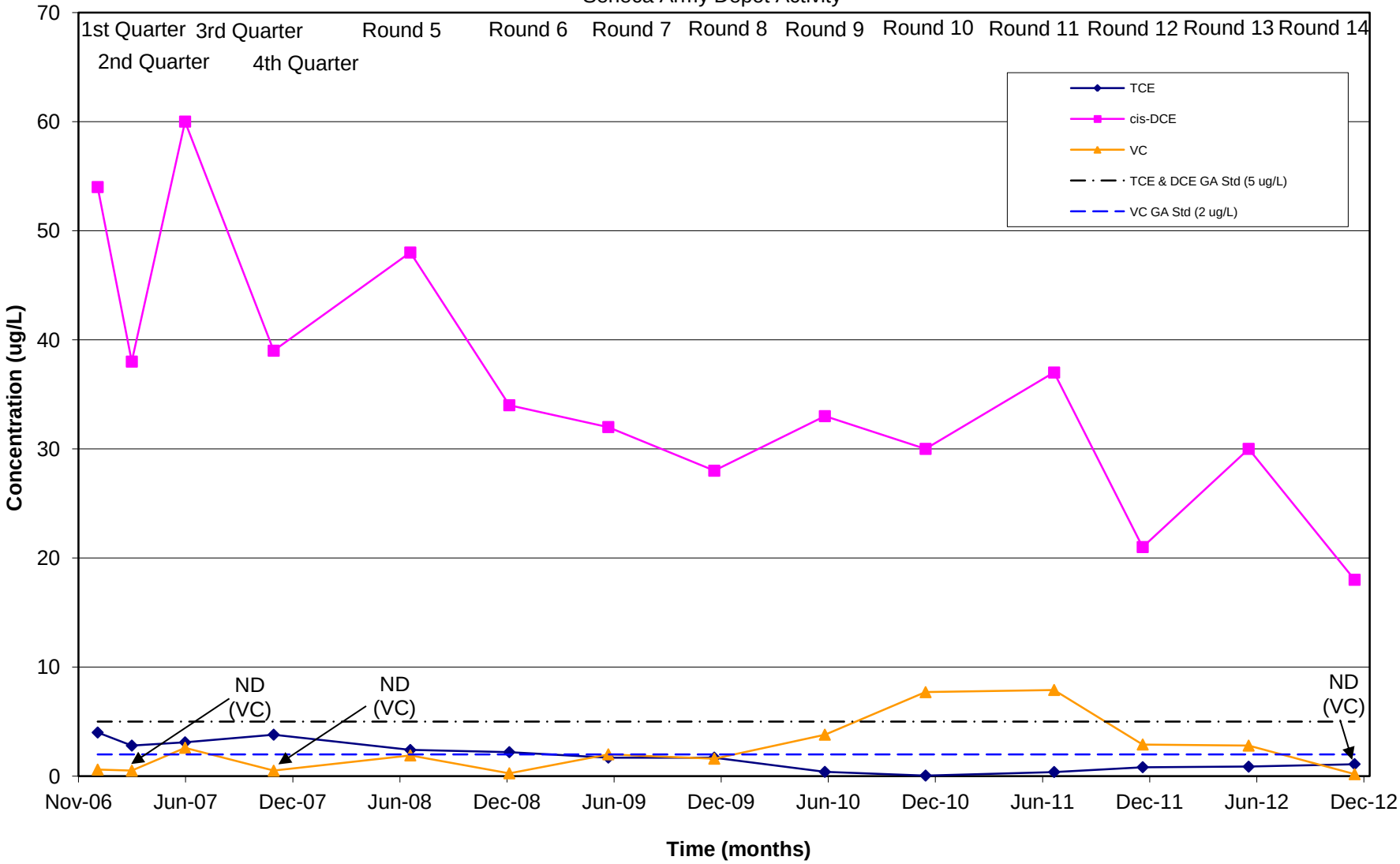
Figure 10I
Concentrations of Chlorinated Organics Over Time at MWT-24
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
ND = not detected.

P:\Projects\Huntsville Cont W912DY-08-D-0003\TO#12 - Ash Landfill\Annual Report Yr6\Figures\Figure 10 Well Conc vs Time.xls MWT-24 5/8/2013

Figure 10J
Concentrations of Chlorinated Organics Over Time at PT-24
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



Note:
ND = not detected.

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Figure 11A
Historic Concentrations of Chlorinated Organics at PT-18A
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

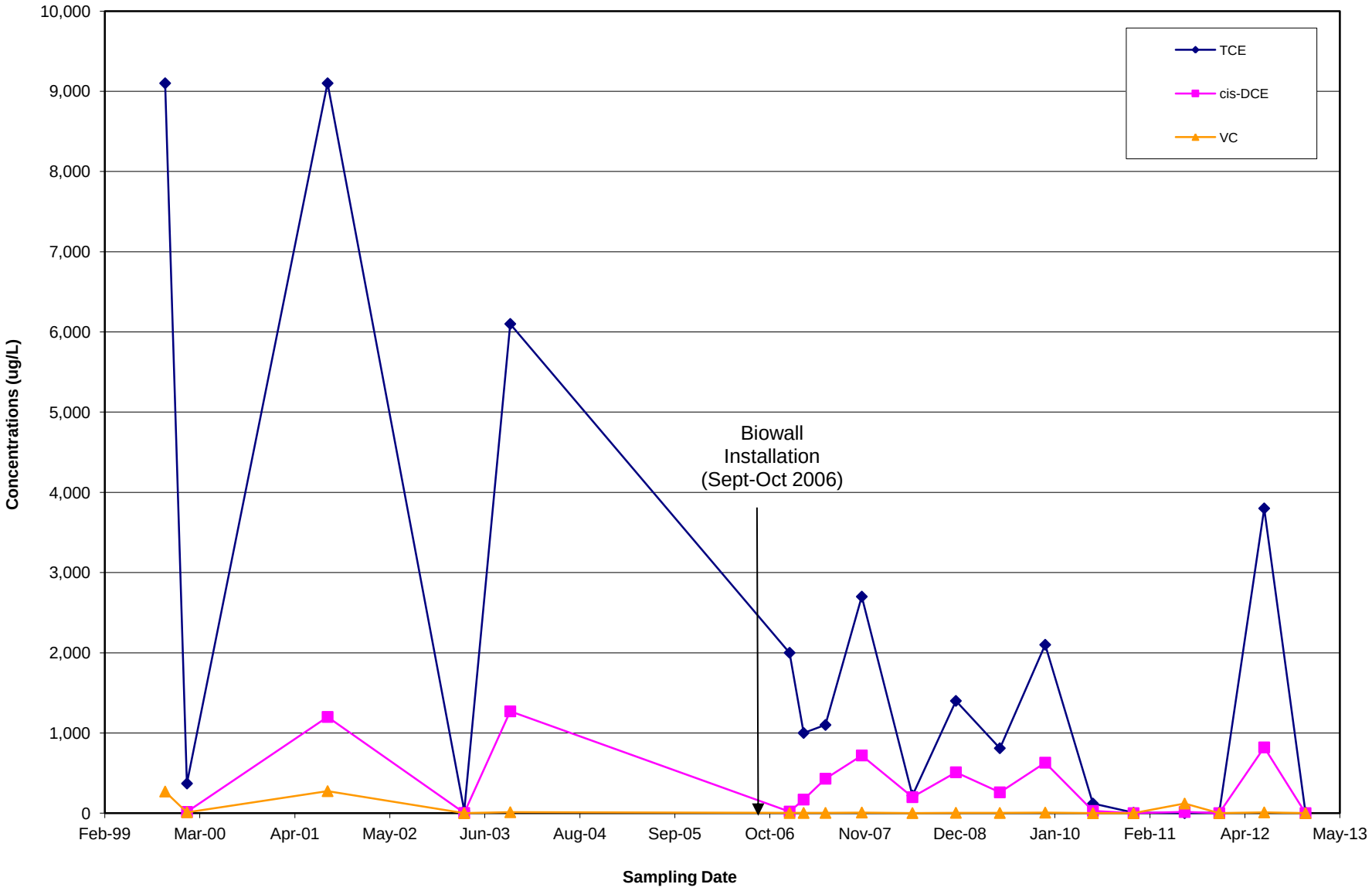


Figure 11B
Historic Concentrations of Chlorinated Organics at PT-17
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

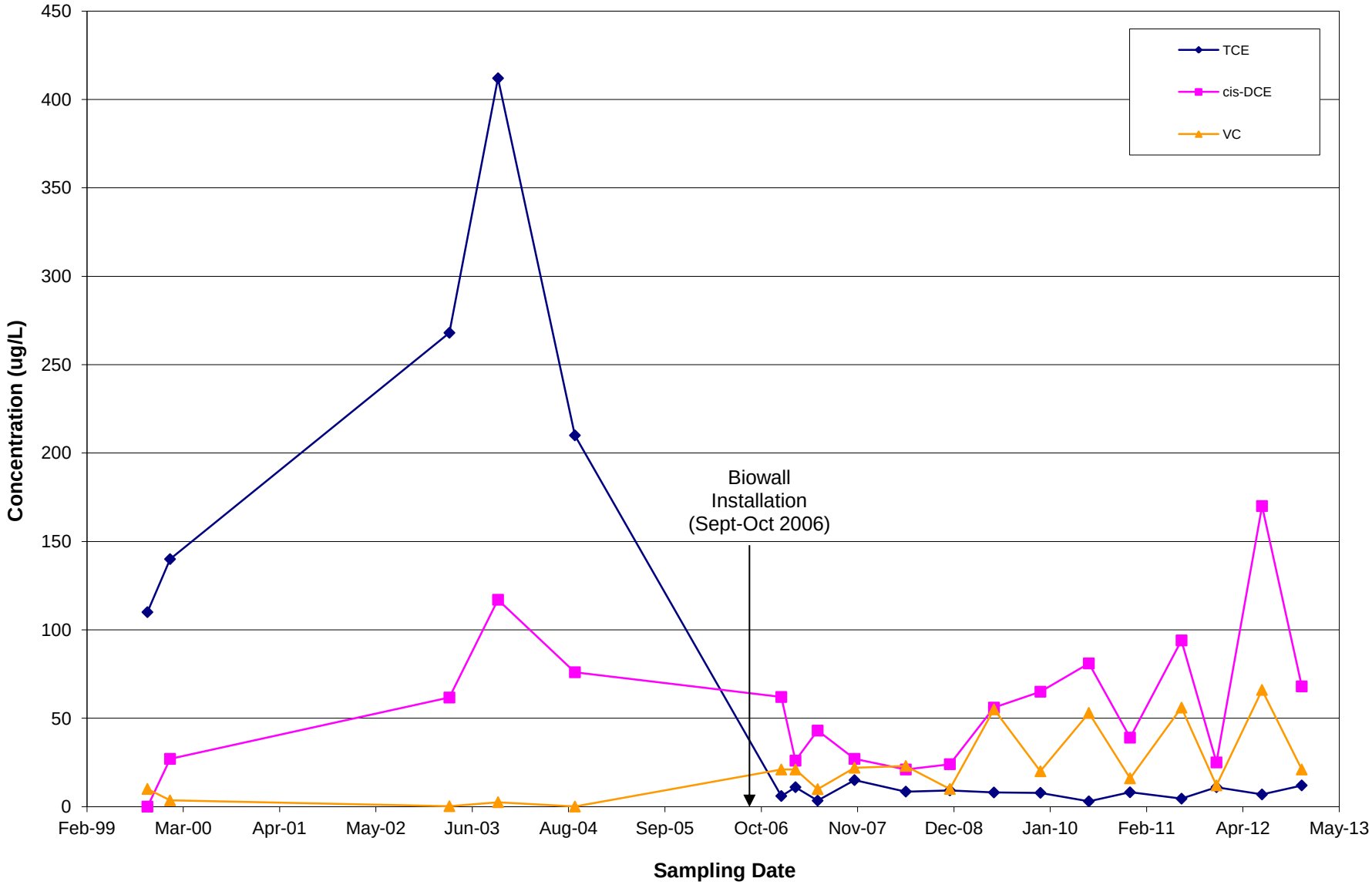
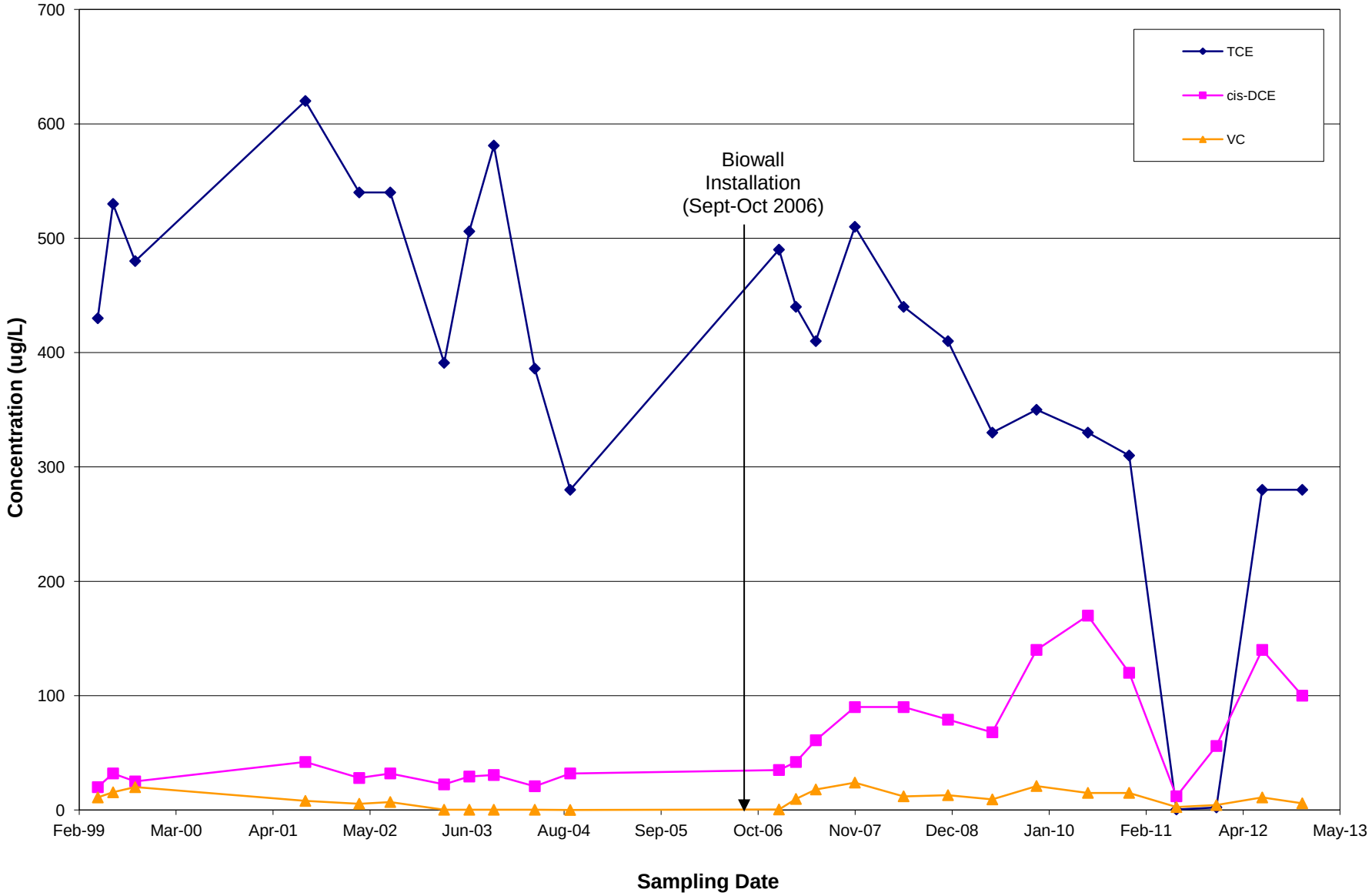


Figure 11C
Historic Concentrations of Chlorinated Organics at MWT-7
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



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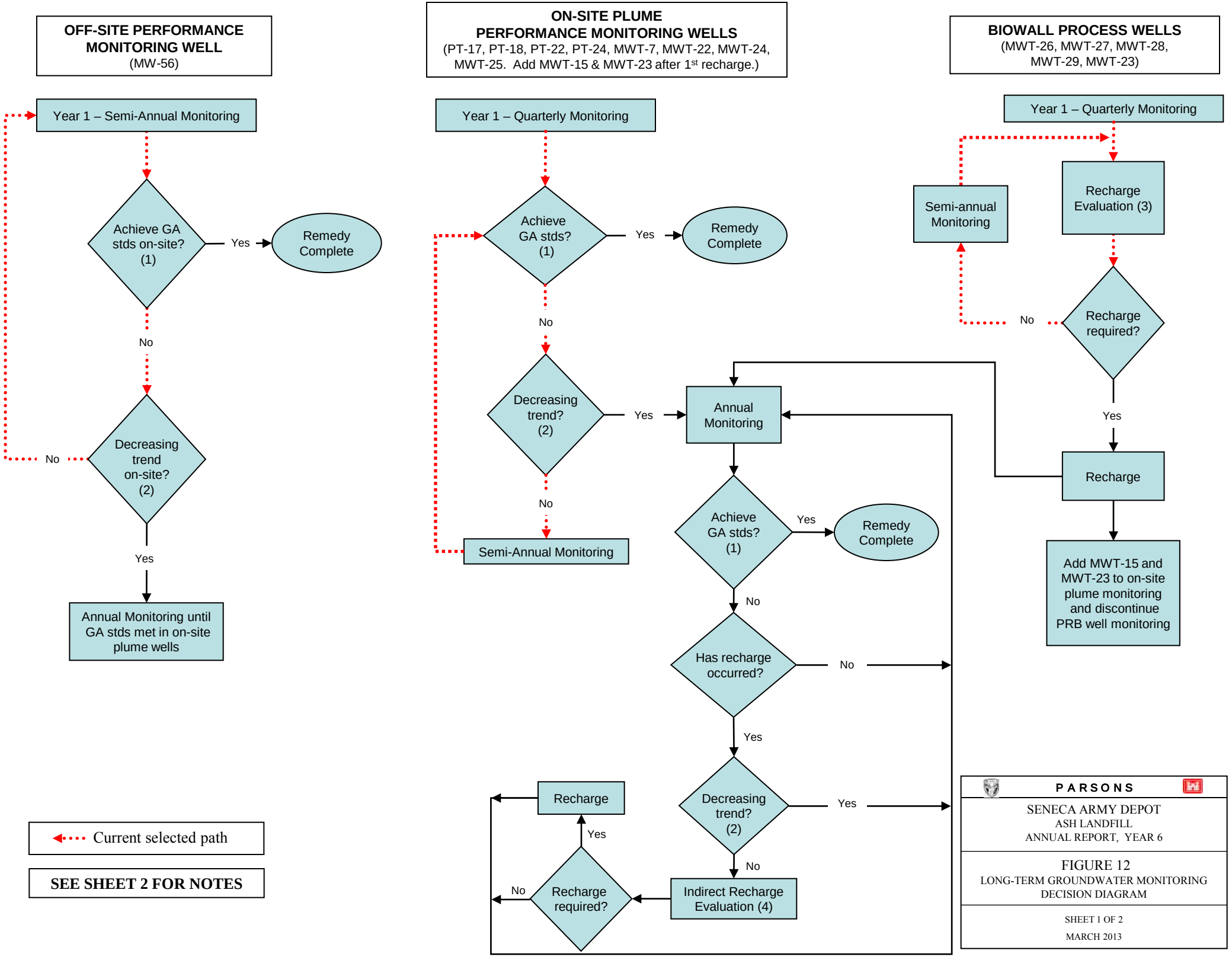
OFF-SITE PERFORMANCE MONITORING WELL
(MW-56)
Year 1 – Semi-Annual Monitoring
Achieve GA stds on-site? (1)
Yes
Remedy Complete
No
Decreasing trend on-site? (2)
No
Yes
Annual Monitoring until GA stds met in on-site plume wells
ON-SITE PLUME PERFORMANCE MONITORING WELLS
(PT-17, PT-18, PT-22, PT-24, MWT-7, MWT-22, MWT-24, MWT-25. Add MWT-15 & MWT-23 after 1st recharge.)
Year 1 – Quarterly Monitoring
Achieve GA stds? (1)
Yes
Remedy Complete
No
Decreasing trend? (2)
Yes
Annual Monitoring
No
Semi-Annual Monitoring
Achieve GA stds? (1)
Yes
Remedy Complete
No
Has recharge occurred?
No
Yes
Decreasing trend? (2)
Yes
No
Indirect Recharge Evaluation (4)
Recharge required?
No
Yes
Recharge
BIOWALL PROCESS WELLS
(MWT-26, MWT-27, MWT-28, MWT-29, MWT-23)
Year 1 – Quarterly Monitoring
Recharge Evaluation (3)
Recharge required?
No
Semi-annual Monitoring
Yes
Recharge
Add MWT-15 and MWT-23 to on-site plume monitoring and discontinue PRB well monitoring
Current selected path
SEE SHEET 2 FOR NOTES
PARSONS
SENECA ARMY DEPOT
ASH LANDFILL
ANNUAL REPORT, YEAR 6
FIGURE 12
LONG-TERM GROUNDWATER MONITORING DECISION DIAGRAM
SHEET 1 OF 2
MARCH 2013

NOTES:

1. Achieving GA Stds: The condition of achieving GA standards applies to achieving groundwater standards for all COCs in all of the On-Site Plume Wells. If GA standards are achieved in the On-Site Plume Wells for two successive monitoring events, then the remedy is complete and no further monitoring is required at the site.

2. Decreasing Trend: After each year of sampling, the Army will review the results to determine if the chemical concentrations of the COCs are increasing, decreasing, or are unchanged. Graphical and statistical analyses will be used as the basis for this determination. For example, data points will be plotted and a best fit line (linear regression) will be graphed. The slope of the best fit line is representative of the trend in concentration; a negative slope indicates a decreasing trend in COC concentrations. A decreasing COC trend indicates that the potential for contaminants to migrate and negatively impact groundwater further downgradient is decreasing, and that the plume is being effectively managed by the remedy. Any evaluation of trends in contaminant concentrations will take into account that historic data at the Ash Landfill shows that there are seasonal fluctuations in contaminant concentrations. Semi-annual monitoring during wet and dry seasons is appropriate until it is established in which season maximum concentrations are observed. Annual monitoring would occur in the season of maximum concentrations.

3. Recharge Evaluation:

• Determining the need to recharge a biowall segment requires a review of chemical concentrations and geochemical parameters by an experienced professional. A specific, absolute set of conditions or parameter values are not appropriate to determine the need to recharge. Rather, a lines-of-evidence approach will be used that correlates a decrease in the efficiency of the system to degrade chloroethenes to geochemical evidence that indicates the cause is due to substrate depletion.

• The following parameters will be evaluated on an annual basis using at least two consecutive rounds of sampling data in order to determine if recharge of the biowalls is necessary:

a. COC concentrations in the wall. If COC concentrations have rebounded by greater than 50% for any single sampling event, this will indicate that recharge should be considered. Concentrations within the biowalls, not at downgradient locations, will be used to make this evaluation so that the effectiveness of the wall itself is being measured without the interference of effects such as desorption and mixing.

b. Geochemical parameters, specifically ORP, TOC, and DO, in the wall. Benchmark values will be used initially to evaluate anaerobic conditions in the groundwater. These benchmarks are:

- ORP < -100 Mv
- TOC > 20 mg/L
- DO < 1.0 mg/L

Parameters described in a and b above are intended to be used as guidelines and will be considered in the evaluation if, and when, a depletion of bioavailable organic substrate results in a rebound in geochemical redox conditions under which effective biodegradation does not occur.

4. **Indirect Recharge Evaluation**: Once the biowalls are recharged the first time, an indirect recharge evaluation will be conducted if an increasing trend in COC concentrations is observed in the plume performance monitoring wells. An increasing trend is a positive slope on the best-fit line, described in *Note 2* above. Two biowall monitoring wells, MWT-15 and MWT-23, will be added to the Plume Performance Monitoring program after the first recharge is completed. The evaluation will review the chemical and geochemical data and determine if the contaminant increase is a result of poor biowall performance or due to other issues, such as seasonal variations, recent precipitation events, desorption, etc. As stated in Note 2, a rebound in concentrations of COCs of 50% in MWT-15 and MWT-23 in two consecutive monitoring rounds is a major indication that recharge is needed. Once this COC rebound is observed, the geochemical parameter concentrations at MWT-15 and MWT-23 will be reviewed. In addition, conditions at the other plume performance wells will be reviewed and compared to the conditions observed at those wells at the time that the initial recharge was required. The Army will determine if similar conditions in the well provide further proof that carbon source recharge is needed again.

APPENDICES

APPENDIX A

FIELD FORMS FOR 13R2012 and 14R2012

GROUNDWATER ELEVATION REPORT

SENECA ARMY DEPOT ACTIVITY	PARSONS	DATE: 6/18/12
PROJECT: Ash Landfill LTM - Round 13		PROJECT NO:
LOCATION: Seneca Army Depot, Romulus, NY		INSPECTOR: Scott Dillman, Meghan Emmert

MONITORING EQUIPMENT:

INSTRUMENT	DECTECTOR	BGD	TIME	REMARKS
Herron Dipper				

WATER LEVEL INDICATOR:

INSTRUMENT	CORRECTION FACTOR
Herron dipper	None
~~Solinst~~ #1	-19751

COMMENTS:

Monitoring Well	Historic Well Depth (rel. TOC) (ft)	Depth to Water (rel. TOC) (ft)	Well Depth (rel. TOC) (ft)	Time at Check (military)	Well Condition (Fair / Bad) [circle]	Well Status / Comments (Lock?, Well #?, Surface Disturbance?, Riser marked?, Condition of: riser, concrete, protective casing, etc.)
PT-12A	13.38	7.37	12.62	1313	(F) / B	No Lock, ~~snake hole adjacent to well, no well cap~~ No J Plug
PT-16	11.04	4.86	11.00	1129	(F) / B	~~No Lock~~
PT-17	11.65	5.98	7.51	1210	(F) / B	No Lock, flush well, no well cover
PT-18A	12.85	8.83	12.80	1321	(F) / B	~~No Lock~~
PT-19	11.70	5.91	11.63	1119	(F) / B	~~No Lock~~
PT-20	11.80	8.22	11.80	1227	(F) / B	~~No Lock~~
PT-22	11.81	9.30	11.88	1235	(F) / B	~~No Lock~~
PT-24	11.88	5.60	11.85	1150	(F) / B	~~No Lock~~
MW-27	10.54	7.11	10.53	1138	(F) / B	~~No Lock~~
MW-29	10.54	6.37	10.96	1159	(F) / B	~~No Lock~~
MW-32	10.37	8.61	10.36	1122	(F) / B	~~No Lock~~
MW-39	11.89	3.64	11.90	1101	(F) / B	~~No Lock~~ Ring Rusted
MW-40	14.71	6.45	14.68	1340	(F) / B	~~No Lock~~ Thornbush, hole
MW-44A	12.48	6.76	12.44	1254	(F) / B	~~No Lock~~
MW-46	11.45	7.10	11.44	1250	(F) / B	~~No Lock~~ No J Plug
MW-48	11.50	5.80	11.54	1246	(F) / B	~~No Lock, no well cap~~
MW-56	6.88	4.71	6.44	1504	(F) / B	USGS Probe well No J Plug ; No Lock
MW-60	9.50	4.15	10.23	1023	(F) / B	~~No Lock~~ Wasps - Raised - No J Plug
MWT-1	10.13	5.20	10.08	1141	(F) / B	~~No Lock~~
MWT-3	10.13	5.55	10.09	1146	(F) / B	~~No Lock~~
MWT-4	12.43	6.78	12.42	1156	(F) / B	~~No Lock~~
MWT-6	12.65	5.83	12.44	1157	(F) / B	~~No Lock~~
MWT-7	13.64	6.53	12.64	1203	(F) / B	~~No Lock~~ Lifted
MWT-9	14.14	7.44	14.14	1205	(F) / B	~~No Lock~~
MWT-10	9.00	4.26	8.99	1140	(F) / B	No Lock
MWT-17R	11.4	7.72	11.40	1306	(F) / B	Pilot Biowall, Needs J Plug
MWT-22	14.9	7.79	14.83	1305	(F) / B	Pilot Biowall, ~~no lock, needs new J-Plug~~
MWT-23	13.7	9.68	13.65	12:22	(F) / B	~~No Lock~~
MWT-24	13	8.25	12.93	1214	(F) / B	~~No Lock~~
MWT-25	13.25	7.63	13.20	1319	(F) / B	~~No Lock~~
MWT-26	13.22	7.24	13.17	1317	(F) / B	~~MasterLock #140, no key~~
MWT-27	12.9	8.07	12.73	1310	(F) / B	~~MasterLock #140, no key~~ Soft Bottom
MWT-28	12.85	8.00	12.80	1308	(F) / B	~~MasterLock #140, no key~~
MWT-29	13.1	8.10	13.07	1303	(F) / B	~~MasterLock #140, no key~~

Ash Landfill Conditions Survey – June 2012

Location	NOTES (include date)
~~NCFL~~ ASHLF	
~~Ash LF~~ NCFL	6/18/12 - Large thorny bush w/ woody stems. - Burrows Noted: One on S. East side 1/2 way upslope concrete debris + cement board, Burrow 12" Diameter unknown depth. - 2nd burrow - No debris 6" Diameter South west side 1/2 way upslope
Biowall A1/A2	
Biowall B1	
Biowall B2	
Biowall C1	
Biowall C2	
ZVI wall	No Burrows Noted: Note Wall obscured by dense Vegetation 6/18/12
Well conditions	# See Groundwater Elevation Report 6/18/12

Ash Landfill Conditions Survey – June 2012

Location	NOTES (include date)
~~NCFL~~ Ash LF	
~~Ash LF~~ NCFL	6/18/12 - Deer tracks also Noted. 3'x4' concrete Patch Noted on South Side of Landfill. See Map for more details.
Biowall A1/A2	
Biowall B1	
Biowall B2	
Biowall C1	
Biowall C2	
ZVI wall	
Well conditions	

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW56

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/18/12
INSPECTORS: MEE + SBO
PUMP #: 19097
SAMPLE ID #: ALBW202414

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1520	70's	Overcast		10-15	East	Moist	OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
HISTORIC DATA	6.44	—	—	—	—	—

	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
DATA COLLECTED AT WELL SITE	—	4.71	5.02		1520

	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)
RADIATION SCREENING DATA	—	—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1520									
1528	4.91	110		1.48	16.4	0.453	7.11	-258	—
1533	5.10	290		1.72	16.1	0.309	7.06	-262	~~OR~~ 95
1538	5.23	110		1.03	16.1	0.326	7.01	-274	—
1543	5.09	104		0.07	15.8	0.330	7.02	-281	18.4
1548	5.05	98		0.21	15.7	0.524	7.02	-284	—
1553	5.02	96		0.21	15.6	0.524	7.00	-286	2.40
1558	5.01	110	3/4	0.19	15.6	0.526	7.01	-286	1.36
1603	5.09	110	1 gal	0.23	15.7	0.520	7.00	-283	1.20
Sampled @ 1613									

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW 20244	1613	MEF
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Hach Turbidity - 178217

YSI - 03217

Horiba - Sonde: 53TKL

~~disp~~meter: 1677975

Controller - 015731

IDW INFORMATION:

Water Quality Instrument Calibration Form

Project: Seneca Army Depot Ash Landfill

Date: 6/18/12 Cal. By: SBD	Time: 0830	Make/Model: Horiba 52	Display S/N: 16779F5	Sonde S/N: S3TKL	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer	4.01				
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)		4.47 ms/cm				
	10	9.26				
Hach 17847 Turbidity (NTU)	~~20~~	~~0.0~~ 19.9				
	100	99.1				
	800	806				
ORP (mv)	7.00 buffer	240 mv@ 21.9 °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	~~8.78~~ mv@ ~~15.5~~ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	~~0.32~~ mg/L	~~8.78~~ mg/L ~~8.62~~	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ ~~10.5~~ °C ~~21.6~~	@ °C	@ °C	@ °C	@ °C

Date: 6/18/12 Cal. By: SBD	Time: 0830	Make/Model: YSI 85	Display S/N: 03217	Sonde S/N: —	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	~~8.78~~ 8.62 mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ 21.6 °C	@ °C	@ °C	@ °C	@ °C

Date: Cal. By:	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Cal. Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Water Quality Instrument Calibration Form

Project: SENECA ARMY DEPOT ASH LANDFILL

Date: 6/20/12 Cal. By: SBD	Time: 7:05	Make/Model: HACH 2100G	Display S/N: 18983	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity						
(umho/cm)			10 OK	9.56 OK		
Turbidity (NTU)			20	20.2		
			100	99.7		
			800	796		
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Date: 6/20/12 Cal. By: SBD	Time: 7:20	Make/Model: HACH 2100G	Display S/N: 17847	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity						
(umho/cm)			10	9.37		
Turbidity (NTU)			20	19.1		
			100	97.6		
			800	803		
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Date: Cal. By:	Time:	Make/Model:	Display S/N: 3210	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Cal. Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity						
(umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	9.57 mg/L	8.26 mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ 23.6 °C	@ 23.8 °C	@ °C	@ °C	@ °C

Water Quality Instrument Calibration Form

Project:

Date: 6/20/12	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By: MEF	0718	Horiba U52	15295	P0004850	Mid-day	End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer	3.77	4.0	3.99		
	7.00 buffer					
	10.00 buffer					
	4.49	4.60	4.49	4.49		
Specific Conductivity						
(umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	238 mv@ 25 °C	240 mv@ 25 °C	238 mv@ 25 °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Date: 6/20/12	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By: MEF	0718	Horiba U52	18110	21H1H3A2V	Mid-day	End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer	4.41	4.0	4.01		
	7.00 buffer					
	10.00 buffer					
	4.49	4.60 4.29	4.49	4.49		
Specific Conductivity						
(umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	224 mv@ 24.8 °C	240 mv@ 25 °C	240 mv@ 24.8 °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Date: 6/20/12	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By: MEF	0724	YSI 85	603217	N/A	Mid-day	End of Day
Parameter:	Cal. Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity						
(umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	~~8.40 mv@ 24.1 °C~~	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	8.40 mg/L	8.21 mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ 24.1 °C	@ 24.2 °C	@ °C	@ °C	@ °C

3210 9.57 23.6

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW T27

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/20/12
INSPECTORS:
PUMP #: 19697
SAMPLE ID #: AL B062047

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1140	1105	Sun	—	—	—	Grassy	OVM-580	PID
							—	—

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	12.73	—	—	—	—	—

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	—	8.16	8.81	11.73	1143

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—		—	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1151	8.81	112		0.05	14.5	207	6.78	-82	—
1201	8.82	112		0.03	14.0	2.06	6.73	-80	—
1211	8.65	138		0.02	14.0	2.00	6.70	-82	—
1221	8.67	122		0.03	13.9	1.99	6.65	-80	124
1231	~~8.78~~	73130	~2.9gal	0.03	13.7	1.91	6.60	-82	—
1241	8.70	100		0.02	13.6	1.89	6.66	-83	55.4
1251	8.70	100		0.03	13.7	1.87	6.67	-83	—
1301	8.72	100		0.03	13.5	1.87	6.68	-83	—
1306	8.73	128	~3gal	0.02	13.5	1.83	6.71	-83	25.5
1311	8.76	120		0.02	13.5	1.82	6.69	-83	25.4
1316	8.81	125		0.02	13.5	1.79	6.69	-82	19.8
1321	8.81	127	~3.5	0.03	13.5	1.81	6.68	-82	15.3
		Sample @ 1331							
			Fe 1.8mg/L						
			Mn - 22.0						

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW20247	1331	
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field	1.8 mg/L					
6	Mn+		Field	22.0 mg/L					

COMMENTS: (QA/QC?)

Controller 0162500
Hach turbidity 17547
Horiba Sonde: P000Y85F Display 15295
YSI - 3210
Hach Fe/mn - 15063

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-26

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/20/12
INSPECTORS: MGE
PUMP #: 1206
SAMPLE ID #: ALRW 20246

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	(FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1355	90's	SUN	—	—	—	Grassy	OVM-580	PID
							—	—

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.17	—	—	—	—	—

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	—	7.38	8.69	12.17	1410

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—			—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1420	7.48	120		0.82	15.7	1.56	7.28	-119	—
1425	7.72	108		0.67	15.7	1.51	7.26	-113	—
1430	7.59	90		0.62	15.2	1.36	7.25	-37	24.1
1435	7.94	90		0.67	15.1	1.18	7.27	-32	—
1440	8.12	80		0.71	15.2	0.27	7.31	-11	11.9
1445	8.18	80		0.56	15.2	0.908	7.32	-7	6.86
1500	8.28	80		0.40	15.1	0.910	7.32	-5	—
1505	~~8.28~~	80		0.58	15.1	0.901	7.31	-5	14.8
1510	8.38	70		0.43	15.1	0.485	7.29	-7	5.35
1515	8.41	80		0.49	15.0	0.973	7.28	-5	38.7
1520	8.46	80		0.59	15.0	0.969	7.27	-4	—
1525	8.50	74	~1.9gal	0.47	14.9	0.974	7.26	-1	—
1530	8.61	78		0.604	14.8	0.978	7.26	0	9.41
1535	~~8.68~~	70		0.48	14.8	1.00	7.27	0	8.52
1540	8.68	70		0.49	14.8	1.00	7.26	2	8.85
1545	8.69	70	2.5 gal	0.48	14.8	1.02	7.26	2	8.72
		Sampled @ 1605							
			Fe 0.04 mg/L						
			Mn 5.6 mg/L						

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW 202416	1605	
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe-		Field	0.09 mg/L					
6	Mn+		Field	0.6 mg/L					

COMMENTS: (QA/QC?)

Controller - 016250
Hach turbidity - 17847
Horiba P0004855 & Display 15295
YSI-3210
Hach Fe/Mn - 15003

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-28

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/20/12
INSPECTORS: MEC
PUMP #: 1710
SAMPLE ID #: ALBW20248 + ALBW20249

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
0830 ~~SET~~	60's	Sun		0	—	Grassy	OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
HISTORIC DATA	12.80	—	—	—	—	—

	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
DATA COLLECTED AT WELL SITE	—	8.13	8.54	11.8	0900

	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)	
RADIATION SCREENING DATA	—	—	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
0900	8.62	240 ml							
0905	8.72	125		0.23	13.7	1.01	6.46	-63	43.7
0910	8.61	160		0.18	13.7	0.980	6.38	-60	26.9
0920	8.56	140		0.12	13.7	0.993	6.41	-60	12.4
0925	8.56	144	1 gal	0.08	13.7	0.904	6.40	-61	9.81
0930	8.55	122		0.08	13.7	0.925	6.39	-63	7.97
0935	8.52	122		0.05	13.6	0.959	6.39	-66	6.70
0940	8.52	110		0.08	13.6	0.968	6.42	-65	6.13
0945	8.52	124		0.07	13.6	0.999	6.38	-68	6.10
0950	8.55	118	2.25 gal	0.07	13.6	1.01	6.42	-68	6.42
0955	8.52	118		0.07	13.6	1.08	6.42	-71	7.04
1000	8.49	100		0.07	13.6	1.10	6.42	-72	6.59
1005	8.50	135		0.06	13.6	1.11	6.43	-72	—
1010	8.52	125	2.3 gal	0.06	13.6	1.12	6.45	-74	14.4
1015	8.53	135		0.05	13.6	1.13	6.43	-77	8.66
1020	8.53	130		0.06	13.6	1.15	6.45	-75	7.92
1025	8.53	130		0.06	13.7	1.16	6.46	-77	7.66
1035	8.54	130		0.06	13.7	1.16	6.46	-76	7.44
	Sample ALBW20248 @ 1045 - 4 gal total purge								
	Sample ALBW20249 @ 1055								

Fe - 1.65 mg/L 6.6 - Mn mg/L

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW202487	0415	
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA	↓	↓	
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE		↓	
5	Fe+		Field	1.65 mg/L				1130	
6	Mn+		Field	16.4 mg/L			↓	↓	

COMMENTS: (QA/QC?)

Hach - 15063

YSI - 3210

Turbidity - 17847

Horiba - 15295 - Display Sonde - PODUY 85F

Control - 016250

IDW INFORMATION:

ALBW202478 + MS + MSD

ALBW202479 - Duplicate - Fe 1.52 mg/L
Mn 18.3 mg/L

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW129

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/20/12
INSPECTORS: SBD
PUMP #: 19696
SAMPLE ID #: ALBW 20250

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	(FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS
8:00 1215	90S	SUN	—	—	—	Grass

MONITORING INSTRUMENT	MONITORING DETECTOR
OVM-580	PID
—	—

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.6	—	—	—	—	—

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	—	7.97	10.30	12.6	1220

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)
	—	—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
	7.97	Start Pump		12:20					
1230	8.29	136		0.5	13.5	1.14	6.85	-61	
1235	8.34	98		0.30	13.8	1.15	6.75	-58	
1253	8.77	75		0.09	13.4	0.783	6.92	-51	
1300	8.89	110		0.10	13.3	0.648	6.99	-47	2.82
1305	8.95	118		0.12	?	0.627	7.03	-46	2.82
1310	9.12	122		0.09	13.2	0.628	7.03	-42	2.31
1315	9.20	108		0.07	13.2	0.637	7.02	-36	1.16
1320	9.32	108		0.06	13.2	0.669	6.76	-34	1.52
1325	9.41	108		0.06	13.0	0.701	6.98	-35	0.94
1330	9.52	110		0.05	12.89	0.770	6.95	-33	1.18
1335	9.65	108		0.05	12.4	0.769	6.92	-31	1.15
1340	9.74	108		0.05	12.9	0.789	6.90	-24	6.37
1345	9.82	100		0.06	12.8	0.818	6.87	-28	2.09
1350	9.91	100	2 gal	0.06	12.8	0.836	6.85	-28	1.50
1355	9.96	104		0.05	12.8	0.864	6.84	-28	1.18
1402	10.05	100		0.05	12.7	0.890	6.83	-29	1.35
1405	10.10	95		0.07	12.7	1.04	6.80	-29	1.01
1410	10.20	100	2 1/3	0.08	12.7	1.06	6.78	-28	1.12
1415	10.30	100		0.07	12.7	1.05	6.78	-29	1.05
		COLLECT SAMPLE		1420					

Mn 19.6 mg/L PACA 01700

Fe 2.88 mg/L

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT: VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA			
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Controller 015734
Hach-Turbidity - 18983
Horiba - 18110
YSI - 3217
Hach - Fe Mn - 01700

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT23

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/20/12
INSPECTORS: SDO
PUMP #: ~~1613~~ 1905
SAMPLE ID #: ALBW 20245

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	(FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS
0845	905	SUN	—	—	—	Grassy

MONITORING

INSTRUMENT	DETECTOR
HNU/BW ~~OVM-580~~	451 ~~PID~~
18110	3217

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HACH DR/890 0i700

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.63	—	—	—	—	—

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	—	9.76	10.11	12.63	0900

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—		—	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
Start		pump	9.0L	coil leaking tubing kinked & leaking. Remove					9.10
			Bottom D ring for sake	fixed seal					
920	9.90	148		0.07	11.9	.001	6.47	219	
930	10.09	135		0.05	11.9	0.905	6.57	-59	
935	10.07	110		0.05	11.9	0.923	6.54	-62	
940	10.05	80		0.06	11.8	0.912	6.52	-63	18.4
945	10.09	80		0.06	11.8	0.911	6.50	-64	9.89
950	10.09	134		0.05	11.7	0.913	6.50	-67	11.4
955	10.09	116		0.04	11.7	0.913	6.51	-69	10.3
1000	10.09	90		0.05	11.7	0.910	6.53	-70	10.1
1005	10.09	104	1 gal	0.07	11.8	0.910	6.51	-70	8.16
1010	10.09	130		0.08	11.8	0.910	6.55	-72	9.18
1015	10.09	118		0.08	11.7	0.915	6.51	-70	7.75
1020	10.11	114	1.5 gal	0.08	11.7	0.915	6.52	-71	6.14
COLLECT SAMPLE at 1025									
Mn04 = 31.1 mg/L									
FE = 3.30+ mg/L LIMIT									

GW SAMPLING RECORD

SAMPLING ORDER			PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA			
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Controller - 015734
Hach-Turbidity 18983
Horiba U-10
YSI 3217
Hach-Fe/Mn - 01700

IDW INFORMATION:

Water Quality Instrument Calibration Form

Project: Seneca Army Depot — ASH LAND FILL

Date: 6/21/12 Cal. By: SBD	Time: 7:15	Make/Model: HACH 2100Q	Display S/N: 17847	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
			POST CAL READING			
Specific Conductivity						
(umho/cm)		10	9.28 OK			
		20	20.2			
Turbidity (NTU)		100	102			
		300	798			
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	~~9.0~~ mg/L	~~8.07~~ mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ 25.4 °C	@ ~~25.4~~ °C DBD	@ °C	@ °C	@ °C	@ °C

Date: 6/21/12 Cal. By: SBD	Time: 7:30	Make/Model: HACH 2100Q	Display S/N: 18983	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
			POST CAL READING			
Specific Conductivity						
(umho/cm)		10	10.4			
		20	19.8			
Turbidity (NTU)		100	100			
		300	796			
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

Date: 6/21/12 Cal. By: SBD	Time: 9:10	Make/Model: YSI 55	Display S/N: 02F0176	Sonde S/N:	Cal By: Mid-day	Cal By: End of Day
Parameter:	Cal. Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity						
(umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	~9.0 mg/L	8.01 mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ 25.4 °C	@ 25.4 °C	@ °C	@ °C	@ °C	@ °C

Water Quality Instrument Calibration Form

Project:						
Date:	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By:					Mid-day	End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C
Date:	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By:					Mid-day	End of Day
Parameter:	Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C
Date:	Time:	Make/Model:	Display S/N:	Sonde S/N:	Cal By:	Cal By:
Cal. By:					Mid-day	End of Day
Parameter:	Cal. Standard:	Reading:	Setting:	Reading:	Reading:	Reading:
pH (Units)	4.00 buffer					
	7.00 buffer					
	10.00 buffer					
Specific Conductivity (umho/cm)						
Turbidity (NTU)						
ORP (mv)	7.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Quinhydrone/Buffer Std.	4.00 buffer	mv@ °C	mv@ °C	mv@ °C	mv@ °C	mv@ °C
Dissolved Oxygen (mg/L)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Saturated Air Method	@ °C	@ °C	@ °C	@ °C	@ °C	@ °C

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT 18A
PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13		DATE: 6/21/12
LOCATION: ROMULUS, NY		INSPECTORS: SAD
		PUMP #: 19096
		SAMPLE ID #: ALBW20237

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
12:35	85-90	sunny, hot	—	15	270	Tall Grass	~~OVM-580~~	~~PID~~

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
HISTORIC DATA	12.80	—	—	—	—	—

	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
DATA COLLECTED AT WELL SITE	—	8.98	10.37	11.8	1240

	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)
RADIATION SCREENING DATA	—	—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1240	9.78		Start Pump						
	~~8.98~~	140							
1245		90		0.79	12.6	1.12	6.86	-38	
1250	9.46	110		0.66	12.4	1.14	6.82	-36	11.0
1255	9.49	108		0.56	12.2	1.12	6.76	-31	
1300	9.53	104		0.40	12.0	1.10	6.73	-20	
1305	9.61	98		0.30	11.9	1.10	6.69	-9	5.53
1310	9.64	106		0.21	11.8	1.09	6.69	+5	
1315	9.69	102		0.17	11.7	1.08	6.71	12	
1320	9.75	101		0.17	11.7	1.09	6.73	16	
1325	9.78	102	3/4 gal	0.16	11.6	1.11	6.75	22	
1330	9.82	106		0.12	11.6	1.10	6.73	27	
1335	9.86	104		0.15	11.6	1.09	6.76	31	
1340	9.89	102		0.15	11.5	1.10	6.78	34	
1345	9.92	102	1 1/4 gal	0.15	11.5	1.09	6.80	38	
1350	9.96	100		0.16	11.5	1.09	6.81	40	
1355	9.96	100	1.5 gal	0.13	11.5	1.09	6.82	42	
1400	10.00	100		0.17	11.5	1.09	6.84	45	
1405	10.03	100		0.18	11.5	1.08	6.82	45	
1410	10.06	102	2 gal	0.12	11.5	1.09	6.88	52	
1415	10.09	102		0.13	11.5	1.08	6.81	55	

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT18

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/21/12
INSPECTORS: SBD/MCC
PUMP #: 19696
SAMPLE ID #: ALBW20237

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	(FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
See	pg 1						OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	See pg 1					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	See	Pg 1			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1420	10.16	102		0.15	11.4	1.09	6.81	62	3.37
1425	10.18	100		0.12	11.4	1.09	6.79	64	
1430	10.20	102		0.12	11.4	1.08	6.78	66	5.44
1435	10.22	100		0.15	11.4	1.06	6.77	68	4.33
1440	10.24	100		0.12	11.4	1.06	6.77	69	2.27
1445	10.26	100		0.11	11.4	1.06	6.77	71	
1450	10.28	100		0.14	11.4	1.08	6.77	74	6.47
1455	10.20	102		0.12	11.4	1.06	6.76	75	1.68
1500	10.30	100	3 gal	0.13	11.4	1.07	6.80	76	1.46
1505	10.34	100		0.09	11.4	1.05	6.80	78	1.60
1510	10.37	100	3.25 gal	0.12	11.4	1.06	6.80	78	4.25
1515	COLLECT SAMPLE FOR VOCs								

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW20237	1515	SBD
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Hach - 18983

Horiba - 15295

YSI - 02f0176

Control - 1036

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW122

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/21/12
INSPECTORS: SBB
PUMP #: 19077
SAMPLE ID #: ALBW20241

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
0915	90's	Sun	—	—	—	HHCH 2.10 C	MP5 ~~OVM 580~~	YSI ~~PID~~ 8.5
						13983	15295	ORP 0.176

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
HISTORIC DATA	14.83	—	—	—	—	—

	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
DATA COLLECTED AT WELL SITE	—	7.86	11.24	1383	0935

	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
RADIATION SCREENING DATA				

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
935	7.60	START Pump							
940	9.68	118		0.07	11.8	1.39	6.52	-27	
945	10.49	140		0.12	11.8	1.42	6.50	-32	
955	10.36	90		0.15	11.8	1.42	6.47	-34	118
1000	10.34	75		0.18	11.9	1.41	6.37	-30	
1010	10.34	94		0.25	11.8	1.32	6.44	-34	37.5
1020	10.34	93		0.25	11.7	1.33	6.45	-35	30.4
1025	10.34	75		0.22	11.7	1.34	6.43	-34	
1030	10.33	—		0.24	11.6	1.34	6.43	-34	
1040	10.55	90		0.23	11.5	1.33	6.42	-32	15.6
1045	10.62	90		0.23	11.5	1.35	6.42	-31	
1050	10.73	85		0.22	11.5	1.35	6.41	-30	13.5
1053	10.80	103		0.21	11.5	1.38	6.42	-30	18.9
1100	10.92	95		0.19	11.5	1.37	6.42	-28	11.7
1105	11.04	95		0.19	11.5	1.37	6.42	-27	12.0
1110	11.13	96		0.18	11.5	1.37	6.42	-27	10.9
1115	11.24	95	2.25 gal	0.17	11.4	1.37	6.41	-27	8.78
	COLLECT	SAMPLE		1120		for VOCs			
	water reacting with HCl in bottles forming bubbles. Make multiple attempts to get no head space.								

GW SAMPLING RECORD

SAMPLING ORDER		PRESERVATIVES		BOTTLES		SAMPLE NUMBER	TIME	CHECKED BY/ DATE
				COUNT/ VOLUME	TYPE			
1	VOC -CLP(Low Level) 8260B	4 deg. C	HCL	3/ 40 ml	VOA	ACBW2C 241	1120	
2	TOC	4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE	4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride	4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+	Field						
6	Mn+	Field						

COMMENTS: (QA/QC?)

Hach 18983
Horiba 15295
YSI 02F0176
Control — 1030

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW125

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/21/12
INSPECTORS: MEE
PUMP #: 1106 18
SAMPLE ID #: ALBW20243

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1100	90's	sun	High	—	—	Grass	OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
HISTORIC DATA	13.2	—	—	—	—	—

	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
DATA COLLECTED AT WELL SITE	—	7.76		12.2	1110

	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)
RADIATION SCREENING DATA	—	—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1123	7.92	70		0.07	12.5	1.03	7.37	-60	
1130	8.14	180		0.19	12.9	0.494	7.15	-56	591.4
1135	8.18	100		0.32	13.1	1.02	7.21	-33	429
1140	8.25	94							
1145	8.29	90		0.27	13.0	0.874	7.17	-10	—
1150	8.44	80		0.30	13.0	0.891	7.22	-12	—
1155	8.68	104		0.23	13.1	0.898	7.16	-17	24.6
1200	8.85	100		0.23	13.1	0.905	7.21	-25	—
1205	8.89	94	~1 gal	0.23	13.2	0.423	7.14	-37	12.5
1215	9.20	110		0.16	13.1	0.924	7.15	-48	—
1225	9.5	98		0.09	13.0	0.933	7.12	-37	9.85
1230	9.70	97		0.08	12.9	0.940	7.15	-15	4.76
1235	9.85	106		0.09	12.8	0.933	7.14	-2	7.08
1240	10.00	—		0.10	12.7	0.935	7.12	9	8.34
1245	10.20	106		0.10	12.7	0.937	7.13	16	—
1250	10.36	106		0.10	12.7	0.936	7.13	19	—
1255	10.38	96	3 gal	0.01	12.7	0.934	7.13	18	1.71

~~1463~~ 1463

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES COUNT/ VOLUME	BOTTLES TYPE	SAMPLE NUMBER	TIME	CHECKED BY/ DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ALBW 20243	1305	6/24/11
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Control 1078
YSI 85 - 003217
Horiba 1810 - display 2HCH BA2V - Sonde
Turbidity - 18483

IDW INFORMATION:

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-22

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 13
LOCATION: ROMULUS, NY

DATE: 6/26/12
INSPECTORS: MG
PUMP #: 2135
SAMPLE ID #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
0911	80's	Sun	—	—	—	Grassy	OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	11.86	—	—	—	—	—

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	—	9.48		10.86	0925

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
0928	9.99	150	~~0.26~~	0.26	12.9	0.926	6.62	264	—
0938	10.0	130	~~0.89~~	0.87	12.4	0.969	6.58	21	11.2
0948		Pumped well	dry			0.949	6.62	-50	8.6
0958				0.93	12.0	—	~~6.~~	—	—
1019	10.24	50	2 gal	0.51	11.8	0.925	6.73	-24	—
1032	Pumped	well dry		0.43	11.8	0.941	6.67	-32	—
1052	10.86	~1 gal purged							—
1324	9.41	start pumping		0.83	12.6	0.868	6.84	0	—
1339	9.89			2.87	12.1	0.869	6.87	-1	17.4
1350	10.0			2.50	12.0	0.904	6.74	12	8.40
		sampled @							
		1400							

GW SAMPLING RECORD

	SAMPLING ORDER		PRESERVATIVES		BOTTLES		SAMPLE NUMBER	TIME	CHECKED BY/
					COUNT/ VOLUME	TYPE			DATE
1	VOC -CLP(Low Level) 8260B		4 deg. C	HCL	3/ 40 ml	VOA	ACBJ 20238	1400	6/21/12
2	TOC		4 deg. C	HCl	2 x 40 mL	VOA			
3	MEE		4 deg. C	HCL	1 x 40 mL	VOA			
4	Sulfate/Chloride		4 deg. C	HCL	1 x 4 oz	HDPE			
5	Fe+		Field						
6	Mn+		Field						

COMMENTS: (QA/QC?)

Control - 1078
YSI 85 - 003217
Horiba 1810 - display 2HCl+ BA2U - Sonde
Turbidity IR983

IDW INFORMATION:

Ash Landfill Conditions Survey – June 2012

Pg 1 of 7

Location	NOTES (include date)
NCFL ASH LF	[illegible] - Tall [illegible] vegetation [illegible], no burrows or holes or ruts or erosion noted
Ash LF NCFL	6/18/12 - Large thorny brush w/ woody stems - Burrows noted: One on S-East side ½ way upslope concrete debris + cementboard, burrow 12" diameter unknown depth - 2nd burrow - No debris 6" diameter South west side ½ way upslope
Biowall A1/A2	[illegible]
Biowall B1	[illegible]
Biowall B2	[illegible]
Biowall C1	[illegible] vegetation [illegible] no burrows [illegible] vegetation. No cracks
Biowall C2	[illegible]
ZVI wall	No burrows noted [illegible] obscured by dense vegetation 6/18/12
Well conditions	* See Groundwater [illegible] Report 6/18/12

Ash Landfill Conditions Survey – June 2012

pg 2 of 2

Location	NOTES (include date)
~~NCFL~~ ASH LF	
~~Ash LF~~ NCFL	6/18/12 - Deer tracks also Noted. 3'x4' concrete Patch Noted on South Side of Landfill. See Map for more detail. 6/21/12 - Berm Burrows Repaired 6/22/12 - MEF inspects Repair - Repair ok
Biowall A1/A2	
Biowall B1	
Biowall B2	
Biowall C1	
Biowall C2	
ZVI wall	
Well conditions	

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-18A

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: BBO
PUMP #: 10298
SAMPLE ID #: ALBGW200252

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1336	37	partly cloudy		5-10	W→E		OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

Horiba # 18721
YSI # 3210
HISTORIC DATA
Hach # 19319
Water Level # 18950
Compressor # 15682
DATA COLLECTED AT WELL SITE

DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
12.78'					

PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	6.11'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1352	6.11	Bladder Pump & YSI		in the well					
1353		Pump started		YSI	YSI	Horiba	Horiba	Horiba	Hach
1358	6.22	98		4.61	11.0	1.27	7.18	66	16.2
1408	6.23	100		4.56	10.7	1.31	6.89	70	9.17
1413	6.20	103		4.50	10.5	1.32	6.86	72	5.75
1418	6.23			4.36	10.6	1.32	6.86	72	5.41
1423	6.19			4.40	10.5	1.32	6.85	73	4.00
1428	6.19	100	~1.5 gals	4.36	10.5	1.32	6.84	73	3.42
1432	6.22			4.26	10.4	1.33	6.85	73	2.95
1438	6.20	110		4.26	10.5	1.33	6.84	73	2.67
1443	6.19			4.26	10.4	1.33	6.84	73	2.57
1448	6.20	107	~2.1 gals	4.21	10.4	1.34	6.84	74	2.15
1453	6.20			4.23	10.3	1.34	6.85	73	1.86
1458	6.20			4.26	10.3	1.33	6.84	74	1.79
1503	6.22	110	~2.8 gals	4.22	10.3	1.33	6.84	74	1.83
1510	Collected	samples		3 VOAs for VOCs					

SAMPLING RECORD - GROUNDWATER pg 1 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-24

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: S. Dillman
PUMP #: 8336
SAMPLE ID #: ALBW20254

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS

MONITORING INSTRUMENT	MONITORING DETECTOR
OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

Horiba #019102
YSI #3217 HISTORIC DATA
Hach #13616
Water Level #18951
Compressor #015784
DATA COLLECTED AT WELL SITE

DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
11.86'					

PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	4.73'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
9:15		START PUMP FOR PURGE		4.72'					
9:30		170-140							
9:40	4.75	102		2.44	10.2	0.432	6.98	230	
9:45	4.78	102		2.31	10.2	0.436	6.98	227	9.08
9:50	4.78	90		2.10	10.2	0.442	6.98	219	8.30
9:55	4.78	100		2.01	10.2	0.442	6.98	214	6.24
10:00	4.79	100		1.85	10.2	0.445	6.97	203	5.30
10:05	4.80	106		1.72	10.2	0.446	6.94	195	4.27
1010	4.79	98		1.60	10.2	0.446	6.98	181	3.60
1015	4.80	95		1.55	10.2	0.445	6.96	173	2.99
1020	4.80	95		1.47	10.2	0.445	6.96	152	2.90
1025	4.78	126		1.39	10.2	0.446	6.96	138	2.77
1030	4.80	130		1.32	10.1	0.443	6.95	124	1.41
1035	4.80	130		1.28	10.1	0.442	6.95	118	
1040	4.81	150	2 gal	1.22	10.1	0.442	6.93	110	
1045	4.78			1.06	10.1	0.441	6.95	110	
		COMPRESSOR QUIT - Replaced Compressor Unit							
11:15		Resumed Pumping - 120 ml/min							
11:18	4.81	111		1.26	10.3	0.434	6.96	90	2.06
11:25	4.80	110		1.20	10.2	0.428	6.97	86	1.52
11:30	4.80	110	2.6 gal	1.26	10.1	0.428	6.97	86	1.19

SAMPLING RECORD - GROUNDWATER Pg. 2 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-24

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: SD
PUMP #: 8336
SAMPLE ID #: ALBW20254

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1135	4.79	110		1.24	10.1	0.428	6.95	86	1.04
1140	4.82	109		1.21	10.1	0.427	6.96	84	0.91
1145	4.81	110		1.16	10.1	0.429	6.94	82	0.93
1150	4.81	110		1.14	10.1	0.430	6.95	79	1.03
1155	4.80	110	3.4 gal	1.16	10.1	0.429	6.94	77	0.86
1200	4.81	110		1.18	10.1	0.429	6.94	77	0.96
1205	4.80	110		1.19	10.1	0.428	6.95	77	1.23
1210	Collect sample for VOCs, water clear, no odor								

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-22

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: BBO
PUMP #: 8915
SAMPLE ID #: ALBW20256

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
840	34	overcast/ clearing skys		5-10	W→E		OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

Horiba # 18721
YSI # 3210
Hach # 19319
Water Level # 18950
Compressor # 15682
DATA COLLECTED AT WELL SITE

DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
14.83'					

PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	4.38'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND mS/cm (µmhos)	pH	ORP (mV)	TURBIDITY (NTU)
900	3.76	Pump @	YSI in well						
900		Pump	Started	YSI	YSI	Horiba	Horiba	Horiba	Hach
918	4.51	80 ml/min		0.10	10.5	1.28	6.78	197	–
923	5.30	120		0.16	10.3	1.44	6.52	81	26
928	6.0	110		0.20	10.2	1.49	6.54	28	25.5
933	6.58	110		0.24	10.2	1.50	6.52	2	26.5
938	7.25	120		0.18	10.4	1.49	6.49	-13	26.1
943	7.59	110	0.5 gals	0.17	10.7	1.50	6.50	-20	25.8
948	8.04	108		0.25	10.6	1.51	6.50	-26	25.2
953	8.45	110	~1 gal	0.29	10.6	1.51	6.49	-31	25.9
958	8.75	104		0.46	10.7	1.52	6.45	-32	23.4
1003	8.88	108	~1.3 gals	0.16	11.4	1.53	6.53	-41	21.1
1008	9.15	100		0.15	11.5	1.53	6.52	-43	18.7
1013	9.38		~1.9 gals	0.10	11.6	1.53	6.53	-46	19.2
1018	9.55	96		0.10	11.7	1.53	6.53	-49	17.4
1023	9.73	94	~2.25 gals	0.12	11.7	1.53	6.54	-51	16.2
1028	9.84	96		0.12	11.7	1.54	6.52	-51	14.3
1033	9.95	95		0.14	11.7	1.53	6.55	-54	13.3
1038	10.02	97		0.14	11.7	1.54	6.53	-53	11.9
1043	10.13	105	2.8 gals	0.11	11.7	1.53	6.54	-55	12.0
			3.0 gals						

1050 Samples Collected - 3 Vols for VOCs

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-24

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: S. Dillman
PUMP #: 14968
SAMPLE ID #: ALBW 20257

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

Horiba #019102
YSI #3217
HISTORIC DATA
Hach #13616
Water Level #18951
Compressor #015734
DATA COLLECTED AT WELL SITE

DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
12.91'					

PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	5.71			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1:25		Start Pump for Purge							
1:35	160 →			0.60	10.5	0.681	6.78	187	
1:40	140 →			0.58	10.5	0.682	6.76	187	
1:45	90 ↔ 5.88			0.56	10.6	0.681	6.74	185	19
1:50	5.89	100		0.54	10.6	0.683	6.73	184	
1:55	5.89	100		0.53	10.6	0.685	6.72	183	17.4
2:00	5.89	104		0.53	10.6	0.688	6.71	182	15.3
2:05	5.89	102	1.25 gal	0.50	10.7	0.690	6.69	179	13.0
2:10	5.89	104		0.53	10.7	0.689	6.70	179	13.3
2:15	5.91	104		0.52	10.7	0.690	6.70	180	11.4
2:20	5.89	100		0.53	10.7	0.689	6.70	181	10.7
2:25	5.89	100	2 gal	0.55	10.7	0.689	6.69	181	9.47
2:30	COLLECT SAMPLE FOR VOC's								

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-25

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/12/12
INSPECTORS: BBO
PUMP #: 8612 / 19097
SAMPLE ID #: ALBW20 0258

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1111	34	clear skys		5-10	W→E		OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

Heriba # 18721
YSI # 3210
HISTORIC DATA
Hach # 19819
Water Level # 18950
Compressor # 15682
DATA COLLECTED AT WELL SITE

DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
13.16'					

PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
	4.14'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1124	4.14	3.95	YSI & Bladder	Pump in well		replaced air & water lines			
1125		Pump Started		YSI	YSI	Hach	Hach	Hach	Hach
1131	4.48	102		7.30	10.6	0.957	7.45	-19	10.6
1138	paused pumping to check air line & pump seal, i suspect								
	Bladder pump #8612 is internally leaking air, replacing pump.								
1150		Bladder pump #19097							
1152	4.61			5.66	9.9	—	7.29	16	—
1157	4.81	62		7.51	9.8	0.897	7.64	12	58.8
1202	4.96	110		7.08	9.5	0.925	7.56	13	66.5
1207	5.16	99	~0.5 gals	7.22	9.5	0.933	7.52	6	59.6
1212	5.52	100		7.17	9.4	0.913	7.50	2	20.9
1217	5.73	100	~1 gal	7.08	9.4	0.904	7.51	4	14.7
1222	5.92			7.16	9.4	0.899	7.50	6	13.1
1227	6.13	94		7.08	9.5	0.894	7.51	10	10.9
1232	6.61	97	~1.75 gals	6.92	9.5	0.891	7.48	14	8.65
1237	6.88			7.01	9.4	0.889	7.51	17	10.5
1242	7.15	110		6.73	9.5	0.889	7.50	21	7.15
1247	7.25	110	~2.25 gals	6.91	9.5	0.880	7.47	26	5.95
1252	7.39	98		7.10	9.5	0.881	7.50	26	4.91
1267	7.51			6.91	9.5	0.878	7.50	29	3.82
1302	7.65	97		6.78	9.5	0.876	7.51	30	3.46
1307	7.74		~3.0 gals	6.63	9.5	0.876	7.50	32	3.08

1315 Samples Collected 3 voas for VOCs

SAMPLING RECORD - GROUNDWATER Page 1 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-17

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: BDO
PUMP #: SB 8915
SAMPLE ID #: ALBGW20251

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
905	24	clear sky		0-5	S->N		OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]
7.52-2.67 = 4.85 x .163 = 0.79 x 3 = 2.37 gals

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	7.52'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		2.67'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND ~~mg/GAL~~ (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
941	2.66	Bladder Pump & YSI in well							
942		Pump Started		YSI	YSI	Horiba	Horiba	Horiba	Hach
958	2.70	101		4.88	9.8	0.544	7.38	225	—
1003	2.70	99		4.67	9.8	0.529	6.97	227	5.50
1008	2.71	95		4.39	9.9	0.522	6.84	225	4.03
1013	2.71	104		4.21	9.9	0.522	6.80	221	3.12
1018	2.71	97	~0.5 gal	4.36	9.9	0.522	6.79	214	2.37
1023	2.71	98		3.69	9.9	0.522	6.77	206	2.44
1028	2.70	100		3.80	10.0	0.524	6.78	196	2.47
1033	2.71		~1.0 gal	4.26	10.0	0.527	6.75	185	2.10
1038	2.71			4.06	9.9	0.529	6.72	180	2.26
1043	2.70	92		4.25	10.0	0.536	6.76	161	1.66
1048	2.70	87	~1.6 gals	3.97	10.0	0.540	6.75	155	1.44
1053	2.71	80		3.93	10.0	0.544	6.77	144	1.22
1058	2.71	99		4.01	10.0	0.548	6.78	135	1.14
1103	2.71	103		3.68	10.0	0.550	6.77	125	1.02
1108	2.70		~2.0 gals	3.69	10.0	0.550	6.76	118	0.94
1113	2.73	120		3.88	10.0	0.553	6.77	108	0.83
1118	2.73	115		3.91	10.0	0.554	6.76	101	0.86
1123	2.73	120		3.65	10.0	0.555	6.76	94	0.81

SAMPLING RECORD - GROUNDWATER Page 2 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-17

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: BBO
PUMP #: 8915
SAMPLE ID #: ALBW2025(

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS

MONITORING

INSTRUMENT	DETECTOR
OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	7.52'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		2.67'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1128	2.71	138	~2.8 gals	3.63	10.0	0.557	6.75	58	0.69
1133	2.73	126		3.73	10.0	0.559	6.75	81	0.78
1138	2.73	130	~3.0 gals	3.67	10.0	0.562	6.76	74	0.64
1143	2.73	138		3.52	10.0	0.562	6.74	70	0.51
1148	2.72	138		3.46	10.0	0.563	6.75	65	0.58
1153	2.72	140	3.6 gals	3.50	10.0	0.565	6.76	60	0.42
1158	2.72	130		3.47	10.0	0.565	6.75	57	0.51
1203	2.72	124	~3.8 gals	3.56	10.0	0.569	6.74	53	0.53
1208	2.72	116		3.51	10.0	0.569	6.73	54	0.56
1213	2.72			3.44	10.0	0.569	6.74	52	0.51
			~4.2 gals						
1217	Collected	samples					Fe^+	0.05 mg/L	
							Mn^+	2.2 mg/L	

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: PT-22

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: E. Dillmann
PUMP #: 19097
SAMPLE ID #: ALBGW20253

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	11.90'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1235		Started Pump for Purge							
1240	5.98	180		3.85	9.7	0.777	7.22	198	
1245	5.98	116		5.08	9.7	0.776	7.05	202	
1250	5.98	120		5.04	9.7	0.773	7.01	210	4.24
1255	5.98	128		5.00	10.0	0.768	6.99	210	27
1300	5.98	130		4.91	10.0	0.758	6.99	209	7.78
1305	5.98	130		4.94	10.0	0.753	6.98	208	7.03
1310	5.98	132		4.64	10.0	0.748	6.99	204	5.14
1315	6.00	136		4.60	10.0	0.747	6.98	204	3.73
1320	6.00	136		4.88	10.0	0.743	6.98	203	3.21
1325	6.00	136		5.33	9.9	0.738	6.98	203	2.53
1330	6.00	136		5.40	9.9	0.736	6.98	202	2.12
1335	6.00	136		5.33	9.9	0.735	6.98	201	1.60
1340	6.00	138	2.3gal	5.36	9.9	0.731	6.98	201	1.44
1345	COLLECT SAMPLE FOR VOCs								

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW7-7

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13
INSPECTORS: S. Silliman
PUMP #: 10298
SAMPLE ID #: ALBW20255

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.66'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		5.22			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
9:18		180	Start Pump for Purge						
9:30	5.33	100		3.60	10.3	0.557	7.02	225	12.5
9:35	5.37	100		3.47	10.4	0.562	7.00	224	
9:40	5.38	102		3.46	10.3	0.565	6.99	223	8.17
9:45	5.33	102		3.45	10.4	0.572	6.97	206	7.52
9:50	5.33	108		3.27	10.6	0.577	6.93	177	5.70
9:55	5.33	104		3.17	10.6	0.581	6.91	159	4.53
10:00	5.33	102		3.02	10.6	0.587	6.86	97	4.30
10:05	5.33	108		3.17	10.7	0.589	6.88	79	2.77
10:10	5.33	108		3.08	10.7	0.590	6.87	67	2.90
10:15	5.33	108		2.89	10.8	0.592	6.87	54	2.92
10:20	5.33	110		2.99	10.8	0.591	6.85	46	2.97
10:25	5.34	108		2.95	10.7	0.593	6.86	41	2.83
10:30	5.33	108	1.5 gal	2.94	10.7	0.595	6.86	40	2.54
10:35	5.33	110		2.92	10.7	0.597	6.85	35	2.48
10:40	5.33	108		2.83	10.7	0.596	6.86	35	2.29
10:45	5.33	108	2.25 gal	2.84	10.7	0.597	6.85	34	1.74
10:50	5.33	108	COLLECT SAMPLE FOR VOCs, MEE, TOC, Sulfate @ 10:50						
Ferrous Iron 0.10 mg/L HACH FIELD TEST									
Manganese 0.0 mg/L "				"		"			

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-23

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: EBO
PUMP #: # 8612
SAMPLE ID #: ALBGW20260

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]
13.65 - 6.51 = 7.14 x .163 = 1.16 x 3 = 3.49 gal

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.65'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		6.51'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND mS/cm (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1249	6.50	Bladder pump & YSI in well, replaced water line							
1249		Pump Started		YSI	YSI	Horiba	Horiba	Horiba	Hach
1301	6.62	145		0.15	11.4	1.00	6.51	-5	21.4
1306	6.69	140		0.16	11.2	1.03	6.39	-45	25.8
1311	6.69	140		0.16	11.2	1.04	6.36	-54	27.4
1316	6.69	134		0.13	11.2	1.05	6.34	-61	29.7
1321	6.71		~0.75	0.11	11.2	1.05	6.35	-68	28.7
1326 1328	6.69	130		0.11	11.2	1.05	6.34	-70	23.3
1331	6.69	130		0.12	11.1	1.06	6.34	-72	19.8
1336 1338	6.70	138		0.11	11.1	1.06	6.33	-74	18.6
1341	6.70		~1.75	0.10	11.1	1.06	6.34	-76	18.2
1346	6.70	138		0.07	11.1	1.06	6.32	-76	15.7
1351	6.70	150		0.06	11.2	1.06	6.33	-78	13.3
1356	6.70	150	~2.5 gals	0.05	11.2	1.06	6.33	-80	11.8
1401	6.70	150		0.05	11.2	1.07	6.28	-80	11.0
1406	6.70	160	~2.9 gals	0.05	11.2	1.07	6.32	-82	10.5
1411	6.70	140	3.0 gals	0.05	11.1	1.07	6.32	-83	8.82
1416	6.70	142		0.04	11.1	1.07	6.33	-84	8.11
1421	6.72	150	~3.5 gals	0.04	11.2	1.07	6.32	-85	8.82
1426	6.72	160	~3.75 gals	0.05	11.1	1.07	6.31	-86	8.06

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-23

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: TBO
PUMP #: #8612
SAMPLE ID #: ALBW20260

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND ~~(umhos)~~ mS/cm	pH	ORP (mV)	TURBIDITY (NTU)
1431	6.72	146	~4.0 gals	0.05	11.2	1.07	6.31	-86	8.09
1436	6.71	146		0.06	11.1	1.07	6.29	-86	8.91
1441	6.72	144		0.05	11.2	1.07	6.32	-87	8.51
1446	6.71	160		0.05	11.2	1.07	6.32	-88	9.08
1451	6.72	144		0.05	11.2	1.07	6.31	-88	8.91
1456	6.72	160	~5 gals	0.04	11.2	1.07	6.32	-89	8.31
1501	6.72	156		0.06	11.2	1.07	6.28	-90	7.81
1506	6.72	150	~5.5 gals	0.09	11.1	1.07	6.33	-91	9.05
1511	6.72			0.11	11.1	1.07	6.33	-91	8.56
1516		Samples Collected							
			~6.75				Fe^+	2.18 mg/L	
		ALBW20260		1516			Mn^+	46.1 mg/L	
		ALBW20260MS		1516					
		ALBW20260MSD		1516					
		ALBW20261		1522					

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-29

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: S. Dillman
PUMP #: 19095
SAMPLE ID #: ALBW20265

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	12.99					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		4.96			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1430	4.65	START PUMP FOR PURGE							
1440	5.80	102		5.32	10.1	0.484	7.43	220	
1445	5.88	104		5.25	10.1	0.484	7.43	219	10.43
1450	5.98	104		5.38	9.9	0.486	7.41	219	7.86
1455	6.15	115		5.33	9.9	0.490	7.40	217	6.71
1500	6.30	94		5.32	10.0	0.494	7.38	214	5.61
1505	6.42	96		5.35	9.9	0.497	7.38	213	5.01
1510	6.50	100		5.32	9.9	0.498	7.36	211	4.15
1515	6.58	100		5.22	10.0	0.501	7.38	211	3.96
1520	6.72	100		5.21	10.0	0.506	7.35	210	3.97
1525	6.90	98		5.24	10.0	0.510	7.34	211	4.29
1530	7.01	100		5.22	10.0	0.514	7.31	211	3.70
1535	7.15	100	1.5 gal	4.97	9.9	0.521	7.26	215	3.30
1540	7.19	100		5.05	9.9	0.531	7.28	223	2.58
1545	7.25	100		5.04	9.9	0.534	7.20	227	2.35
1550	7.29	94		5.14	9.8	0.542	7.17	238	2.64
1555			2 gal						
1600	7.37	99		5.12	9.8	0.556	7.10	260	1.97
1605	7.43	99		5.25	9.8	0.561	7.10	266	1.85
1610	7.47			4.90	9.8	0.565	7.08	273	1.65
1615	7.54	96		4.82	9.7	0.572	7.06	281	1.64

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-29

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/13/12
INSPECTORS: SD
PUMP #: 19025
SAMPLE ID #: ALBW202 ~~GW~~ 63

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1620	7.57	98		5.15	9.7	0.581	7.03	291	1.72
1625	7.65	100	2.75	5.13	9.7	0.590	7.02	298	1.21
1630	7.70	96		5.04	9.7	0.597	7.00	305	1.14
1635	7.73	96		5.06	9.8	0.602	6.99	305	1.30
1640	7.77	96		4.99	9.9	0.606	6.96	312	1.58
			~3.25						
1645	Samples Collected						Fe^{+}	0.00 mg/L	
							Mn^{+}	1.2 mg/L	

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-56

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/14/12
INSPECTORS: BBO
PUMP #: 8336
SAMPLE ID #: ALBW20259

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
1132	45	Partly cloudy		~~0-5~~	~~S→N~~		OVM-580	PID
				5-10	W→E			

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	6.48'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		3.65' by Geopaketmeell			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1151	3.64	Bladder pump & YSI in well, new water & airline							
1157		Pump Started		YSI	YSI	Horiba	Horiba	Horiba	Hach
1204	3.67	103		0.99	6.7	0.488	7.20	-54	67.9
1209	3.70	112		0.91	6.6	0.480	7.01	-54	37.0
1214	3.75	125		0.86	6.5	0.501	7.01	-62	20.5
1218	3.73	126	~0.5 gal	0.72	6.4	0.500	6.95	-61	16.9
1224	3.74	110		0.74	6.4	0.502	6.97	-65	13.2
1229	3.75	126		0.81	6.3	0.509	6.92	-64	10.1
1234	3.75		~1.1 gal	0.80	6.3	0.511	6.93	-66	8.54
1239	3.76	148		0.81	6.2	0.510	6.94	~~-68~~ -68	7.06
1244	3.78	140		0.78	6.2	0.509	6.96	-68	4.85
1249	3.79	150	~2.0 gal	0.71	6.1	0.508	6.96	-68	4.78
1254	3.80	135		0.74	6.1	0.505	6.93	-68	6.43
1259	3.81	133	~2.3 gal	0.86	6.1	0.504	6.97	-68	5.39
1304	3.84			0.93	6.1	0.504	6.95	-69	3.16
			Purged ~2.9 gals						
1310	Sample		Collected.	3 VOAs	for	VOC			

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-27

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/14/12
INSPECTORS: SD
PUMP #: 18731
SAMPLE ID #: ALBW20265

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	12.70'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		5.32			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
8:50	5.38	START	Pump FOR	PURGE, YSI		HORIBA	→	→	HACH
8:58	5.74	124		0.08	10.4	2.11	6.70	-136	
9:05	5.81	130		0.06	10.5	2.14	6.67	-131	
9:10	5.75	110		0.04	10.5	2.16	6.65	-126	51.7
9:15	5.72	112		0.04	10.5	2.17	6.66	-123	48.3
9:20	5.71	112		0.04	10.4	2.20	6.65	-121	32.9
9:25	5.70	108		0.04	10.4	2.22	6.66	-121	30.2
9:30	5.70	108		0.03	10.5	2.24	6.66	-122	24.4
9:35	5.70	112	1.5 gal	0.03	10.4	2.26	6.64	-121	21.1
9:40	5.70	112		0.03	10.4	2.27	6.65	-121	17.4
9:45	5.70	112		0.03	10.4	2.27	6.63	-121	15.9
9:50	5.70	112	2 gal	0.03	10.3	2.26	6.62	-120	15.6
9:55		Collect Sample for VOCs, TOC, MEE, SULFATE							
	Bubbles in VOCs, reaction in bottle with HCl								
Manganese		47.5 mg/L	HACH TEST MAX LIMIT						
Ferrous Iron		1.38 mg/L	HACH TEST	solution settled. Agitated sample Reread 2.17 mg/L					
water	slightly discolored (yellowish-tint)								

SAMPLING RECORD - GROUNDWATER

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-28

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/14/12
INSPECTORS: BBO
PUMP #: 14968
SAMPLE ID #: ALBW20628264

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND DIRECTION (FROM) (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
835	36	clear sky		0-5	S-2N	frost	OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) WELL DIAMETER FACTOR (GAL/FT)]
12.79 - 5.39 = 7.4 x .163 = 1.21 x 3 = 3.62 gals

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	12.79'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		5.39'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND mS/cm (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
846	5.25	Bladder Pump & YSI in well							
847		Pump started		YSI	YSI	Horiba	Horiba	Horiba	Hach
858	5.63			0.09	12.0	1.36	6.62	75	75.7
902	Stopped pumping, crack in water line allows air bubbles in								
911	5.32	replaced water line, YSI & Pump in well							
912		Started pump							
913	5.64	140		0.15	11.3	1.39	6.41	-52	65.5
918	5.72	132		0.09	11.3	1.39	6.38	-57	123
923	5.72	112		0.09	11.2	1.39	6.33	-58	97.3
928	5.72	114		0.07	11.2	1.39	6.33	-61	76.8
933	5.72	114	~1.0 gals	0.10	11.2	1.38	6.31	-63	58.4
938	5.74			0.09	11.2	1.38	6.31	-64	40.8
943	5.74	112		0.08	11.2	1.38	6.28	-66	35.1
948	5.75			0.08	11.3	1.38	6.28	-67	31.2
953	5.76	106		0.08	11.2	1.38	6.28	-68	31.0
958	5.76		~2.0 gals	0.09	11.2	1.38	6.27	-68	24.1
1003	5.76	107		0.09	11.3	1.38	6.28	-70	24.6
1008	5.77			0.09	11.2	1.38	6.27	-70	21.4
1013	5.77	111	~2.5 gals	0.06	11.2	1.38	6.27	-71	19.3
1018	5.78			0.07	11.2	1.38	6.27	-73	16.3
1024	Samples	Collected		3 VOAs for VOC					

Fe+: 2.79 mg/L
Mn+: 36.0 mg/L

2 VOAs for MEE
1 Plastic for Sulfate 1 Amber for TOC

Purged ~3.0 gals

* one of MEE vials had bubble that could not be removed.

SAMPLING RECORD - GROUNDWATER pg 1 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MW-26

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/14/12
INSPECTORS: S. Dell'Anno
PUMP #: 19097
SAMPLE ID #: ALBW20262

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING DETECTOR
							OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND
	13.13'					

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME
		4.40'			

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1155	4.15	Start Pump For Purge							
1210	4.76	160-118		5.00	10.6	0.921	7.40	21	
1215		100		5.41	10.4	0.896	7.44	34	
1220	5.17	98		5.43	10.5	0.804	7.46	48	15.6
1225	5.32	98		5.50	10.7	0.786	7.47	51	9.38
1230	5.48	116		5.46	10.6	0.770	7.47	56	8.32
1235	5.70	116		5.62	10.6	0.767	7.47	61	7.25
1240	5.90	104	1 gal	5.53	10.6	0.748	7.48	64	6.57
1245	6.22	102		5.63	10.6	0.773	7.49	68	4.81
1250	6.42	102		5.68	10.6	0.778	7.49	72	3.97
1255	6.72	100		5.68	10.7	0.785	7.49	74	3.84
1300	7.02	100		5.66	10.8	0.788	7.49	77	3.20
1305	7.20	100		5.71	10.8	0.790	7.50	79	2.93
1310	7.32	98		5.72	10.9	0.798	7.50	79	2.76
1315	7.42	98		5.63	10.8	0.809	7.48	83	2.68
1320	7.48	100		5.66	10.8	0.819	7.48	85	2.43
1325	7.58	100	2.5 gal	5.64	10.8	0.832	7.49	86	2.32
1337	7.80	100		5.66	10.7	0.864	7.43	94	2.29
1340	7.90	98		5.68	10.7	0.872	7.43	94	2.14
1345	7.98	101	3 gal	5.65	10.7	0.886	7.41	97	1.77
1350	8.08	100		5.50	10.7	0.895	7.39	100	1.71

SAMPLING RECORD - GROUNDWATER pg 2 of 2

SENECA ARMY DEPOT ACTIVITY	PARSONS	WELL #: MWT-26

PROJECT: Ash Landfill LTM Groundwater Sampling - Round 14
LOCATION: ROMULUS, NY

DATE: 12/14/12
INSPECTORS: S. Dillaman
PUMP #: 19097
SAMPLE ID #: ALBW20262

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND VELOCITY (APPRX)	WIND (FROM) DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS

MONITORING INSTRUMENT	MONITORING DETECTOR
OVM-580	PID

WELL VOLUME CALCULATION FACTORS

DIAMETER (INCHES):	0.25	1	2	3	4	6
GALLONS / FOOT:	0.0026	0.041	0.163	0.367	0.654	1.47
LITERS/FOOT	0.010	0.151	0.617	1.389	2.475	5.564

ONE WELL VOLUME (GAL) = [(POW - STABILIZED WATER LEVEL) X WELL DIAMETER FACTOR (GAL/FT)]

HISTORIC DATA	DEPTH TO POINT OF WELL (TOC)	DEPTH TO TOP OF SCREEN (TOC)	SCREEN LENGTH (FT)	WELL DEVELOPMENT TURBIDITY	WELL DEVELOPMENT pH	WELL DEVELOPMENT SPEC. COND

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	DEPTH TO STATIC WATER LEVEL (TOC)	DEPTH TO STABILIZED WATER LEVEL (TOC)	DEPTH TO PUMP INTAKE (TOC)	PUMPING START TIME

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

TIME (min)	WATER LEVEL	PUMPING RATE (ml/min)	CUMULATIVE VOL (GALLONS)	DISSOLVED OXYGEN (mg/L)	TEMP (C)	SPEC. COND (umhos)	pH	ORP (mV)	TURBIDITY (NTU)
1355	8.17	100		5.56	10.8	0.906	7.38	102	~~1.51~~
1400	8.21	100		5.47	10.8	0.909	7.37	103	1.50
1405		collect sample for VOCs, MEE, TOC, sulfate							
			~3.75 gals				Fe^{+}	0.01 mg/L	
							Mn^{+}	0.0 mg/L	checked twice

APPENDIX B

COMPLETE GROUNDWATER DATA

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-18A	PT-18A	PT-18A	PT-18A	PT-18A	PT-18A
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20059	ALBW20074	ALBW20088	ALBW20103	ALBW20117	ALBW20132
Sample Date								1/3/2007	3/17/2007	6/5/2007	11/15/2007	6/24/2008	12/12/2008
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	1 U	1 U	1 U	0.26 UJ
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.21 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	1 U	1 UJ	0.31 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	1 U	1 U	1 U	0.23 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	1 U	1 U	1 U	0.75 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.64 J	0.73 J	1.4	2.1	1 U	1.3
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.41 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	1 U	1 U	1 UJ	1 UJ
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	1 U	1 U	1 U	0.17 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	1 U	1 U	1 U	1 U	0.21 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	1 U	1 U	1 U	0.14 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Acetone	UG/L	2600	21%			42	202	5 U	2 J	7	5 U	5 U	1.3 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.38 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.26 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.27 UJ
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.32 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 U	1 U	1 UJ	0.32 U
Chloroform	UG/L	71	8%	7	5	17	208	**27**	13 U	**14**	**8.7**	1 U	2.2
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**220**	**170**	**430**	**720**	**200**	**510**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	1 U	1 U	1 U	0.22 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	1 U	1 U	1 U	0.28 UJ
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	1 U	1 UJ	1 UJ	0.17 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	1 U	1 U	1 UJ	0.28 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 U	5 U	5 UJ	5 UJ	1.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 UJ	0.34 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	1 U	1 U	1 U	0.22 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	5 U	5 U	5 UJ	1.3 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	5 U	5 U	5 UJ	0.91 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 UJ	1 U	1 U	1 U	1 U	0.44 UJ
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							PT-18A	PT-18A	PT-18A	PT-18A	PT-18A	PT-18A
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20059	ALBW20074	ALBW20088	ALBW20103	ALBW20117	ALBW20132
Sample Date							1/3/2007	3/17/2007	6/5/2007	11/15/2007	6/24/2008	12/12/2008
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	1 U	1 U	1 U	0.51 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	3 U	3 U	3 U	0.93 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.6	1.4	3.3	3.4	0.9 J	2.4
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.37 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**2,000**	**1,000**	**1,100**	**2,700**	**220**	**1,400**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	1 U	1 UJ	0.15 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	**2.4**	**2.9**	**3.3**	**8.2**	1.4	**4.6**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-18A	PT-18A	PT-18A	PT-18A	PT-18A	PT-18A
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20147	ALBW20162	ALBW20177	ALBW20192	ALBW20207	ALBW20222
Sample Date								6/4/2009	12/17/2009	7/1/2010	12/19/2010	7/22/2011	12/15/2011
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.26 U	1.1 U	0.5 U	0.5 U	**15**	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.21 U	0.85 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.31 U	1.2 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.23 U	0.92 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.75 U	1.5 U	0.25 U	0.25 U	**62**	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.8 J	2 J	0.11 U	0.11 U	1.5	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.41 U	1.6 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1.6 U	0.44 U	0.44 U	0.44 UJ	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.17 U	0.66 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.2 U	0.81 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.21 U	0.86 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.14 U	1.3 U	0.13 U	0.13 U	0.29 J	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	1.4 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	1.6 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	1.3 UJ	5.4 U	5 U	5 UJ	8.1 J	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	0.16 U	1.6 U	0.25 U	0.25 U	0.38 J	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.39 U	1.5 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.26 U	1 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.19 U	0.78 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.27 U	1.1 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.32 U	1.3 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.32 U	1.3 U	0.1 U	0.1 U	0.1 UJ	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	0.32 U	1.3 UJ	1 U	1 U	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	**9**	3.1 J	2.1	0.27 J	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**260**	**630**	**28**	0.54 J	**15**	0.53 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.36 U	1.4 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.53 U	2.1 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.29 U	1.1 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.18 U	0.74 U	0.11 U	0.11 U	**9.2**	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.19 U	0.77 U	0.1 U	0.1 U	0.1 J	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.17 U	2 U	0.19 U	0.19 U	0.19 U	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	0.28 U	1.1 UJ	0.8 U	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1.2 U	5 U	1 U	1 U	1 U	1 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	0.35 U	1.4 U	0.33 U	0.33 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.5 U	2 U	0.1 U	0.1 U	0.17 J	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1.3 U	5.3 U	1 U	1 U	5.1 J	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	0.91 U	3.6 U	1 U	1 U	1.9 J	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.16 U	0.64 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	0.44 U	1.8 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.18 U	0.74 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							PT-18A	PT-18A	PT-18A	PT-18A	PT-18A	PT-18A
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20147	ALBW20162	ALBW20177	ALBW20192	ALBW20207	ALBW20222
Sample Date							6/4/2009	12/17/2009	7/1/2010	12/19/2010	7/22/2011	12/15/2011
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.36 U	1.5 U	0.15 U	0.15 U	1 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.51 U	2 U	0.33 U	0.33 U	**130**	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.66 U	2.6 U	0.2 U	0.2 U	**60**	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.8	3.5 J	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.37 U	1.5 U	0.21 U	0.21 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**810 J**	**2,100**	**120**	**6.3**	0.13 U	**7.3**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.15 U	0.61 UJ	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**2.6**	**7.1**	0.18 U	0.18 U	**120**	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-18A	PT-18A	MWT-25	MWT-25	MWT-25	MWT-25
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20237	ALBW20252	ALBW20064	ALBW20079	ALBW20093	ALBW20108
Sample Date								6/21/2012	12/12/2012	1/3/2007	3/17/2007	6/6/2007	11/15/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	1 U	1 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	1 U	1 U	1 UJ	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	2.6	0.11 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 UJ	0.1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	1 U	1 U	1 U	1 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 U	5 U	4.5 J	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.48 J	0.25 U	1 U	1 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	1 U	1 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 UJ	0.5 U	1 U	1 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	**71**	0.14 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**820**	0.8 J	**41**	**84**	**36**	**17**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	1 U	1 U	1 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	0.3 J	0.25 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.3 J	0.25 U	1 U	1 U	1 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	1 U	1 U	1 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UR	0.19 UJ	1 U	1 UJ	1 U	1 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	1 U	1 U	1 U	1 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	5 U	5 U	5 U	5 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 UJ	0.33 U	1 U	1 U	1 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	5 U	5 U	5 U	5 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	5 U	5 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	1 U	1 U	1 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	1 U	1 U	1 U	1 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							PT-18A	PT-18A	MWT-25	MWT-25	MWT-25	MWT-25
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20237	ALBW20252	ALBW20064	ALBW20079	ALBW20093	ALBW20108
Sample Date							6/21/2012	12/12/2012	1/3/2007	3/17/2007	6/6/2007	11/15/2007
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	1 U	1 U	1 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	1 U	1 U	4.6	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	3 U	3 U	3 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	4.7	0.2 U	0.56 J	1.2	0.5 J	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	1 U	1 U	1 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**3,800**	**8**	**50**	**55**	**28**	**26**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	1 UJ	1 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**10**	0.18 U	1.6	**9.6**	**2.1**	0.64 J
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-25	MWT-25	MWT-25	MWT-25	MWT-25	MWT-25
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20123	ALBW20138	ALBW20153	ALBW20168	ALBW20183	ALBW20198
Sample Date								6/24/2008	12/15/2008	6/3/2009	12/17/2009	6/30/2010	12/19/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	0.26 U	0.26 U	0.26 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	0.21 U	0.21 U	0.21 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	0.31 U	0.31 U	0.31 U	0.5 UJ	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	0.23 U	0.23 U	0.23 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	0.75 U	0.75 U	0.38 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	0.29 U	0.29 U	0.29 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.41 U	0.41 U	0.41 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 UJ	1 UJ	1 UJ	0.39 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	0.17 U	0.17 U	0.17 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	0.14 U	0.14 U	0.32 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.36 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.39 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	1.3 U	1.3 U	1.3 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	0.16 U	0.16 U	0.41 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	0.38 U	0.39 U	0.39 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	0.26 U	0.26 UJ	0.26 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	0.19 U	0.19 UJ	0.19 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	0.27 U	0.27 U	0.27 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.32 U	0.32 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	0.32 U	0.32 U	0.32 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	0.32 U	0.32 U	0.32 U	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	1 U	0.34 U	0.34 U	0.34 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**17**	0.63 J	**10**	3.3	**13**	0.97 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	0.22 U	0.53 U	0.53 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	0.28 U	0.29 U	0.29 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1 UJ	0.17 U	0.17 UJ	0.5 U	0.19 UJ	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 UJ	0.28 U	0.28 U	0.28 UR	0.8 UJ	0.8 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 UJ	1.2 U	1.2 U	1.2 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 UJ	0.34 U	0.35 U	0.35 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	0.22 U	0.5 U	0.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 UJ	1.3 U	1.3 U	1.3 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 UJ	0.91 U	0.91 U	0.91 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	0.16 U	0.16 U	0.16 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	0.44 UJ	0.44 U	0.44 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-25	MWT-25	MWT-25	MWT-25	MWT-25	MWT-25
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20123	ALBW20138	ALBW20153	ALBW20168	ALBW20183	ALBW20198
Sample Date							6/24/2008	12/15/2008	6/3/2009	12/17/2009	6/30/2010	12/19/2010
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	0.51 U	0.51 U	0.51 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	0.93 U	0.66 U	0.66 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1 U	0.13 U	0.13 U	0.42 U	0.49 J	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.37 U	0.37 U	0.37 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**19**	3.2	**12**	4.2	**7.7**	1.9
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	0.15 U	0.15 U	0.15 UJ	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	1 U	0.24 U	0.24 U	0.24 U	0.18 U	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
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Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-25	MWT-25	MWT-25	MWT-25	MWT-26	MWT-26
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20213	ALBW20228	ALBW20243	ALBW20258	ALBW20066	ALBW20081
Sample Date								7/20/2011	12/15/2011	6/21/2012	12/12/2012	1/3/2007	3/17/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 UJ	0.5 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	1 U	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 UJ	0.25 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	1 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 UJ	0.1 U	1 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	1 U	1 U
Acetone	UG/L	2600	21%			42	202	21 J	5 UJ	5 UJ	5 U	5 U	17
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 UJ	0.5 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**14**	0.3 J	**6.8**	0.39 J	**19**	**17**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 UJ	0.25 U	0.25 U	1 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UJ	0.19 U	0.19 UR	0.19 UJ	1 U	1 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	1 U	1 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 UJ	1 UJ	1 UJ	1 U	5 U	5 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 U	1 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 UJ	1 U	5 U	15
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 UJ	1 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 UJ	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U

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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-25	MWT-25	MWT-25	MWT-25	MWT-26	MWT-26
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20213	ALBW20228	ALBW20243	ALBW20258	ALBW20066	ALBW20081
Sample Date							7/20/2011	12/15/2011	6/21/2012	12/12/2012	1/3/2007	3/17/2007
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 U	1 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	0.33 U	0.33 U	0.33 U	1 U	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.28 J	0.2 U	0.2 U	0.2 U	3 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.45 J	0.2 U	0.2 U	0.2 U	0.6 J	1
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 UJ	0.21 U	1 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	4.4	1.6	**6.1**	1.3	**10**	**11**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	0.72 J	0.18 U	0.18 U	0.18 U	2	**6.1**
Other													
Iron	UG/L	296,000	100%			12	12					275 J	844
Iron+Manganese	UG/L	352,900	100%			12	12					1,043 J	2,464
Manganese	UG/L	56,900	100%			12	12					768	1,620
Ethane	UG/L	98	93%			97	104					2 U	0.4
Ethene	UG/L	200	90%			94	104					2 U	7.8
Methane	UG/L	23,000	97%			101	104					2 U	210
Sulfate	MG/L	1060	81%			84	104					958	738
Total Organic Carbon	MG/L	2050	100%			104	104					3.9 J	15.2

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

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Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-26	MWT-26	MWT-26	MWT-26	MWT-26	MWT-26
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20095	ALBW20111	ALBW20126	ALBW20141	ALBW20156	ALBW20171
Sample Date								6/5/2007	11/15/2007	6/24/2008	12/15/2008	6/3/2009	12/17/2009
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	1 U	0.26 U	0.26 U	0.26 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.21 U	0.21 U	0.21 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	1 U	0.31 U	0.31 U	0.31 UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	1 U	0.23 U	0.23 U	0.23 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	1 U	0.75 U	0.75 U	0.38 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	1 U	1 U	0.29 U	0.29 U	0.29 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.41 U	0.41 U	0.41 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	1 U	1 UJ	1 UJ	0.39 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	1 U	0.17 U	0.17 U	0.17 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	1 U	1 U	0.21 U	0.21 U	0.21 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	1 U	0.14 U	0.14 U	0.32 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.36 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.39 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 U	1.3 U	1.3 U	1.3 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	1 U	0.16 U	0.16 U	0.41 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.38 U	0.39 U	0.39 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.26 U	0.26 UJ	0.26 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	1 U	0.19 U	0.19 UJ	0.19 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.27 U	0.27 U	0.27 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.18 U	0.32 U	0.32 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.32 U	0.32 U	0.32 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 UJ	0.32 U	0.32 U	0.32 UJ
Chloroform	UG/L	71	8%	7	5	17	208	1 U	1 U	1 U	0.34 U	0.34 U	0.34 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**11**	2.8	3.3	1	**6**	**8.1**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	0.36 U	0.36 U	0.36 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	1 U	0.22 U	0.53 U	0.53 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	1 U	0.28 U	0.29 U	0.29 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	1 U	0.18 U	0.18 U	0.18 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	1 U	0.19 U	0.19 U	0.19 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	1 UJ	0.17 U	0.17 UJ	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	1 UJ	0.28 U	0.28 U	0.28 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 UJ	5 UJ	1.2 U	1.2 U	1.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.34 U	0.35 U	0.35 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	1 U	0.22 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	5 U	1.3 U	1.3 U	1.3 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	5 U	0.91 U	0.91 U	0.91 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.16 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	0.44 UJ	0.44 U	0.44 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.18 U	0.18 U	0.18 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-26	MWT-26	MWT-26	MWT-26	MWT-26	MWT-26
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20095	ALBW20111	ALBW20126	ALBW20141	ALBW20156	ALBW20171
Sample Date							6/5/2007	11/15/2007	6/24/2008	12/15/2008	6/3/2009	12/17/2009
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.36 U	0.36 U	0.36 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	1 U	0.51 U	0.51 U	0.51 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	3 U	0.93 U	0.66 U	0.66 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.7 J	1 U	1 U	0.13 U	0.13 U	0.42 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	0.37 U	0.37 U	0.37 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	3.2	2.8	1.7	1.9	3.6	**5.8**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	1 UJ	0.15 U	0.15 U	0.15 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	**4.4**	1 U	1 U	0.24 U	**3.5**	**4.2**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	1	0.16	0.82	0.046	3.2	2.2
Ethene	UG/L	200	90%			94	104	13	0.4	2.9	0.028	2.7	1.8
Methane	UG/L	23,000	97%			101	104	390	44	210	10	1,100	610
Sulfate	MG/L	1060	81%			84	104	473	1,060	600	541	570	912
Total Organic Carbon	MG/L	2050	100%			104	104	10.3	6.1	5.6	4.4	6.9	5.6

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-26	MWT-26	MWT-26	MWT-26	MWT-26	MWT-26
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20186	ALBW20202	ALBW20216	ALBW20232	ALBW20246	ALBW20262
Sample Date								6/29/2010	12/19/2010	7/20/2011	12/15/2011	6/20/2012	12/14/2012
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	5 UJ	5 UR	5 UJ	5 UJ	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**5.5**	**12**	**9.8**	1.1	4.4	3.1
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 U	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-26	MWT-26	MWT-26	MWT-26	MWT-26	MWT-26
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20186	ALBW20202	ALBW20216	ALBW20232	ALBW20246	ALBW20262
Sample Date							6/29/2010	12/19/2010	7/20/2011	12/15/2011	6/20/2012	12/14/2012
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.37 J	0.67 J	0.81 J	0.2 U	0.24 J	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 UJ	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	1.7	4.2	1.6	1.2	1.6	2.1
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	0.18 U	**7.6**	**4.4**	0.47 J	1.1	0.56 J
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	2.2	3.7	4.5	0.23	1	0.096
Ethene	UG/L	200	90%			94	104	0.71	3.3	1	0.425 U	0.5	0.069
Methane	UG/L	23,000	97%			101	104	740	1,600	960	39	230	9.4
Sulfate	MG/L	1060	81%			84	104	680	690	510	860	640	430
Total Organic Carbon	MG/L	2050	100%			104	104	4.6	5.5	6.3	4.5	4.4	4.5

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20067	ALBW20082	ALBW20096	ALBW20097	ALBW20112	ALBW20127
Sample Date								1/3/2007	3/16/2007	6/5/2007	6/5/2007	11/15/2007	6/24/2008
QC Type								SA	SA	SA	DU	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 UJ	20 UJ	10 U	4 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Acetone	UG/L	2600	21%			42	202	2,000 J	1,300	1,300	1,300	30 J	20 U
Benzene	UG/L	0.48	1%	1	0	3	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Bromoform	UG/L	0	0%	80	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Carbon disulfide	UG/L	0	0%			0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	20 UJ	20 U	20 U	20 U	10 U	4 UJ
Chloroform	UG/L	71	8%	7	5	17	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**49 J**	20 U	20 U	20 U	10 U	4 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Cyclohexane	UG/L	0.3	0%			1	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Methyl Acetate	UG/L	6	1%			2	193	20 UJ	20 UJ	20 U	20 U	10 UJ	4 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	20 UJ	20 U	20 U	20 U	10 U	4 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	100 UJ	100 U	100 U	100 U	50 UJ	20 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	4,100 J	2,200	1,800	1,700	50 U	20 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	100 UJ	100 U	100 U	100 U	50 U	20 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Methylene chloride	UG/L	18	6%	5	7	12	208	**18 J**	20 U	**11 J**	**13 J**	10 U	4 U
Styrene	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20067	ALBW20082	ALBW20096	ALBW20097	ALBW20112	ALBW20127
Sample Date							1/3/2007	3/16/2007	6/5/2007	6/5/2007	11/15/2007	6/24/2008
QC Type							SA	SA	SA	DU	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							1	2	3	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Toluene	UG/L	590	14%	5	17	30	208	20 UJ	20 U	20 U	20 U	**7.3 J**	**5.9**
Total Xylenes	UG/L	60	1%	5	1	2	208	60 UJ	60 U	60 U	60 U	30 U	12 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	20 UJ	20 U	20 UJ	20 UJ	10 U	4 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	20 UJ	20 U	20 U	20 U	10 U	4 U
Other													
Iron	UG/L	296,000	100%			12	12	296,000 J	229,000				
Iron+Manganese	UG/L	352,900	100%			12	12	352,900 J	273,500				
Manganese	UG/L	56,900	100%			12	12	56,900	44,500				
Ethane	UG/L	98	93%			97	104	10,000 UJ	0.15	0.082	0.079	0.025 U	2.3
Ethene	UG/L	200	90%			94	104	10,000 UJ	2.7	0.34	0.32	0.014 J	0.049
Methane	UG/L	23,000	97%			101	104	10,000 UJ	15,000	14,000	13,000	13,000	13,000
Sulfate	MG/L	1060	81%			84	104	10 U	10 U	2 U	2.7	31.7	2 U
Total Organic Carbon	MG/L	2050	100%			104	104	2,050 J	1,350	738	771	167	88.9

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20142	ALBW20143	ALBW20157	ALBW20172	ALBW20173	ALBW20187
Sample Date								12/15/2008	12/15/2008	6/3/2009	12/16/2009	12/16/2009	6/29/2010
QC Type								SA	DU	SA	SA	DU	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								6	6	7	8	8	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	2.6 UJ	2.6 UJ	2.6 U	1.3 U	1.3 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	2.1 UJ	2.1 UJ	2.1 U	1.1 U	1.1 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	3.1 UJ	3.1 UJ	3.1 U	1.5 U	1.5 U	0.5 UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	2.3 UJ	2.3 UJ	2.3 U	1.2 U	1.2 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	7.5 U	7.5 U	7.5 U	1.9 U	1.9 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	2.9 U	2.9 U	2.9 U	1.5 U	1.5 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	4.1 UJ	4.1 UJ	4.1 U	2 U	2 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	10 UJ	10 UJ	10 UJ	2 U	2 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1.7 UJ	1.7 UJ	1.7 U	0.83 U	0.83 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	2 U	2 U	2 U	1 U	1 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	2.1 U	2.1 U	2.1 U	1.1 U	1.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1.4 U	1.4 U	1.4 U	1.6 U	1.6 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1.6 U	1.6 U	1.6 U	1.8 U	1.8 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1.6 U	1.6 U	1.6 U	2 U	2 U	0.28 U
Acetone	UG/L	2600	21%			42	202	26 J	13 UJ	13 U	6.7 U	6.7 U	11 J
Benzene	UG/L	0.48	1%	1	0	3	208	1.6 U	1.6 U	1.6 U	2 U	2 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	3.8 U	3.8 U	3.9 U	1.9 U	1.9 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	2.6 UJ	2.6 UJ	2.6 UJ	1.3 U	1.3 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1.9 U	1.9 U	1.9 UJ	0.97 U	0.97 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	2.7 UJ	2.7 UJ	2.7 U	1.3 U	1.3 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1.8 U	1.8 U	3.2 U	1.6 U	1.6 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	3.2 U	3.2 U	3.2 U	1.6 U	1.6 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	3.2 U	3.2 U	3.2 U	1.6 U	1.6 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	3.4 U	3.4 U	3.4 U	1.7 U	1.7 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	1.6 U	1.6 U	1.6 U	1.9 U	1.9 U	0.18 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	3.6 U	3.6 U	3.6 U	1.8 U	1.8 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	2.2 UJ	2.2 UJ	5.3 U	2.7 U	2.7 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	2.8 U	2.8 U	2.9 U	1.4 U	1.4 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1.8 U	1.8 U	1.8 U	0.92 U	0.92 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1.9 U	1.9 U	1.9 U	0.96 U	0.96 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1.7 UJ	1.7 UJ	1.7 UJ	2.5 U	2.5 U	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	2.8 U	2.8 U	2.8 U	1.4 U	1.4 U	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	12 U	12 U	12 U	6.2 U	6.2 U	1 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	3.4 U	3.4 U	3.5 U	1.7 U	1.7 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	2.2 UJ	2.2 UJ	5 U	2.5 U	2.5 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	13 UJ	13 UJ	13 U	6.6 U	6.6 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	9.1 UJ	9.1 UJ	9.1 U	4.5 U	4.5 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1.6 UJ	1.6 UJ	1.6 U	0.8 U	0.8 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	4.4 UJ	4.4 UJ	4.4 U	2.2 U	2.2 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1.8 U	1.8 U	1.8 U	0.92 U	0.92 U	0.11 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20142	ALBW20143	ALBW20157	ALBW20172	ALBW20173	ALBW20187
Sample Date							12/15/2008	12/15/2008	6/3/2009	12/16/2009	12/16/2009	6/29/2010
QC Type							SA	DU	SA	SA	DU	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							6	6	7	8	8	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	3.6 U	3.6 U	3.6 U	1.8 U	1.8 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	**6.9 J**	**7.2 J**	5.1 U	2.6 U	2.6 U	0.61 J
Total Xylenes	UG/L	60	1%	5	1	2	208	9.3 U	9.3 U	6.6 U	3.3 U	3.3 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.3 U	1.3 U	1.3 U	2.1 U	2.1 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	3.7 U	3.7 U	3.7 U	1.8 U	1.8 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	1.8 U	1.8 U	1.8 U	2.3 U	2.3 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1.5 UJ	1.5 UJ	1.5 U	0.76 U	0.76 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	2.4 U	2.4 U	2.4 U	**3.2 J**	**2.9 J**	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	1.6	1.6	5.1	4.4	4.3	3.8
Ethene	UG/L	200	90%			94	104	0.13	0.12	0.15	1.2	1.1	0.12
Methane	UG/L	23,000	97%			101	104	15,000	15,000	0.93 J	13.9 J	14 J	0.95 J
Sulfate	MG/L	1060	81%			84	104	24.2	23.8	15.2	45.8	28	46.2 J
Total Organic Carbon	MG/L	2050	100%			104	104	53.8	53.1	81.7	49	50.9	61

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20203	ALBW20217	ALBW20218	ALBW20233	ALBW20247	ALBW20265
Sample Date								12/18/2010	7/20/2011	7/20/2011	12/14/2011	6/20/2012	12/14/2012
QC Type								SA	SA	DU	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								10	11	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 UJ	5 UR	5.6 J	5 U	5 UJ	10 J
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.26 J	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	1.1	0.15 J	0.27 J	1.4	0.42 J	0.15 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 UJ	0.19 UJ	0.19 U	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 U	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 UJ	1 UJ	1 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 UJ	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-27	MWT-27	MWT-27	MWT-27	MWT-27	MWT-27
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20203	ALBW20217	ALBW20218	ALBW20233	ALBW20247	ALBW20265
Sample Date							12/18/2010	7/20/2011	7/20/2011	12/14/2011	6/20/2012	12/14/2012
QC Type							SA	SA	DU	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							10	11	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	1 U	1 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.2 U	0.33 J	0.23 J	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 UJ	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.51 J	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**2.1**	0.18 U	0.18 U	**3**	0.61 J	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	3	6.2	6.1	2	8.4	0.88
Ethene	UG/L	200	90%			94	104	0.88	0.083	0.072	1.6	0.68	0.051
Methane	UG/L	23,000	97%			101	104	25	0.76 J	0.61 J	810	8,200	810
Sulfate	MG/L	1060	81%			84	104	36	31	24 J	27	25	35
Total Organic Carbon	MG/L	2050	100%			104	104	32	42	41	35	28	35

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20068	ALBW20069	ALBW20083	ALBW20098	ALBW20113	ALBW20128
Sample Date								1/3/2007	1/3/2007	3/16/2007	6/5/2007	11/15/2007	6/25/2008
QC Type								SA	DU	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	1	2	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 UJ	5 U	4 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Acetone	UG/L	2600	21%			42	202	2,500 J	2,600 J	170	520	25 U	20 U
Benzene	UG/L	0.48	1%	1	0	3	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Bromoform	UG/L	0	0%	80	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Carbon disulfide	UG/L	0	0%			0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	20 UJ	20 UJ	20 U	20 U	5 U	4 UJ
Chloroform	UG/L	71	8%	7	5	17	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Cyclohexane	UG/L	0.3	0%			1	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Methyl Acetate	UG/L	6	1%			2	193	20 UJ	20 UJ	20 UJ	20 U	5 UJ	4 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	20 UJ	20 UJ	20 U	20 U	5 U	4 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	100 UJ	100 UJ	100 U	100 U	25 UJ	20 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	4,900 J	4,900 J	180	510	25 U	20 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	100 UJ	100 UJ	100 U	100 U	25 U	20 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Methylene chloride	UG/L	18	6%	5	7	12	208	**13 J**	**14 J**	20 U	**9.3 J**	5 U	4 U
Styrene	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20068	ALBW20069	ALBW20083	ALBW20098	ALBW20113	ALBW20128
Sample Date							1/3/2007	1/3/2007	3/16/2007	6/5/2007	11/15/2007	6/25/2008
QC Type							SA	DU	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							1	1	2	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Toluene	UG/L	590	14%	5	17	30	208	**330 J**	**350 J**	**160**	**500**	**210**	**53**
Total Xylenes	UG/L	60	1%	5	1	2	208	60 UJ	60 UJ	60 U	60 U	15 U	12 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	20 UJ	20 UJ	20 U	20 UJ	5 U	4 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	20 UJ	20 UJ	20 U	20 U	5 U	4 U
Other													
Iron	UG/L	296,000	100%			12	12	278,000 J	271,000 J	33,000			
Iron+Manganese	UG/L	352,900	100%			12	12	309,800 J	301,800 J	37,450			
Manganese	UG/L	56,900	100%			12	12	31,800	30,800	4,450			
Ethane	UG/L	98	93%			97	104	10,000 UJ	10,000 UJ	0.67	0.01 J	0.014 J	0.65
Ethene	UG/L	200	90%			94	104	10,000 UJ	10,000 UJ	0.48	0.057	0.025 U	0.044
Methane	UG/L	23,000	97%			101	104	12,000 J	13,000 J	19,000	11,000	400	670
Sulfate	MG/L	1060	81%			84	104	2 U	2.3	2 U	2 U	29.1	29.1
Total Organic Carbon	MG/L	2050	100%			104	104	1,820 J	1,730 J	171	309	92	49.2

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20144	ALBW20158	ALBW20159	ALBW20174	ALBW20188	ALBW20189
Sample Date								12/15/2008	6/3/2009	6/3/2009	12/18/2009	6/29/2010	6/29/2010
QC Type								SA	SA	DU	SA	SA	DU
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								6	7	7	8	9	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	2.6 U	0.26 U	0.26 U	1.3 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	2.1 U	0.21 U	0.21 U	1.1 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	3.1 U	0.31 U	0.31 U	1.5 UJ	0.5 UJ	0.5 UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	2.3 U	0.23 U	0.23 U	1.2 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	7.5 U	0.75 U	0.75 U	1.9 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	2.9 U	0.29 U	0.29 U	1.5 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	4.1 U	0.41 U	0.41 U	2 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	10 UJ	1 UJ	1 UJ	2 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1.7 U	0.17 U	0.17 U	0.83 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	2 U	0.2 U	0.2 U	1 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	2.1 U	0.21 U	0.21 U	1.1 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1.4 U	0.14 U	0.14 U	1.6 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1.6 U	0.16 U	0.16 U	1.8 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1.6 U	0.16 U	0.16 U	2 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	13 U	1.9 J	1.9 J	6.7 U	6.2 J	5.9 J
Benzene	UG/L	0.48	1%	1	0	3	208	1.6 U	0.16 U	0.16 U	2 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	3.8 U	0.39 U	0.39 U	1.9 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	2.6 U	0.26 UJ	0.26 UJ	1.3 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1.9 U	0.19 UJ	0.19 UJ	0.97 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	2.7 U	0.27 U	0.27 U	1.3 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1.8 U	0.32 U	0.32 U	1.6 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	3.2 U	0.32 U	0.32 U	1.6 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	3.2 U	0.32 U	0.32 U	1.6 UJ	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	3.4 U	0.34 U	0.34 U	1.7 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	1.6 U	0.16 U	0.16 U	1.9 U	0.15 U	0.15 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	3.6 U	0.36 U	0.36 U	1.8 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	2.2 U	0.53 U	0.53 U	2.7 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	2.8 U	0.29 U	0.29 U	1.4 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1.8 U	0.18 U	0.18 U	0.92 U	0.17 J	0.17 J
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1.9 U	0.19 U	0.19 U	0.96 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1.7 U	0.17 UJ	0.17 UJ	2.5 U	0.19 UJ	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	2.8 U	0.28 U	0.28 U	1.4 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	12 U	1.2 U	1.2 U	6.2 U	1 UJ	1 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	3.4 U	0.35 U	0.35 U	1.7 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	2.2 U	0.5 U	0.5 U	2.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	13 U	1.3 U	1.3 U	6.6 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	9.1 U	0.91 U	0.91 U	4.5 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1.6 U	0.16 U	0.16 U	0.8 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	4.4 UJ	0.44 U	0.44 U	2.2 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1.8 U	0.18 U	0.18 U	0.92 U	0.11 U	0.11 U

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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20144	ALBW20158	ALBW20159	ALBW20174	ALBW20188	ALBW20189
Sample Date							12/15/2008	6/3/2009	6/3/2009	12/18/2009	6/29/2010	6/29/2010
QC Type							SA	SA	DU	SA	SA	DU
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							6	7	7	8	9	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	3.6 U	0.36 U	0.36 U	1.8 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	5.1 U	0.57 J	0.6 J	2.6 U	0.52 J	0.48 J
Total Xylenes	UG/L	60	1%	5	1	2	208	9.3 U	0.66 U	0.66 U	3.3 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.3 U	0.13 U	0.13 U	2.1 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	3.7 U	0.37 U	0.37 U	1.8 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	1.8 U	0.18 U	0.18 U	2.3 U	0.13 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1.5 U	0.15 U	0.15 U	0.76 UJ	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	2.4 U	0.24 U	0.24 U	1.2 U	0.18 U	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	2	1.9	1.7	1.6	1.6	1.5
Ethene	UG/L	200	90%			94	104	0.12	0.062	0.066	0.12	0.057	0.061
Methane	UG/L	23,000	97%			101	104	1,100	2,900	1,700	400	1,600	79
Sulfate	MG/L	1060	81%			84	104	27	29.3 J	29	31	39	26
Total Organic Carbon	MG/L	2050	100%			104	104	27.9	28.7	27.6	25.5	21	21

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20204	ALBW20219	ALBW20234	ALBW20248	ALBW20249	ALBW20264
Sample Date								12/18/2010	7/19/2011	12/14/2011	6/20/2012	6/20/2012	12/14/2012
QC Type								SA	SA	SA	SA	DU	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								10	11	12	13	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 UJ	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 UJ	5 UR	5 U	5 UJ	5 UJ	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 UJ	1 U	1 UJ	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	0.51 J	0.15 U	0.28 J	0.15 U	0.15 U	0.15 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 J	0.13 J	0.12 J
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 UJ	0.19 U	0.19 UR	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 UJ	1 U	1 UJ	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 UJ	0.33 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-28	MWT-28	MWT-28	MWT-28	MWT-28	MWT-28
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20204	ALBW20219	ALBW20234	ALBW20248	ALBW20249	ALBW20264
Sample Date							12/18/2010	7/19/2011	12/14/2011	6/20/2012	6/20/2012	12/14/2012
QC Type							SA	SA	SA	SA	DU	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							10	11	12	13	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	1 U	0.33 U	0.6 J	0.68 J	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 UJ	0.21 UJ	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	0.64 J	0.18 U	0.56 J	0.18 U	0.18 U	0.31 J
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	1.4	0.9	1.6	3.3	2.9	0.38
Ethene	UG/L	200	90%			94	104	0.17	0.0085 J	0.425 U	0.053	0.086	0.074
Methane	UG/L	23,000	97%			101	104	1,600	96	12,000	15,000	13,000	11,000
Sulfate	MG/L	1060	81%			84	104	28	29	19	0.5 J	0.67 J	1.1
Total Organic Carbon	MG/L	2050	100%			104	104	12	17	12	18	18	25

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-29	MWT-29	MWT-29	MWT-29	MWT-29	MWT-29
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20070	ALBW20084	ALBW20085	ALBW20099	ALBW20114	ALBW20129
Sample Date								1/3/2007	3/16/2007	3/16/2007	6/5/2007	11/14/2007	6/25/2008
QC Type								SA	SA	DU	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	2	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	2 U	5 U	4 U	2 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 UJ	1 U	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	2 U	5 U	4 U	2 U	1 U	1 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	2 U	5 U	4 U	2 U	1 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	2 U	5 U	4 U	2 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Acetone	UG/L	2600	21%			42	202	10 U	15 J	14 J	5.7 J	5 U	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	2 U	5 U	4 U	2 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	2 U	5 U	4 U	2 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	2 U	5 U	4 U	2 U	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	2 U	5 U	4 U	2 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**280**	**220**	**220**	**100**	**96**	**83**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	2 U	5 U	4 U	2 U	1 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	2 U	5 U	4 U	2 U	1 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	2 U	5 U	4 U	2 U	1 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	2 U	5 U	4 U	2 U	1 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	2 U	5 UJ	4 UJ	2 U	1 UJ	1 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	2 U	5 U	4 U	2 U	1 U	1 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	10 U	25 U	20 U	10 U	5 UJ	5 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	2 U	5 U	4 U	2 U	1 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	10 U	25 U	20 U	10 U	5 U	5 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	10 U	25 U	20 U	10 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	2 U	5 U	4 U	2 U	1 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	2 U	2.5 J	4 U	2 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-29	MWT-29	MWT-29	MWT-29	MWT-29	MWT-29
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20070	ALBW20084	ALBW20085	ALBW20099	ALBW20114	ALBW20129
Sample Date							1/3/2007	3/16/2007	3/16/2007	6/5/2007	11/14/2007	6/25/2008
QC Type							SA	SA	DU	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							1	2	2	3	4	5
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	2.6	5 U	2.2 J	2 U	2.1	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	6 U	15 U	12 U	6 U	3 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	**6.5**	**7.5**	**8**	2.1	0.83 J	0.62 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	2 U	5 U	4 U	2 U	1 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**22**	**19**	**19**	**7.6**	4.4	3.2
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	2 U	5 U	4 U	2 UJ	1 U	1 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	**140**	**160**	**170**	**81**	**74**	**73**
Other													
Iron	UG/L	296,000	100%			12	12	1,370 J	2,470	2,550			
Iron+Manganese	UG/L	352,900	100%			12	12	8,620 J	8,750	9,050			
Manganese	UG/L	56,900	100%			12	12	7,250	6,280	6,500			
Ethane	UG/L	98	93%			97	104	2,000 U	20	25	13	19	15
Ethene	UG/L	200	90%			94	104	2,000 U	120	150	160	200	140
Methane	UG/L	23,000	97%			101	104	2,000 U	6,500	8,100	2,800	2,600	3,200
Sulfate	MG/L	1060	81%			84	104	113	179	173	151	289	173
Total Organic Carbon	MG/L	2050	100%			104	104	25.1 J	35	36.7	15.7	20.9	14.2

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-29	MWT-29	MWT-29	MWT-29	MWT-29	MWT-29
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20130	ALBW20145	ALBW20160	ALBW20175	ALBW20190	ALBW20205
Sample Date								6/25/2008	12/15/2008	6/3/2009	12/16/2009	6/30/2010	12/19/2010
QC Type								DU	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	0.26 UJ	0.26 U	0.26 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	0.21 UJ	0.21 U	0.21 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 U	0.31 UJ	0.31 U	0.31 U	0.5 UJ	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	0.23 UJ	0.23 U	0.23 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	0.75 U	0.75 U	0.38 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	0.29 U	0.29 U	0.29 U	0.26 J	0.4 J
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.41 UJ	0.41 U	0.41 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 UJ	1 UJ	0.39 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	0.17 UJ	0.17 U	0.17 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	0.14 U	0.14 U	0.32 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.36 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.39 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	1.3 UJ	1.3 U	1.3 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	0.16 U	0.16 U	0.41 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	0.38 U	0.39 U	0.39 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	0.26 UJ	0.26 UJ	0.26 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	0.19 U	0.19 UJ	0.19 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	0.27 UJ	0.27 U	0.27 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.32 U	0.32 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	0.32 U	0.32 U	0.32 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	0.32 U	0.32 U	0.32 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	1 U	0.34 U	0.34 U	0.34 U	0.14 U	0.14 J
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**85**	**91**	**61**	**37**	**78**	**38**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	0.22 UJ	0.53 U	0.53 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	0.28 U	0.29 U	0.29 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1 UJ	0.17 UJ	0.17 UJ	0.5 U	0.19 UJ	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 UJ	0.28 U	0.28 U	0.28 U	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	5 UJ	1.2 U	1.2 U	1.2 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	0.34 U	0.35 U	0.35 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	0.22 UJ	0.5 U	0.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	1.3 UJ	1.3 U	1.3 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	0.91 UJ	0.91 U	0.91 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	0.16 UJ	0.16 U	0.16 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	0.44 UJ	0.44 U	0.44 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-29	MWT-29	MWT-29	MWT-29	MWT-29	MWT-29
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20130	ALBW20145	ALBW20160	ALBW20175	ALBW20190	ALBW20205
Sample Date							6/25/2008	12/15/2008	6/3/2009	12/16/2009	6/30/2010	12/19/2010
QC Type							DU	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	0.51 U	0.51 U	0.51 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	0.93 U	0.66 U	0.66 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.68 J	0.6 J	0.67 J	0.65 J	1.1	0.77 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.37 U	0.37 U	0.37 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	3.3	**6.6**	4.5	3.5	1.3	2.1
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	0.15 UJ	0.15 U	0.15 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**74**	**80**	**43**	**29**	**69**	**27**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	14	14	10	6.7	18	5.1
Ethene	UG/L	200	90%			94	104	140	19	47	12	88	7.9
Methane	UG/L	23,000	97%			101	104	3,000	2,700	3,000	1,500	5,400	3,100
Sulfate	MG/L	1060	81%			84	104	174	312	300	644 J	170	300
Total Organic Carbon	MG/L	2050	100%			104	104	14	13.6	11.8	8.2	10	7.4

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
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Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-29	MWT-29	MWT-29	MWT-29	MWT-22	MWT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20220	ALBW20235	ALBW20250	ALBW20263	ALBW20071	ALBW20075
Sample Date								7/20/2011	12/14/2011	6/20/2012	12/13/2012	1/4/2007	3/17/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 UJ	0.5 U	2 U	4 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	2 U	4 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	2 U	4 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	2 U	4 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	2 U	4 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	2 U	4 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	2 U	4 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 UJ	0.1 U	2 U	4 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	2 U	4 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	2 U	4 U
Acetone	UG/L	2600	21%			42	202	5 UR	5 U	5 UJ	5 U	10 U	18 J
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 UJ	0.25 U	2 U	4 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	2 U	4 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	2 U	4 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 UJ	0.5 U	2 U	4 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	2 U	4 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 U	1 UJ	1 U	2 UJ	4 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	2 U	4 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**33**	**8.5**	**36**	**25**	**130**	**90**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	2 U	4 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	2 U	4 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	2 U	4 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UJ	0.19 U	0.19 UR	0.19 UJ	2 U	4 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	2 U	4 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 UJ	1 U	1 UJ	1 U	10 U	20 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 UJ	0.33 U	0.33 U	2 U	4 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	2 U	4 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 UJ	1 U	6 J	20 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 UJ	1 U	10 U	20 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	2 U	4 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1.2 J	4 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	2 U	4 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-29	MWT-29	MWT-29	MWT-29	MWT-22	MWT-22
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20220	ALBW20235	ALBW20250	ALBW20263	ALBW20071	ALBW20075
Sample Date							7/20/2011	12/14/2011	6/20/2012	12/13/2012	1/4/2007	3/17/2007
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 UJ	0.15 U	0.15 U	2 U	4 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	2 U	4 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	6 U	12 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.6	0.26 J	0.59 J	0.44 J	2.7	4 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 UJ	0.21 U	2 U	4 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.79 J	2.4	0.69 J	3.3	**5.2**	3.8 J
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	2 U	4 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**43**	**5.9**	**49**	**11**	**98**	**64**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	8.3	1.7	10	0.58		
Ethene	UG/L	200	90%			94	104	47	7.3	38	0.8		
Methane	UG/L	23,000	97%			101	104	3,100	760	5,200	180		
Sulfate	MG/L	1060	81%			84	104	170	210	95	130		
Total Organic Carbon	MG/L	2050	100%			104	104	7.7	4.9	8.2	4.8		

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
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UR= the compound was not detected; data validation rejected the results

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-22	MWT-22	MWT-22	MWT-22	MWT-22	MWT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20100	ALBW20115	ALBW20121	ALBW20136	ALBW20151	ALBW20166
Sample Date								6/6/2007	11/14/2007	6/25/2008	12/15/2008	6/3/2009	12/16/2009
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	5 U	1.3 UJ	0.26 U	1.3 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	1 UJ	0.21 U	1.1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	5 UJ	1.6 UJ	0.31 U	1.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	5 U	1.2 UJ	0.23 U	1.2 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	5 U	3.8 U	0.75 U	1.9 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	1 U	5 U	1.4 U	0.29 U	1.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	2 UJ	0.41 U	2 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	5 UJ	5 UJ	1 UJ	2 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	5 U	0.85 UJ	0.17 U	0.83 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	5 U	1 U	0.2 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	1 U	5 U	1 U	0.21 U	1.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	5 U	0.7 U	0.14 U	1.6 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	5 U	0.8 U	0.16 U	1.8 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	5 U	0.8 U	0.16 U	2 U
Acetone	UG/L	2600	21%			42	202	38	5 U	25 U	6.5 UJ	2.5 J	6.7 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	5 U	0.8 U	0.16 U	2 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	5 U	1.9 U	0.39 U	1.9 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	5 U	1.3 UJ	0.26 UJ	1.3 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	5 U	0.95 U	0.19 UJ	0.97 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	1.4 UJ	0.27 U	1.3 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	0.9 U	0.32 U	1.6 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	5 U	1.6 U	0.32 U	1.6 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	5 UJ	1.6 U	0.32 U	1.6 U
Chloroform	UG/L	71	8%	7	5	17	208	1 U	1 U	5 U	1.7 U	0.34 U	1.7 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**120**	**99**	**68**	**160**	**66**	**57**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	5 U	1.8 U	0.36 U	1.8 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	5 U	1.1 UJ	0.53 U	2.7 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	5 U	1.4 U	0.29 U	1.4 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	5 U	0.9 U	0.18 U	0.92 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	5 U	0.95 U	0.19 U	0.96 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	5 UJ	0.85 UJ	0.17 UJ	2.5 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	5 UJ	1.4 U	0.28 U	1.4 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 UJ	25 UJ	6 U	1.2 U	6.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	5 UJ	1.7 U	0.35 U	1.7 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	5 U	1.1 UJ	0.5 U	2.5 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	25 UJ	6.5 UJ	1.3 U	6.6 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	25 UJ	4.6 UJ	0.91 U	4.5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	5 U	0.8 UJ	0.16 U	0.8 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	5 U	2.2 UJ	0.44 U	2.2 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	0.9 U	0.18 U	0.92 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-22	MWT-22	MWT-22	MWT-22	MWT-22	MWT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20100	ALBW20115	ALBW20121	ALBW20136	ALBW20151	ALBW20166
Sample Date								6/6/2007	11/14/2007	6/25/2008	12/15/2008	6/3/2009	12/16/2009
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	5 U	1.8 U	0.36 U	1.8 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	5 U	2.6 U	0.51 U	2.6 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	15 U	4.6 U	0.66 U	3.3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	3.2	0.85 J	5 U	0.65 U	0.77 J	2.1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	5 U	1.8 U	0.37 U	1.8 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**6.5**	2.6	3 J	**5.9**	2.2	2.3 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	5 UJ	0.75 UJ	0.15 U	0.76 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**81**	**180**	**42**	**140**	**89**	**52**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-22	MWT-22	MWT-22	MWT-22	MWT-22	MWT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20181	ALBW20196	ALBW20211	ALBW20226	ALBW20241	ALBW20256
Sample Date								7/1/2010	12/17/2010	7/20/2011	12/14/2011	6/21/2012	12/12/2012
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.12 J	0.66 J	0.11 U	0.38 J	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.25 J	0.1 U	0.29 J	0.1 UJ	0.22 J
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	5 UJ	5 UR	5 U	5 UJ	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 UJ	1 U	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**41**	**130**	**23**	**140**	**57**	**86**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 UJ
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 U	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 UJ	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 U	1 UJ	1 UJ
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-22	MWT-22	MWT-22	MWT-22	MWT-22	MWT-22
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20181	ALBW20196	ALBW20211	ALBW20226	ALBW20241	ALBW20256
Sample Date							7/1/2010	12/17/2010	7/20/2011	12/14/2011	6/21/2012	12/12/2012
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.3	2.8	2	3.9	5	3.8
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 UJ	0.21 UJ
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.6 J	1.8	0.32 J	2.3	0.48 J	0.73 J
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**57**	**98**	**59**	**83**	**90**	**100**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

Notes:
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	PT-22	PT-22	PT-22	PT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20060	ALBW20086	ALBW20089	ALBW20104	ALBW20118	ALBW20133
Sample Date								1/3/2007	3/15/2007	6/5/2007	11/14/2007	6/26/2008	12/15/2008
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	1 U	1 U	1 U	0.26 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.21 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 UJ	0.31 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	1 U	1 U	1 U	0.23 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	1 U	1 U	1 U	0.75 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	1 U	1 U	1 U	1 U	0.29 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	1 U	1 U	0.41 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	1 U	1 U	1 UJ	1 UJ
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	1 U	1 U	1 U	0.17 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**3.3**	**2.4**	**5.6**	**5**	**3.9**	**2.8**
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	1 U	1 U	1 U	0.14 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	3.8 J	5.3	5 U	1.3 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.38 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.26 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.27 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.32 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 U	1.1 J	0.82 J	1 UJ	0.32 U
Chloroform	UG/L	71	8%	7	5	17	208	1 U	1 U	1 U	1 U	1 U	0.34 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**57**	**41**	**61**	**30**	**26**	**52**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	1 U	1 U	1 U	0.22 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	1 UJ	1 U	1 U	0.28 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	1 UJ	1 U	1 UJ	0.17 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	1 UJ	1 U	1 UJ	0.28 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 U	5 U	5 U	5 UJ	1.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 UJ	0.34 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	1 UJ	1 U	1 U	0.22 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	5 U	5 U	5 UJ	1.3 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	5 U	5 U	5 UJ	0.91 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 UJ	1 U	1 U	1 U	1 U	0.44 UJ
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	PT-22	PT-22	PT-22	PT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20060	ALBW20086	ALBW20089	ALBW20104	ALBW20118	ALBW20133
Sample Date								1/3/2007	3/15/2007	6/5/2007	11/14/2007	6/26/2008	12/15/2008
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	1 U	1 U	1 U	0.51 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	3 U	3 U	3 U	0.93 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.86 J	0.51 J	0.72 J	0.67 J	0.57 J	0.41 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.37 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**11**	**16**	**8.5**	**9.7**	4.1	**35**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 UJ	0.15 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**22**	**13**	**32**	**11**	**13**	1.3
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	PT-22	PT-22	PT-22	PT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20148	ALBW20163	ALBW20178	ALBW20193	ALBW20208	ALBW20223
Sample Date								6/2/2009	12/16/2009	6/30/2010	12/17/2010	7/22/2011	12/14/2011
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.26 U	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.21 U	0.21 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.31 U	0.31 U	0.5 UJ	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.23 U	0.23 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.75 U	0.38 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.29 U	0.29 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.41 U	0.41 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 UJ	0.39 U	0.44 U	0.44 U	0.44 UJ	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.17 U	0.17 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**4**	**3**	**3.2**	**1.9**	0.1 U	**1.9**
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.14 U	0.32 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	0.36 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	0.39 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	1.3 U	1.3 U	5 U	5 UJ	5.3 J	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.16 U	0.41 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.39 U	0.39 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.26 UJ	0.26 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.19 UJ	0.19 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.27 U	0.27 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.32 U	0.32 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.32 U	0.32 U	0.1 U	0.1 U	0.1 UJ	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	0.32 U	0.32 U	1 U	1 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.34 U	0.34 U	0.14 U	0.19 J	1 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**41**	**29**	**43**	**42**	**42**	**32**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.36 U	0.36 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.53 U	0.53 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.29 U	0.29 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.18 U	0.18 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.17 UJ	0.5 U	0.19 UJ	0.19 U	0.19 U	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	0.28 U	0.28 U	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1.2 U	1.2 U	1 UJ	1 U	1 U	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.35 U	0.35 U	0.33 U	0.33 U	0.33 U	0.33 UJ
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1.3 U	1.3 U	1 U	1 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	0.91 U	0.91 U	1 U	1 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.16 U	0.16 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	0.44 U	0.44 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	PT-22	PT-22	PT-22	PT-22
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20148	ALBW20163	ALBW20178	ALBW20193	ALBW20208	ALBW20223
Sample Date								6/2/2009	12/16/2009	6/30/2010	12/17/2010	7/22/2011	12/14/2011
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.36 U	0.36 U	0.15 U	0.15 U	0.15 U	0.15 UJ
Toluene	UG/L	590	14%	5	17	30	208	0.51 U	0.51 U	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.66 U	0.66 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.81 J	0.42 U	0.75 J	0.48 J	0.2 U	0.37 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.37 U	0.37 U	0.21 U	0.21 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**6.9**	**8.7**	4.6	**29**	**31**	**34**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**11**	**9.5**	**11**	**2.1**	0.18 U	0.68 J
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	MWT-23	MWT-23	MWT-23	MWT-23
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20238	ALBW20253	ALBW20065	ALBW20080	ALBW20094	ALBW20109
Sample Date								6/21/2012	12/13/2012	1/3/2007	3/16/2007	6/6/2007	11/16/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	4 U	4 U	2 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	4 U	4 U	2 U	10 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	4 U	4 U	2 UJ	10 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	4 U	4 U	2 U	10 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	4 U	4 U	2 U	10 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	4 U	4 U	2 U	10 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	4 U	4 U	2 U	10 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**2.1**	**1.6**	**2.3 J**	4 U	**1.6 J**	10 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	4 U	4 U	2 U	10 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	4 U	4 U	2 U	10 U
Acetone	UG/L	2600	21%			42	202	5 UJ	5 U	180	190	190	64
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	4 U	4 U	2 U	10 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	4 U	4 U	2 U	10 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 UJ	0.5 U	4 U	4 U	2 U	10 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	4 U	4 U	2 U	10 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 U	4 U	4 U	2 U	10 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	4 U	4 U	2 U	10 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**31**	**26**	**60**	**11**	3.1	10 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	4 U	4 U	2 U	10 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	4 U	4 U	2 U	10 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	4 U	4 U	1.3 J	10 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	4 U	4 U	2 U	10 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UR	0.19 UJ	4 U	4 UJ	5.1	10 U
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	4 U	4 U	2 U	10 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 UJ	1 U	20 U	20 U	10 U	50 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	4 U	4 U	2 U	10 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	4 U	4 U	2 U	10 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 UJ	1 U	250	130	73	26 J
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	20 U	20 U	10 U	50 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	4 U	4 U	2 U	10 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	2.8 J	4 U	2 U	**12**
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	4 U	4 U	2 U	10 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-22	PT-22	MWT-23	MWT-23	MWT-23	MWT-23
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20238	ALBW20253	ALBW20065	ALBW20080	ALBW20094	ALBW20109
Sample Date								6/21/2012	12/13/2012	1/3/2007	3/16/2007	6/6/2007	11/16/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	4 U	4 U	2 U	10 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	4 U	**7.4**	**37**	**570**
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	12 U	12 U	6 U	30 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.84 J	0.2 U	4 U	4 U	2 U	10 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	4 U	4 U	2 U	10 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**7.9**	**28**	4 U	4 U	2 U	10 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	4 U	4 U	2 UJ	10 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**4**	0.46 J	**23**	**4.8**	2 U	10 U
Other													
Iron	UG/L	296,000	100%			12	12			122,000 J	120,000		
Iron+Manganese	UG/L	352,900	100%			12	12			141,500 J	139,500		
Manganese	UG/L	56,900	100%			12	12			19,500	19,500		
Ethane	UG/L	98	93%			97	104			10,000 U	45	4.1	0.49
Ethene	UG/L	200	90%			94	104			10,000 U	5.9	0.28	0.3
Methane	UG/L	23,000	97%			101	104			12,000	23,000	18,000	15,000
Sulfate	MG/L	1060	81%			84	104			2 U	2 U	2 U	2.8
Total Organic Carbon	MG/L	2050	100%			104	104			260 J	210	303	147

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-23	MWT-23	MWT-23	MWT-23	MWT-23	MWT-23
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20110	ALBW20125	ALBW20140	ALBW20155	ALBW20170	ALBW20185
Sample Date								11/16/2007	6/25/2008	12/12/2008	6/2/2009	12/15/2009	6/29/2010
QC Type								DU	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								4	5	6	7	8	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	4 U	1 U	0.26 UJ	0.26 U	0.26 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	4 U	1 U	0.21 U	0.21 U	0.21 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	4 U	1 U	0.31 U	0.31 U	0.31 U	0.5 UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	4 U	1 U	0.23 U	0.23 U	0.23 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	4 U	1 U	0.75 U	0.75 U	0.38 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	4 U	1 U	0.29 U	0.29 U	0.29 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	4 U	1 U	0.41 U	0.41 U	0.41 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	4 U	1 U	1 UJ	1 UJ	0.39 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	4 U	1 U	0.17 U	0.17 U	0.17 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	4 U	1 U	0.2 U	0.2 U	0.2 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	4 U	0.6 J	0.6 J	**0.64 J**	0.21 U	**0.66 J**
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	4 U	1 U	0.14 U	0.14 U	0.32 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	4 U	1 U	0.16 U	0.16 U	0.36 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	4 U	1 U	0.16 U	0.16 U	0.39 U	0.28 U
Acetone	UG/L	2600	21%			42	202	62	4 J	1.3 U	1.6 J	1.3 U	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	4 U	1 U	0.16 U	0.16 U	0.41 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	4 U	1 U	0.38 U	0.39 U	0.39 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	4 U	1 U	0.26 U	0.26 UJ	0.26 UJ	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	4 U	1 U	0.19 U	0.19 UJ	0.19 UJ	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	4 U	1 U	0.27 UJ	0.27 U	0.27 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	4 U	1 U	0.18 U	0.32 U	0.32 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	4 U	1 U	0.32 U	0.32 U	0.32 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	4 U	1 UJ	0.32 U	0.32 U	0.32 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	4 U	1 U	0.34 U	0.34 U	0.34 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	2.1 J	1 U	2.4	0.42 J	0.47 J	0.41 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	4 U	1 U	0.36 U	0.36 U	0.36 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	4 U	1 U	0.22 U	0.53 U	0.53 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	4 U	1 U	0.28 UJ	0.29 U	0.29 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	4 U	0.85 J	0.71 J	0.49 J	0.18 U	0.38 J
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	4 U	1 U	0.19 U	0.19 U	0.19 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	4 UJ	1 UJ	0.17 U	0.17 UJ	0.5 U	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	4 U	1 UJ	0.28 U	0.28 U	0.28 U	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	20 UJ	5 UJ	1.2 U	1.2 U	1.2 U	1 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	4 U	1 U	0.34 U	0.35 U	0.35 UJ	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	4 U	1 U	0.22 U	0.5 U	0.5 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	25	12	1.3 U	1.3 U	1.3 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	20 U	5 U	0.91 U	0.91 U	0.91 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	4 U	1 U	0.16 U	0.16 U	0.16 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	4 U	1 U	0.44 UJ	0.44 U	0.44 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	4 U	1 U	0.18 U	0.18 U	0.18 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-23	MWT-23	MWT-23	MWT-23	MWT-23	MWT-23
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20110	ALBW20125	ALBW20140	ALBW20155	ALBW20170	ALBW20185
Sample Date								11/16/2007	6/25/2008	12/12/2008	6/2/2009	12/15/2009	6/29/2010
QC Type								DU	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								4	5	6	7	8	9
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	4 U	1 U	0.36 U	0.36 U	0.36 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	**590**	**300**	**43**	1.5	0.51 U	0.34 J
Total Xylenes	UG/L	60	1%	5	1	2	208	12 U	3 U	0.93 U	0.66 U	0.66 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	4 U	1 U	0.13 U	0.13 U	0.42 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	4 U	1 U	0.37 U	0.37 U	0.37 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	4 U	1 U	0.41 J	0.18 U	0.46 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	4 U	1 UJ	0.15 UJ	0.15 U	0.15 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**2.3 J**	1 U	**2.8**	0.24 U	0.24 U	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	0.66	0.53	4.6	1.6	1	2.4
Ethene	UG/L	200	90%			94	104	0.39	0.048	1.2	0.16	0.058	0.038
Methane	UG/L	23,000	97%			101	104	17,000	18,000	19,000	21,000	18,000	18,000
Sulfate	MG/L	1060	81%			84	104	2.7	2 U	6.3	0.35 U	0.35 U	0.5 U
Total Organic Carbon	MG/L	2050	100%			104	104	155	28.4	20.1	15.6	17.4	11

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-23	MWT-23	MWT-23	MWT-23	MWT-23	MWT-23
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20200	ALBW20201	ALBW20215	ALBW20230	ALBW20231	ALBW20245
Sample Date								12/19/2010	12/19/2010	7/19/2011	12/14/2011	12/14/2011	6/20/2012
QC Type								SA	DU	SA	SA	DU	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								10	10	11	12	12	13
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.52 J	0.52 J	0.25 U	0.32 J	0.33 J	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**1.5**	**1.6**	**1**	**1.3**	**1.2**	**0.65 J**
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 UJ	5 UJ	5 UR	5 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 UJ	1 UJ	1 U	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.17 J	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	4.6	4.6	0.57 J	2	2	0.55 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.14 J	0.12 J	0.13 J	0.15 J	0.17 J	0.13 J
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 UR
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 U	0.8 U	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 U	1 U	1 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 UJ	0.33 UJ	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 U	1 U	1 UJ
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 U	1 U	1 UJ
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-23	MWT-23	MWT-23	MWT-23	MWT-23	MWT-23
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20200	ALBW20201	ALBW20215	ALBW20230	ALBW20231	ALBW20245
Sample Date							12/19/2010	12/19/2010	7/19/2011	12/14/2011	12/14/2011	6/20/2012
QC Type							SA	DU	SA	SA	DU	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							10	10	11	12	12	13
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 UJ	0.15 UJ	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	1 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.49 J	0.49 J	0.22 J	0.38 J	0.35 J	0.42 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 UJ
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.34 J	0.24 J	0.13 U	0.19 J	0.16 J	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**5.3**	**5.3**	0.33 J	1.9	1.8	0.33 J
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	16	16	2.3	8.7	8.9	5
Ethene	UG/L	200	90%			94	104	2.9	2.8	0.1	1.2	1.2	0.26
Methane	UG/L	23,000	97%			101	104	16,000	16,000	15,000	16,000	16,000	18,000
Sulfate	MG/L	1060	81%			84	104	16	16	1.5	14	14	1.5
Total Organic Carbon	MG/L	2050	100%			104	104	5.9	6.3	6.2	6.3	6.3	4.8

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-23	MWT-23	MWT-24	MWT-24	MWT-24	MWT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20260	ALBW20261	ALBW20063	ALBW20078	ALBW20092	ALBW20107
Sample Date								12/13/2012	12/13/2012	1/3/2007	3/15/2007	6/5/2007	11/13/2007
QC Type								SA	DU	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								14	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.71 J	0.58 J	2 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	1 U	1 U	2 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	1 U	1 U	2 UJ	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	1 U	1 U	2 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.81 J	0.83 J	1.1 J	1 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	1 U	1 U	2 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	1 U	1 U	2 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	1 U	1 U	2 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**0.72 J**	**0.61 J**	1 U	1 U	2 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	1 U	1 U	2 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	1 U	1 U	2 U	1 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	42 U	54	73	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	1 U	1 U	2 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	1 U	1 U	2 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	1 U	1 U	2 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	1 U	1 U	2 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 U	1 U	2 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	1 U	1 U	2 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	2	1.8	**210**	**68**	**19**	**6.7**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	1 U	1 U	2 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	1 U	1 U	2 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.21 J	0.19 J	1 U	1 U	2 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	1 U	1 U	2 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UJ	0.19 UJ	1 U	1 UJ	6	1 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 U	1 U	1 U	2 U	1 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	5 U	5 U	10 U	5 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	1 U	1 U	2 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	1 U	1 U	2 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	24	36	40	5 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	5 U	5 U	10 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	1 U	1 U	2 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 J	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	1 U	1 U	2 U	1 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-23	MWT-23	MWT-24	MWT-24	MWT-24	MWT-24
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20260	ALBW20261	ALBW20063	ALBW20078	ALBW20092	ALBW20107
Sample Date							12/13/2012	12/13/2012	1/3/2007	3/15/2007	6/5/2007	11/13/2007
QC Type							SA	DU	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							14	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	1 U	1 U	2 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	1 U	1 U	2 U	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	3 U	3 U	6 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.29 J	0.29 J	2.1	0.88 J	2 U	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	1 U	1 U	2 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.13 U	0.13 U	0.94 J	1 U	2 U	1.6
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	2 UJ	1 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	1.9	1.4	**19**	**45**	**22**	**3.8**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	2.5	2.6				
Ethene	UG/L	200	90%			94	104	0.63	0.65				
Methane	UG/L	23,000	97%			101	104	16,000	15,000				
Sulfate	MG/L	1060	81%			84	104	13	13				
Total Organic Carbon	MG/L	2050	100%			104	104	11	11				

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-24	MWT-24	MWT-24	MWT-24	MWT-24	MWT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20122	ALBW20137	ALBW20152	ALBW20167	ALBW20182	ALBW20197
Sample Date								6/26/2008	12/12/2008	6/2/2009	12/15/2009	7/1/2010	12/17/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	5 U	0.76 J	0.26 U	0.4 J	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	5 U	0.21 U	0.21 U	0.21 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	5 UJ	0.31 U	0.31 U	0.31 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	5 U	0.23 U	0.23 U	0.23 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	5 U	0.75 U	0.75 U	0.7 J	0.79 J	0.58 J
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	5 U	0.29 U	0.29 U	0.29 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	5 U	0.41 U	0.41 U	0.41 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	5 UJ	1 UJ	1 UJ	0.39 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	5 U	0.17 U	0.17 U	0.17 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	5 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	5 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	5 U	0.14 U	0.14 U	0.32 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	5 U	0.16 U	0.16 U	0.36 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	5 U	0.16 U	0.16 U	0.39 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	25 U	1.3 U	1.3 U	1.3 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	5 U	0.16 U	0.16 U	0.41 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	5 U	0.38 U	0.39 U	0.39 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	5 U	0.26 U	0.26 UJ	0.26 UJ	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	5 U	0.19 U	0.19 UJ	0.19 UJ	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	5 U	0.27 UJ	0.27 U	0.27 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	5 U	0.18 U	0.32 U	0.32 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	5 U	0.32 U	0.32 U	0.32 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	5 UJ	0.32 U	0.47 J	0.32 UJ	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	5 U	0.34 U	0.34 U	0.34 U	0.14 U	0.19 J
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**31**	**52**	**38**	**32**	**31**	**23**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	5 U	0.36 U	0.36 U	0.36 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	5 U	0.22 U	0.53 U	0.53 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	5 U	0.28 UJ	0.29 U	0.29 U	0.25 UJ	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	5 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	5 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	5 UJ	0.17 U	0.17 UJ	0.5 U	0.19 U	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	5 UJ	0.28 U	0.28 U	0.28 U	0.8 U	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	25 UJ	1.2 U	1.2 U	1.2 U	1 U	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	5 UJ	0.34 U	0.35 U	0.35 UJ	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	5 U	0.22 U	0.5 U	0.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	25 UJ	1.3 U	1.3 U	1.3 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	25 UJ	0.91 U	0.91 U	0.91 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	5 U	0.16 U	0.16 U	0.16 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	5 U	0.44 UJ	0.44 U	0.44 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	5 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U

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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-24	MWT-24	MWT-24	MWT-24	MWT-24	MWT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20122	ALBW20137	ALBW20152	ALBW20167	ALBW20182	ALBW20197
Sample Date								6/26/2008	12/12/2008	6/2/2009	12/15/2009	7/1/2010	12/17/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	5 U	0.36 U	0.36 U	0.36 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	5 U	0.51 U	0.51 U	0.51 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	15 U	0.93 U	0.66 U	0.66 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	5 U	0.13 U	0.13 U	0.42 U	0.41 J	1
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	5 U	0.37 U	0.37 U	0.37 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	5 U	**6**	4.8	4.7	5	3.3
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	5 UJ	0.15 UJ	0.15 U	0.15 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	5 U	**3.6**	**7.3**	**4**	**7.5**	**4.3**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
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Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-24	MWT-24	MWT-24	MWT-24	PT-17	PT-17
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20212	ALBW20227	ALBW20242	ALBW20257	ALBW20058	ALBW20073
Sample Date								7/22/2011	12/13/2011	6/19/2012	12/12/2012	1/2/2007	3/15/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 UJ	0.5 U	1 U	2 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	1 U	2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	1 U	2 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	2 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.44 J	0.8 J	0.57 J	1 U	2 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	2 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 UJ	0.44 U	0.44 U	0.44 U	1 U	2 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	1 U	2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	**3.3**	0.1 U	0.1 UJ	0.1 U	1 U	2 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	2 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	1 U	2 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 UJ	5 U	9.3 U	22
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 UJ	0.25 U	1 U	2 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	2 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	1 U	2 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	1 U	2 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 UJ	0.1 U	0.1 U	0.1 U	1 U	2 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 UJ	1 UJ	1 U	1 U	2 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	1 U	2 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**39**	**16**	**28**	**25**	**62**	**26**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	2 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 UJ	0.25 U	0.25 U	1 U	2 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	2 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	2 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UR	0.19 UJ	1 U	2 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	1 U	2 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 U	5 U	10 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 UJ	0.33 U	0.33 U	1 U	2 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	2 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 UJ	1 U	5.4	11
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 UJ	1 U	5 U	10 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	1 U	2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1.2 J
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	2 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-24	MWT-24	MWT-24	MWT-24	PT-17	PT-17
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20212	ALBW20227	ALBW20242	ALBW20257	ALBW20058	ALBW20073
Sample Date								7/22/2011	12/13/2011	6/19/2012	12/12/2012	1/2/2007	3/15/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	2
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 U	1 U	2 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	1 U	2 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	3 U	6 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.6	0.39 J	1.5	0.2 U	1 U	2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 UJ	0.21 UJ	0.21 U	1 U	2 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**5.6**	3.1	2.7	4.1	**6**	**11**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	2 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**17**	**2.3**	**5.3**	0.31 J	**21**	**21**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-17	PT-17	PT-17	PT-17	PT-17	PT-17
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20087	ALBW20102	ALBW20116	ALBW20131	ALBW20146	ALBW20161
Sample Date								6/5/2007	11/13/2007	6/26/2008	12/11/2008	6/2/2009	12/15/2009
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	1 U	0.26 UJ	0.26 U	0.26 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.21 U	0.21 U	0.21 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	1 UJ	0.31 U	0.31 U	0.31 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	1 U	0.23 U	0.23 U	0.23 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	1 U	0.75 U	0.75 U	0.38 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	1 U	1 U	0.29 U	0.29 U	0.29 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.41 U	0.41 U	0.41 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	1 UJ	1 UJ	1 UJ	0.39 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	1 U	0.17 U	0.17 U	0.17 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	1 U	1 U	0.21 U	0.21 U	0.21 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	1 U	0.14 U	0.14 U	0.32 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.36 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.39 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 U	1.3 U	1.3 U	1.3 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	1 U	0.16 U	0.16 U	0.41 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.38 U	0.39 U	0.39 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.26 U	0.26 UJ	0.26 UJ
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	1 U	0.19 U	0.19 UJ	0.19 UJ
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.27 UJ	0.27 U	0.27 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.18 U	0.32 U	0.32 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	0.32 U	0.32 U	0.32 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 UJ	0.32 U	0.49 J	0.32 UJ
Chloroform	UG/L	71	8%	7	5	17	208	1 U	1 U	1 U	0.34 U	0.34 U	0.34 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**43**	**27**	**21**	**24**	**56**	**65**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	0.36 U	0.36 U	0.36 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	1 U	0.22 U	0.53 U	0.53 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	1 U	0.28 UJ	0.29 U	0.29 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	1 U	0.18 U	0.18 U	0.18 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	1 U	0.19 U	0.19 U	0.19 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	1 UJ	0.17 U	0.17 UJ	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	1 UJ	0.28 U	0.28 U	0.28 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 UJ	5 UJ	1.2 U	1.2 U	1.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	0.34 U	0.35 U	0.35 UJ
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	1 U	0.22 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	5 UJ	1.3 U	1.3 U	1.3 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	5 UJ	0.91 U	0.91 U	0.91 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	1 U	0.16 U	0.16 U	0.16 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	0.44 UJ	0.44 U	0.44 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.18 U	0.18 U	0.18 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-17	PT-17	PT-17	PT-17	PT-17	PT-17
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20087	ALBW20102	ALBW20116	ALBW20131	ALBW20146	ALBW20161
Sample Date								6/5/2007	11/13/2007	6/26/2008	12/11/2008	6/2/2009	12/15/2009
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								3	4	5	6	7	8
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	0.36 U	0.36 U	0.36 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	1 U	0.51 U	0.51 U	0.51 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	3 U	0.93 U	0.66 U	0.66 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.77 J	0.54 J	1 U	0.46 J	1.1	1.8
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	0.37 U	0.37 U	0.37 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	3.4	**15**	**8.5**	**9.2**	**8**	**7.8**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	1 U	1 UJ	0.15 UJ	0.15 U	0.15 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**9.9**	**22**	**23**	**10**	**55**	**20**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104			98	6.9	50	9.9
Ethene	UG/L	200	90%			94	104			66	6.6	56	5
Methane	UG/L	23,000	97%			101	104			5,700	380	8,300	1,500
Sulfate	MG/L	1060	81%			84	104			15.2	45.8	28	46.2 J
Total Organic Carbon	MG/L	2050	100%			104	104			6	2.6	4.9	2.4

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-17	PT-17	PT-17	PT-17	PT-17	PT-17
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20176	ALBW20191	ALBW20206	ALBW20221	ALBW20236	ALBW20251
Sample Date								7/1/2010	12/18/2010	7/21/2011	12/13/2011	6/19/2012	12/13/2012
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.24 J	0.42 J	0.11 U	0.11 U	0.37 J	0.18 J
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	5 UJ	5 U	5 U	5 UJ	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 U	1 UJ	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.15 J	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**81**	**39**	**94**	**25**	**170**	**68**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 UJ	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 U	0.19 U	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 U	0.8 UJ	0.8 UJ	0.8 U	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 UJ	0.33 UJ	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 U	1 U	1 UJ	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							PT-17	PT-17	PT-17	PT-17	PT-17	PT-17
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20176	ALBW20191	ALBW20206	ALBW20221	ALBW20236	ALBW20251
Sample Date							7/1/2010	12/18/2010	7/21/2011	12/13/2011	6/19/2012	12/13/2012
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							9	10	11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	1 U	0.15 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	3.2	2.2	**7**	1.8	**18**	**8.3**
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	0.21 UJ	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	3	**8.1**	4.5	**11**	**6.9**	**12**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**53**	**16**	**56**	**12**	**66**	**21**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	16	4.8	1.8	1.7	10	2.2
Ethene	UG/L	200	90%			94	104	20	3.5	3.8	2.4	12	2.4
Methane	UG/L	23,000	97%			101	104	4,300	900	780	810	8,200	810
Sulfate	MG/L	1060	81%			84	104	36	31	24	27	25	35
Total Organic Carbon	MG/L	2050	100%			104	104	2.4	1.5	3.4	1.6	2.8	1.7

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-7	MWT-7	MWT-7	MWT-7	MWT-7	MWT-7
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20062	ALBW20077	ALBW20091	ALBW20106	ALBW20120	ALBW20135
Sample Date								1/4/2007	3/15/2007	6/5/2007	11/13/2007	6/25/2008	12/15/2008
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	1 U	1 U	1 U	1 U	0.26 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.21 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	1 U	1 UJ	0.31 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	1 U	1 U	1 U	1 U	0.23 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	1 U	1 U	1 U	1 U	0.75 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	1 U	1 U	1 U	1 U	0.29 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.41 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 U	1 U	1 U	1 U	1 UJ	1 UJ
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	1 U	1 U	1 U	1 U	0.17 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.2 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	1 U	1 U	1 U	1 U	0.21 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	1 U	1 U	1 U	1 U	0.14 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 U	5 U	5 U	1.3 U
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.38 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.26 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.27 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	1 U	1 U	1 U	1 U	0.32 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 U	0.65 J	1 UJ	0.93 J
Chloroform	UG/L	71	8%	7	5	17	208	1 U	1 U	1 U	1 U	1 U	0.34 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**35**	**42**	**61**	**90**	**90**	**79**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	1 U	1 U	1 U	1 U	0.22 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	1 U	1 U	1 U	1 U	0.28 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	1 U	1 U	1 U	1 U	0.18 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	1 U	1 U	1 U	1 U	0.19 U
Methyl Acetate	UG/L	6	1%			2	193	1 U	1 UJ	1 U	1 UJ	1 UJ	0.17 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 U	1 U	1 U	1 U	1 UJ	0.28 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 U	5 U	5 U	5 UJ	5 UJ	1.2 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 UJ	0.34 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	1 U	1 U	1 U	1 U	0.22 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 U	5 U	5 U	5 U	5 UJ	1.3 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 U	5 U	5 U	5 U	5 UJ	0.91 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	1 U	1 U	1 U	1 U	0.16 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	0.44 UJ
Styrene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.18 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-7	MWT-7	MWT-7	MWT-7	MWT-7	MWT-7
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20062	ALBW20077	ALBW20091	ALBW20106	ALBW20120	ALBW20135
Sample Date								1/4/2007	3/15/2007	6/5/2007	11/13/2007	6/25/2008	12/15/2008
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								1	2	3	4	5	6
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	1 U	1 U	1 U	1 U	0.36 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	1 U	1 U	1 U	1 U	0.51 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	3 U	3 U	3 U	3 U	0.93 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1 U	1 U	1 U	1 U	1 U	0.13 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	1 U	1 U	1 U	1 U	0.37 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**490**	**440**	**410**	**510**	**440**	**410**
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 U	1 U	1 UJ	1 U	1 UJ	0.15 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	0.51 J	**9.7**	**18**	**24**	**12**	**13**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104					6.7	11
Ethene	UG/L	200	90%			94	104					2	0.27
Methane	UG/L	23,000	97%			101	104					400	670
Sulfate	MG/L	1060	81%			84	104					29.1	29.1
Total Organic Carbon	MG/L	2050	100%			104	104					2.3	3

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-7	MWT-7	MWT-7	MWT-7	MWT-7	MWT-7
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20150	ALBW20165	ALBW20180	ALBW20195	ALBW20210	ALBW20225
Sample Date								6/2/2009	12/15/2009	7/1/2010	12/18/2010	7/22/2011	12/13/2011
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.26 U	0.26 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.21 U	0.21 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.31 U	0.31 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.23 U	0.23 U	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.75 U	0.38 U	0.25 U	0.25 U	0.94 J	1.2
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.29 U	0.48 J	0.78 J	0.98 J	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.41 U	0.41 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 UJ	0.39 U	0.44 U	0.44 U	0.44 UJ	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.17 U	0.17 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.21 U	0.21 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.14 U	0.32 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	0.36 U	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.16 U	0.39 U	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	1.3 U	1.3 U	5 U	5 UJ	5 U	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.16 U	0.41 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.39 U	0.39 U	0.25 U	0.25 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.26 UJ	0.26 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.19 UJ	0.19 UJ	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.27 U	0.27 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.32 U	0.32 U	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.32 U	0.32 U	0.1 U	0.1 U	0.1 UJ	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	0.61 J	0.32 UJ	1 U	1 U	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	0.34 U	0.34 U	0.14 U	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**68**	**140**	**170**	**120**	**12**	**56**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.36 U	0.36 U	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.53 U	0.53 U	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.29 U	0.29 U	0.25 UJ	0.25 U	0.25 U	0.25 UJ
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.18 U	0.18 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.19 U	0.19 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.17 UJ	0.5 U	0.19 U	0.19 U	0.19 U	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	0.28 U	0.28 U	0.8 U	0.8 UJ	0.8 UJ	0.8 U
Methyl butyl ketone	UG/L	0	0%			0	208	1.2 U	1.2 U	1 U	1 U	1 U	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.35 U	0.35 UJ	0.33 U	0.33 U	0.33 U	0.33 UJ
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1.3 U	1.3 U	1 U	1 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	0.91 U	0.91 U	1 U	1 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.16 U	0.16 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	0.44 U	0.44 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.11 U	0.11 U	0.11 U	0.11 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area							ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID							MWT-7	MWT-7	MWT-7	MWT-7	MWT-7	MWT-7
Matrix							GW	GW	GW	GW	GW	GW
Sample ID							ALBW20150	ALBW20165	ALBW20180	ALBW20195	ALBW20210	ALBW20225
Sample Date							6/2/2009	12/15/2009	7/1/2010	12/18/2010	7/22/2011	12/13/2011
QC Type							SA	SA	SA	SA	SA	SA
Study ID							LTM	LTM	LTM	LTM	LTM	LTM
Sample Round							7	8	9	10	11	12
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.36 U	0.36 U	0.15 U	0.15 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.51 U	0.51 U	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.66 U	0.66 U	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.13 U	0.55 J	0.91 J	0.75 J	0.34 J	0.24 J
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.37 U	0.37 U	0.21 U	0.21 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**330**	**350**	**330**	**310**	0.52 J	2.3
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**9.3**	**21**	**15**	**15**	**2.6**	**4.3**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	7.8	17	9	4.5	4.9	0.84
Ethene	UG/L	200	90%			94	104	0.76	0.52	0.55	0.2	0.21	0.425 U
Methane	UG/L	23,000	97%			101	104	1,100	2,900	1,700	400	1,600	79
Sulfate	MG/L	1060	81%			84	104	27	29.3 J	29	31	39	26
Total Organic Carbon	MG/L	2050	100%			104	104	3.1	4.5 J	1.5	1.3	2	1.7

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-7	MWT-7	PT-24	PT-24	PT-24	PT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20240	ALBW20255	ALBW20061	ALBW20076	ALBW20090	ALBW20105
Sample Date								6/19/2012	12/13/2012	1/2/2007	3/15/2007	6/5/2007	11/13/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 UJ	0.5 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	1 U	1 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	1 U	1 U	1 UJ	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.68 J	1 U	0.75 J	0.56 J
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.59 J	0.5 J	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 UJ	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 UJ	0.1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	1 U	1 U	1 U	1 U
Acetone	UG/L	2600	21%			42	202	5 UJ	5 U	5 U	5 U	5 U	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 UJ	0.25 UJ	1 U	1 U	1 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	1 U	1 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 UJ	0.5 U	1 U	1 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	1 U	1 U	1 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**140**	**100**	**54**	**38**	**60**	**39**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 UJ	1 U	1 U	1 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 UJ	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	1 U	1 U	1 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	1 U	1 U	1 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 UR	0.19 UJ	1 U	1 UJ	1 U	1 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 UJ	1 U	1 U	1 U	1 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 UJ	1 U	5 U	5 U	5 U	5 UJ
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	1 U	1 U	1 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	1 U	1 U	1 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 UJ	1 U	5 U	5 U	5 U	5 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 UJ	1 UJ	5 U	5 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	1 U	1 U	1 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	1 U	1 U	1 U	1 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MWT-7	MWT-7	PT-24	PT-24	PT-24	PT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20240	ALBW20255	ALBW20061	ALBW20076	ALBW20090	ALBW20105
Sample Date								6/19/2012	12/13/2012	1/2/2007	3/15/2007	6/5/2007	11/13/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								13	14	1	2	3	4
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	1 U	1 U	1 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	1 U	1 U	1 U	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	3 U	3 U	3 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.64 J	0.33 J	0.86 J	0.81 J	1.6	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 UJ	0.21 UJ	1 U	1 U	1 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	**280**	**280**	4	2.8	3.1	3.8
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	1 U	1 U	1 UJ	1 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	**11**	**5.9**	0.6 J	1 U	**2.6**	1 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104	3.1	0.64				
Ethene	UG/L	200	90%			94	104	0.33	0.067				
Methane	UG/L	23,000	97%			101	104	1,600	96				
Sulfate	MG/L	1060	81%			84	104	28	29				
Total Organic Carbon	MG/L	2050	100%			104	104	1.6	1.6				

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-24	PT-24	PT-24	PT-24	PT-24	PT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20119	ALBW20134	ALBW20149	ALBW20164	**ALBW20179**	ALBW20194
Sample Date								6/26/2008	12/12/2008	6/2/2009	12/15/2009	6/30/2010	12/17/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	0.26 U	0.26 U	0.26 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	0.21 U	0.21 U	0.21 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	0.31 U	0.31 U	0.31 U	0.5 UJ	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	0.23 U	0.23 U	0.23 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.69 J	0.75 U	0.75 U	0.38 U	0.54 J	0.54 J
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	0.29 U	0.29 U	0.29 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.41 U	0.41 U	0.41 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 UJ	1 UJ	1 UJ	0.39 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	0.17 U	0.17 U	0.17 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	0.14 U	0.14 U	0.32 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.36 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.39 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	1.3 U	1.3 U	1.3 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	0.16 U	0.16 U	0.41 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	0.38 U	0.39 U	0.39 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	0.26 U	0.26 UJ	0.26 UJ	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	0.19 U	0.19 UJ	0.19 UJ	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	0.27 U	0.27 U	0.27 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.32 U	0.32 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	0.32 U	0.32 U	0.32 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	0.32 U	0.32 U	0.32 UJ	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	1 U	0.34 U	0.34 U	0.34 U	0.14 U	0.16 J
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**48**	**34**	**32**	**28**	**33**	**30**
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	0.22 U	0.53 U	0.53 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	0.28 U	0.29 U	0.29 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1 UJ	0.17 U	0.17 UJ	0.5 U	0.19 UJ	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 UJ	0.28 U	0.28 U	0.28 U	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	5 UJ	1.2 U	1.2 U	1.2 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 UJ	0.34 U	0.35 U	0.35 UJ	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	0.22 U	0.5 U	0.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 UJ	1.3 U	1.3 U	1.3 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 UJ	0.91 U	0.91 U	0.91 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	0.16 U	0.16 U	0.16 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	0.44 UJ	0.44 U	0.44 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U

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Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-24	PT-24	PT-24	PT-24	PT-24	PT-24
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20119	ALBW20134	ALBW20149	ALBW20164	**ALBW20179**	ALBW20194
Sample Date								6/26/2008	12/12/2008	6/2/2009	12/15/2009	6/30/2010	12/17/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	0.51 U	0.51 U	0.51 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	0.93 U	0.66 U	0.66 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.1	0.36 J	0.83 J	0.61 J	1.1	1.4
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.37 U	0.37 U	0.37 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	2.4	2.2	1.7	1.7	0.39 J	0.53 J
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	0.15 U	0.15 U	0.15 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	1.9	0.26 J	2	1.6	**3.8**	**7.7**
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
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Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-24	PT-24	PT-24	PT-24	MW-56	MW-56
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20209	ALBW20224	ALBW20239	ALBW20254	ALBW20072	ALBW20101
Sample Date								7/21/2011	12/13/2011	6/19/2012	12/12/2012	1/4/2007	6/6/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	3
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 UJ	0.5 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U	1 U	1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U	1 U	1 UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	1 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.78 J	0.48 J	0.57 J	0.32 J	1 U	1 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U	1 U	1 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U	1 U	1 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 UJ	0.1 U	1 U	1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U	1 U	1 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 UJ	5 U	5 U	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 UJ	0.25 U	1 U	1 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 UJ	0.5 U	0.5 U	0.5 U	1 U	1 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U	1 U	1 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 UJ	0.5 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 UJ	1 UJ	1 U	1 U	1 U
Chloroform	UG/L	71	8%	7	5	17	208	0.14 U	0.14 U	0.14 U	0.14 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	**37**	**21**	**30**	**18**	1.2	1.7
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 UJ	0.25 U	0.25 U	1 U	1 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UR	0.19 UJ	1 U	1 U
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 UJ	0.8 U	0.8 UJ	0.8 UJ	1 U	1 U
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 U	5 U	5 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 UJ	0.33 UJ	0.33 U	0.33 U	1 U	1 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U	1 U	1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 UJ	1 U	5 U	5 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 UJ	1 U	5 U	5 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U	1 U	1 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								PT-24	PT-24	PT-24	PT-24	MW-56	MW-56
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20209	ALBW20224	ALBW20239	ALBW20254	ALBW20072	ALBW20101
Sample Date								7/21/2011	12/13/2011	6/19/2012	12/12/2012	1/4/2007	6/6/2007
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								11	12	13	14	1	3
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 U	1 U	1 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U	1 U	1 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U	3 U	3 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1.4	0.63 J	0.84 J	0.38 J	1 U	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 UJ	0.21 U	1 U	1 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.38 J	0.82 J	0.87 J	1.1	1 U	1 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U	1 U	1 UJ
Vinyl chloride	UG/L	180	67%	2	112	140	208	**7.9**	**2.9**	**2.8**	0.18 U	1 U	1 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MW-56	MW-56	MW-56	MW-56	MW-56	MW-56
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20124	ALBW20139	ALBW20154	ALBW20169	ALBW20184	ALBW20199
Sample Date								6/26/2008	12/11/2008	6/4/2009	12/18/2009	7/1/2010	12/19/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	1 U	0.26 UJ	0.26 U	0.26 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	1 U	0.21 U	0.21 U	0.21 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	1 UJ	0.31 U	0.31 U	0.31 UJ	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	1 U	0.23 U	0.23 U	0.23 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	1 U	0.75 U	0.75 U	0.38 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	1 U	0.29 U	0.29 U	0.29 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.41 U	0.41 U	0.41 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	1 UJ	1 UJ	1 U	0.39 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	1 U	0.17 U	0.17 U	0.17 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.2 U	0.2 U	0.2 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	1 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	1 U	0.14 U	0.14 U	0.32 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.36 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	1 U	0.16 U	0.16 U	0.39 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	1.3 U	1.3 UJ	1.3 U	5 U	5 UJ
Benzene	UG/L	0.48	1%	1	0	3	208	1 U	0.16 U	0.16 U	0.41 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	1 U	0.38 U	0.39 U	0.39 U	0.25 U	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	1 U	0.26 U	0.26 U	0.26 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	1 U	0.19 U	0.19 U	0.19 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	1 U	0.27 UJ	0.27 U	0.27 U	0.5 U	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.32 U	0.32 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	1 U	0.32 U	0.32 U	0.32 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 UJ	0.32 U	0.32 U	0.32 UJ	1 U	1 UJ
Chloroform	UG/L	71	8%	7	5	17	208	1 U	0.34 U	0.34 U	0.34 U	0.14 U	0.24 J
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	1.3	0.4 J	1	0.56 J	0.61 J	0.86 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	1 U	0.22 U	0.53 U	0.53 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	1 U	0.28 UJ	0.29 U	0.29 U	0.25 UJ	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	1 U	0.19 U	0.19 U	0.19 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	1 UJ	0.17 U	0.17 U	0.5 U	0.19 U	0.19 U
Methyl bromide	UG/L	0	0%	5	0	0	207	1 UJ	0.28 U	0.28 U	0.28 UJ	0.8 U	0.8 U
Methyl butyl ketone	UG/L	0	0%			0	208	5 UJ	1.2 U	1.2 U	1.2 U	1 U	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	1 UJ	0.34 U	0.35 U	0.35 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	1 U	0.22 U	0.5 U	0.5 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	5 UJ	1.3 U	1.3 U	1.3 U	1 U	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	5 UJ	0.91 U	0.91 U	0.91 U	1 U	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	1 U	0.16 U	0.16 U	0.16 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	0.44 UJ	0.44 U	0.44 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	1 U	0.18 U	0.18 U	0.18 U	0.11 U	0.11 U

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Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
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Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MW-56	MW-56	MW-56	MW-56	MW-56	MW-56
Matrix								GW	GW	GW	GW	GW	GW
Sample ID								ALBW20124	ALBW20139	ALBW20154	ALBW20169	ALBW20184	ALBW20199
Sample Date								6/26/2008	12/11/2008	6/4/2009	12/18/2009	7/1/2010	12/19/2010
QC Type								SA	SA	SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM	LTM	LTM
Sample Round								5	6	7	8	9	10
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	1 U	0.36 U	0.36 U	0.36 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	1 U	0.51 U	0.51 U	0.51 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	3 U	0.93 U	0.66 U	0.66 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	1 U	0.13 U	0.13 U	0.42 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	1 U	0.37 U	0.37 U	0.37 U	0.21 U	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	1 U	0.33 J	0.18 U	0.46 U	0.13 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	1 UJ	0.15 UJ	0.15 U	0.15 UJ	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	1 U	0.24 U	0.24 U	0.24 U	0.18 U	0.18 U
Other													
Iron	UG/L	296,000	100%			12	12						
Iron+Manganese	UG/L	352,900	100%			12	12						
Manganese	UG/L	56,900	100%			12	12						
Ethane	UG/L	98	93%			97	104						
Ethene	UG/L	200	90%			94	104						
Methane	UG/L	23,000	97%			101	104						
Sulfate	MG/L	1060	81%			84	104						
Total Organic Carbon	MG/L	2050	100%			104	104						

1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MW-56	MW-56	MW-56	MW-56
Matrix								GW	GW	GW	GW
Sample ID								ALBW20214	ALBW20229	ALBW20244	ALBW20259
Sample Date								10/4/2011	12/12/2011	6/18/2012	12/14/2012
QC Type								SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM
Sample Round								11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds											
1,1,1-Trichloroethane	UG/L	15	2%	5	1	5	208	0.5 U	0.5 U	0.5 UJ	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	208	0.18 U	0.18 U	0.18 U	0.18 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	208	0.13 U	0.13 U	0.13 U	0.13 U
1,1-Dichloroethane	UG/L	62	13%	5	1	26	208	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethene	UG/L	2.6	11%	5	0	23	208	0.11 U	0.11 U	0.11 U	0.11 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	208	0.44 U	0.44 U	0.44 U	0.44 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dichloroethane	UG/L	5.6	15%	0.6	26	31	208	0.1 U	0.1 U	0.1 UJ	0.1 U
1,2-Dichloropropane	UG/L	0.29	0%	1	0	1	208	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	208	0.28 U	0.28 U	0.28 U	0.28 U
Acetone	UG/L	2600	21%			42	202	5 U	5 U	5 UJ	5 U
Benzene	UG/L	0.48	1%	1	0	3	208	0.25 U	0.25 U	0.25 U	0.25 U
Bromodichloromethane	UG/L	0	0%	80	0	0	208	0.25 U	0.25 U	0.25 UJ	0.25 U
Bromoform	UG/L	0	0%	80	0	0	208	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%			0	208	0.6 U	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	208	0.5 U	0.5 U	0.5 UJ	0.5 U
Chlorobenzene	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	208	0.1 U	0.1 U	0.1 U	0.1 U
Chloroethane	UG/L	1.1	3%	5	0	7	208	1 U	1 U	1 UJ	1 U
Chloroform	UG/L	71	8%	7	5	17	208	1	0.14 U	0.14 U	0.14 U
Cis-1,2-Dichloroethene	UG/L	820	86%	5	131	179	208	2.3	0.95 J	2.2	0.85 J
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U
Cyclohexane	UG/L	0.3	0%			1	208	0.25 U	0.25 U	0.25 U	0.25 U
Dichlorodifluoromethane	UG/L	0.3	0%	5	0	1	208	0.25 U	0.25 U	0.25 U	0.25 U
Ethyl benzene	UG/L	9.2	9%	5	1	19	208	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene	UG/L	0.1	0%	5	0	1	208	0.1 U	0.1 U	0.1 U	0.1 U
Methyl Acetate	UG/L	6	1%			2	193	0.19 U	0.19 U	0.19 UR	0.19 UJ
Methyl bromide	UG/L	0	0%	5	0	0	207	0.8 U	0.8 U	0.8 UJ	0.8 UJ
Methyl butyl ketone	UG/L	0	0%			0	208	1 U	1 U	1 UJ	1 U
Methyl chloride	UG/L	0	0%	5	0	0	208	0.33 U	0.33 U	0.33 U	0.33 U
Methyl cyclohexane	UG/L	0.17	0%			1	208	0.1 U	0.1 U	0.1 U	0.1 U
Methyl ethyl ketone	UG/L	4900	11%			22	208	1 U	1 U	1 UJ	1 U
Methyl isobutyl ketone	UG/L	1.9	0%			1	208	1 U	1 U	1 UJ	1 U
Methyl Tertbutyl Ether	UG/L	0	0%			0	208	0.2 U	0.2 U	0.2 U	0.2 U
Methylene chloride	UG/L	18	6%	5	7	12	208	1 U	1 U	1 U	1 U
Styrene	UG/L	0	0%	5	0	0	208	0.11 U	0.11 U	0.11 U	0.11 U

Appendix B

Table B-1
Complete Groundwater Data for Ash Landfill Long Term Monitoring
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

Area								ASH LANDFILL	ASH LANDFILL	ASH LANDFILL	ASH LANDFILL
Loc ID								MW-56	MW-56	MW-56	MW-56
Matrix								GW	GW	GW	GW
Sample ID								ALBW20214	ALBW20229	ALBW20244	ALBW20259
Sample Date								10/4/2011	12/12/2011	6/18/2012	12/14/2012
QC Type								SA	SA	SA	SA
Study ID								LTM	LTM	LTM	LTM
Sample Round								11	12	13	14
Parameter	**Unit**	**Maximum Value**	**Frequency of Detections**	**Cleanup Goals**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Tetrachloroethene	UG/L	0	0%	5	0	0	208	0.15 U	0.15 U	0.15 U	0.15 U
Toluene	UG/L	590	14%	5	17	30	208	0.33 U	0.33 U	0.33 U	0.33 U
Total Xylenes	UG/L	60	1%	5	1	2	208	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	UG/L	18	51%	5	6	106	208	0.2 U	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	208	0.21 U	0.21 U	0.21 UJ	0.21 U
Trichloroethene	UG/L	3,800	69%	5	69	144	208	0.13 U	0.13 U	0.13 U	0.13 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	208	0.25 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	UG/L	180	67%	2	112	140	208	0.18 U	0.18 U	0.18 U	0.18 U
Other											
Iron	UG/L	296,000	100%			12	12				
Iron+Manganese	UG/L	352,900	100%			12	12				
Manganese	UG/L	56,900	100%			12	12				
Ethane	UG/L	98	93%			97	104				
Ethene	UG/L	200	90%			94	104				
Methane	UG/L	23,000	97%			101	104				
Sulfate	MG/L	1060	81%			84	104				
Total Organic Carbon	MG/L	2050	100%			104	104				

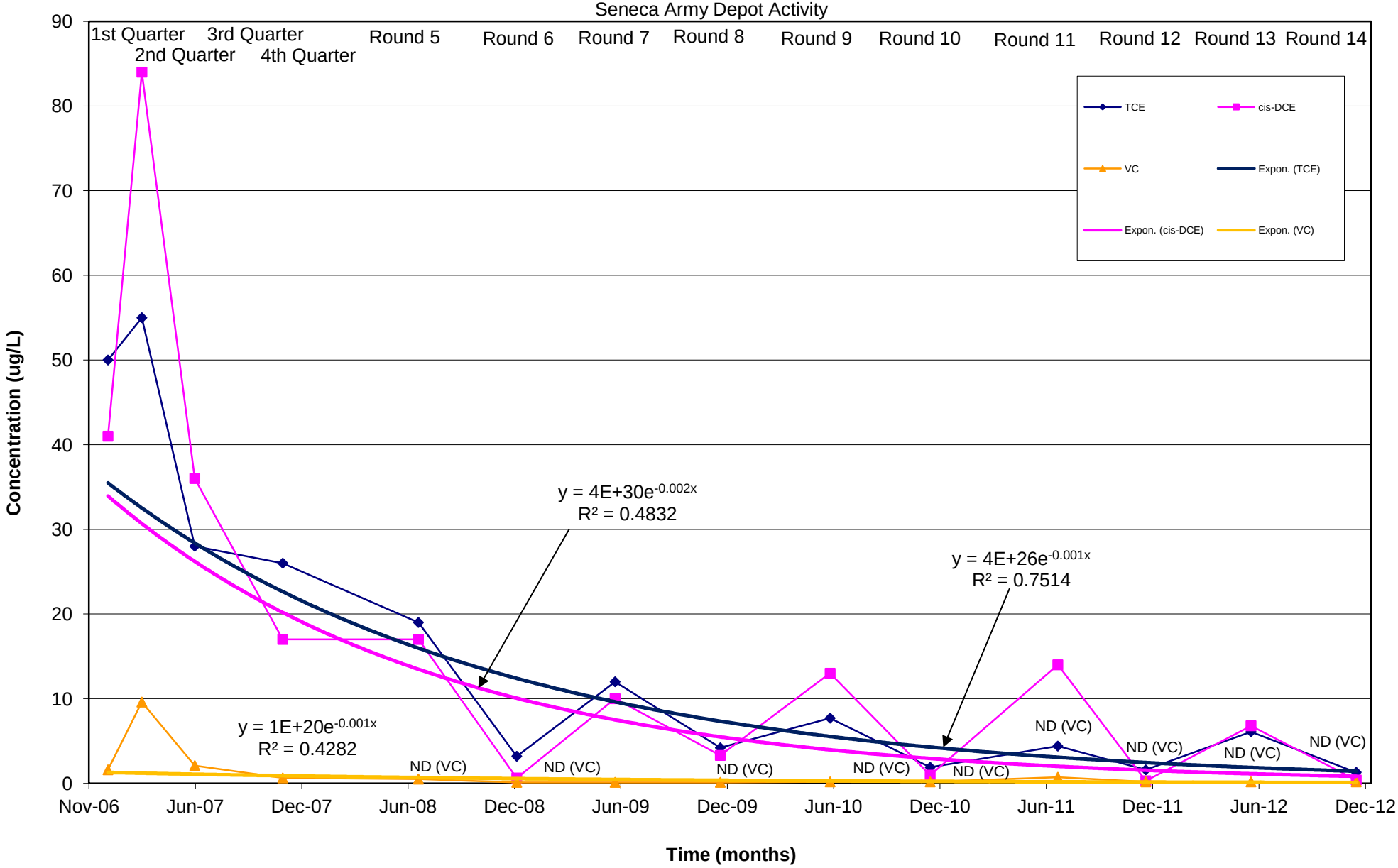
1. The cleanup goal values are NYSDEC Class GA GW Standards unless noted otherwise.
 a. NYSDEC Class GA GW Standards (TOGS 1.1.1, June 1998).
 b. Federal Maximum Contaminant Level (http://www.epa.gov/safewater/contaminants/index.html)
2. Shading indicates a concentration above the GA GW standard.

U = compound was not detected
J = the reported value is and estimated concentration
R = Rejected, data validation rejected the results
UJ= the compound was not detected; the associated reporting limit is approximate
UR= the compound was not detected; data validation rejected the results

APPENDIX C

REGRESSION PLOTS

Figure C-1
Regression Plot of Well Concentrations At MWT-25
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

Figure C-2
Regression Plot of Well Concentrations At MWT-26
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

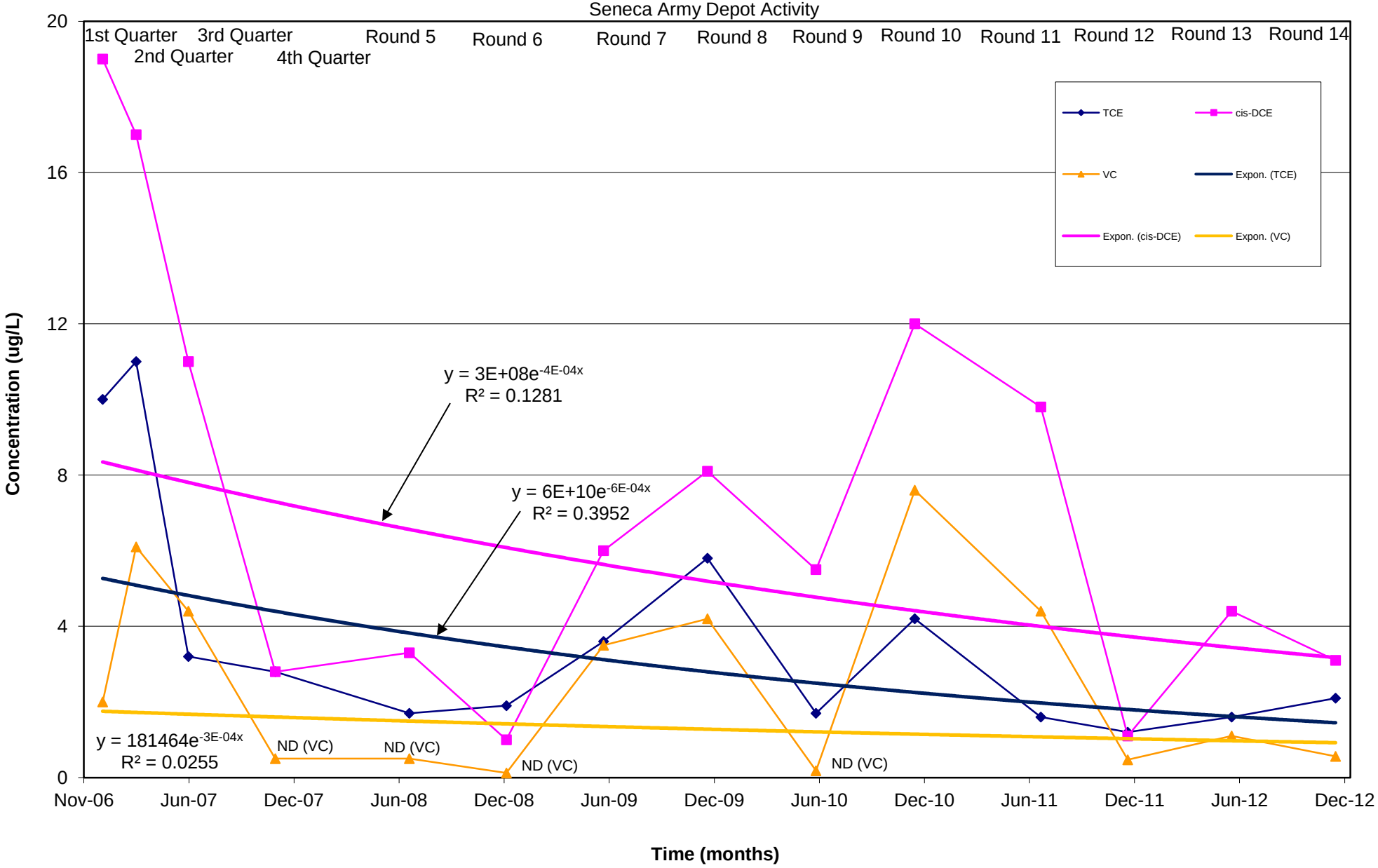


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Figure C-3
Regression Plot of Well Concentrations At MWT-27
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

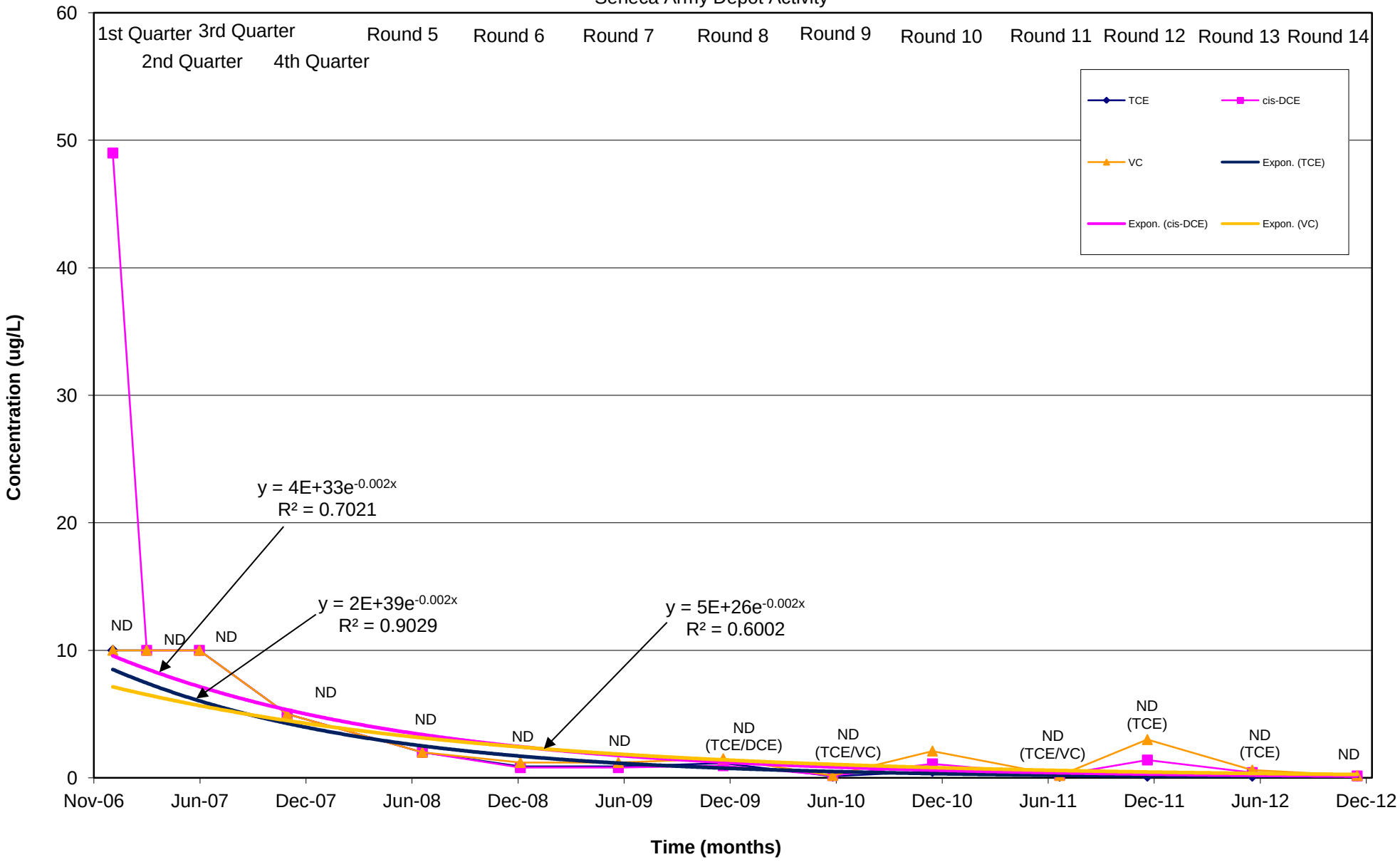

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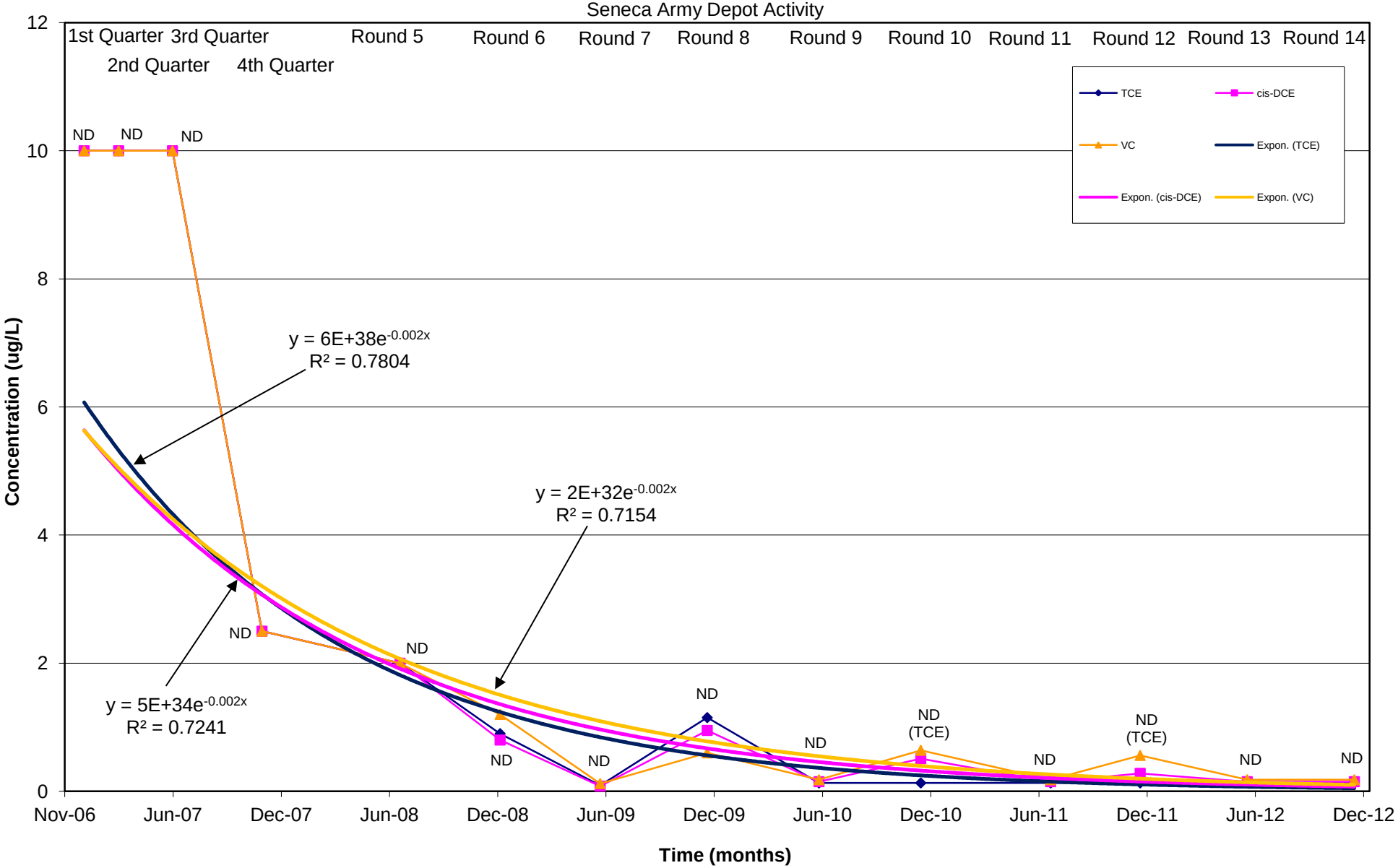
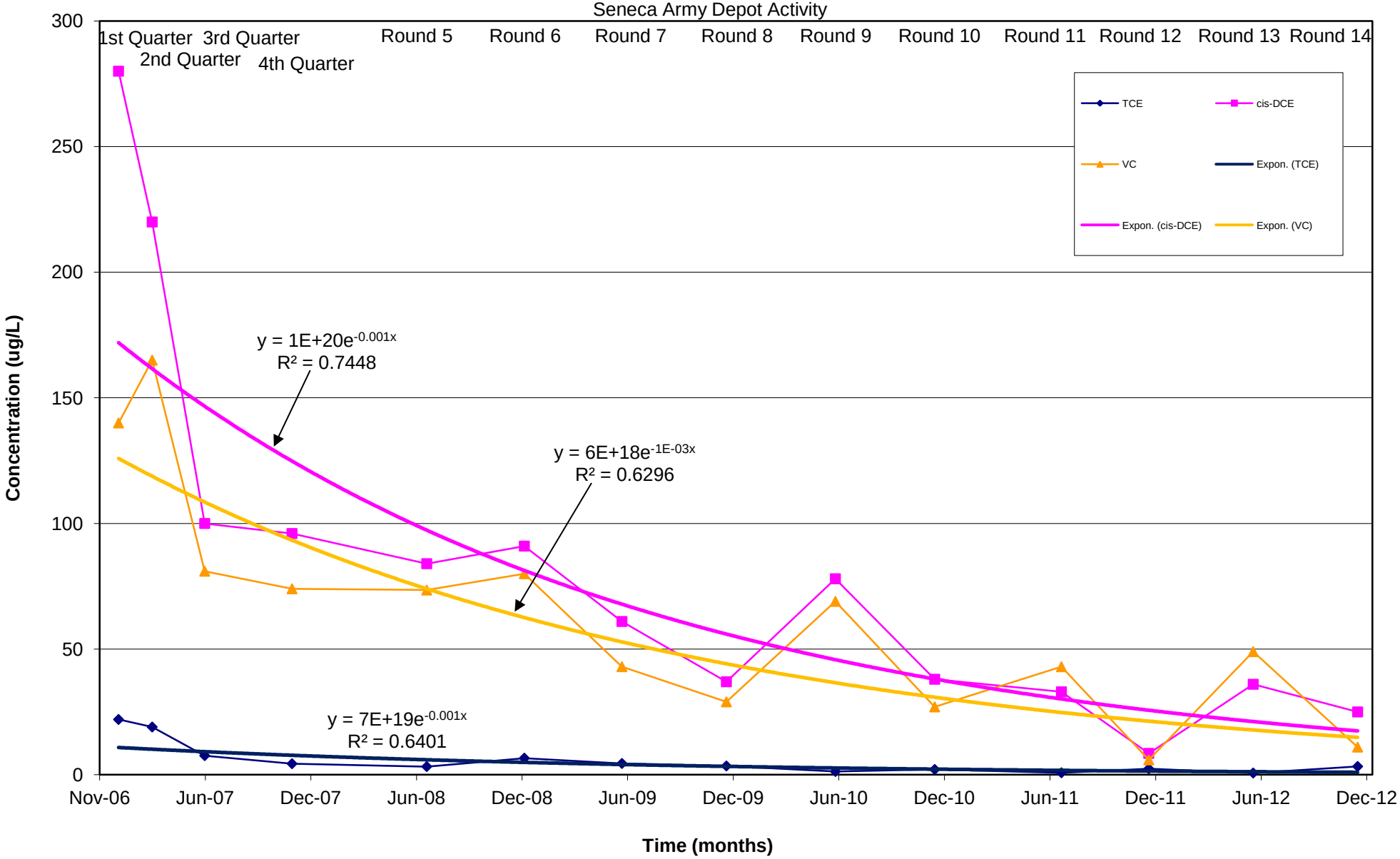
Figure C-4
Regression Plot of Well Concentrations At MWT-28
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



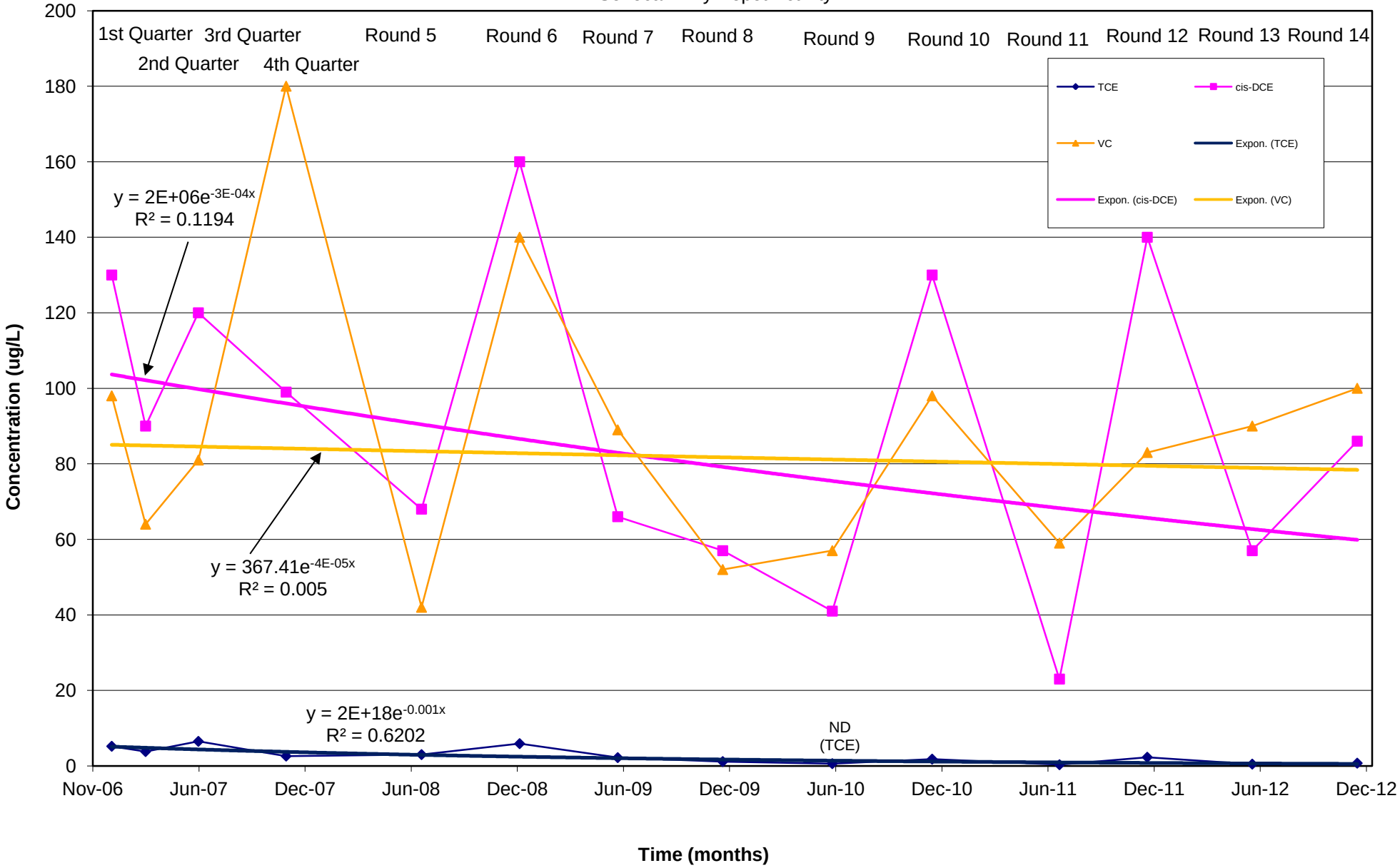
ND = not detected.

Figure C-5
Regression Plot of Well Concentrations At MWT-29
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

Figure C-6
Regression Plot of Well Concentrations At MWT-22
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

Figure C-7
Regression Plot of Well Concentrations At PT-22
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

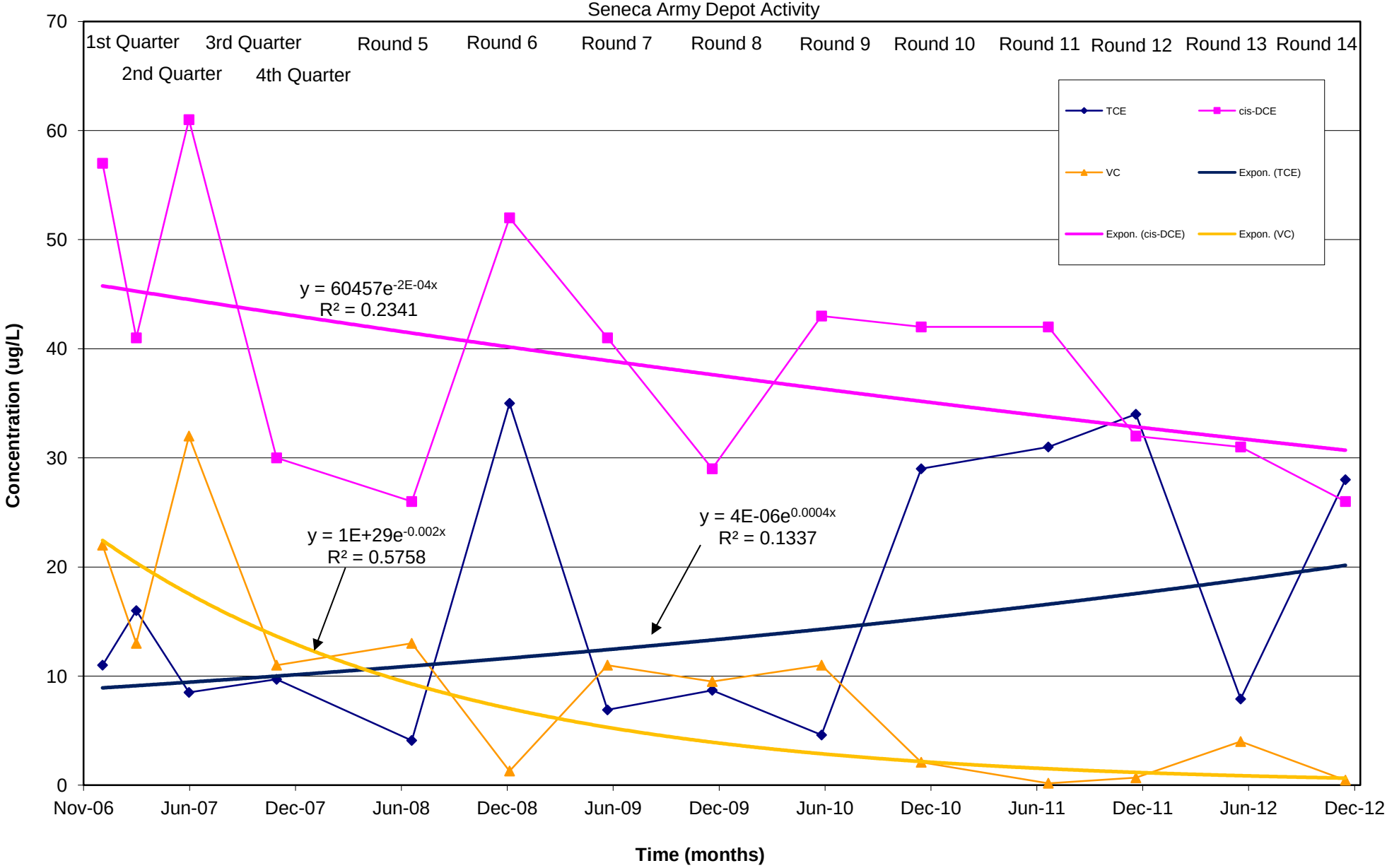


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Figure C-8
Regression Plot of Well Concentrations At MWT-23
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

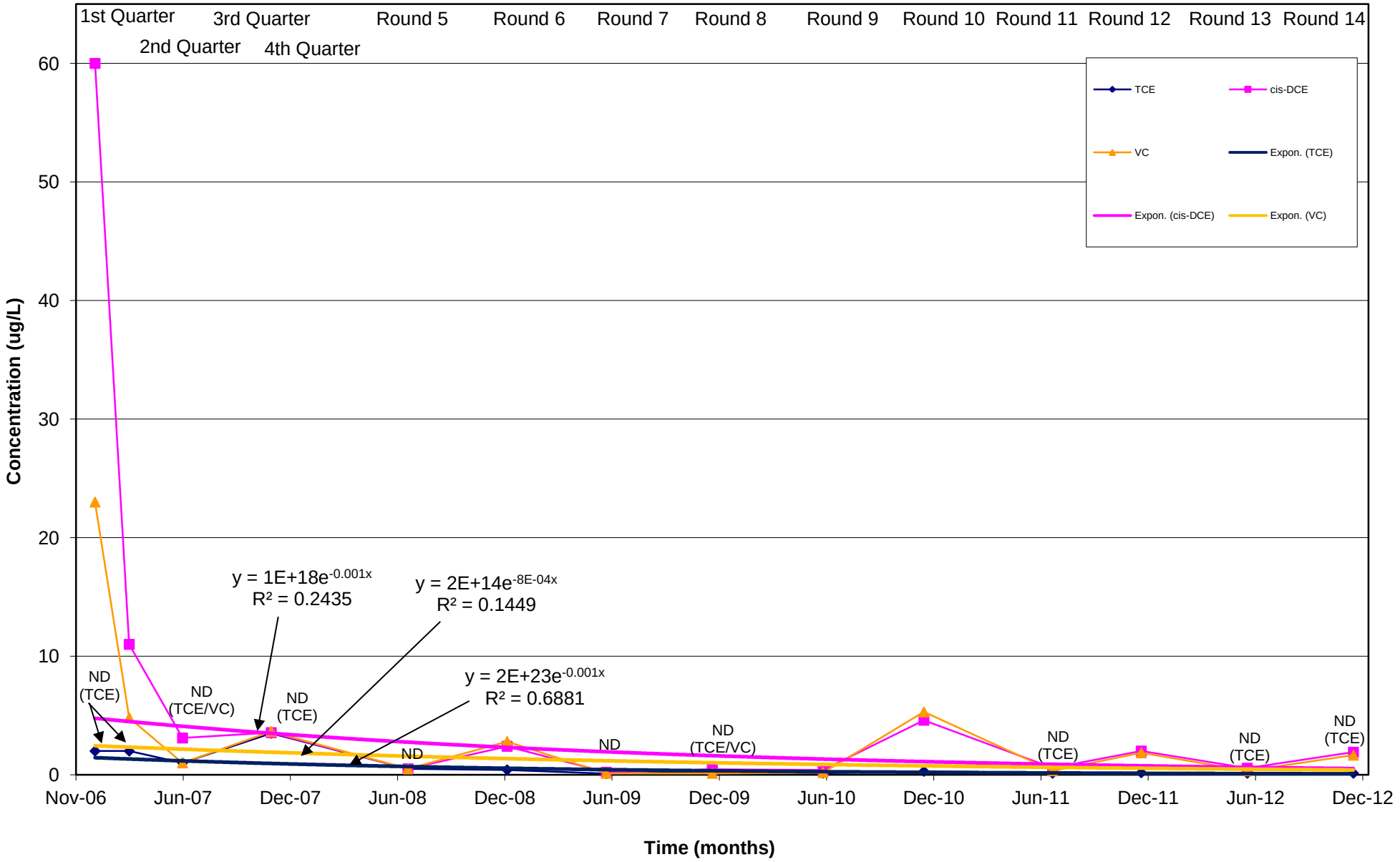

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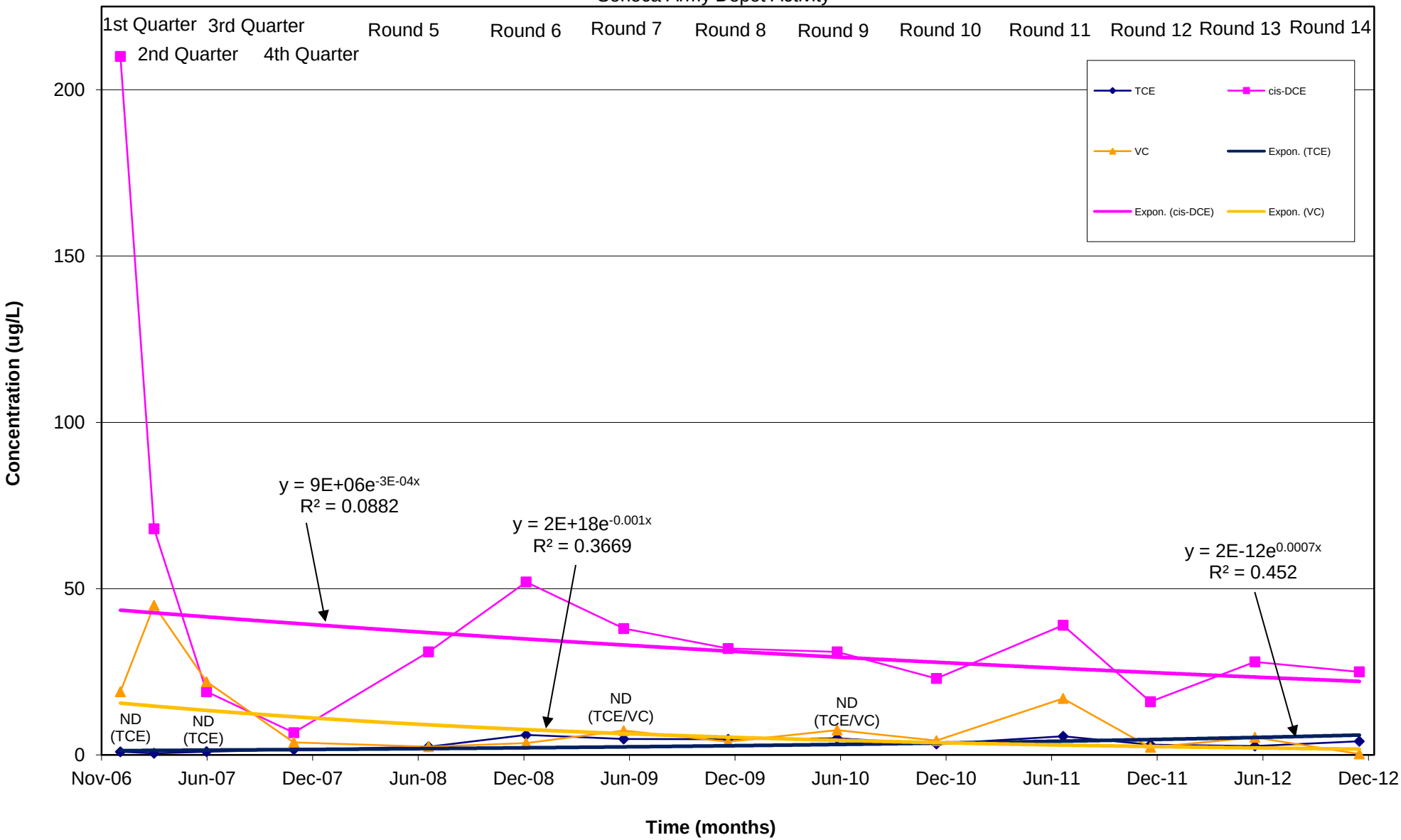
Figure C-9
Regression Plot of Well Concentrations At MWT-24
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

Figure C-10
Regression Plot of Well Comcentrations At PT-24
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

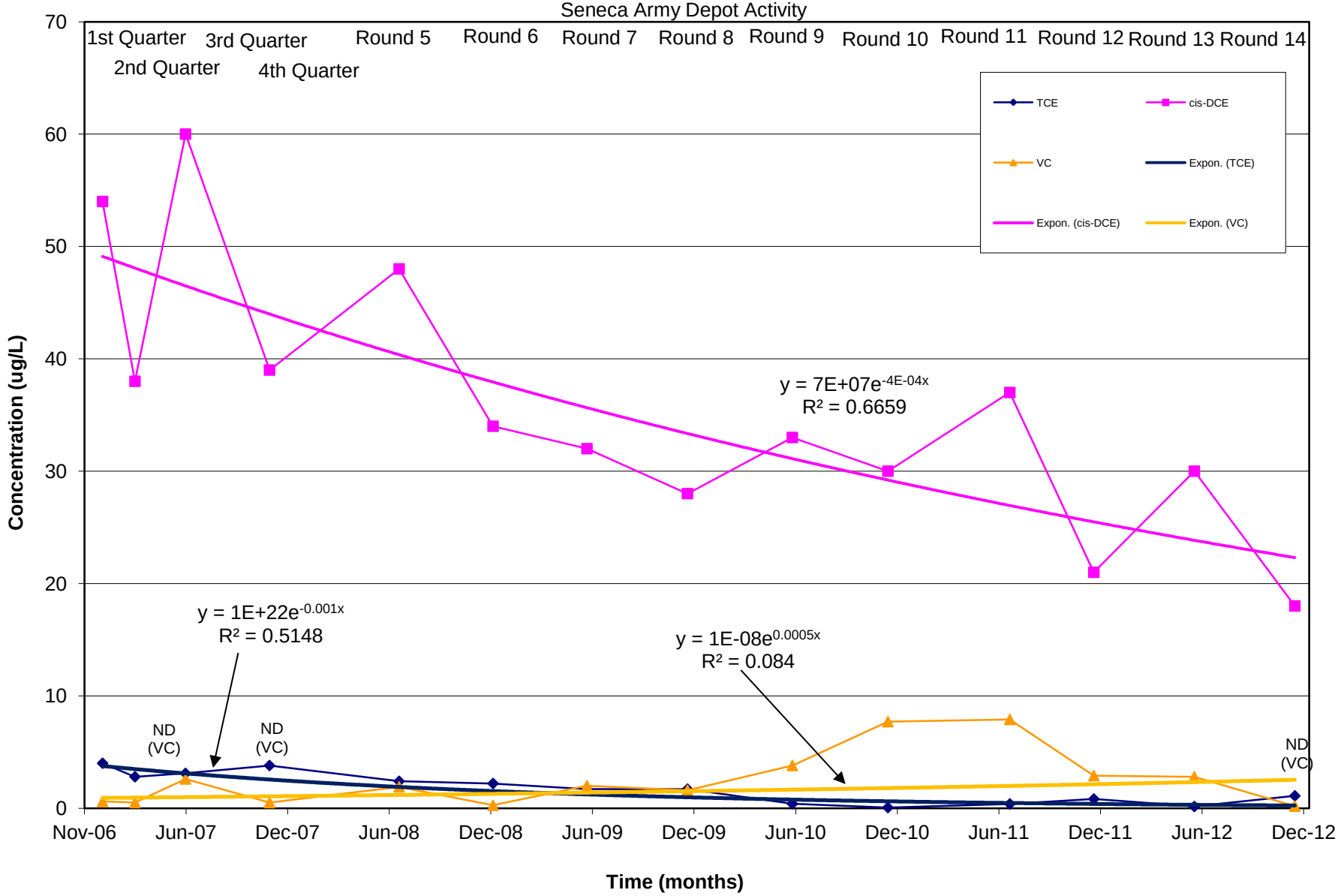


Figure C-11
Regression Plot of Well Concentrations At PT-18A
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity

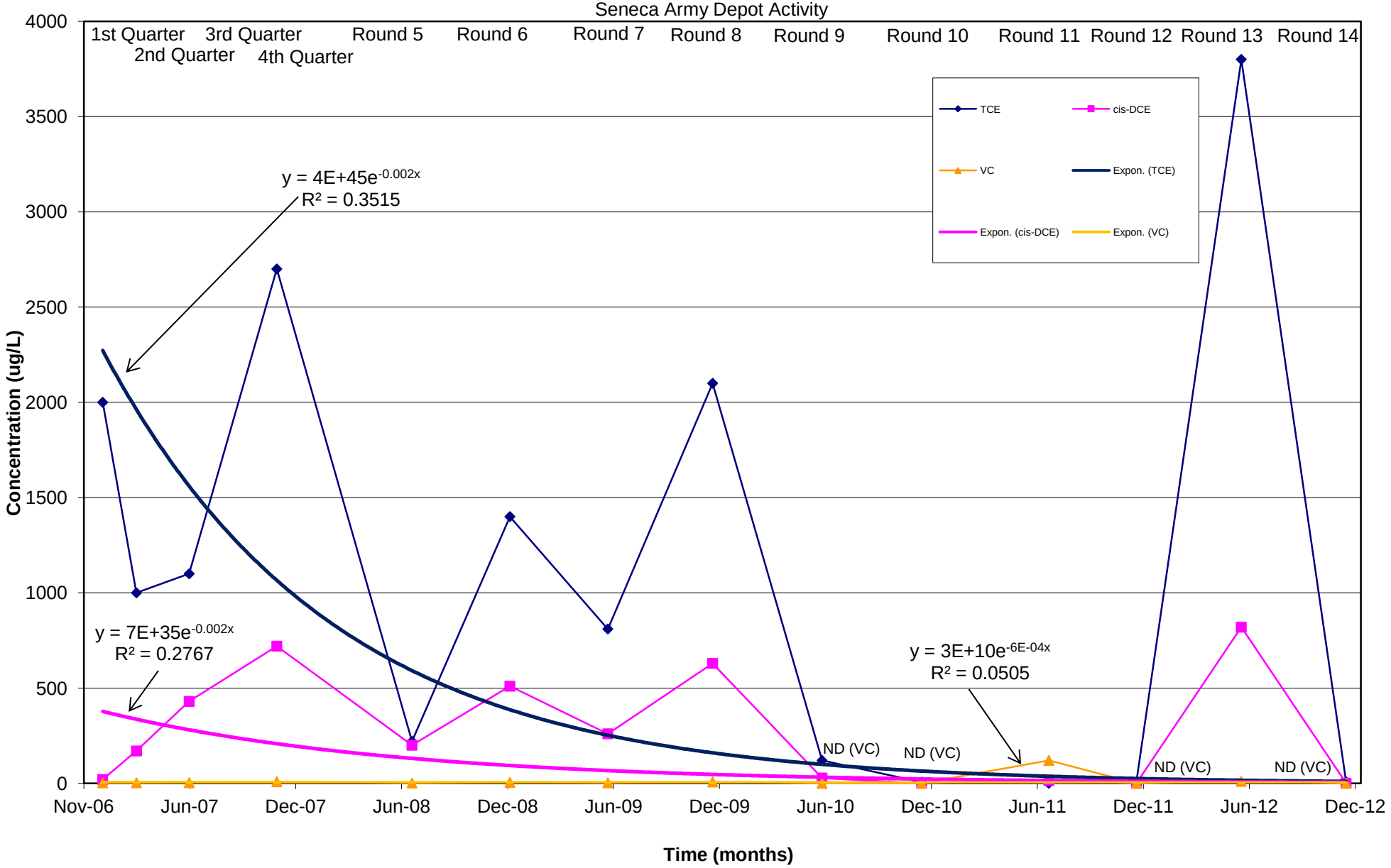


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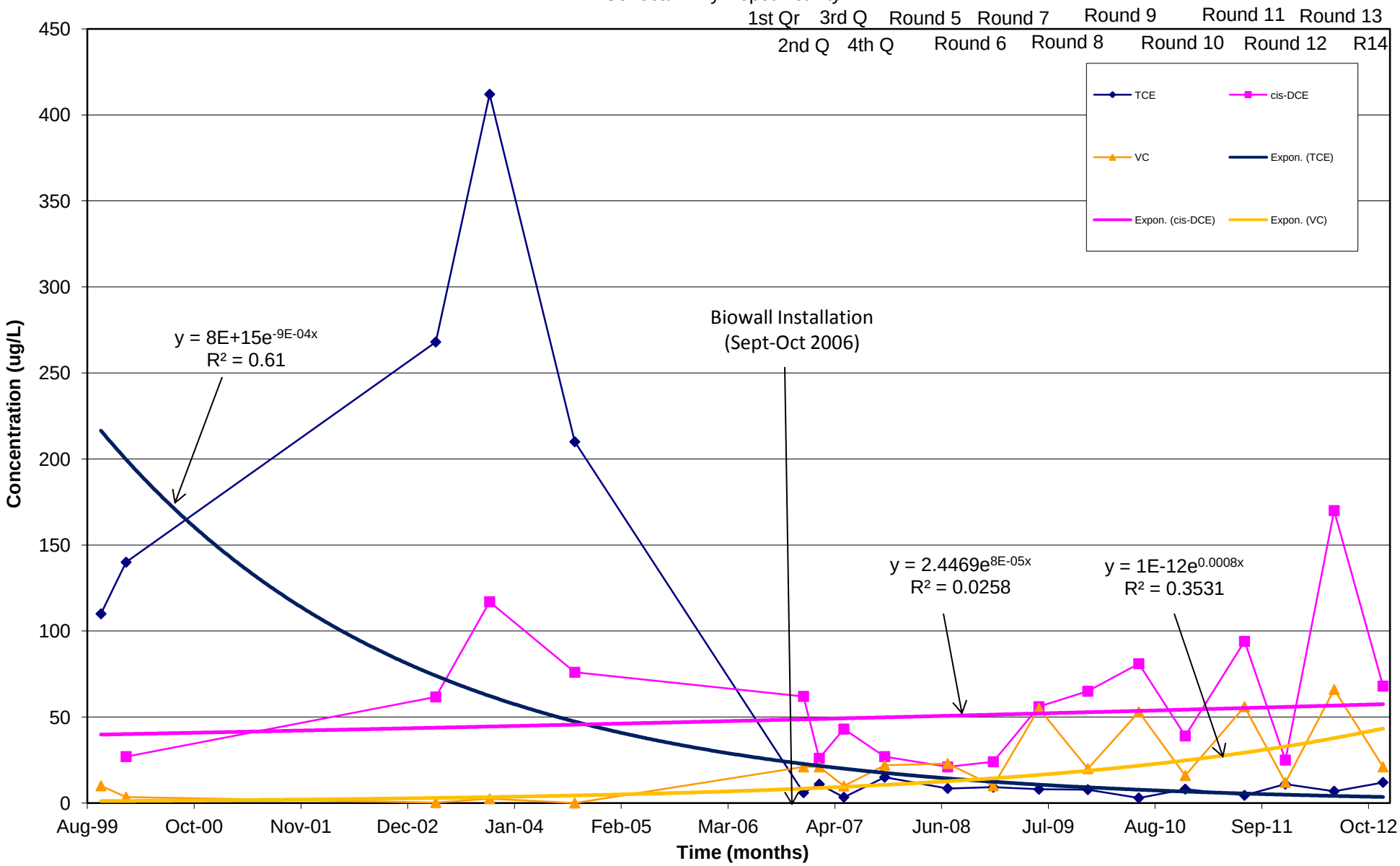
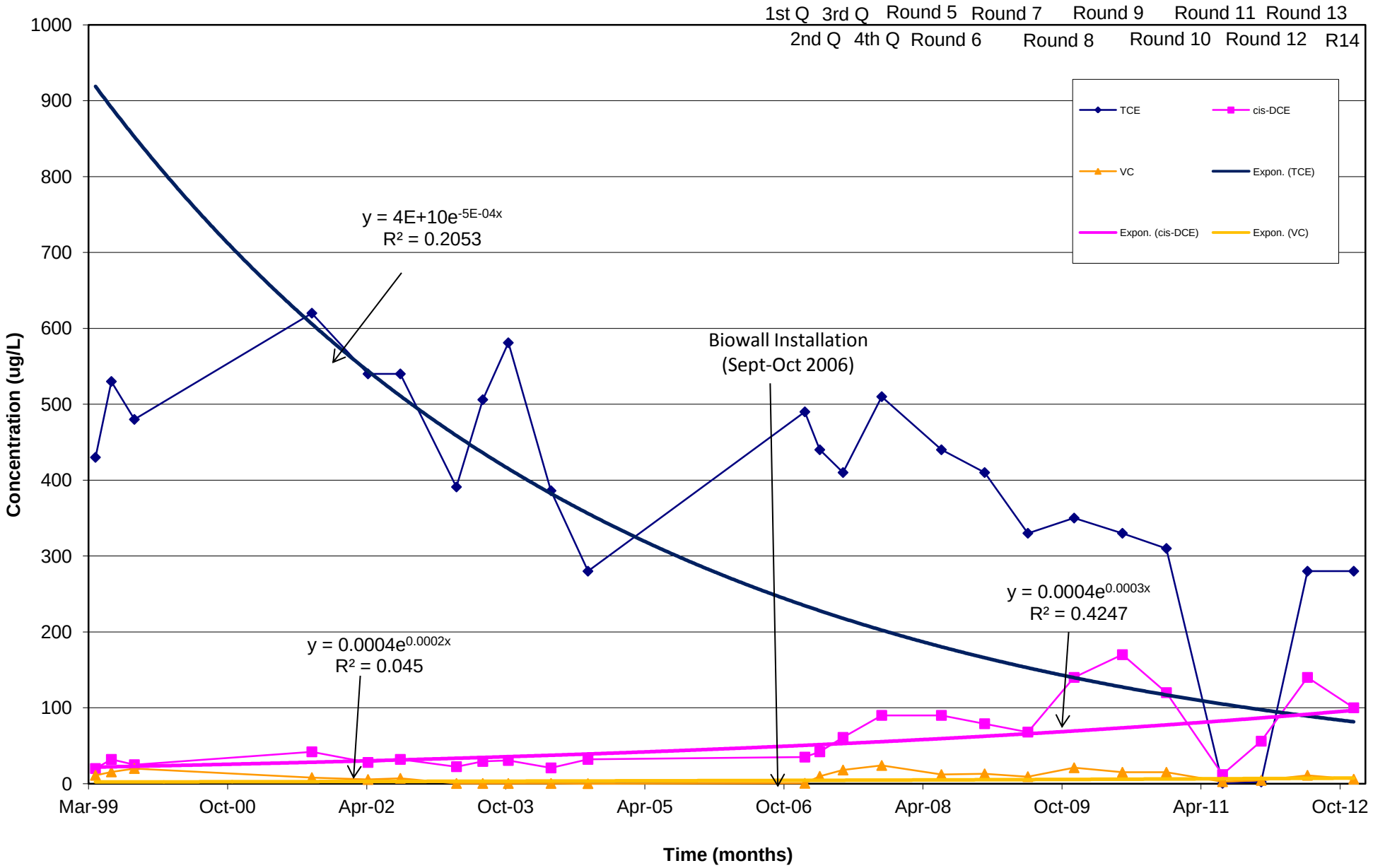
Figure C-12
Regression Plot of Well Concentrations At PT-17
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

Figure C-13
Regression Plot of Well Concentrations At MWT-7
Ash Landfill Annual Report, Year 6
Seneca Army Depot Activity



ND = not detected.

APPENDIX D

RESPONSE TO COMMENTS

Army's Response to Comments from the United States Environmental Protection Agency

Subject: Draft Annual Report and Year 6 Review
Ash Landfill Operable Unit
Seneca Army Depot
Romulus, New York

Comments Dated: September 18, 2013

Date of Comment Response: February 20, 2014

Army's Response to Comments

GENERAL COMMENTS

Comment 1: The information provided in the Annual Report does not satisfy the third performance monitoring objective, which is: "Confirm that groundwater concentrations throughout the plume are decreasing to eventually meet GA standards," for the following reasons:

- Section 3.4 (Chemical Data Analysis and Groundwater Remedy Evaluation) indicates that the concentrations of contaminants of concern (COCs) at MWT-29, MWT-22, and PT-22 confirm that the higher concentrations observed during winter monitoring events were likely due to limiting factors such as desorption and back diffusion from low permeability soils during winter months when water levels were high, and not an overall increasing trend in COC concentrations. However, only the COC concentrations at MWT-22 appear to be consistent with this conclusion. For years 2010 to 2012, concentrations of cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC) in MWT-29 and VC in PT-22 were greater during the summer months than the winter months (with one exception, VC at PT-22 in 2011). The trends in cDCE and VC concentrations at MWT-29, MWT-22 and PT-22 require further assessment since they are located downgradient of Biowalls B1/B2 and as discussed in the bullet item below, regression plots reportedly indicate that PT-22 and MWT-22 are not expected to comply with Class GA groundwater standards by 2055. Revise the Annual Report to provide clarification regarding the trends in COC concentrations at MWT-29, MWT-22, and PT-22, the mechanisms that may be affecting COC concentrations and how it has been confirmed that COC concentrations at PT-22 and MWT-22 are decreasing and will eventually meet Class GA standards.
- It is indicated in Section 3.4 that a regression analysis was conducted for all the monitoring wells in the performance monitoring system, with the regression plots presented in Appendix C. According to the text on page 17, "Remediation time estimates were calculated by solving the regression equations for when each COC would achieve its respective Class GA standard. The regression calculations, with the exception of PT-22 and MWT- 22, show that all other

wells are expected to reach Class GA groundwater standards prior to 2055." However, no other discussion regarding the expected remedial timeframes or the uncertainties involved in the timeframe calculations is provided. Revise the Annual Report to provide greater detail on how the remediation time estimates were calculated, and the uncertainties in these estimates. In addition, explain how it has been confirmed that COC concentrations in PT-22 and MWT-22 will decrease and meet Class GA groundwater standards in accordance with the third performance monitoring objective.

- The Annual Report discusses rebounding concentrations of trichloroethene (TCE) due to desorption and back diffusion downgradient of the biowalls on a few occasions (e.g., the second full paragraph on page 16). It is not clear from the discussions in the Annual Report if these rebounding concentrations of TCE were expected at the time the biowalls were installed. Revise the Annual Report to explain whether the rebounding concentrations of TCE in the areas downgradient of the biowalls were expected. In addition, it is not clear from the Annual Report how (i.e., under what mechanisms) the rebounding concentrations of TCE and its breakdown products in the aquifer will be remediated to below Class GA groundwater standards. Revise the Annual Report to describe the mechanisms that are expected to reduce concentrations of TCE and its breakdown products to below Class GA groundwater standards in areas downgradient of the biowalls.

Response 1: The text (Section 3.4, 5th paragraph, page 15) will be revised to clarify that the correlation of increasing concentration during the winter season is specific to TCE at specific wells.

A correlation is evident between relatively higher concentrations of TCE and higher groundwater levels in the winter months at MWT-22, MWT-29, PT-22, MWT-24, and PT-17. The role that desorption plays in the resulting higher TCE concentrations is one theory presenting a likely mechanism for the observed higher TCE concentrations. Parsons has not done explicit research into desorption or other reasons for changes in concentrations; however, the consistent correlation between the higher groundwater levels, the season, and the concentration of TCE (which decreases in the summer months) leads to a reasonable conclusion that the observed data variations are not a result of overall increasing concentrations of TCE.

In some locations, cDCE and VC, the dechlorination products generated during the degradation of TCE, show the inverse trend. For instance, higher concentrations of TCE were observed in MWT-29 and PT-22 in the winter, while concentrations of cDCE and VC were greater in the summer than in the winter months. The regression plots presented in Appendix C show a graphical representation that as TCE concentrations decrease, the concentrations of VC and cDCE increase (similar to the representation of the data shown on Figures 9). At MWT-22, cDCE and VC concentrations tend to demonstrate the opposite trend and are greater in the winter than summer month. This may be attributed to low detections of TCE at this well; hence cDCE and VC do not follow the seasonal pattern.

Based on the additional Year 6 data, the regression plots continue to indicate that there are no trends for some COC concentrations at PT-22 and MWT-22. However, the R^2 in the regression plots suggest a high degree of uncertainty. As previously stated, there may be limiting factors for these wells in reaching the groundwater standards, such as back diffusion from low permeability soils, localized conditions, as well as the effect of desorption on the groundwater concentrations observed during winter months when groundwater levels were high which may drive the actual time required to reach compliance. The seasonal variations in COC concentrations at these locations are not an indicator of weakened biowall effectiveness.

Table 5 in the Year 6 report was revised to include expected remedial timeframes, when an overall decreasing trend makes this possible. Remediation time estimates were calculated by solving the regression equations for when each COC would achieve its respective Class GA standard. The regression calculations, with the exception of PT-22 and MWT-22, show that all other wells are expected to reach Class GA groundwater standards prior to 2063 as indicated in the Annual Report for Year 6. Due to variations in data, some of the regression curves show stronger correlations (as indicated by the R^2 values shown on the Appendix C figures) than others. The COCs for which PT-22 and MWT-22 are not expected to comply with Class GA groundwater standards by 2055 tend to exhibit poor correlation. Additional data at these well locations will need to be collected to establish long-term COC trends. The concentrations will continue to be monitored to evaluate long term trends.

While rebounding concentrations of TCE may not have been expected at the time the biowalls were installed, TCE and its breakdown product concentrations are generally compliant or demonstrating a decreasing trends at these wells. VC or cDCE is not accumulating within the biowalls and they are still operating as intended. Based on the current trends, it is not anticipated any additional measures will be required to reduce TCE concentrations within the wall to below Class GA groundwater standards.

Comment 2: The Annual Report indicates that a lines-of-evidence approach has been used to evaluate the need for biowall recharge (e.g., Figure 12, Decision Diagram). It is also noted that the October 5, 2011 Responses to Comments on the *Draft Annual Report and Year 4 Review: Ash Landfill Operable Unit*, dated May 2011, indicate that experience with biowalls at other sites, such as Altus Air Force Base, has provided a more advanced understanding of when it is necessary to recharge a biowall. The response goes on to state, "both an increasing trend in VOC [volatile organic compound] concentrations and consistent trends in multiple geochemical parameters demonstrating that substrate depletion is the cause of VOC trends should be observed." However, this experience gained from other sites has not been incorporated into the lines-of-evidence approach discussed in the Annual Report. In order to support the year six recharge evaluation, revise the Annual Report to include summary information from the referenced experience with other biowalls. The experience and summarized data (including references) should be used to demonstrate why trends/concentration changes, particularly in the annual evaluation criteria described in Section 3.5, Biowall Recharge Evaluation, and Figure 12, do or do not necessitate the need for biowall recharge.

Response 2: Knowledge gained from other sites has offered an example of the lines-of-evidence approach. USEPA has defined lines-of-evidence as "information derived from different sources or by different techniques that can be used to describe and interpret risk estimates. Unlike the term 'weight of evidence,' it does not necessarily imply assignment of quantitative weightings to information". There is no singular value that can be specified for any one parameter where crossing that value would definitively indicate the need to recharge. As noted in the RTC on the Year 4 Report, our experience at other DoD sites, notably Altus AFB, reinforces the lines-of-evidence approach. The reference to information from Altus serves as an example that multiple lines of evidence were evaluated (e.g., the COCs were increasing but the strong geochemical parameters indicated that the biowall was still operating as designed) – and not that a specific value or combination of values dictated the need for recharge. At Altus AFB, the concentrations demonstrated an increasing trend in COCs; however the geochemical parameters continued to indicate that the environment was conducive to biodegradation. The overall determination was that the biowall was still operating effectively. This highlights that all factors (e.g., analytical chemistry and geochemical data) must be taken into account and evaluated; since the importance of each factor is not weighted, the weakness of one factor is not the sole determinator. The subject matter expert (SME) evaluates both factors to make the overall determination of the operating effectiveness of the biowalls. The purpose of referencing Altus in the Year 4 response to comment was to show an example of where one factor was decreasing while the overall effectiveness of the system remained effective. This is the same analysis that is presented in the Ash Landfill Reports.

The lessons learned are the success of considering multiple lines of evidence. The lines-of-evidence approach is already described in the Annual Report.

SPECIFIC COMMENTS

Comment 1: Section 3.3, Geochemical Data-Ferrous Iron and Manganese, Page 13: This section states, "Under anaerobic conditions like those at the Ash Landfill, the presence of manganese and ferrous iron in groundwater at concentrations above the natural background concentrations demonstrates that manganese reduction and iron reduction are occurring at the site." However, this section does not include or reference the natural background concentrations for manganese and ferrous iron. Revise the Annual Report to include the natural background concentrations for manganese and ferrous iron.

Response 1: The currently sampled wells are not appropriate for the use of collecting accurate background data (e.g., anaerobic conditions are present or the groundwater environment has been influenced by the biowall systems). However, a comparison between a well (MWT-26) upgradient of the biowall (B1/B2), which has been evaluated for geochemical parameters, would suggest that the groundwater environment immediately upgradient of the system has not been influenced by the biowall. The wells within the biowall (MWT-27 and MWT-28) illustrate that Mn(II) and Fe(II) increase in concentration within the anaerobic environment of the biowall. Therefore, it is reasonable to use an upgradient well such as MWT-26 for comparison in lieu of a background data set. The statement in Section 3.3 Ferrous Iron and Manganese, Page 13 was clarified as follows:

> Under anaerobic conditions like those at the Ash Landfill, the presence of manganese and ferrous iron in the biowalls at concentrations above those found at upgradient locations, or locations unaffected by the biowalls, demonstrates that manganese reduction and iron reduction are occurring at the site (e.g., Table 3, MWT-27 vs. upgradient MWT-26).

For future sampling events, the Army will collect Mn(II) and Fe(II) readings at the upgradient well MW-40, and evaluate if this well can be considered a background location.

Comment 2: Section 3.5, Biowall Recharge Evaluation, Page 19: This section states that "The tables below show that the geochemical parameters for the wells within the biowalls meet the benchmark values and that groundwater conditions remain highly reducing." However, geochemical parameters for ORP were not met for 13R2012 for any of the three well locations (MWT-27, MWT-28, or MWT-23) or 14R2012 for wells MWT-28 and MWT-23. In addition, geochemical parameters for TOC were not met for 13R2012 wells MWT-28 and MWT-23, and 14R2012 well MWT-23. Revise this section to clarify that the biowalls do not meet all benchmark values and discuss how the observed conditions support reductive dechlorination in the biowalls

Response 2: A benchmark value is a standard or point of reference against which a value may be assessed; it is not an absolute value where not meeting it corresponds to failure. Multiple sources of data should be examined using a lines-of-evidence approach to the evaluation of biowall recharge. No single criteria should be used to determine the efficacy of the biowall, thus influencing the decision to recharge or not. The lines of evidence suggest that the groundwater conditions within the biowalls remain highly reducing. Dissolved oxygen levels remain low within the biowalls indicating an anaerobic environment. Historically, the ORP levels in Biowalls B1 and B2 were closer to the preferred reference level; however, the ORP levels in both biowalls remain well below the 50 mV reference level where a reductive pathway is possible (USEPA, 1998).

In Year 6, TOC concentrations in Biowall B2 increased above the benchmark value of 20 mg/L. While TOC concentrations in Biowall C2 remain below 20 mg/L, the concentration of TOC increased from the previous sampling event and it remains higher than the TOC concentration in the upgradient well. Low DO concentrations and overall low ORPs indicate that highly reducing conditions are being maintained with the current levels of TOC. Reductions in sulfate and the production of methane further indicate that highly anaerobic conditions are being sustained. The strongest evidence is that the TCE, cDCE and VC concentrations remain below the GA standards (and often below detection limits) within the biowalls. Although the TOC concentrations are not always above the suggested benchmark for comparison, the other lines of evidence presented above are interpreted to suggest that the environment within the biowalls remains effective for the reduction of chlorinated solvents.

The text will be revised to clarify that the geochemical parameters remain strong, though they are not always below the benchmark value.

Comment 3: Section 3.5, Biowall Recharge Evaluation, Pages 19 and 21: The text states that "TCE, cDCE, and VC in the biowalls remain low and have not rebounded by greater than 50% for any sampling event." However, increases of greater than 50% occurred during the year six sampling (e.g., cDCE

increased from 0.55 J to 1.9 micrograms/liter [ug/L] and VC increased from 0.33 J to 1.65 ug/L from Rounds 13 to 14 in MWT-23, and similar increases occurred in MWT-27). Revise the Annual Report to include an assessment of the need to recharge the biowalls based on whether concentrations have rebounded by greater than 50% for any sampling event (according to Figure 12 this performance monitoring requirement will be assessed on an annual basis). In addition, it is noted that the text on page 21 states, "recharge should be considered when conditions are such that consistent trends develop that show the geochemical parameters continue to weaken and that concentrations of TCE and DCE are increasing above the GA standard over multiple events." This criterion for determining the need for biowall recharge is problematic. First, it is not consistent with the 50% rebound criterion discussed previously and required in Figure 12. Second, it would not allow for the achievement of the third performance monitoring objective (i.e., groundwater concentrations throughout the plume would not be decreasing to eventually meet GA standards). Revise the Annual Report to remove the statement indicating recharge will be considered when TCE and DCE increase above Class GA standards.

Response 3: The 50% rebound criterion was assessed for the biowall wells in Year 6, however, as stated in previous years, the calculation of the percent rebound of concentrations comparing values that are below the detection limit, are estimated concentrations (J-flags), or are below the GA Standard challenges our ability to complete meaningful calculations. The overriding objective of the biowall system is to reduce concentrations to below GA Standards; as long as concentrations within the biowalls are below these standards there is no merit in calculating changes in concentrations from one event to another. Given that concentrations are at the lower limits of the analytical method, relatively small changes in concentration of just one or two micrograms per liter may not be meaningful. Evaluating concentrations when an increase in consecutive rounds rises above the GA Standard is considered a more practical approach than considering an absolute 50% rebound metric. As such, the Army proposes revising the report to remove the requirement for the 50% rebound metric when concentrations are below the GA standard. The rebound criterion will still be evaluated if concentrations for any given COC rise above its respective GA standard.

Based on this approach to the 50% rebound criterion and with added text to clarify, the excerpted statement on Page 20 remains valid for when to consider biowall recharge. Additionally, the need to recharge the biowalls would be consistent with the failure of achieving the third performance monitoring objective.

As supported by the additional data presented in the Year 6 report, the current data do not show a consistent increase in VOC concentrations, and, therefore, the data are consistent with the third monitoring objective, and do not constitute an increasing trend over multiple events. Overall, TCE, DCE, and VC have either been non-detect or detected above the detection limit, but below their respective GA standards.

Recharge should be considered when the lines-of-evidence approach suggests that conditions are such that consistent trends develop that show the geochemical parameters are weakening <u>and</u> the concentrations of TCE and DCE are increasing above the GA standard over more than a single event.

MINOR COMMENT

Comment 1: Section 2.4.1, Biowalls, Page 6: The last sentence in this section states that, "A site visit in December 20101 confirmed that the mulch backfill in the trenches has settled to ground surface." Revise this sentence to verify the correct year that the site visit was completed.

Response 1: The sentence was revised to state that "A site visit in December 2010…"