FINAL INTERIM REMEDIAL ACTION REPORT

REMEDIAL WORK ELEMENT I
REMEDIAL EXCAVATIONS AND CAPPING
RICHARDSON HILL ROAD LANDFILL SITE

Sidney, New York

Prepared For:

AMPHENOL CORPORATION

358 Hall Avenue
Wallingford, CT 06492

and

Honeywell

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AUGUST 2007

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REVIEWED AND APPROVED BY:

Project Manager: James M O'Loughlin 8/30/07
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AUGUST 2007

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SECTION 1

INTRODUCTION

1.1 PURPOSE

This Interim Remedial Action (RA) Report describes the construction of Remedial Work Element I of the Remedial Action for the Richardson Hill Road Landfill (RHRL) Site, United States Environmental Protection Agency (USEPA) Site #NYD980507735. Remedial Work Element I includes the excavation and removal of soils and sediments, the off-site disposal of certain soils, the consolidation of certain soils and sediments in a TSCA cell constructed at the location of the former landfill, the consolidation of remaining soils and sediment beneath a cap constructed over the former landfill, and associated operation and maintenance activities. This report has been prepared pursuant to the requirements of the Consent Decree entered into by AlliedSignal, Inc., a predecessor company of Honeywell International, Inc. (Honeywell) and Amphenol Corporation (Amphenol), effective February 16, 1999 (USEPA, 1999), and Section X.I.C. of the Statement of Work. The guidance document "Close Out Procedures for National Priorities List Sites" (USEPA, 2000) was used as guidance in preparing this Interim RA Report. The construction of Remedial Work Element II (Groundwater Extraction and Treatment) is presented in a separate Interim RA Report (Parsons, 2007a). For both Remedial Work Elements I and II, construction activities were completed the week of October 2, 2006; a final inspection was conducted on October 10, 2006; and field survey work was completed on November 30, 2006.

1.2 PROJECT TEAM

This section provides a summary of the involved parties and their roles. Contact information for each party is provided in Table 1.1.

1.2.1 Agencies

USEPA

The USEPA was the lead agency for the RHRL Remedial Action. Young Chang was the USEPA project manager, served as the point of contact for the agencies, and conducted periodic site inspections.

EarthTech was contracted by USEPA to provide full-time on-site oversight. Amit Haryani represented Earth Tech on-site during the period from September 2002 through October 27, 2003. Jeff Hall represented Earth Tech on-site during the period October 28, 2002 through 2005. Dan Bennett represented Earth Tech on-site in 2006. Martin Derby served as project manager for Earth Tech through October 3, 2003, and Jim Kaczor thereafter.

NYSDEC

Gerard Burke, P.E. represented the New York State Department of Environmental Conservation (NYSDEC) and conducted periodic site inspections.

NYCDEP

The New York City Department of Environmental Protection (NYCDEP) was involved with the project because the RHRL is located within the Delaware Watershed System, which is part of the New York City water supply system. Joe Damrath and Chuck Malinowski represented NYCDEP and conducted periodic site inspections. Mary Ellen Cariseo also represented NYCDEP, and conducted periodic site inspections.

1.2.2 Amphenol/Honeywell

Amphenol and Honeywell were ultimately responsible for completing the Remedial Action in accordance with the Consent Decree. Joseph Bianchi (Project Coordinator pursuant to Section XII of the Consent Decree) and Samuel Waldo represented Amphenol. Richard Galloway, John Mojka, and Frank Leming (who was on site in 2004 and 2005) represented Honeywell. As described below, Amphenol and Honeywell procured the remedial action contractors (Shaw and DA Collins) and the Engineer (Parsons) for Remedial Work Element I.

1.2.2.1 Shaw Environmental

Shaw Environmental (Shaw) completed the remedial excavations, off-site disposal of soil and sediment, and consolidation of soils and sediment either within the TSCA cell or at the location of the cap. Shaw also initiated construction of the cap and associated stormwater control features. John Waechter (Project Manager), Scott Sutton (Site Superintendent, 2003), Jeff Gage (Site Superintendent, 2004), Charles Greene (Health & Safety Officer), Louis Mannina (Project Business Agent) and Geoff Goolden (Field Engineer) formed Shaw's on-site management team.

1.2.2.2 DA Collins Environmental

DA Collins Environmental (DA Collins) completed construction of the cap and associated stormwater control features. Dave MacDougall was DA Collins Project Manager; Mike Landon was Site Superintendent in 2005; Dean Blodget was Site Superintendent in 2006.

1.2.2.3 Parsons

Parsons provided full-time on-site construction oversight during the construction of Remedial Work Element I. Specific activities conducted by Parsons included conducting daily inspections of construction activities, documenting work activities, reviewing contractor submittals, providing engineering support for design and field changes, reviewing contractor quality control test results, conducting quality assurance testing through a subcontractor (i.e., geotechnical testing by CME Associates, Inc.; analytical testing by OBG Laboratories), coordinating reviews of submittals and work plans with the agencies and remedial action contractors, and coordinating periodic project meetings. Parsons also subcontracted O'Brien & Gere Engineers, Inc. for the development of a Storm Water Pollution Prevention Plan (SWPPP)

and associated inspections. Parsons' on-site representatives included: Matt Millias (2003), Ed Rudy (May 2003), Chris Kibler (May 2003 – August 2003); Bill Bingham (September 2003 – April 2004); Norm Sulock (2004 - 2005), and Ron Prohaska (2006). Project Managers for Parsons included Matt Millias (2002 - 2003), Bill Long (2004-2005), and Jim O'Loughlin (2006).

1.3 REPORT BASIS

This report is based on the following:

- Documentation and Quality Control (QC) testing results provided by the Remedial Action Contractors during construction;
- Observations by Parsons during construction; and
- Quality Assurance (QA) testing performed by Parsons or its subcontractor(s).

1.4 REPORT ORGANIZATION

This report is organized as follows:

Section 1 provides an introduction to the project and presents the project team.

Section 2 provides site background information, including site history, a summary of previous site investigations, and a summary of the remedial design.

Section 3 summarizes Remedial Work Element I construction activities.

Section 4 presents a chronology of events.

Section 5 presents a summary of performance standards and construction quality control.

Section 6 presents supplemental information, including a summary of health and safety during construction, and site-specific observations and lessons learned.

Section 7 presents a summary of operation and maintenance activities.

Section 8 presents a summary of final inspections and certifications.

Supporting the text are the following appendices:

Appendix A: Field Change Orders and Field Memos

Appendix B: Record Drawings

Appendix C: Photographs

Appendix D: Daily Field Reports

Appendix E: Excavation and Disposal Documentation

Appendix F: Confirmatory Analytical Data

Appendix G: QA/QC Documentation

Appendix H: Supplemental Information

This Interim RA Report was prepared pursuant to Section X.I.C. of the Statement of Work and the guidance presented in Exhibit 2-3 of "Close Out Procedures for National Priorities List Sites." To facilitate comparison of report contents to the requirements/guidance provided by these documents, the following cross references are provided:

Statement of Work, Section X.I.C

Section 1 – Introduction: See Section 2 of the Interim RA Report

Section 2 – Chronology of Events: See Section 4 of the Interim RA Report

Section 3 – Performance Standards and Construction Quality Control: See Section 5 of the Interim RA Report

Section 4 – Construction Activities: See Section 3 of the Interim RA Report

Section 5 – Final Inspection: See Section 8 of the Interim RA Report

Section 6 – Notice of Completion: See Section 8 of the Interim RA Report

Section 7 – Operation and Maintenance: See Section 7 of the Interim RA Report

Section 8 – Certification: See Section 8 of the Interim RA Report

Guidance Document, Exhibit 2-3

Section I – Introduction: See Section 2 of the Interim RA Report

Section II – Operable Unit Background: See Section 2 of the Interim RA Report

Section III – Construction Activities: See Section 3 of the Interim RA Report

Section IV – Chronology of Events: See Section 4 of the Interim RA Report

Section V – Performance Standards and Construction Quality Control: See Section 5 of the Interim RA Report

Section VI – Final Inspections and Certifications: See Sections 6 and 8 of the Interim RA Report.

Section VII – Operation and Maintenance Activities: See Section 7 of the Interim RA Report

Section VIII – Summary of Project Costs: See Section 6 of the Interim RA Report

Section IX – Observations and Lessons Learned: See Section 6 of Interim RA Report

Section X – Operable Unit Contact Information: See Section 1 of the Interim RA Report

TABLE 1.1
CONTACT INFORMATION

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SECTION 2

BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The RHRL site is located in the Towns of Sidney and Masonville, Delaware County, New York. The site is located in a rural residential area on Richardson Hill Road, approximately 2.5 miles southeast of Sidney Center. Information regarding the site can be found at the following website: www.epa.gov/region02/cleanup/sites/nytoc_sitename.htm. As shown on Record Drawing C-1 & C-2 (1 of 2), the RHRL site consists of the South Area and the North Area.

Within the South Area is the main landfill, which is approximately 8 acres in size and is situated along a hillside above a marsh and the South Pond. The landfill was used primarily for the disposal of municipal refuse. Located within the landfill was a former pit, approximately 25 ft wide by 105 ft long by 14 ft deep, which was used for the disposal of waste oil. Some of the disposed oils contained volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs).

Surface water and groundwater from the landfill and adjacent hillside drain towards the marsh and South Pond. Water from the South Pond drains into Herrick Hollow Creek (HHC), which eventually flows into Cannonsville Reservoir on the west branch of the Delaware River. Cannonsville Reservoir is part of the Delaware Watershed System, supplying water to the New York City metropolitan area (USEPA, 1997).

The North Area is located approximately 1,000 ft northeast of the main landfill and was comprised of two former waste disposal areas and the North Pond. The North Area is located on a drainage divide between the Susquehanna and Delaware River basins, with the primary surface water drainage towards the Susquehanna basin. Water from the North Pond drains northwards through a series of beaver dams into Carr's Creek, which is a tributary of the Susquehanna River (USEPA, 1997).

As described in this report and as shown in the record drawings included in Appendix B, Remedial Work Element I includes the excavation and removal of soils and sediments, the off-site disposal of certain soils, the consolidation of certain soils and sediments in a TSCA cell constructed at the location of the former landfill, the consolidation of remaining soils and sediments beneath a cap constructed over the former landfill, and associated operations and maintenance activities.

As described in the Interim RA Report for Remedial Work Element II (Parsons, 2007a), Remedial Work Element II includes a groundwater treatment plant to treat extracted groundwater from both an extraction trench in the South Area east of the landfill and a network of recovery wells in the North Area.

2.2 SITE HISTORY

The land on which the main landfill is located was purchased by Mr. Devere Rosa, Jr. in 1964 for the purpose of operating a refuse disposal area. Devere Rosa, Sr. received a permit from the New York State Department of Health (NYSDOH) in June 1964 to operate the landfill. The landfill was operated from approximately July 1964 until October 1968. In October 1968, Mr. Rosa Sr. signed an order issued against him by the NYSDOH to close the landfill (USEPA, 1997).

Waste materials deposited in the landfill consisted primarily of municipal refuse from the Town of Sidney. In addition to municipal waste, spent oils from the Scintilla Division of the Bendix Corporation, a predecessor to Honeywell and Amphenol, were disposed in the landfill from approximately July 1964 until July 1966. The spent oils were reportedly disposed as free liquids in the waste oil disposal pit.

Based on the results of a USEPA site investigation and a New York State Department of Environmental Conservation (NYSDEC) Phase II investigation, the RHRL site was listed on the National Priorities List (NPL) on July 1, 1987. On July 22, 1987, Amphenol and Honeywell entered into an Administrative Order on Consent (AOC), Index Number II CERCLA-70205, with the USEPA to perform a remedial investigation and feasibility study (RI/FS) at the site.

In November 1991, interim remedial measures were conducted to discourage unauthorized access to the RHRL site. The measures consisted of installing a 4-ft high-visibility fence and posting signs around the former waste oil disposal pit and runoff area. "No Trespassing/USEPA Information" signs were also posted at 50-ft intervals along the site perimeter (O'Brien & Gere, 1995).

On September 30, 1993 USEPA issued an AOC, Index Number II CERCLA-93-0214, and a Unilateral Administrative Order (UAO), Index Number II CERCLA-93-0217, to Amphenol and Honeywell in response to a reported fish kill in the South Pond. The work performed pursuant to these orders included excavation of approximately 2,200 cubic yards (cy) of sediment from the South Pond, installation of seep interceptor collection basins upgradient of the South Pond, installation of a sediment trap weir system at the outlet of the South Pond, and installation and maintenance of two whole-house supply water treatment systems (USEPA, 1997). The status of the two whole-house supply water treatment systems, as reported by Amphenol, is provided in Appendix H.

Upon completion of the RI/FS, a Record of Decision (ROD) documenting selection of a remedial action for the site by USEPA was signed on September 30, 1997.

On February 16, 1999, a Consent Decree between USEPA, Honeywell and Amphenol was lodged with the United States District Court. The Consent Decree (USEPA, 1999) required Honeywell and Amphenol to implement the Remedial Action (RA) specified in the ROD for the RHRL.

A Remedial Design Work Plan (RDWP) for the RHRL was submitted to and approved by USEPA (Parsons Engineering Science, Inc. (Parsons), August 1999). The RDWP included a

Pre-Design Investigation and the Remedial Design. The pre-design investigation was conducted between October 1999 and January 2000 to supplement information presented in previous reports and to refine the basis of the Remedial Design. A description of the activities and findings from the pre-design investigation was presented in the Pre-Design Investigation Report (Parsons, 2000).

The Final (100%) Remedial Design Report (Parsons, 2002) was submitted to USEPA on August 22, 2002. USEPA approved the portion of the Remedial Design pertaining to the GWTP on August 26, 2002. On October 14, 2002, revised drawings were issued by Parsons reflecting the relocation of the GWTP from the South Area to the North Area. On May 7, 2003, USEPA approved the Remedial Design (i.e., portions other than the GWTP), including those portions associated with Remedial Work Element I.

The Remedial Design, as it pertains to Remedial Work Element I, is discussed in further detail in Section 2.5. A chronology of major events relating to the design and construction of Remedial Work Element I is presented in Section 4.

2.3 SITE INVESTIGATION SUMMARY

A Remedial Investigation (RI) was conducted between 1988 and 1996 to evaluate the nature and extent of contamination at, and emanating from, the RHRL site (O'Brien & Gere, 1995). The RI included the collection and analyses of surface and subsurface soil, groundwater, surface water, and sediment samples. Additional site investigation was also performed as part of the pre-design investigation. This section presents a brief summary of the site investigation results, based on the summary presented in the Remedial Design Work Plan (Parsons, 1999).

2.3.1 Geology and Hydrogeology

The subsurface geology of the site is characterized by unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits consist of soil mixed with municipal refuse in the landfill underlain by a dense reddish brown to gray glacial till. Bedrock beneath the till consists of interbedded layers of shale, siltstone, and sandstone. The depth to bedrock varies from 18 ft to 39 ft.

Groundwater at the site was encountered in the overburden, shallow bedrock (18 to 70 ft), and the deeper bedrock (greater than 70 ft). The overburden and shallow bedrock flow regimes appear to be hydraulically connected and isolated from the deeper bedrock groundwater flow system. Groundwater in the overburden and shallow bedrock flows towards the center of the valley and generally follows the site topography.

2.3.2 Surface Soils

PCBs were detected in surface soil samples (0 to 1 ft) in the main landfill area at concentrations ranging from less than 5 milligrams per kilogram (mg/kg) to 950 mg/kg, based on field screening data, and up to 730 mg/kg, based on laboratory analytical data. However, there was poor correlation between the screening data and the laboratory analytical data. Screening results were often several orders of magnitude greater than the laboratory results. The highest PCB concentrations were detected in the landfill near the former waste oil disposal pit. PCB

concentrations decreased with distance away from the pit. Two locations along the north access road were also found to contain surface soils with PCBs exceeding the 1 mg/kg NYSDEC surface soil cleanup objective (TAGM 94-HWR-4046).

During the RI, PCBs were also detected in the North Area at concentrations ranging from less than 5 mg/kg to 42.2 mg/kg based on field screening data; however, none of those surface soil samples were analyzed by a laboratory. The highest PCB concentrations were detected in two suspected disposal areas which were identified by the geophysical and soil vapor surveys. Two surface soil samples collected from the same areas during the pre-design investigation had PCB concentrations below 1 mg/kg.

2.3.3 Subsurface Soils

VOCs and PCBs were detected in subsurface soils at the site. The most prevalent VOCs were 1,2-dichloroethene (1,2-DCE), trichloroethene (TCE), toluene, ethylbenzene, and xylene. In the South Area, total VOC concentrations ranged up to 287 mg/kg and PCB concentrations ranged up to 7,000 mg/kg. The highest concentrations were detected in the vicinity of the former waste oil disposal pit. PCB concentrations decreased significantly at depths below 8 ft. PCB concentrations in borings along the east side of Richardson Hill Road ranged up to 44 mg/kg.

VOCs and PCBs were detected at lower concentrations in subsurface soils in the North Area. Total VOC concentrations ranged up to 3.84 mg/kg and PCB concentrations ranged up to 1.5 mg/kg. The highest concentration was detected in test pit TP-6 located in one of the isolated fill areas. All of the North Area subsurface soil samples were below the VOC cleanup objectives and the 10 mg/kg NYSDEC subsurface soil PCB cleanup objective (TAGM 94-HWR-4046).

2.3.4 Groundwater

Groundwater samples were collected from the site monitoring wells between November 1988 and February 1995. In the main landfill area, groundwater in the overburden zone contained detectable levels of VOCs and PCBs. The most prevalent VOCs in the overburden groundwater were TCE, tetrachloroethene (PCE), and 1,1,1-trichloroethane (1,1,1-TCA), and their breakdown products, 1,2-DCE, 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl chloride. Total VOC concentrations in groundwater ranged from 1 microgram per liter (ug/l) to 29,860 ug/l. PCB concentrations ranged from less than 0.065 ug/l to 1,400 ug/l. The highest concentrations were detected in monitoring wells adjacent to and downgradient of the former waste oil disposal pit. The VOC and PCB plumes from the landfill materials and former waste oil disposal pit extended in an easterly direction towards the South Pond. The PCB plume was less extensive than the VOC plume and was centered around the former waste oil disposal pit.

Similar VOCs and PCBs were detected in the shallow bedrock groundwater in the main landfill area. The VOC and PCB plumes, however, were smaller in extent and generally had concentrations about an order of magnitude less than in the overburden groundwater.

In the North Area, groundwater in the overburden zone contained detectable levels of VOCs and PCBs. The primary VOC detected in the overburden groundwater was TCE. Total VOC

concentrations ranged from less than 1 ug/l to 1,776 ug/l and PCB concentrations ranged from less than 0.066 ug/l to 0.2 ug/l. VOCs were also detected in a shallow bedrock groundwater monitoring well, MW-9D. The total VOC concentration detected in the shallow bedrock groundwater was 164 ug/l. The primary VOC detected in the shallow bedrock was TCE at a concentration of 150 ug/l. No distinct source areas were identified in the North Area during the remedial investigations.

The MW-12 group consists of three, open hole bedrock groundwater monitoring wells, which, as shown on Record Drawing C-1 & C-2 (1 of 2), are located east of South Pond and Herrick Hollow Creek. These wells were installed as part of the RI/FS for the Sidney Landfill site, which is northwest of the Richardson Hill Road Landfill site. Trichloroethene and the degradation species 1,2-dichloroethene, as well as 1,1,1-trichloroethane, have been detected in well(s) from the MW-12 Group. It is Parsons understanding that for administrative purposes, the MW-12 Group and its monitoring was assigned to the RHRL site in September 2004 (JTM Associates, 2006, USEPA, 2007a). Because the groundwater collection trench was not specifically designed to collect groundwater from the vicinity of the MW-12 group, a plan to assess water quality chemistry, associated hydrogeology, and source of contamination in the MW-12 group is currently being developed by others (JTM Associates, 2006, USEPA, 2007, JTM Associates, 2007), and monitoring of the MW-12 Group has been included in the RHRL site O&M plan.

VOCs and PCBs were not detected in the deep bedrock groundwater at the site.

2.3.5 Surface Water

VOCs and PCBs were detected in surface water samples collected from the South Pond. Total VOC concentrations ranged from 3 ug/l to 1,982 ug/l, and PCB concentrations ranged from non-detectable to 2.9 ug/l. The highest concentrations were adjacent to a seep area along the western shore of the pond. VOCs detected along the western shoreline were 1,2-DCE, vinyl chloride, 1,1,1-TCA, TCE, 1,1,-DCA, methylene chloride, acetone, and toluene.

VOCs and PCBs were detected at low concentrations in surface water samples collected downstream of the South Pond. VOCs detected were 1,2-DCE (1 to 4 ug/l), methylene chloride (0.9 to 8 ug/l), and carbon disulfide (10 to 12 ug/l). PCB concentrations ranged from 0.14 ug/l to 0.42 ug/l. PCBs were not detected in samples beyond approximately 2,600 ft downstream of the South Pond.

Low concentrations of TCE (4 ug/l) and 1,2-DCE (1 ug/l) were detected in surface water samples from the North Pond. PCB concentrations in samples from the North Pond ranged from non-detect to 0.3 ug/l. A sample collected from a small pond located between the North Pond and South Pond contained TCE at 9 ug/l, but did not contain PCBs.

2.3.6 Sediments

VOCs and PCBs were detected in the South Pond sediments (O'Brien & Gere, 1995 and 1996). Prior to the excavation of approximately 2,200 cubic yards of sediment during a 1994 removal action, total VOC concentrations in the South Pond sediments ranged from 0.013 mg/kg

to 4.96 mg/kg. The most prevalent VOCs were 1,2-DCE and toluene; however, low concentrations of methylene chloride, acetone, 2-butanone, xylene, ethylbenzene, chlorobenzene, 1,1,-DCE, 1,1,1-TCA, TCE, chloromethane, carbon disulfide, and vinyl chloride were also detected. PCB concentrations ranged from less than 0.6 mg/kg to 1,300 mg/kg. The highest concentrations of PCBs prior to the 1994 removal action were detected in sediments along the western shoreline of the South Pond downgradient of the former waste oil disposal pit. The pre-design sampling results indicated a maximum PCB concentration of 70 mg/kg, including some exceedances of the 1 mg/kg PCB sediment cleanup goal presented in the Record of Decision in the prior sediment removal area. The results indicated that PCBs exceeding the 1 mg/kg cleanup goal were generally limited to the top one ft of pond sediment.

PCBs were also detected in sediments from Herrick Hollow Creek, the ponds, and the floodplain located downstream of the South Pond. PCB concentrations in the stream channel sediments ranged from 0.33 mg/kg to 180 mg/kg. Concentrations in the pond sediments ranged from 0.048 mg/kg to 150 mg/kg and concentrations in the flood plain sediments ranged from 0.066 mg/kg to 49 mg/kg. The results indicated that PCBs exceeding the 1 mg/kg cleanup goal were limited to the top six inches of floodplain sediment. PCBs exceeding 1 mg/kg were not detected beyond approximately 3,600 ft downstream of the South Pond. With the exception of chloromethane in one sample, VOCs were not detected in sediments downstream of the South Pond.

Sediments collected from the North Pond contained low concentrations of methylene chloride, carbon disulfide, toluene, and xylenes. PCBs were detected in only one sample, at a concentration of 0.37 mg/kg which was below the 1 mg/kg cleanup PCB goal.

2.4 CULTURAL RESOURCE INVESTIGATION

Phase 1 cultural resource surveys were initially conducted at the RHRL site by the Public Archaeology Facility (PAF) of the State University of New York at Binghamton in 1991 and 1992 (PAF, 1991; PAF, 1992, respectively). The reports were updated and submitted to the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) in 2001 for review. NYSOPRHP subsequently determined that the surveys did not address the entire project area, namely, the North Area, South Pond, Herrick Hollow Creek downstream of the South Pond, and between Herrick Hollow Creek and Richardson Hill Road. An additional Phase 1 cultural resource survey was conducted for these areas by PAF in September and October 2001. The additional Phase 1 cultural resource survey found seven prehistoric sites, named Herrick Hollow I thru VII (HHI thru HHVII), within the work area (PAF, 2001). The additional Phase 1 report was submitted to NYSOPRHP and USEPA for review. The agencies determined that Phase 2 cultural resource surveys would be required if it was not possible to avoid disturbing the sites, including a surrounding 50-ft buffer zone.

Phase 2 surveys were conducted by PAF between December 2001 and Fall 2002 since disturbance of the sites during remediation could not be avoided. Based on the results of those surveys, NYSOPRHP and USEPA determined that the sites were eligible collectively as a prehistoric district for inclusion on the National Register of Historic Places and that Phase 3 data recovery investigations were required prior to disturbance.

The Phase 3 data recovery investigations were conducted by PAF for each Herrick Hollow Creek site between July 2002 and April 2003. Disturbance (remediation) of each site was allowed upon completion of the Phase 3 field work at each site. PAF prepared a consolidated report for the Phase 3 Data Recovery which was submitted to NYSOPRHP and USEPA in July 2005 (PAF, 2005).

An additional Phase 1 cultural resource survey was also conducted in 2003 for the downstream portion of Herrick Hollow Creek which had been added to the remediation. No cultural resources were discovered; therefore, no additional cultural resource work was required prior to disturbance of the downstream portion of Herrick Hollow Creek (PAF, 2003).

2.5 REMEDY SUMMARY

2.5.1 Remedial Objectives/Selected Remedy

Based on results of the RI, FS, and public comments, the USEPA issued a ROD on September 30, 1997 and a Consent Decree, effective February 16, 1999. The objectives of the remediation at the RHRL site, as stated in the Consent Decree, were to:

- Reduce or eliminate contaminant leaching to groundwater;
- Control surface water runoff and erosion;
- Mitigate the migration of contaminated groundwater;
- Restore groundwater quality to levels which meet state and federal drinking water standards;
- Prevent human contact with contaminated soils, sediments and groundwater; and
- Minimize exposure of fish and wildlife to contaminants in surface water, sediments and soils (USEPA, 1999).

Components of Remedial Work Element II of the selected remedy include a groundwater treatment plant to treat extracted groundwater from both an extraction trench in the South Area east of the landfill and a network of recovery wells in the North Area, and associated operation and maintenance activities. These components are described in greater detail in the Interim Remedial Action Report for Remedial Work Element II (Parsons, 2007a).

Components of Remedial Work Element I of the selected remedy as presented in the Statement of Work attached to the Consent Decree included:

- In the area to be capped (primarily, in the vicinity of the former waste oil disposal pit), soil with PCB concentrations which equal or exceed 500 milligrams per kilogram (mg/kg) will be excavated and sent off-site for treatment/disposal at a Toxic Substance Control Act (TSCA)-compliant facility with such PCB concentrations determined based upon pre-design sampling of soil;
- Excavation of contaminated waste materials and soil exceeding New York State Department of Environmental Conservation's (NYSDEC's) Soil Cleanup Objectives

in the North and South Areas (other than the landfill). Clean fill will be used as backfill in the excavated areas;

- Excavation and/or dredging of sediments exceeding 1 mg/kg PCB from South Pond and all areas downstream for approximately 2,400 ft. Any wetlands impacted by remedial activities will be fully restored. The need for remediation in areas further downstream will be evaluated based on an assessment of sediment concentrations and biological receptors (i.e., fish tissue concentrations over the 5-year time period subsequent to the completion of upstream remediation activities). Further remediation may be required in the downstream areas if it is determined through monitoring that the remedial activities conducted upstream were not effective in addressing the ecological risk. All excavated/dredged sediments will be dewatered, as necessary.
- Installation of an outlet control/sediment trap downgradient of the South Pond to minimize migration of contaminated sediment further downstream from the main beaver pond (The trap was completed pursuant to (UAO), Index Number II CERCLA-93-0217 and removed upon completion of sediment removal);
- All excavated/dredged waste materials, soils, and sediments will be subjected to appropriate Resource Conservation and Recovery Act ("RCRA") hazardous waste characteristic testing. Those waste materials, soils, and sediments that do not pass the RCRA characteristic testing will be sent offsite for treatment/disposal at a RCRA-compliant facility (or a TSCA-compliant facility, if applicable). Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations which equal or exceed 500 mg/kg will be sent offsite for treatment/ disposal at a TSCA-compliant facility. Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations less than 50 mg/kg will be consolidated on the onsite landfill; those with PCB concentrations between 50 and 500 mg/kg will be placed in the TSCA-compliant landfill to be constructed adjacent to the existing landfill;
- Following the consolidation of the excavated/dredged waste materials, soils, and sediments with PCB concentrations less than 50 mg/kg onto the existing landfill, a low permeability cover system meeting the requirements of 6 NYCRR Part 360 or equivalent closure cap will be constructed;
- Construction of a chain-link fence around the landfill;
- Regrading and stormwater management improvements at the landfill;
- Secure institutional controls (i.e., the placement of restrictions on the future use of the Site in order to protect the integrity of the new TSCA-compliant landfill and the cover system on the existing landfill (The securing of institutional controls with respect to that portion of the Site that is owned by the Owner Settling Defendants is the responsibility of the Owner Settling Defendants);
- Continued maintenance of residential water treatment systems;
- Long-term maintenance of the new TSCA-compliant landfill and the cover system on the existing landfill;

- Long-term monitoring of surface water, fish, sediments, and selected residential wells; and
- Performance of a wetland mitigation plan and revision of the cultural resources survey.

2.5.2 Remedial Design

A summary of the primary components of Remedial Work Element I, as presented in Section 3 of the Final (100%) Remedial Design Report (Parsons, 2002), is presented below. Also presented are primary clarifications and field adjustments to the design that occurred during construction. These clarifications and field adjustments were documented in Field Change Orders and Field Memos. Field Change Orders (FCOs) and Field Memos pertinent to Remedial Work Element I are included in Appendix A. In the subsections below, each summary of the design component is followed by a summary of the constructed component, in italics, for comparative purposes.

2.5.2.1 Site Security

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate that:

- Installation of a permanent perimeter site fence was completed as part of the Pre-Design Investigation to limit site access. *As shown on Record Drawing C-7 and as discussed in Section 3, the landfill perimeter fence that was installed during pre-design activities was repaired and/or replaced as part of cap completion activities.*

2.5.2.2 Erosion And Sediment Control

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate the following regarding permanent erosion and sediment control features:

- Permanent E&SC measures would consist of rip-rap channels and culverts. *As shown on Record Drawings C-1 & C-2 (1 of 2), C-7, C-10, and C-11 and as discussed in Section 3, permanent E&SC measures included rip-rap channels and culverts. The referenced record drawings also show installed sediment control traps, swales, and cap drainage benches, which are further discussed in Section 3.*

2.5.2.3 TSCA Cell

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate that:

- A TSCA cell would be constructed on the landfill in conformance with 40 CFR 761.75 to hold sediment and soil with PCB concentrations between 50 and 500 mg/kg. The bottom liner system of the TSCA cell would consist of the following components from bottom up:
  - A geotextile fabric to provide a gas venting layer and protect the geomembrane;
  - A 40-mil linear low-density polyethylene (LLDPE) textured geomembrane (secondary liner);

- A geocomposite drainage layer with secondary leachate collection piping;
- A 40-mil LLDPE textured geomembrane (primary liner); and
- A geocomposite drainage layer with primary leachate collection piping.

As shown on Record Drawings C-6 and C-10 and as discussed in Section 3, a TSCA cell with this bottom liner system was constructed on the landfill.

- Primary drainage from the TSCA cell would be channeled through the geocomposite drainage layer to slotted pipe to a sump located adjacent to the access road. If the primary liner were to leak, leachate would be collected by the secondary geocomposite drainage layer and flow through slotted pipe to a separate sump also located adjacent to the access road. *As shown on Record Drawing C-7 and as discussed in Section 3, the TSCA cell drainage system was constructed with these components.*
- The cap for the TSCA cell would be a 6 NYCRR Part 360 cap consistent with the landfill cap. *As shown on Record Drawings C-7 and C-10, the cap constructed in accordance with 6 NYCRR Part 360 over the landfill also capped the TSCA cell.*

2.5.2.4 Remedial Excavations

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate the following actions for each excavation area:

- At the South Area, surface soils with PCB concentrations greater than 1 mg/kg and/or municipal waste would be removed from three areas located outside of the limits of the landfill cap. These areas were designated as Areas L-1 (soil), L-2 (soil), and L-3 (municipal waste). Excavated materials would be relocated to the landfill cap. Confirmatory sampling (i.e., following removals of soil, not municipal waste) of the excavation sides and bottom would be conducted after excavation to assess whether cleanup objectives were met. *As shown on the record drawings and as discussed in Section 3, soils with PCB concentrations higher than 1 mg/kg were excavated and removed from Areas L-1 and L-2, as well as an additional area identified during construction, Area L-5. Confirmatory sampling and restoration was conducted following the removals. As also shown on the record drawings and as discussed in Section 3, municipal waste was removed from Area L-3, as well as from additional areas identified during construction, Areas L-2A and L-4. Restoration was conducted following the removals.*
- At the North Area, waste would be removed from two areas, designated as N-1 and N-2, and relocated to within the limits of the landfill cap. The excavated material would be visually inspected for oil-stained soils, municipal refuse, and monitored for off-gases. Disturbed areas would be restored with 6 inches of topsoil and seeded. *As shown on the record drawings and as discussed in Section 3, municipal waste and soils were removed from Areas N-1 and N-2, as well as an additional area identified during construction, Area N-3. Confirmatory sampling and restoration was conducted following the removals.*
- At the former Waste Oil Pit, located in the main landfill area, soils with PCB concentrations greater than or equal to 500 mg/kg would be excavated and disposed

offsite at a TSCA-compliant facility. Excavated soils with PCB concentrations between 50 mg/kg and 500 mg/kg would be disposed in an onsite TSCA cell to be constructed on the landfill. Soil with PCB concentrations less than 50 mg/kg would be placed within the landfill cap limits. Excavation would be conducted to the depth of soil with known PCB concentrations greater than or equal to 500 mg/kg, followed by confirmatory sampling of the excavation sides and bottom, and additional excavation and confirmatory sampling, as required, to achieve the removal criteria of 500 mg/kg. *As shown on the record drawings and as discussed in Section 3, soils with PCB concentrations greater than 500 mg/kg were excavated and removed from the former waste oil pit. Confirmatory samples collected from the base and sidewalls of the excavation were below 500 mg/kg. Soils with PCB concentrations greater than 500 mg/kg were disposed at a TSCA facility following on-site treatment using ex-situ soil vapor extraction to reduce trichloroethylene concentrations; the remaining excavated soils were placed in the on-site TSCA cell.*

- Soil would be excavated while installing the groundwater extraction trench. The soil to be excavated was anticipated to have concentrations of PCBs less than 50 mg/kg and would be placed within the landfill cap limits. *As discussed in Section 3, soils excavated from the groundwater collection trench were consolidated beneath the landfill cap.*

- At South Pond, sediments exceeding 1 mg/kg PCBs would be removed, stabilized, and placed beneath the cap. Excavated sediment that contained PCB concentrations between 50 mg/kg and 500 mg/kg would be disposed in an onsite TSCA cell to be constructed on the landfill. Sediment with PCB concentrations less than 50 mg/kg would be placed in the main landfill area for capping. Confirmatory sampling would be conducted at the excavation walls, and at the floor of the excavation where hard till was not encountered, to assess whether the 1 mg/kg PCB cleanup objective was achieved. *As shown on the record drawings and as described in Section 3, sediment with PCB concentrations higher than 1 mg/kg were excavated and removed from South Pond. Excavated sediment was stabilized and placed either in the on-site TSCA cell or consolidated within the landfill, depending on PCB concentration.*

- At Herrick Hollow Creek, sediments exceeding 1 mg/kg PCBs would be excavated from the stream channel and floodplain, stabilized, and placed beneath the cap. Once the creek water was diverted, sediment would be excavated to the underlying hard till. Sediment within Segments 14, 15, 17 and 20 was anticipated to have PCB concentrations less than or equal to 50 mg/kg, and would be placed at the landfill and capped. Sediment within Segments 16, 18 and 19 was anticipated to potentially have concentrations of PCBs greater than or equal to 50 mg/kg, and would be stockpiled for testing to determine whether it should be placed in the TSCA cell. Confirmatory sampling would be conducted at the excavation walls and at the floor of the creek where hard till was not encountered, to assess whether the 1 mg/kg PCB cleanup objective was achieved *As shown on the record drawings and as described in Section 3, sediment with PCB concentrations higher than 1 mg/kg were excavated and removed from Herrick Hollow Creek. Excavated sediment was stabilized and placed either in the on-site TSCA cell or consolidated within the landfill, depending on PCB concentration.*

- Approximately 2,000 cy of sediment with PCB concentrations generally greater than 50 ppm but less than 500 ppm was removed from the South Pond during a previous Interim Remedial Measure. This sediment would be moved from the storage areas to the onsite TSCA cell. *As described in Section 3, this material was relocated and placed within the on-site TSCA cell.*

2.5.2.5 Landfill Cap

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate that:

- A landfill cap in conformance with 6NYCRR Part 360 would be installed to cover the landfill and the consolidated soils, sediment, and waste material from the remedial excavations described above. The cap would serve as the cap for the TSCA cell constructed on the former landfill. *As shown on Record Drawings C-6, C-7, and C-10, and as discussed in Section 3, a landfill cap constructed in accordance with 6NYCRR Part 360 was installed to cover the landfill and the consolidated soils, sediment, and waste material from the remedial excavations described above.*
- The maximum landfill slope would be 33 percent, which corresponds to the 6NYCRR Part 360 maximum slope requirement. Existing slopes greater than 33% would be reduced to meet the requirement. Ten-ft wide benches, located a maximum of 25 ft apart vertically, would be installed to increase slope stability and provide drainage. *As shown on Record Drawing C-6 and as discussed in Section 3, a survey of the cap geomembrane surface prior to installation of soils indicated that landfill slopes were less than 33%, with the exception of two areas totaling approximately 0.44 acres. Veneer stability calculations, discussed in Section 3, concluded that these areas had acceptable factors of safety and met the intent of the design. As shown on record drawings C-7 and C-10, seven drainage benches, approximately 10-ft wide, and generally 25 ft vertically apart, were installed on the landfill.*
- As described in FCO #009, the landfill cap would contain the following layers from the top down:
  - A vegetative cover;
  - A minimum of 6 inches of topsoil;
  - A minimum of 24 inches of barrier protection soil;
  - A geocomposite drainage net;
  - A 40-mil LLDPE textured geomembrane; and
  - A geocomposite drainage net.

  As shown on Record Drawing C-10 and as discussed in Section 3, a cap with this cover system was installed at the landfill.
- An access road would be constructed on top of the cap. *As shown on Record Drawing C-7 and as discussed in Section 3, an access road was constructed on top of the cap.*

- Gas vents would be installed (minimum of one gas vent per acre) on the landfill and tied into the geocomposite drainage net, located under the geomembrane, which would serve as the gas venting layer. *As shown on Record Drawings C-7, C-10, and C-11, ten gas vents were installed on the 8-acre landfill. The gas vents were installed in crushed stone, which was in contact with the geocomposite drainage net under the geomembrane.*

2.5.2.6 Wetland Restoration

The Final (100%) Remedial Design Report, related drawings issued for construction, and subsequent workplans and clarifications indicate that:

- Wetland and floodplain areas disturbed by the excavation of sediment would be restored in accordance with the Wetland/Floodplain Mitigation Plan (WMFP). The wetland/floodplain areas to be restored include South Pond (Segment 21) and areas located within the Herrick Hollow Creek floodplain limits (Segments 20 to 14). The wetland/floodplain restoration would reclaim approximately 8.6 acres of a wetland complex with varied habitat cover types including wet meadow, emergent marsh, scrub-shrub, and stream channel habitats. In general, the wetland/floodplain areas disturbed during sediment removal would be restored by completing the following activities:
  - Reconstruct the morphology of Herrick Hollow Creek to replicate the physical and hydrogeomorphic characteristics (e.g., slope, backfill width/depth ratio, and sinuosity) prior to sediment removal, to the extent possible;
  - Backfill excavated areas with clean fill, if necessary, and topsoil to the approximate original grade to provide an adequate growing medium for the wetland seed mixtures;
  - Sow suitable northern climate wetland seed mixture into the topsoil;
  - Plant a cover crop (i.e., winter rye, winter wheat, or annual rye) over the topsoil;
  - Plant clusters of scrub-shrub vegetation along Herrick Hollow Creek;
  - Install biodegradable erosion control fabric or cobble banks at creek meanders to stabilize the creek bank and minimize erosion; and
  - Mulch seeded topsoil with straw to minimize soil erosion and moisture loss immediately following the sowing of seeds and planting of vegetation

  As shown on the Record Drawings and as discussed in Section 3, the Herrick Hollow Creek excavations were backfilled with clean, imported materials. These areas were then seeded and covered with biodegradable erosion control matting staked in place. Willow whips were also planted. Cobbles and coir logs were placed in some stretches of the creek alignment in 2004 with subsequent repairs and enhancements. The floodplain has generally re-vegetated with grasses and other plants despite intense and long-duration storms in late 2004, 2005, and 2006. Parsons understands that creek restoration and additional plantings to enhance wildlife habitat are being completed by others and they will issue a completion report for these activities at a later date.

SECTION 3

CONSTRUCTION ACTIVITIES

3.1 INTRODUCTION

The construction of Remedial Work Element I was performed by two prime contractors: Shaw and DA Collins.

Shaw completed the remedial excavations, off-site disposal of certain soil and sediment, and the consolidation of remaining soils and sediment either within the TSCA cell or at the location of the cap. Shaw also initiated construction of the cap and associated storm water control features. Shaw procured and managed the following first tier subcontractors to perform the work:

Chenango Contracting – Geomembrane and Geocomposite Installation: Chenango provided and installed geosynthetic materials for the cap.

B&B Hi-Tech Solutions – B&B performed site surveying during construction.

DA Collins completed construction of the cap and associated stormwater control features. DA Collins procured and managed the following first tier subcontractors to perform the work:

Antana Linings – Geomembrane and Geocomposite Installation. Antana provided and installed geosynthetic materials for the cap.

Anvil Fence – Anvil Fence repaired and replaced sections of cap perimeter fence.

Lawson Surveying and Mapping – Lawson Surveying and Mapping performed site surveying during construction.

A narrative description of the construction activities undertaken for the remedial action, including relevant QA/QC data, is presented in the subsections below. Record Drawings are provided in Appendix B; photographs are provided in Appendix C.

3.2 SITE PREPARATION

3.2.1 Temporary Facilities

The two temporary field trailers with utility services set up in the North Area during construction of the Remedial Work Element II were utilized during construction of Remedial Work Element I. The trailers and utility services were transferred from SAMCO, the GWTP contractor, to Shaw, and then to DA Collins. The contractors utilized one trailer while USEPA and EarthTech utilized the other. Honeywell, Amphenol and Parsons continued use of the existing house at the North Area as a field office. The trailers and house were each equipped with electric, phone/fax/computer service, bottled water, and a copier. The house was also

equipped with permanent heat (oil furnace and wood stove). Two existing sheds, one each in the North Area and main landfill, were used for equipment and material storage.

3.2.2 Clearing and Grubbing

Shaw cleared and grubbed areas of the site that contained trees or brush in preparation for construction. These areas included the landfill; drainage ditch locations; remedial excavation areas L-1 through L-5 and N-1 through N-3; the parking/laydown area southwest of South Pond; and along Herrick Hollow Creek including both the excavation area and the adjacent access road. Cleared materials from contaminated areas were transported to and stockpiled in the landfill area. Cleared materials from non-contaminated areas were transported to and stockpiled in the upper field of the former Spizirri property. Trees and brush stored at both areas were then chipped. Stumps stored at both areas were ground. The chipped and ground material was later used for temporary access roads in the landfill area and the South Pond and eventually disposed of within the cap area.

3.2.3 Erosion and Sedimentation Controls

In June 2003, Shaw prepared a Site Operations Plan (SOP) for Soil Erosion and Sediment Controls (Shaw, 2003). The SOP included a number of practices and temporary features to reduce erosion and transport of sediment, including:

- The installation of silt fencing and stone check dams;
- The construction drainage channels and berms;
- The installation of rip-rap; and
- The construction of decontamination pads and tire washes.

In August 2005, O'Brien & Gere, under subcontract to Parsons, prepared a Storm Water Pollution Prevention Plan (SWPPP) (O'Brien & Gere, 2005) for the completion of the landfill cap (i.e., work to be performed by DA Collins). DA Collins included implementation of SWPPP in the 2005 Remedial Action Work Plan (DA Collins, 2005). The SWPPP included a number of practices and temporary features to reduce erosion and transport of sediment, including the maintenance of previously installed items as well as the installation of the following:

- The further stabilization of laydown / staging areas;
- The installation of additional check dams;
- The installation of additional rip-rap;
- The installation of sediment traps (2) where culverts carrying landfill runoff discharge to South Pond / Herrick Hollow Creek; and
- The installation of culverts (2) beneath Richardson Hill Road to carry landfill run-on separately to South Pond / Herrick Hollow Creek.

During construction, periodic inspections of the site were conducted and actions taken to mitigate erosion. Record Drawing C-1 & C-2 (1 of 2) indicates the location and configuration of sediment and erosion control features at and in the vicinity of the landfill cap, including stormwater run-on and run-off control structures, rip-rap features, and sediment traps. These features are consistent with the remedial design and the SWPPP (O'Brien & Gere, 2005).

3.3 TSCA CELL

A TSCA cell was constructed onsite pursuant to 40 CFR 761.75 to contain excavated sediment and soil with PCB concentrations between 50 and 500 mg/kg. The TSCA cell was constructed within the capped area of the landfill, as shown on Record Drawing C-6, in the same vicinity of former sediment storage areas #1 and 2. The sediment storage areas were constructed during the 1994 Interim Remedial Measure (IRM) to hold PCB-contaminated sediment removed from the South Pond.

To construct the TSCA cell, sediment from storage area #1 and the north end of storage area #2 was first relocated to the south end of storage area #2. Then the TSCA cell area was rough graded to provide drainage toward a low point. Observed surface metal debris that could potentially puncture the geomembrane was removed and offsite clean fill subbase was then placed and compacted over the subgrade. The clean fill was also used to construct a perimeter berm. Documentation for the subbase fill is included in Appendix G. A survey of the completed subgrade is shown on Record Drawing C-6. A bottom double-liner system consisting of the following components from the bottom up was then installed:

- A non-woven geotextile fabric to underlie the geomembrane;
- A secondary liner consisting of a 40-mil linear low-density polyethylene (LLDPE) textured geomembrane;
- A secondary drainage/leak detection layer consisting of a geosythetic drainage composite (GDC) with a secondary (leak) leachate collection system. The secondary leachate collection system, which was installed along the downhill (east) side of the TSCA cell, consisted of a 6-inch diameter perforated HDPE underdrain pipe embedded in #2 crushed stone, both of which were enclosed in a non-woven geotextile fabric. A solid HDPE pipe was extended through the secondary liner to an HDPE collection sump;
- A primary liner consisting of a 40-mil LLDPE textured geomembrane; and
- A primary drainage layer consisting of GDC with primary leachate collection system. The primary leachate collection system, which was installed along the downhill (east) side of the TSCA cell, consisted of a 6-inch diameter perforated HDPE underdrain pipe embedded in #2 crushed stone, both of which were enclosed in a non-woven geotextile fabric. A solid HDPE pipe was extended through the primary liner to a concrete collection sump.

The primary and secondary liners were both textured 40-mil linear low density polyethylene (LLDPE) geomembrane manufactured by Poly Flex, Inc of Grand Prairie Texas in accordance with Geosynthetic Research Institute (GRI) GM-17. The geomembranes were installed by

Chenango Construction (Chenango) under contract to Shaw in 2003. Documentation for the TSCA cell GDC and geomembrane is included in Appendix G.

Prior to placing the geomembrane, Chenango inspected the subgrade and issued certificates of subgrade acceptance which are included in Appendix G. The geomembrane panels were placed parallel to (down) the landfill slopes using a hydraulic forklift equipped with a spreader bar. Individual geomembrane panels were cut from rolls and assigned sequential panel numbers as they were placed. Adjacent panels were overlapped a minimum of 4 inches to provide sufficient material for seaming the panels together. The edges of each panel were wiped clean of dirt and dust prior to welding with a dual-wedge fusion welding machine. Individual roll and panel numbers were recorded on a panel placement log. The panel placement log and panel layout drawings are included in Appendix G.

Prior to starting geomembrane welding, trial welds were performed to assess whether the field conditions and seaming techniques were adequate to meet the seaming requirements. Seaming of the geomembrane panels was begun after obtaining passing results for the trial weld. The results of trial welds are included in Appendix G.

Destructive samples were collected from finished seams. Destructive samples were cut into three pieces: one for field testing, one for testing at an independent laboratory, and one for archiving. The field and laboratory samples were tested for peel and shear strength. The results of the destructive seam testing are summarized in Table 3.1 and are included in Appendix G. The results indicate that the seams met the design requirements.

Non-destructive testing was performed on fusion-welded seams by pressurizing the channel created by the dual hot-wedge welder to approximately 30 pounds per square inch (psi). The pressure was allowed to equilibrate for 2 minutes and the pressure drop recorded over the next 5 minutes. A pressure drop of less than 4 psi was considered acceptable. Seams not meeting this pressure criterion were investigated by segmented testing to locate defects, which were then repaired. Non-destructive test results are included in Appendix G.

Direct shear testing to determine the interface friction angle between the bottom TSCA cell materials (geomembrane and the underlying/overlying GDC) was not conducted as described in FCO #002.

Repairs to the geomembrane were made using extrusion welding. Repair panels were placed at seam "T" intersections, at destructive sample locations, and over imperfections in the geomembrane. Repairs consisted of a patch of geomembrane placed over the area to be repaired and extrusion welding along its perimeter. Repairs were then air lanced and vacuum tested for leaks. Repair logs are included in Appendix G.

Penetrations through the geomembrane, such as the pipes to the manholes, were sealed using 40-mil LLDPE geomembrane boots. The boots were extrusion welded to the geomembrane and air lanced and vacuum tested for leaks. The boots were sealed to pipes with a stainless steel band and sealant between the penetration and geomembrane. Boot penetration repair logs are included in Appendix G.

Soil/sediment was initially placed into the TSCA cell with an extended reach backhoe to reduce the potential for damage to the TSCA cell liners. After approximately 2 ft of soil/sediment was placed over the primary liner/geocomposite drainage layer, the soil/sediment was graded using a bulldozer and compacted with a smooth drum roller. As the soil/sediment was placed, it was covered with Formula 480 liquid clay, a spray-on temporary cover, to minimize the generation of construction water caused by precipitation contacting the contaminated soil/sediment. Additionally, the TSCA cell was covered with a temporary liner during the 2003-2004 winter shutdown period. When work continued in 2004, additional soil/sediment was placed in the TSCA cell and the TSCA cell was covered with the permanent cap geomembrane.

As further described in Section 3.6 and as shown on Record Drawing C-7, the 6NYCRR Part 360 cap installed over the landfill also serves as the cap over the TSCA cell. As shown on the drawing, the TSCA cell collection sumps were installed adjacent to the landfill access road to provide access for inspection, maintenance and removal of leachate, if required.

3.4 EXCAVATION AND REMOVAL OF SOIL AND WASTE

3.4.1 Overview

This section describes the excavations and removals of soil and waste that were performed pursuant to the remedial design and to address conditions encountered during the remedial construction. The areas from which soil and waste were excavated and removed are shown on the Record Drawings and are in three general locations:

- Areas L-1 through L-5, which are located in the immediate vicinity of the landfill;
- Areas N-1 through N-3, which are located in the North Area of the site; and
- The waste oil pit, which is located within the landfill.

A description of the removals for each of these areas follows below. Also described in this section is the pre-characterization and placement within the landfill of soil excavated from the groundwater collection trench.

Surveyor estimates of the volumes of soil and waste removed from each area are included in Appendix E; a summary of volumes of soil and waste removed from each area is presented on Table 3.2.

Following the soil removals, confirmatory soil samples were collected and analyzed for PCBs, using either field test kits (immunoassay kits) or laboratory analysis (USEPA Method 8082). A description of the field test kits used with a summary of QA/QC checks conducted is presented in Appendix F. Field test kit and laboratory data sheets are included in Appendix F; a summary of confirmatory results is presented on Table 3.3. Also included in Appendix F are drawings showing confirmatory sample locations.

As described below, certain excavations were backfilled with fill supplied by Clarke Industries of Sidney, NY. Documentation concerning the material provided is included in Appendix G. The reports indicate that PCBs were not detected in samples of the fill at the

indicated detection limits. As also described below, some excavations were restored with topsoil. Documentation concerning the topsoil provided is included in Appendix G. The reports indicate that PCBs were not detected in samples of the topsoil at the indicated detection limits.

3.4.2 Areas L-1 through L-5

The design required the excavation of three areas outside the limits of the landfill cap that contained either soils with PCB concentrations greater than 1 mg/kg (i.e., Areas L-1 and L-2) or municipal waste (i.e, Area L-3). During remediation, three additional areas (Areas L-2A, L-4, and L-5) were discovered that required excavation. These areas are further discussed below.

Area L-1 (PCBs in Soils): On June 13, 2003, approximately 8 cy of soil was removed from Area L-1 and consolidated within the landfill. On June 13, 2003, a confirmatory sample was collected; as shown on Table 3.3, the confirmatory sample result was below 1 mg/kg (i.e., 0.19 mg/kg). On June 25, 2003, Area L-1 was backfilled with material supplied by Clarke Industries of Sidney, NY.

Area L-2 (PCBs in Soils): On May 27, 2003 approximately 7 cy of soil was removed from Area L-2 and consolidated within the landfill. Following excavation, a confirmatory sample was collected for laboratory analyses; as shown on Table 3.3, the results exceeded 1 mg/kg. On June 26, 2003, an additional approximate 17 cy of soil was removed and consolidated within the landfill. Following excavation, a confirmatory sample (composite of four sidewall samples and bottom sample) was collected for laboratory analyses; as shown on Table 3.3, the confirmatory sample result was below 1 mg/kg (i.e., 0.55 mg/kg). On October 7, 2003, Area L-2 was backfilled with material supplied by Clarke Industries of Sidney, NY.

Area L-2A (Municipal Waste): Municipal waste was encountered in Area L-2A on May 13, 2003, during the excavation of a swale at the north end of the landfill. Between May 15, 2003 and June 2, 2003, approximately 1,096 cy of municipal waste was removed from Area L-2A and consolidated within the landfill. Consistent with the CQA Plan (Parsons, 2002) regarding relocation of municipal waste, no confirmatory samples were collected following the removal. Following removal, Area L-2A was graded and seeded.

Area L-3 (Municipal Waste): Between May 13, 2003 and May 23, 2003, approximately 893 cy of municipal waste was removed from Area L-3 and consolidated within the landfill. Consistent with the CQA Plan (Parsons, 2002) regarding relocation of municipal waste, no confirmatory samples were collected following the removal. Following removal, Area L-3 was graded and seeded.

Area L-4 (Municipal Waste and PCBs in Soil): During preparatory work for the groundwater extraction trench, municipal waste was encountered at the toe of the landfill and beneath Richardson Hill Road. This municipal waste was determined to be potentially destabilizing to the groundwater extraction trench construction, and was excavated pursuant to FCO #005. Between September 8, 2003 and September 9, 2003, approximately 1048 cy of municipal waste and soil was excavated from Area L-4 and consolidated within the landfill; stained soils were placed in the TSCA cell. On September 9, 2003, two soil

samples were collected from the north wall of the excavation and analyzed used a field test kit. As shown on Table 3.3, sample results were non-detect (i.e., LT 0.5 mg/kg).

Following the removal of municipal waste and soils, Area L-4 was restored pursuant to FCO #005. During the period September 11, 2003 to October 8, 2003, the excavation was backfilled with compacted structural material supplied by Clarke Industries of Sidney, NY. Following placement of backfill, approximately 1 ft of NYSDOT Type 4 material was placed and compacted, overlaid by No. 3 stone as a working surface. Compaction reports are included in Appendix G**.** Richardson Hill Road was subsequently paved in 2005 by DA Collins.

Area L-5 (PCBs in Soil): Area L-5 is located west of the north access road, opposite Areas L-2 and L-2A. As shown on Table 3.3, soil samples were collected from Area L-5 on July 14, 2003 and analyzed for PCBs; field test kit sample results ranged from non-detect to 3.06 mg/kg, which was above 1 mg/kg. On October 31, 2003, approximately 373 cy of soil was removed from Area L-5 and consolidated within the landfill. Confirmatory samples were collected following the excavation. As shown on Table 3.3, the field test kit sample results were below 1 mg/kg.

Subsequent to this initial removal, soils excavated from the waste oil pit were stockpiled and treated at Area L-5 using soil vapor extraction (SVE). Removals and testing completed at L-5 following SVE are described in Section 3.4.4. Area L-5 was also used to stockpile soils excavated to construct the cap anchor trench and toe-drain. On September 7, 2005, these soils were excavated and consolidated within the cap and three confirmatory soil samples were collected from the area and submitted for laboratory analyses. As shown on Table 3.3, one of the three sample results exceeded 1 mg/kg PCBs. On June 13, 2006, approximately 1 ft of soil was removed from Area L-5 and consolidated within the landfill. On June 20, 2006, three confirmatory samples (each a composite of five grab samples collected from the four corners and center of the base of three polygons established on a grid) were collected and submitted for laboratory analyses; as shown on Table 3.3, all sample results were below 1 mg/kg. Between September 27 and 29, 2006, Area L-5 was covered with geotextile and light stone as a permanent restoration to minimize the potential for erosion in this shaded area.

3.4.3 North Areas (N-1 thru N-3)

The design required the excavation of two areas adjacent to and partially in the North Pond that contained municipal waste (Areas N-1 and N-2). Prior to beginning excavations, the North Pond was partially dewatered by pumping the water over the beaver dam at the outlet. Once the water level was below the elevation of the waste, the waste was excavated, placed within the landfill area, and compacted. During remediation, one additional area containing municipal waste, Area N-3, was encountered adjacent to and east of Areas N-1 and N-2, and was excavated. As further described below, following excavation, grids (approximately 25 ft X 50 ft) were established in each Area and soil samples were collected for confirmatory analyses. Each sample consisted of a composite of five grab samples collected from the corners and center of the

base of each polygon on the grid. Composite sidewall samples were also collected. Areas N-1 through N-3 are further discussed below.

Area N-1: Excavations were initiated at Area N-1 on September 20, 2004. Following the initial excavation, confirmatory samples were collected for analyses for PCBs using field test kits. One sample was also submitted for laboratory analyses. As shown on Table 3.3, the confirmatory sample results were below 1 mg/kg, with the exception of the sample collected at location W-4. Additional excavation followed by confirmatory sampling was conducted at this location on September 22, 2004. As shown on Table 3.3, the field test kit confirmatory result at location W-4 was below 1 mg/kg, and excavation at Area N-1 was considered complete.

Area N-2: Excavations were initiated at Area N-2 on September 14, 2004. Following the initial excavation, confirmatory samples were collected for analysis for PCBs using field test kits. One sample was also submitted for laboratory analyses. As shown on Table 3.3, the confirmatory sample results were below 1 mg/kg, with the exception of samples collected at locations B-6 and B-8. Additional excavation followed by confirmatory sampling by was conducted at these locations on September 16, 2004. As shown on Table 3.3, the field test kit confirmatory result at location B-6 was below 1 mg/kg, while the both the field test kit and laboratory result at B-8 was above 1 mg/kg. Additional excavation followed by confirmatory sampling was conducted at location B-8 on September 20, 2004. As shown on Table 3.3, the field test kit confirmatory result was below 1 mg/kg, and excavation at Area N-2 was considered complete.

Area N-3: Area N-3 is contiguous to Areas N-1 and N-2, and was designated as a separate area on September 22, 2004. Excavations at Area N-3 were completed on September 23, 2004. Confirmatory samples (field test kit and laboratory) were collected on September 22 and 23, 2004; as shown on Table 3.3, the results were below 1 mg/kg.

A total of approximately 3,103 cy of soil and municipal waste was excavated from Areas N-1, N-2, and N-3. Between September 30 and October 5, 2004, Areas N-1, N-2 and N-3 were backfilled and graded, and then covered with topsoil and seeded. Backfill material was from the groundwater extraction trench work platform. This material had been supplied by Clarke Industries of Sidney, NY.

3.4.4 Waste Oil Pit

The former waste oil disposal pit was located within the landfill. The design required that soils at the former waste oil disposal pit with PCB concentrations greater than or equal to 500 mg/kg be excavated and removed. Between October 22 and October 28, 2003, a total of approximately 805 cy of soil mixed with municipal waste was excavated and stockpiled for characterization. Confirmatory samples were collected from the base and sidewalls of the excavation for laboratory analysis; as shown on Table 3.3, laboratory results ranged from 14 mg/kg to 290 mg/kg and were below the excavation criteria of 500 mg/kg. Following receipt of confirmatory data, the waste oil pit excavation was backfilled on November 1, 2003.

The excavated soil/waste was staged in nine stockpiles. The stockpiles were placed south of the waste oil pit on a liner and were covered with a liner at the end of each workday. On October 28, 2003, soil samples were collected from the stockpiles for laboratory analyses for PCBs for waste disposal characterization. Analytical data is included in Appendix E. As shown on Table 3.3, the samples representing stockpiles #1, 2, 2A, 4 and 5 had PCB concentrations between 71 mg/kg and 200 mg/kg, and this material was placed within the onsite TSCA cell between November 4 and November 7, 2003.

The samples representing stockpiles #3, 6, 7 and 8 had PCB concentrations greater than 500 mg/kg, and the associated soils could not be placed in the on-site TSCA cell. Stockpiles #3, 6, 7 and 8 were then consolidated into single stockpile and samples were collected on November 5, 2003 for laboratory analyses for off-site disposal characterization purposes. As shown in Appendix E, TCLP results for TCE were 2.2 mg/L, indicating that the soil was a characteristic hazardous waste. Additional samples of the material collected on November 17, 2003 also had TCE concentrations greater than 60 mg/kg, as shown in Appendix E. The concentration of TCE in the soil was also greater than 60 mg/kg (TCE treatment standard in soil, under Land Disposal Regulations) which precluded off-site landfilling of the soil/waste without prior treatment. Off-site incineration for this material was considered; however, high treatment and transportation costs warranted further alternative evaluation. On-site ex situ soil vapor extraction (SVE) to reduce the TCE concentration followed by off-site landfilling at a TSCA faculty was identified as the preferred method to manage this material.

Between December 9 and December 12, 2003, the soil/waste that exceeded 60 mg/kg TCE was relocated to Area L-5 for SVE treatment prior to offsite disposal. A work plan describing the SVE treatment system was submitted to USEPA on January 8, 2004 and approved by USEPA on January 15, 2004; figures from the work plan illustrating key system components are included in Appendix E. Fabrication and installation of the SVE system began in March 2004. The treatment cell measured approximately 40 ft wide by 80 ft long by 4 ft high and was constructed of two seamless 18-mil reinforced liners (one each top and bottom). Perforated PVC piping was installed within the cell to serve as air inlet and collection pipes. Four air intake pipes, one at each quadrant of the treatment cell, were installed in the soil/waste at a depth of approximately 1 ft below the top liner. Seven collection pipes were installed in the soil/waste approximately 1 ft above the bottom liner to draw air though the soil/waste. The top and bottom liners were tied together, and clean soil was placed on top to weigh the liner edges down. SVE equipment included a knock-out tank, a regenerative blower, a diesel generator, granular activated carbon (GAC) tanks, and associated piping and sampling ports.

The system was operated from March 15 to July 21, 2004. A summary of system operational data is presented on Table 3.4. Operation of the system was checked weekly during which repairs, refueling, draining of water, air flow measurements, adjustments, and carbon unit replacement were performed. During operation, VOC concentrations were measured at three locations in the system: (1) influent air before the first GAC unit; (2) after the first GAC unit; and (3) after the second GAC unit. Samples were collected using a 1.5 cfm vacuum pump and a Tedlar bag. A PID was then used to assess VOC concentrations in the samples. After approximately four months operation, and based on declining VOC concentrations in air extracted from the stockpile, on July 13, 2004, a composite soil sample was collected from the

soil/waste. The composite sample was collected utilizing a hand auger inserted through small openings placed in the top liner and submitted for laboratory analyses for VOCs, TCLP metals and PCBs to assess whether the soils were below the required disposal limits (60 mg/kg TCE) and to pre-characterize the soil/waste for disposal. The analytical results, included in Appendix E, indicated that the TCE concentration in the composite sample was below 60 mg/kg. Based on these results, the system was shut down on July 21, 2004.

Between September 30, 2004 and October 8, 2004, the material was loaded for off-site disposal at a TSCA facility. Prior to loading the soil/waste, trucks provided by Horwith Trucking of Northampton, Pennsylvania were lined with a disposable plastic tarp. The trucks were then loaded, covered with a tarp, and manifested prior to leaving the site. The loaded trucks traveled to the Horwith Trucking facility located in Northampton, PA, where the soil/waste was placed into rail cars for transport to the disposal facilities. As shown on Table 3.5, a total of approximately 882 tons of soil/waste was loaded for disposal. Approximately 785 tons was landfilled at the Clean Harbors Grassy Mountain facility in Clive, Utah and approximately 97 tons was incinerated at the Clean Harbors facility in Aragonite, Utah. The disposal/incineration of the soil/waste at the Aragonite facility was performed because Clean Harbors had loaded two rail cars with additional material from another site that required incineration. Copies of the manifests and certificates of disposal are included in Appendix E.

Following the removal of the stockpiles and treatment equipment, on October 8, 2004, soils at Area L-5 were sampled and tested for PCBs (field test kit and laboratory), and, as shown on Table 3.3, were found to contain PCB concentrations greater than 1 mg/kg. Between October 9 and October 12, 2004, soil was removed from Area L-5 and confirmatory sampling was conducted. As shown on Table 3.3, field test kit sample results from October 12, 2004 were below 1 mg/kg PCBs. On October 20, 2004, Area L-5 was backfilled with material from the groundwater extraction trench work platform. This material had been supplied by Clarke Industries of Sidney, NY.

Three GAC canisters used for the SVE system were sampled and analyzed for PCBs, VOCs, TCLP metals and hazardous characteristics to precharacterize the GAC for disposal. The GAC canisters were determined to be non-hazardous and were disposed by Clean Harbors.

3.4.5 Groundwater Collection Trench Spoils

During construction of the groundwater collection trench, spoils from the trench excavation were relocated from the North and South Trench Spoils Basins and consolidated within the landfill. As described in the Remedial Design, these spoils had been pre-characterized as having PCB concentrations below 50 mg/kg. Following the removal of the spoils, on August 20, 2004, confirmatory soil samples were collected from the floor and sidewalls of the former basins for analyses for PCBs using field test kits. One sample was also submitted for laboratory analyses. As shown on Table 3.3, the confirmatory sample results were below 1 mg/kg. Restoration of the trench spoil basins is described in the Remedial Action Report for Remedial Work Element II.

3.5 EXCAVATION AND REMOVAL OF SEDIMENT

3.5.1 Overview

This section describes the excavations and removals of sediment that were performed pursuant to the remedial design and to address conditions encountered during the remedial construction. The areas from which sediments was excavated and removed are shown on the Record Drawings and are in two general locations:

- South Pond; and
- Herrick Hollow Creek.

A description of the removals for these areas follows below. Also described in this section is the placement within the TSCA cell of sediment excavated from South Pond during a previous Interim Remedial Measure.

Turbidity monitoring was conducted in Herrick Hollow Creek during the sediment removal and during the landfill cap drainage sand removal conducted in 2005 as discussed in Section 3.6.3. Turbidity was measured at the discharge point of the culvert crossing under Richardson Hill Road approximately 100 feet downstream of the sheet pile sediment trap in Herrick Hollow Creek Segment 8. The monitoring was conducted with a Hach TX Pro meter in 2003 and an In-Situ Troll 9000 Professional XP meter in 2004 and 2005. (The Hach meter was replaced after it became inoperable.) Both meters recorded turbidity at one-hour intervals. The data was downloaded, imported into an Excel file and submitted to the Agencies periodically. Additionally, turbidity monitoring results and control were discussed during the weekly project meeting. When turbidity readings exceeded 50 Nephelometric Turbidity Units (NTUs) above background, the cause of the exceedance was investigated, included in the turbidity report, and additional erosion control measures, such as additional silt fences, were employed as required. Copies of the turbidity meter downloads are included in Appendix E.

Surveyor estimates of the volume of sediment removed from each area are included in Appendix E; a summary of volumes of sediment removed from each area is presented on Table 3.2.

Following the removals, confirmatory sediment samples were collected and analyzed for PCBs, using either field test kits (immunoassay kits) or laboratory analysis (USEPA Method 8082). A description of the field test kits used with a summary of QA/QC checks conducted is presented in Appendix F; a data usability summary report for the laboratory data is also presented in Appendix F. Field test kit and laboratory data sheets are included in Appendix F; a summary of confirmatory results is presented on Table 3.3. Also included in Appendix F are drawings showing confirmatory sample locations.

As described below, certain excavations were backfilled with fill supplied by Clarke Industries of Sidney, NY. Documentation concerning the material provided is included in Appendix G. The reports indicate that PCBs were not detected in samples of the material at the indicated detection limits. As also described below, portions of the excavations were restored with topsoil. Documentation concerning the topsoil provided is included in Appendix G. The

reports indicate that PCBs were not detected in samples of the topsoil at the indicated detection limits.

3.5.2 Interim Remedial Measures Sediment Stockpile

As described in the Remedial Design (Parsons, 2002), approximately 2000 cy of sediment had been removed from South Pond during a previous Interim Remedial Measure. The material had been stored on and covered with a HDPE liner in two areas on the landfill. PCB concentrations in this material were generally greater than 50 mg/kg but less than 500 mg/kg (Parsons, 2002).

Between July 7, 2003 and July 10, 2003, this material was placed in the on-site TSCA cell. As described in Section 3.3, sediment was initially placed into TSCA cell with an extended reach backhoe to reduce the potential for damage to the TSCA cell liners. After approximately 2 ft of sediment was placed over the temporary liner/geocomposite drainage layer, the sediment was graded using a bulldozer and compacted with a smooth drum roller. Sediment was dried with Portland cement prior to placement as required to allow the placement and compaction.

3.5.3 South Pond

The design required the excavation of sediment exceeding 1 mg/kg PCBs from the South Pond, also referred to as Herrick Hollow Creek Segment #21.

Sediment was excavated from the South Pond prior to excavating sediment downstream in Herrick Hollow Creek, to reduce the potential for re-contamination of excavated areas. Two steel sheetpile sediment trap weir systems installed in Herrick Hollow Creek in 1996 and 1999 were also used during construction to reduce the potential for downstream migration of contaminated sediment during remediation. These traps were located at the outlet of South Pond and approximately 3,500 ft downstream of the South Pond outlet, respectively.

The South Pond was dewatered prior to sediment removal. Initial dewatering was performed via pumping past the sediment trap at the outlet of the pond to a dissipater located in Herrick Hollow Creek, approximately 800 ft downstream of the South Pond. The dissipater was constructed of riprap, hay bales, and geocomposite drainage material to reduce the potential for scour. The pump inlet was installed on a floating raft within the South Pond to position the inlet over deep water and to reduce the uptake of sediment during pumping. As the South Pond water level decreased, the beaver dam on top of the sediment trap and eventually the wooden flashboards in the sediment trap were removed to allow gravity drainage. The pump inlet was later relocated to low areas of the South Pond that would not drain via gravity to remove the water. Dewatering of the South Pond continued throughout the remediation as groundwater and precipitation recharged the water level within the South Pond. Shaw provided and periodically operated a temporary water treatment system to process water from active remedial excavations prior to discharge to Herrick Hollow Creek. Drainage channels and berms were also established along the west, north and east sides of the South Pond to channel clean water away from the active excavation areas and towards Herrick Hollow Creek.

Sediment was initially removed from South Pond during the period June 5, 2003 to December 22, 2003. Sediment excavation within the South Pond began along the west side immediately adjacent to Richardson Hill Road to allow for subsequent construction of the groundwater extraction trench work platform. Excavation then proceeded to the center, east side and, lastly, the north end of the South Pond. The design anticipated excavation of sediment to a hard till layer at a depth ranging from 1 ft to 2.5 ft. However, as described in FCO #004, the South Pond contained a layer of PCB-contaminated peat which was underlain by layer of clay in lieu of hard till. The initial excavation was conducted to this clay layer, within the limits shown on design drawing C-3 (Parsons, 2002).

Excavated sediment was mixed with Portland cement while still in the South Pond to increase stability and meet compaction/deflection requirements during placement in the landfill as described in FCO #004. The amount of Portland cement mixed with the sediment varied depending on the sediment moisture content and was adjusted in the field. Stockpiles of excavated sediment, in both the South Pond and the landfill area, were covered with impermeable sheeting to reduce the contact of precipitation with contaminated materials. Based on sediment analytical results from the pre-design investigation, the majority of the South Pond sediment had PCB concentrations less than 50 mg/kg and was placed in the main landfill area. Sediment and wood associated with the beaver dam and lodges was also removed and placed in the main landfill area. As shown on design drawing C-3 (Parsons, 2002), sediment located in the center of the South Pond immediately east of the former IRM removal area had PCB concentrations greater than or equal to 50 mg/kg and less than 500 mg/kg. This material was placed in the on-site TSCA cell.

Between June 3 and June 30, 2004, South Pond was drained and samples were collected of the excavation floor surface in a grid pattern (approximately 50 ft X 50 ft) and tested for PCBs (field test kits and laboratory). Each sample consisted of a composite of five grab samples collected from the corners and center of the base of each polygon on the grid. As shown on Table 3.3, additional excavation followed by confirmatory sampling was performed in areas that exceeded 1 mg/kg PCBs; this process was repeated until sample results were below 1 mg/kg.

As shown on Table 3.2, the total volume of sediment removed from the South Pond was approximately 14,942 cy, with approximately 13,712 cy having been removed in 2003, and an additional approximate 1,230 cy having been removed in 2004 pursuant to confirmatory sample results.

On November 4, 2004, the sheetpile sediment traps were removed and on November 5, 2004, sediment that had accumulated behind the sheetpiles was excavated and consolidated within the landfill. As shown on Table 3.3, a post-excavation sample collected at a former South Pond sediment trap location was non-detect for PCBs. During the period November 8, 2004 to November 16, 2004, topsoil was placed on disturbed areas outside the pond and on the edge of the pond in the areas where the final water depth would appear likely to allow vegetation growth. The topsoil was seeded with a wetland seed mix. Documentation on the topsoil and seed mix is provided in Appendix G.

3.5.4 Herrick Hollow Creek

The design required the excavation of sediment exceeding 1 mg/kg PCBs from the channel and floodplain of Herrick Hollow Creek Segments #20 through #14. As described in Parsons letter dated January 16, 2003 and the USEPA approval letter dated May 7, 2003, excavation of sediment exceeding 1 mg/kg PCBs from the channel and floodplain of Herrick Hollow Creek Segments # 9 through #13 was incorporated into the remedy in lieu of further assessment of sediment, surface water, and biological receptors in those segments.

Excavation in Herrick Hollow Creek began after the initial South Pond excavation had been completed, and proceeded from upstream to downstream to reduce the potential for re-contamination of excavated areas. As described in Section 3.5.3, the sediment trap approximately 3,500 ft downstream of South Pond was used to minimize the potential for downstream migration of contaminated sediment during remediation. During remediation, water flow within Herrick Hollow Creek was diverted around the excavation areas by damming the upstream flow of water using earthen berms and plastic sheeting and pumping the water around the work zone. Existing roads were used to access Herrick Hollow Creek Segments #20 to #16. A temporary access road was constructed on the west side of Herrick Hollow Creek segments #15 to #9 by clearing, rough grading, and installing riprap and geotextile fabric. The access road connected to Richardson Hill Road at each end to provide a complete loop through the area.

The excavated sediment was loaded directly into trucks and hauled to the landfill area where it was mixed with Portland cement to increase stability and meet compaction/deflection requirements during placement in the landfill as described in FCO #004. The amount of Portland cement mixed with the sediment varied depending on the sediment moisture content and was adjusted in the field. Stockpiles of excavated sediment were covered with impermeable sheeting to reduce contact of precipitation with contaminated materials.

Based on the sediment analytical results from the pre-design investigation, the majority of Herrick Hollow Creek sediment had PCB concentrations less than 50 mg/kg and was placed in the main landfill area. Sediment and wood associated with the beaver dam and lodges was also removed and placed in the main landfill area. As shown on Table 3.3, characterization for purposes of disposal was conducted in Herrick Hollow Creek Segments #19, #18, and #16 and one area within Segment #16 had PCB concentrations greater than 50 mg/kg and less than 500 mg/kg. Sediment from this localized area was placed in the onsite TSCA cell. (The remaining segments were characterized during pre-design investigations and excavated sediment from these segments was consolidated within the landfill.) None of the Herrick Hollow Creek sediment had PCB concentrations greater than or equal to 500 mg/kg; therefore, none of the excavated sediment was disposed offsite.

Excavation of Herrick Hollow Creek was conducted between June 23, 2004 and October 14, 2004. Following the excavation of segments, samples were collected in a grid pattern (approximately 25 ft X 50 ft oriented either with or across the stream flow, depending on local geometries) and tested for PCBs (field test and laboratory). Each sample consisted of a composite of five grab samples collected from the corners and center of the base of each polygon

on the grid. Composite sidewall samples were also collected. As shown on Table 3.3, additional excavation followed by confirmatory sampling was performed in areas that exceeded 1 mg/kg PCBs; this process was repeated until sample results were below 1 mg/kg. As also shown on Table 3.3, seven sediment samples were collected from Herrick Hollow Creek downstream of the furthest most downstream sediment weir trap on October 13, 2004; all sample results were below 1 mg/kg PCBs. As also shown on Table 3.3, the access road was sampled in October 2004 and April 2005, and all results were below 1 mg/kg. As shown on Table 3.2, the total volume of sediment removed from Herrick Hollow Creek was approximately 13,578 cy.

As described in Section 3.5.3, on November 4, 2004, the sheetpile sediment traps were removed and on November 5, 2004, sediment that had accumulated behind the sheetpiles was excavated and consolidated within the landfill. The excavations in Herrick Hollow Creek were backfilled using unclassified soil from the groundwater extraction trench work platform and imported topsoil. The topsoil was seeded with a wetland seed mix and then covered with a biodegradable erosion control blanket in areas immediately adjacent to the creek. Documentation on the topsoil and seed mix is provided in Appendix G. A sand and gravel habitat substrate was placed in the Herrick Hollow Creek channel. Documentation of the gravel substrate is provided in Appendix G. Clusters of live black willow, alder, and cottonwood whips were installed in several areas along the creek alignment in November and December 2004. Documentation from the plant supplier regarding the recommendation of planting the whips during their dormant period is provided. The floodplain has generally re-vegetated with grasses and other plants despite intense and long-duration storms in late 2004, 2005, and 2006. Parsons understands that creek and floodplain restoration, including the former access road, and additional plantings to enhance wildlife habitat, are being completed by others and they will issue a completion report for these activities at a later date.

3.6 LANDFILL CAP

A multi-layer cap consisting of, from the bottom up, a gas venting/seepage collection layer, a barrier layer, a drainage layer, a barrier protection layer and a vegetative layer was installed. The final capped area is approximately 8 acres in size and covers the area shown on Record Drawing C-7. Information regarding the cap subgrade is shown on Record Drawing C-6; cap details and sections are shown on Record Drawings C-10 and C-11. A description of each cap layer is discussed below.

3.6.1 Subgrade Preparation and Waste Placement

Prior to remediation, the landfill slopes varied between 20% and 45%, with two areas exceeding the 6NYCRR Part 360 maximum landfill slope requirement of 33%: (1) the area from the waste oil pit to Richardson Hill Road; and (2) the center portion of the south half of the landfill. To reduce the landfill slopes to typically less than 33%, soil was removed between the waste oil pit and Richardson Hill Road, while contaminated sediment from the South Pond and Herrick Hollow Creek was placed at the toe of slope at the south half of the landfill. Drainage benches were constructed to provide subsurface and surface drainage of the cap. Additionally, an anchor trench was excavated along the upper (west) edge of the landfill.

The quantity of sediment, soil and waste excavated from the South Pond, Herrick Hollow Creek and the various waste areas and placed in the landfill was approximately 10,000 cy greater

than the quantity anticipated during design, as shown on Table 3.2. The additional material was generally placed in the upper, less steep, southern portion of the landfill (cap area 5). Additional material with PCB concentrations between 50 and 500 mg/kg was placed in the TSCA cell.

Excavated sediment was mixed with Portland cement prior to placement in the landfill. The amount of Portland cement mixed with the sediment varied depending on the sediment moisture content. Sediment from the South Pond, which contained organic peat, required as much as 30 to 45% cement to achieve stability. After mixing the sediment with Portland cement, the material was placed in lifts with a bulldozer and allowed to set up prior to compacting with a vibratory roller.

The requirement for compaction testing of the sediment, soil and waste placed in the landfill was replaced with three passes of a vibratory compaction roller and a deflection of 3 inches or less between rolled rows as described in FCO #004. This change was necessary because compaction testing could not be performed on the organic peat material from the South Pond (approximately 50% organic content; 45 pounds per cubic foot unit weight) or the municipal waste which were mixed throughout the placed materials. The subgrade was rolled and visually observed to demonstrate that the surface met the 3-inch deflection requirement and was free of angular stones, debris, sharp objects and materials that could compromise the integrity of the geomembrane.

Soil/sediment placed in the landfill area in 2003 was covered with Formula 480 liquid clay, a spray-on temporary cover, prior to winter to provide erosion protection. Soil/sediment placed in the landfill area in 2004 was covered with the gas venting/seepage collection layer and geomembrane prior to winter initiating the final cover construction.

Prior to completion of the cap in 2006, a survey of the landfill subgrade and geomembrane surface was performed by surveying the geomembrane surface. The survey indicated that the landfill slopes exceeded 33% in two locations totaling approximately 0.44 acres: (1) the southern portion of cap area 7; and (2) west of the landfill access road in cap area 8. Veneer stability calculations performed as part of the cap material evaluation, included in Appendix G, concluded that the areas had acceptable factors of safety and met the intent of the design.

3.6.2 Gas Venting/ Seepage Collection Layer

A gas venting/seepage collection layer consisting of a geosynthetic drainage composite (GDC) on top of the subgrade and ten passive gas vents were installed. The GDC was SKAPS TN-270-7/10 manufactured by SKAPS Industries of Commerce, Georgia, which consisted of an HDPE geonet with non-woven polypropylene geotextile fabrics, one 7-ounce fabric and one 10-ounce fabric, heat-bonded to each side. The GDC also served as a bedding layer to reduce the potential for damage to the overlying geomembrane and to channel potential artesian groundwater flow and seeps to the downgradient collection trench. The gas vents were constructed of 6-inch diameter HDPE pipe extending vertically through the cap to approximately four ft above the final cap surface. The gas vent penetrations through the LLDPE liner were sealed using 40-mil LLDPE geomembrane boots. A total of ten gas vents were installed on the landfill, as shown on Record Drawing C-7; gas vent details are shown on Record Drawing C-11.

The GDC was installed parallel to (down) the slope with the 10-oz geotextile on top in contact with the overlying geomembrane. The geonets of adjacent rolls overlapped approximately 2 to 4 inches longitudinally and approximately 12 inches end to end. Additionally, end-to-end seams were installed shingle-fashion with the top composite overlapping the bottom composite. The geonets of adjacent rolls were fastened together using plastic ties at an approximate maximum spacing of 5 ft on edge seams and 2 ft on end seams in accordance with the manufacturer's installation instructions. The top geotextile fabrics of adjacent rolls were continuously sewn together.

To channel potential artesian groundwater flow and seeps to the downgradient collection trench, the GDC ties into a toe drain at bottom of the landfill. The toe drain was constructed of 6-inch HDPE perforated pipe, embedded in crushed stone and wrapped in geotextile fabric. The geomembrane installed as the barrier layer extends over the toe drain to prevent infiltration of surface water. The toe drain pitches to two low points, one each at the north and south ends of the landfill, where 6-inch solid HDPE pipes cross under Richardson Hill Road and tie into the side of the extraction trench.

Documentation for the GDC and geotextile fabric is included in Appendix G.

3.6.3 Barrier Layer

Following installation of the gas venting/seepage collection layer, a textured 40-mil linear low density polyethylene (LLDPE) geomembrane was installed by Chenango Construction (Chenango) under contract to Shaw in 2004. The geomembrane was manufactured by Poly Flex, Inc of Grand Prairie Texas in accordance with Geosynthetic Research Institute (GRI) GM-17.

Direct shear testing was performed to assess the interface friction angle between the geomembrane and the underlying geosynthetic gas venting composite/overlying geosynthetic requirements. The direct shear testing results are included in Appendix G.

The geomembrane on the north half of the landfill was covered with drainage sand in 2004. Following a washout of the drainage sand during a heavy rain event in November 2004, the drainage sand was removed in 2005 using extended reach excavators with rubber gaskets mounted on the buckets to reduce the potential for damage to the geomembrane. Following the drainage sand removal, the geomembrane was inspected and repairs made by Antana Linings (Antana) under contract to DAC.

The drainage sand layer was subsequently replaced by a geosynthetic drainage composite (GDC) as per FCO #009. Further discussion regarding the GDC is presented in Section 3.6.4.

A cap material evaluation was conducted in 2006 to evaluate the condition of the installed geomembrane post winter 2005/2006 and prior to capping. Samples were cut from the geomembrane for testing and the sample locations patched in accordance with the specifications. As described in the evaluation, included in Appendix G, geomembrane in portions of cap areas 3, 4, 6, 7 and 8 that were damaged by wind during the winter of 2005-2006 was identified for replacement. The geomembrane replacement was performed by Antana Linings under contract to DAC using new 40-mil LLDPE geomembrane manufactured by Poly Flex. Additionally, the

liner and underlying gas venting GDC was peeled back at the north and south edges of the cap by DAC and Antana to inspect and repair subgrade conditions at the time of their work, then reinstalled.

Prior to placing the geomembrane, Chenango and Antana inspected the subgrade and issued certificates of subgrade acceptance which are included in Appendix G. The geomembrane panels were installed directly over the GDC in accordance with the manufacturer's recommendations. The geomembrane panels were placed parallel to (down) the landfill slopes working from uphill (west) to downhill (east) using a hydraulic forklift equipped with a spreader bar. Individual geomembrane panels were cut from rolls and assigned sequential panel numbers as they were placed. Adjacent panels were overlapped a minimum of 4 inches to provide sufficient material for seaming the panels together. The edges of each panel were wiped clean of dirt and dust prior to welding with a dual-wedge fusion welding machine. Individual roll and panel numbers were recorded on a panel placement log. Chenango placed the entire geomembrane cap in 2004, a portion of which was replaced by Antana following the cap material evaluation. The panel placement logs and geomembrane panel layout drawings are included in Appendix G.

Prior to starting geomembrane welding, trial welds were performed to assess whether the field conditions and seaming techniques were adequate to meet the seaming requirements. Seaming of the geomembrane panels was begun after obtaining passing results for the trial weld. The results of trial welds are included in Appendix G.

Destructive samples were collected from finished seams. Destructive samples were cut into three pieces: one for field testing, one for testing at an independent laboratory, and one for archiving. The field and laboratory samples were tested for peel and shear strength. The results indicate that the seams met the design requirements as summarized in Table 3.1. The results of the destructive seam testing are included in Appendix G.

Non-destructive testing was performed on fusion-welded seam by pressurizing the channel created by the dual hot-wedge welder to approximately 30 pounds per square inch (psi). The pressure was allowed to equilibrate for 2 minutes and the pressure drop recorded over the next 5 minutes. A pressure drop of less than 4 psi was considered acceptable. Seams not meeting this pressure criterion were investigated by segmented testing to locate defects, which were then repaired. Non-destructive test results are included in Appendix G.

Repairs to the geomembrane were made using extrusion welding. Repair panels were placed at seam "T" intersections, at destructive sample locations, and over imperfections in the geomembrane. Repairs consisted of a patch of geomembrane placed over the area to be repaired and extrusion welding along its perimeter. Significant repairs were then air lanced and vacuum tested for leaks. Repair logs are included in Appendix G.

Penetrations through the geomembrane, such as the gas vents and TSCA cell manholes, were sealed by the construction of 40-mil LLDPE geomembrane boots. The boots were extrusion welded to the main geomembrane and air lanced and vacuum tested for leaks. The boots were sealed to the vertical portion of the gas vent or manhole with a stainless steel band

and sealant between the penetration and geomembrane. Boot penetration repair logs are included in Appendix G.

3.6.4 Drainage Layer

As described in FCO #009, a GDC was installed on top of the geomembrane as the drainage layer for the cap. The GDC for the drainage layer was the same GDC used for the gas venting/seepage collection layer, SKAPS TN-270-7/10. Documentation concerning the GDC is included in Appendix G. It should be noted that pursuant to the post-winter 2005/2006 cap material evaluation described in Section 3.6.3, GDC installed in 2005 was removed and replaced with new GDC in 2006 in lieu of additional testing of the initially installed material for potential damage following winter exposure.

The GDC was installed parallel to (down) the slope with the 10-oz geotextile on the bottom in contact with the underlying geomembrane. Geonets of adjacent rolls overlapped approximately 2-4 inches longitudinally and approximately 12 inches end to end. Additionally, end-to-end seams were installed shingle-fashion with the top GDC overlapping the bottom GDC. The geonets of adjacent rolls were fastened together using plastic ties at an approximate maximum spacing of 5 ft on edge seams and 2 ft on end seams in accordance with the manufacturer's installation instructions. The top geotextile fabrics of adjacent rolls were sewn together along the entire length of each seam.

As shown on Record Drawing C-10, the GDC drains into benches on the cap or directly to the riprap swale at the toe of the cap.

3.6.5 Barrier Protection Layer

Following installation of the geomembrane and geocomposite drainage net, approximately 24 inches of barrier protection material (BPM) was placed over the entire cap area. The barrier protection material was provided by Warren's Farm of Afton, New York. QA and QC samples of the barrier protection material were collected and analyzed for hydraulic conductivity (ASTM D5084), moisture content (ASTM D2216), particle size (ASTM D422) and Modified Proctor (ASTM D1557). As shown on Table 3.6, the sample results indicate that the barrier protection material met the hydraulic conductivity, particle size and filter criteria presented in FCO #009. Three samples of the barrier protection material were also collected and analyzed for PCBs (EPA Method 8082). The test reports indicate that PCBs were not detected in samples of the barrier protection material at the indicated detection limits. Nine samples of barrier protection material were also collected and tested for direct shear strength. As shown on Table 3.7, the sample results indicate that the barrier protection material met the specified shear strength. Documentation concerning the barrier protection material provided is included in Appendix G.

The BPM was placed in two lifts of approximately 12-inch thickness each using medium-sized bulldozers (Caterpillar D5 and D6H LP, John Deere 570). On the steep, lower half of the landfill (cap areas 3, 4, 7 and 8), the BPM was placed at the toe of the landfill slope and pushed from downhill to uphill. On the upper half of the landfill (cap areas 1, 2, 5 and 6), the BPM was hauled to dumping points along the main landfill access road and a temporary access road at the uphill edge of the cap. The BPM was then pushed laterally along fairly level grades and from

downhill to uphill in steep areas. To reduce the potential for damage to the underlying GDC and geomembrane, minimum BPM thicknesses of approximately 12 and 18 inches were maintained under the earthwork equipment tracks and tires, respectively, and turning of earthwork equipment was minimized during BPM placement.

Placement of the BPM was overseen by a full-time DAC grade foreman. BPM thickness was measured by the use of story poles, placed approximately 50 ft on center, and marked at the 24- and 30-inch heights with separate colors for BPM and topsoil placement. Following completion of construction, additional inspections of BPM thickness were performed by digging a total of 40 test holes through the BPM to the top of the GDC, measuring BPM thickness, and preparing a survey drawing of the measurement locations and measured thicknesses. As shown on the survey drawing, the overall BPM thickness was generally greater than 24 inches. Additional BPM was placed in the drainage swale between the TSCA cell and cap area 5 to promote surface drainage toward the western perimeter swale. Further discussion regarding the measuring of BPM and topsoil thickness is discussed in Section 3.6.6. A copy of the cap thickness survey is included in Appendix G.

The barrier protection material was compacted with smooth drum rollers and tested for in-place moisture content and density by CME Associates, an independent testing laboratory. Test results are summarized on Table 3.8. In-place density tests were considered acceptable when: (1) a minimum dry density of 131 pounds per cubic foot (pcf) was achieved, or (2) when one of four tests were below a minimum dry density of 131 pcf but above 128 pcf, as determined by Modified Proctor (ASTM D1557). Areas of barrier protection material that did not achieve the density criteria were allowed to dry, recompacted, and retested until the density criteria were met.

3.6.6 Vegetative Layer

After placement, grading and compaction of the BPM, approximately six inches of topsoil was placed over the entire cap area. The topsoil was provided by Warren's Farm of Afton, New York. QC samples of the topsoil were collected and analyzed for particle size (ASTM D422), pH (ASTM D4972), organic content (ASTM D2974) and PCBs (EPA Method 8082). As shown on Table 3.9, all but one of the samples had a pH between 5.5 and 7.5 and an organic content from 3 to 20%, consistent with the requirements presented in FCO #011. The reports also indicated that PCBs were not detected in samples of the topsoil at the indicated detection limits. Topsoil filter criteria were deleted by FCO #009 due to a corresponding change in the barrier protection material requirements. Documentation concerning the topsoil provided is included in Appendix G.

The topsoil was placed in a single lift of approximately 6-inch thickness using medium-sized bulldozers (Caterpillar D5 and D6H LP, John Deere 570). On the steep, lower half of the landfill (cap areas 3, 4, 7 and 8), the topsoil was placed at the toe of the landfill slope and pushed from downhill to uphill. On the upper half of the landfill (cap areas 1, 2, 5 and 6), the topsoil was hauled to dumping points along the main landfill access road and a temporary access road at the uphill edge of the cap. The topsoil was then pushed laterally along fairly level grades and from downhill to uphill in steep areas. The topsoil was placed loose and compacted only with the bulldozer tracks to provide a good rooting medium for the grass seed.

Placement of the topsoil was overseen by a full-time DAC grade foreman. Topsoil thickness was measured by the use of story poles, placed approximately 50 ft on center, and marked at the 24- and 30-inch heights with separate colors for BPM and topsoil placement. Following completion of construction, additional inspections of topsoil thickness were performed by digging a total of 40 test holes through the topsoil and BPM to the top of the GDC, measuring actual BPM and topsoil thickness, and preparing a survey drawing of the measurement locations and measured thicknesses. As shown on the survey drawing, the overall cap thickness was consistently greater than 30 inches. In some locations, the thickness of topsoil as measured in October 2006 was less than 6 inches which is believed to be due to settlement after placement. However, as described below, the cap adequately supported vegetation. A copy of the cap thickness survey is included in Appendix G.

The topsoil placed on the cap was hydroseeded and covered with a permanent erosion control fabric (Landlok TRM X3). The seed was supplied by Merritt Seed Company of Baldwinsville, New York, which certified that the seed conformed to the specifications and that seed delivered to the project in 2005 would germinate in 2006. The cap was evaluated to be adequately vegetated during the final inspection in October 2006. Documentation concerning the seed provided is included in Appendix G.

3.6.7 Landfill Drainage System

The constructed landfill drainage system is intended to divert uphill surface runon around the landfill, and also provide for subsurface and surface drainage for the cap. As shown on Record Drawing C-7, the uphill surface runon is intercepted by drainage channels west of the capped area which drain to channels on the north and south sides of the landfill, eventually discharging to the South Pond and Herrick Hollow Creek. The perimeter channels were constructed of geotextile fabric overlaid with riprap. Channel reach designations (e.g., Reach A) are shown on Record Drawing C-7; drainage feature details are shown on Record Drawings C-10 and C-11.

Surface drainage of the cap is provided by channels across the cap, which drain to perimeter swales on the north and south sides of the landfill, eventually discharging to through detention basins to the South Pond and Herrick Hollow Creek. Riprap, approximately 6 inches thick and 10 ft long, was installed at the downhill end of each cap channel where it meets the perimeter channel. The remaining length of each cap drainage channel was hydroseeded and covered with a permanent erosion control fabric (Landlok TRM X3).

Subsurface drainage of the cap is provided by the drainage layer GDC installed on top of the geomembrane and lateral underdrains. The GDC discharges to underdrains on the cap and to the riprap swale at the toe of the landfill. The underdrains were constructed of a six-inch perforated pipe, embedded in crushed stone and wrapped in nonwoven geotextile fabric. A field memorandum dated July 14, 2006, included in Appendix A, provides further information regarding the discharge of the GDC to the six-inch pipe and crushed stone. Additional information regarding the underdrains at Reaches A, B, C, H, G, and I is presented in FCO #009. Information regarding the underdrain at the western edge of the landfill is presented in FCO #010. Information regarding the underdrain at the toe of the landfill is provided in a field memorandum dated June 23, 2006. Information regarding drainage features along the southern

and northern edge of the landfill is provided in a field memorandum dated October 20, 2004. Documentation concerning the geotextile fabric and perforated pipe is included in Appendix G. The underdrains pitch to the north and south sides of the landfill, where they discharge to the perimeter channels. The channel and underdrain details are shown on Record Drawing C-10.

3.6.8 Access Roads

The existing landfill access road was constructed to maintain access to the landfill after closure. The access road extends from Richardson Hill Road at approximately the midpoint of the landfill, northwest diagonally up to the top of the landfill, and back down to Richardson Hill Road north of the landfill. The road is approximately 12 ft wide and 1,200 ft long. The portion of the road inside the cap limits was reconstructed by placing a woven geotextile fabric (Skaps W315) and approximately 18 inches of crushed stone (NYSDOT 304.03, Type 2) in lieu of 12 inches of BPM and 6 inches of topsoil. Note that the gas venting/seepage collection layer, barrier layer, drainage layer, and 12 inches of BPM were installed under the road. The portion of the road outside the cap limits was improved by the addition of approximately 12 inches of crushed stone (NYSDOT 304.03, Type 2) over the existing road. Documentation concerning the woven geotextile fabric is included in Appendix G.

3.7 LANDFILL PERIMETER FENCE

A permanent chain-link fence was installed around the landfill perimeter during the Pre-Design investigations to limit site access. Portions of this fence were removed during construction to provide access and to complete the work. In 2006, Anvil Fence, under subcontract to DA Collins, replaced removed or damaged sections of fence.

3.8 FINAL RESTORATION OF SURFACES AND DEMOBILIZATION

On October 13, 2006, DA Collins completed demobilization from the site, including removal of equipment, field trailers, temporary sanitary facilities, and debris.

3.9 SURVEY

In 2003 and 2004, B&B Hi-Tech Solutions, under subcontract to Shaw, surveyed the limits of remedial excavations in the North Area, South Area, South Pond, and Herrick Hollow Creek. The survey drawings prepared by B&B Hi-Tech Solutions are presented in Appendix B.

In 2005, Keystone Associates, under subcontract to Barton & Loguidice, surveyed finished surfaces in the vicinity of Herrick Hollow Creek. The survey drawing prepared by Keystone Associates is presented in Appendix B.

In 2006, Lawson Surveying and Mapping, under subcontract to DA Collins, surveyed the top of geomembrane, finished surfaces in the vicinity of the landfill cap and the South Pond, and the thickness of applied barrier protection material and topsoil. The survey drawings prepared by Lawson are presented in Appendix B.

TABLE 3.1
GEOMEMBRANE LINER DESTRUCTIVE SEAM TESTING
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

TSCA Cell – Secondary Liner: Chenango (2003)							
Sample	Avg Shear (ppi)	Spec (ppi)	Pass/ Fail	Avg Peel (Inside) (ppi)	Avg Peel (Outside) (ppi)	Spec (ppi)	Pass/ Fail
DS-1	88	56	Pass	84	70	48	Pass
DS-2	86	56	Pass	83	75	48	Pass
DS-3	85	56	Pass	78	79	48	Pass
TSCA Cell – Primary Liner: Chenango (2003)							
Sample	Avg Shear (ppi)	Spec (ppi)	Pass/ Fail	Avg Peel (Inside) (ppi)	Avg Peel (Outside) (ppi)	Spec (ppi)	Pass/ Fail
DS-4	83	56	Pass	81	80	48	Pass
DS-5	85	56	Pass	72	83	48	Pass
DS-6	85	56	Pass	81	84	48	Pass
Cap Geomembrane: Chenango (2004)							
Sample	Avg Shear (ppi)	Spec (ppi)	Pass/ Fail	Avg Peel (Inside) (ppi)	Avg Peel (Outside) (ppi)	Spec (ppi)	Pass/ Fail
DC-1	97	56	Pass	82	92	48	Pass
DC-2	102	56	Pass	91	89	48	Pass
DC-3	102	56	Pass	91	89	48	Pass
DC-4	100	56	Pass	91	87	48	Pass
DC-5	92	56	Pass	79	85	48	Pass
DC-6	101	56	Pass	86	87	48	Pass
DC-7	107	56	Pass	91	89	48	Pass
DC-8	101	56	Pass	89	89	48	Pass
DC-9	96	56	Pass	88	86	48	Pass
DC-10	103	56	Pass	89	94	48	Pass
DC-11	99	56	Pass	86	77	48	Pass
DC-12	101	56	Pass	89	91	48	Pass
DC-13	95	56	Pass	83	86	48	Pass
DC-14	94	56	Pass	79	86	48	Pass
DC-15	94	56	Pass	85	85	48	Pass
DC-16	92	56	Pass	79	88	48	Pass
DC-17	100	56	Pass	77	83	48	Pass
DC-18	101	56	Pass	87	90	48	Pass
DC-19	99	56	Pass	79	88	48	Pass
DC-20	102	56	Pass	81	85	48	Pass
DC-21	100	56	Pass	79	88	48	Pass
DC-22	101	56	Pass	82	91	48	Pass
DC-23	101	56	Pass	89	87	48	Pass
DC-24	97	56	Pass	82	83	48	Pass
DC-25	100	56	Pass	79	87	48	Pass
DC-26	103	56	Pass	90	88	48	Pass
DC-27	98	56	Pass	79	80	48	Pass
DC-28	101	56	Pass	89	89	48	Pass
DC-29	99	56	Pass	87	86	48	Pass
DC-30	88	56	Pass	86	85	48	Pass
DC-31	102	56	Pass	71	84	48	Pass
Cap Geomembrane: Antanna (2006)							
Sample	Avg Shear (ppi)	Spec (ppi)	Pass/ Fail	Avg Peel (A-Side) (ppi)	Avg Peel (B-Side) (ppi)	Spec (ppi)	Pass/ Fail
DS-1	112	56	Pass	95	88	48	Pass
DS-2	110	56	Pass	97	92	48	Pass
DS-3	114	56	Pass	91	83	48	Pass
DS-4	98	56	Pass	86	70	48	Pass
DS-5	110	56	Pass	95	96	48	Pass
DS-6	109	56	Pass	90	87	48	Pass

TABLE 3.2
ESTIMATED EXCAVATION VOLUMES
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Excavation Area	Design Quantity[1] (cy)	Excavated Ouantity[2] (cy)	+/- (cy)
South Area			
Area L-1	8	8	0
Area L-2	15	24	9
Area L-2A	0	1,096	1,096
Area L-3	720	890	170
Area L-4	0	1,048	1,048
Area L-5	0	373	373
South Area Total	**743**	**3,439**	**2,696**
Waste Oil Pit			
Waste Oil Pit[3]	**800**	**805**	**5**
Groundwater Extraction Trench			
Groundwater Extraction Trench[4]	**3,800**	**3,800**	**0**
North Area			
Area N-1	960	242	(718)
Area N-2	960	568	(392)
Area N-3		2,293	2,293
North Area Total	**1,920**	**3,103**	**1,183**
South Pond/Herrick Hollow Creek Floodplain			
Segment 21 (South Pond)	**8,300**	**14,942**	**6,642**
Segment 20	1,410	1,208	(202)
Segment 19	930	824	(106)
Segment 18	165	427	262
Segment 17	590	1,191	601
Segment 16	560	605	45
Segment 15	1,130	1,185	55
Segment 14	1,570	1,614	44
Segment 13 (USEPA Pond #2)	1,050	1,553	503
Segment 12 (USEPA Pond #6)	550	623	73
Segment 12 (USEPA Pond #3)	0	0	0
Segment 11 (USEPA Pond #4)	300	156	(144)
Segment 10 (USEPA Pond #5)	150	149	(1)
Segments 9 & 10 (USEPA Pond #1)	5,200	4,043	(1,157)
Floodplain[5]	950	0	(950)
Herrick Hollow Creek Total	**14,555**	**13,578**	**(977)**
Sediment Total	**22,855**	**28,520**	**5,665**
Total Estimated Excavation Volumes	**29,318**	**38,862**	**9,544**

Notes:
1. From Design Drawings C-3, C-4, C-4A, and C-5
2. From survey estimates by B&B Hi-Tech Solutions or as documented in the field.
3. Waste Oil Pit soils not included in total; did not result in net increase in material volume beneath cap.
4. Design volume assumed excavated.
5. Floodplain excavated volume reflected in sediment volumes for segments 9 through 13.

TABLE 3-3
CONFIRMATORY SAMPLING RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2003 SAMPLING											
RHRL-L2	05/27/03	Confirmatory	Area L-2	Composite			5476	14 J	26%		See 6/26/03 test #L2-001 for retest after additional excavation
L1-001	06/13/03	Confirmatory	Area L-1	Composite			5644	0.19 J	29%		
L2-001	06/26/03	Confirmatory	Area L-2	Composite			5769	0.55 J	12%		Retest at Area L2 (5/27/03 RHRL-LA) after additional excavation
L2R-0626031115-SS006	06/26/03	Confirmatory	Area L-2	Composite						0.383	Sample collected by EarthTech
AR-0626031100SS0006	"	Site Characterization	Along access road	Composite of 3 samples						6.23	Sample collected by EarthTech. See Area L-5.
L5-0714030950SS0812	07/14/03	Site Characterization	Area L-5							5.5	Sample collected by EarthTech
2003 Field Batch #1											
L5D-071503	07/14/03	Site Characterization	Area L-5	60' NW of decon pad	3.06	3.63					See retest in 2003 batch #5 after excavation
L5E-071503	"	"	"	40' NW of decon pad	<0.5	<0.6					
L5F-071503	"	"	"	20' NW of decon pad	1.30	1.53					See retest in 2003 batch #5 after excavation
SPC1-071503	07/15/03	"	South Pond	Clay	<0.5	<0.6					Sample collected south of >50 ppm area
SPC2-071503	"	"	"	Clay	<0.5	<0.6					Sample collected south of >50 ppm area
SPC3-071503	"	"	"	Peat Residue	1.76	2.07					Sample collected south of >50 ppm area
TP-1	07/16/03	Site Characterization	Area L-4	Test Pit 1 (N. end of RHR)			5918	64	7%		See retest in 2003 batch #2 after excavation
TP-4	"	"	"	Test Pit 4 (S. end of RHR)			"	0.14	6%		See retest in 2003 batch #2 after excavation
2003 Field Batch #2											
RE1-090903	09/09/03	Confirmatory	Area L-4	North Wall	<0.5	<0.6					Retest at Area L-4 after excavation.
RE2-900903	"	"	"	"	<0.5	<0.6					Retest at Area L-4 after excavation.
2003 Field Batch #3											
1A-091203	09/12/03	Site Characterization	S. Pond re-route trench		<0.5	<0.6					
1B-091203	"	"	"		0.55	0.65					
2A-091203	"	"	"		<0.5	<0.6					
2B-091203	"	"	"		<0.5	<0.6					
3A-091203	"	"	"		<0.5	<0.6					
3B-091203	"	"	"		<0.5	<0.6					
2003 Field Batch #4											
SS1-092303	09/23/03	Confirmatory	South Pond	Near weir	<0.5	<0.6					
SS1 DUP-092303	"	"	"	"	<0.5	<0.6					
SS2-092303	"	"	"	"	<0.5	<0.6					
SS3-092303	"	"	"	"	<0.5	<0.6					
SS4-092303	"	"	"	East edge, east of weir	<0.5	<0.6					
SS5-092303	"	"	"	East edge, next to tel. pole	<0.5	<0.6					
SS6-092303	"	"	"	East edge, north of tel. pole	<0.5	<0.6					
SS6 DUP-092303	"	"	"	"	<0.5	<0.6					

CONFIRMATORY SAMPLING RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
WOP B-1	10/28/03	Confirmatory	Waste Oil Pit	B1			6651	230	5%		Cleanup goal for Waste Oil Pit = 500 ppm PCBs
WOP B-2	"	"	"	B2			"	90	5%		" " " " " " " " "
WOP B-3	"	"	"	B3			"	120	9%		" " " " " " " " "
WOP B-4	"	"	"	B4			"	140	10%		" " " " " " " " "
WOP B-5	"	"	"	B5			"	14	5%		" " " " " " " " "
WOP B-6	"	"	"	B6			"	110	6%		" " " " " " " " "
WOP E-1	"	"	"	E1			"	100	16%		" " " " " " " " "
WOP E-2	"	"	"	E2			"	15	7%		" " " " " " " " "
WOP E-3	"	"	"	E3			"	56	14%		" " " " " " " " "
WOP W-1	"	"	"	W1			"	290	13%		" " " " " " " " "
WOP W-2	"	"	"	W2			"	73	14%		" " " " " " " " "
WOP W-3	"	"	"	W3			"	77	16%		" " " " " " " " "
WOP 1	"	Disposal Characterization	Waste Oil Pit	From stockpiles			"	200	15%		
WOP 2	"	"	"	"			"	150	12%		
WOP 2A	"	"	"	"			"	77	10%		
WOP 3	"	"	"	"			"	1900	24%		
WOP 4	"	"	"	"			"	97	10%		
WOP 5	"	"	"	"			"	140	16%		
WOP 6	"	"	"	"			"	1400	20%		
WOP 7	"	"	"	"			"	6100	17%		
WOP 8	"	"	"	"			"	750	13%		
2003 Field Batch #5											
L5-01-110503	11/05/03	Confirmatory	Area L-5	01	<0.5	<0.6			`		Retest of Area L-5 after excavation.
L5-02-110503	"	"	"	02	0.51	0.60					Retest of Area L-5 after excavation.
L5-03-110503	"	"	"	03	<0.5	<0.6					Retest of Area L-5 after excavation.
L5-04-110503	"	"	"	04	<0.5	<0.6					Retest of Area L-5 after excavation.
L5-05-110503	"	"	"	05	<0.5	<0.6					Retest of Area L-5 after excavation.
L5-06-110503	"	"	"	06	<0.5	<0.6					Retest of Area L-5 after excavation.
WOP 3, 6, 7, 8	11/05/03	Disposal Characterization	Waste Oil Pit	From stockpiles			6732	14000	18%		Also VOCs, TCLP Metals
WTP-Area 1	11/13/03	Confirmatory	Temp WTP Area							<0.26	Sample collected by Shaw.
WTP-Area 2	"	"	"							<0.26	"
SP-1 thru SP-8	11/17/03	Disposal Characterization	Waste Oil Pit	From stockpiles			6828	-	-		VOCs only.
2004 SAMPLING											
Segment 18/19-01-061104	06/11/04	Disposal Characterization	HHC Segment 19	01			8141	5.6	42%		<50 ppm - Disposal in TSCA cell not required
Segment 18/19-02-061104	"	"	"	02			"	0.68	62%		" " " " " "
Segment 18/19-03-061104	"	"	"	03			"	3.53	71%		" " " " " "
Segment 18/19-04-061104	"	"	HHC Segment 18/19	04			"	1.85	66%		" " " " " "
Segment 18/19-05-061104	"	"	HHC Segment 19	05			"	0.46	66%		" " " " " "
Segment 18/19-06-061104	"	"	"	06			"	0.132	70%		" " " " " "
Segment 18/19-07-061104	"	"	HHC Segment 18/19	07			"	0.149	35%		" " " " " "
Segment 18/19-08-061104	"	"	HHC Segment 18	8			"	3.35	45%		" " " " " "
Segment 18/19-09A-061104	"	"	HHC Segment 19	09A			"	0.086	54%		" " " " " "
Segment 18/19-09B-061104	"	"	HHC Segment 19	09B			"	0.80	67%		" " " " " "
Segment 18/19-10A-061104	"	"	HHC Segment 18/19	10A			"	0.42	55%		" " " " " "
Segment 18/19-10B-061104	"	"	HHC Segment 18	10B			"	0.109	43%		" " " " " "
Segment 18/19-11A-061104	"	"	HHC Segment 18	11A			"	6.2	28%		" " " " " "
Segment 18/19-11B-061104	"	"	HHC Segment 18/19	11B			"	2.53	64%		" " " " " "
Segment 18/19-11C-061104	"	"	HHC Segment 19	11C			"	0.47	38%		" " " " " "

CONFIRMATORY SAMPLING RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #1											
SP-01-G06-061204 & SP-17-G06-061204 (lab)	06/12/04	Confirmatory	South Pond	G6	2.41	2.84	8153	0.48	30%		See retest in batch #10 after additional excavation
SP-02-G07-061204	"	"	"	G7	<0.5	<0.6					
SP-03-G08-061204	"	"	"	G8	<0.5	<0.6					
SP-04-G09-061204	"	"	"	G9	<0.5	<0.6					
SP-05-G10-061204	"	"	"	G10	<0.5	<0.6					
SP-06-G11-061204	"	"	"	G11	<0.5	<0.6					
SP-07-G12-061204	"	"	"	G12	<0.5	<0.6					
SP-08-G13-061204	"	"	"	G13	<0.5	<0.6					
SP-09-G14-061204	"	"	"	G14	<0.5	<0.6					
SP-10-H07-061204	"	"	"	H7	<0.5	<0.6					
SP-11-H08-061204 & SP-18-H08-061204 (lab)	"	"	"	H8	<0.5	<0.6	8153	0.81	23%		
SP-12-H09-061204	"	"	"	H9	<0.5	<0.6					
SP-13-H10-061204	"	"	"	H10	<0.5	<0.6					
SP-14-H11-061204	"	"	"	H11	<0.5	<0.6					
SP-15-H12-061204	"	"	"	H12	<0.5	<0.6					
SP-16-H13-061204	"	"	"	H13	<0.5	<0.6					
2004 Field Batch #2											
SP-01-F05-061504	06/12/04	Confirmatory	South Pond	F5	<0.5	<0.6					
SP-02-F06-061504	"	"	"	F6	<0.5	<0.6					
SP-03-F07-061504	"	"	"	F7	<0.5	<0.6					
SP-04-F08-061504	"	"	"	F8	<0.5	<0.6					
SP-05-F09-061504	"	"	"	F9	<0.5	<0.6					
SP-06-F10-061504	"	"	"	F10	<0.5	<0.6					
SP-07-F11-061504	"	"	"	F11	<0.5	<0.6					
SP-08-F12-061504	"	"	"	F12	<0.5	<0.6					
SP-09-F13-061504	"	"	"	F13	<0.5	<0.6					
SP-10-F14-061504	"	"	"	F14	<0.5	<0.6					
SP-11-F15-061504	"	"	"	F15	<0.5	<0.6					
SP-12-E15-061504 & SP-22-E15-061504 (lab)	"	"	"	E15	1.54	1.81	8213	2.6	17%		See retest in batch #10 after additional excavation
SP-13-E14-061504	"	"	"	E14	<0.5	<0.6					
SP-14-E13-061504	"	"	"	E13	<0.5	<0.6					
SP-15-E12-061504	"	"	"	E12	0.59	0.69				0.52	A sample also collected by NYCDEP
SP-16-E11-061504	"	"	"	E11	<0.5	<0.6					
SP-17-E10-061504	"	"	"	E10	0.81	0.95					
SP-18-E09-061504	"	"	"	E9	<0.5	<0.6					
SP-19-E08-061504 & SP-21-E08-061504 (lab)	"	"	"	E8	9.67	11.38	8213	1.7	17%	2.0	A sample also collected by NYCDEP. See retest in batch #10 after additional excavation
SP-20-E07-061504	"	"	"	E7	0.79	0.93					

CONFIRMATORY SAMPLING RESULTS
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					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #3											
SP-01-D07-061704	06/17/04	Confirmatory	South Pond	D7	<0.5	<0.6				0.24	A sample also collected by NYCDEP
SP-02-D08-061704	"	"	"	D8	<0.5	<0.6					
SP-03-D09-061704 & SP-15-D09-061704 (lab)	"	"	"	D9	1.11	1.31	8213	3.6	18%		See retest in batch #9 after additional excavation
SP-04-D10-061704	"	"	"	D10	<0.5	<0.6				1.1	A sample also collected by NYCDEP. See retest in batch #9 after additional excavation.
SP-05-D11-061704	"	"	"	D11	<0.5	<0.6					
SP-06-D12-061704	"	"	"	D12	<0.5	<0.6					
SP-07-D13-061704	"	"	"	D13	<0.5	<0.6					
SP-08-D14-061704	"	"	"	D14	<0.5	<0.6					
SP-09-D15-061704	"	"	"	D15	<0.5	<0.6					
SP-10-C08-061704	"	"	"	C8	<0.5	<0.6					
SP-11-C09-061704 & SP-16-C09-061704 (lab)	"	"	"	C9	1.29	1.52	8213	0.1	23%		See retest in batch #9 after additional excavation
SP-12-C10-061704	"	"	"	C10	<0.5	<0.6					
SP-13-C11-061704 & SP-17-C11-061704 (lab)	"	"	"	C11	1.04	1.22	8213	0.47	26%		See retest in batch #10 after additional excavation
SP-14-C12-061704	"	"	"	C12	<0.5	<0.6					
2004 Field Batch #4											
SP-18-B04-061704	06/17/04	Confirmatory	South Pond	B4	<0.5	<0.6					
SP-19-B05-061704	"	"	"	B5	<0.5	<0.6					
SP-20-B06-061704	"	"	"	B6	<0.5	<0.6					
SP-21-B07-061704 & SP-33 B07-061704 (lab)	"	"	"	B7	<0.5	<0.6	8213	0.46	15%	0.74	A sample also collected by NYCDEP
SP-22-B08-061704	"	"	"	B8	<0.5	<0.6					
SP-23-B09-061704	"	"	"	B9	<0.5	<0.6				0.59	A sample also collected by NYCDEP
SP-24-B10-061704	"	"	"	B10	<0.5	<0.6					
SP-25-B11-061704	"	"	"	B11	<0.5	<0.6					
SP-26-C05-061704 & SP-34-C05-061704 (lab)	"	"	"	C5	<0.5	<0.6	8213	2.3	20%		See retest in batch #8 after additional excavation
SP-27-C06-061704	"	"	"	C6	<0.5	<0.6					
SP-28-C07-061704	"	"	"	C7	<0.5	<0.6					
SP-29-D05-061704	"	"	"	D5	<0.5	<0.6					
SP-30-D06-061704	"	"	"	D6	<0.5	<0.6					
SP-31-E05-061704	"	"	"	E5	<0.5	<0.6					
SP-32-E06-061704	"	"	"	E6	<0.5	<0.6					
2004 Field Batch #5											
Segment 20-B1-062404	06/24/04	Confirmatory	HHC Segment 20	B1	1.38	1.62	8295	5.5	20%		See retest in batch #11 after additional excavation
Segment 20-B2-062404	"	"	"	B2	<0.5	<0.6	"	0.48 J	7%		
Segment 20-B3-062404	"	"	"	B3	1.33	1.56	"	4.0	22%		See retest in batch #11 after additional excavation
Segment 20-B4-062404	"	"	"	B4	<0.5	<0.6	"	0.69	9%		
Segment 20-B5-062404	"	"	"	B5	1.35	1.59	"	0.90	21%		See retest in batch #12 after additional excavation
Segment 20-B6-062404	"	"	"	B6	0.96	1.13	"	1.9	13%		See retest in batch #11 after additional excavation
Segment 20-B7-062404	"	"	"	B7	<0.5	<0.6	"	1.5	31%		See retest in batch #11 after additional excavation
Segment 20-B8-062404	"	"	"	B8	<0.5	<0.6	"	0.73	18%		See retest in batch #11
Segment 20-B9-062404	"	"	"	B9	0.69	0.81	"	1.4	25%		See retest in batch #11 after additional excavation
Segment 20-B10-062404	"	"	"	B10	1.30	1.53	"	3.4 J	22%		See retest in batch #11 after additional excavation
Segment 20-B11-062404	"	"	"	B11	<0.5	<0.6	"	0.85	20%		
Segment 20-B12-062404	"	"	"	B12	<0.5	<0.6	"	1.3 J	15%		See retest in batch #11 after additional excavation.

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SIDNEY, NEW YORK

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					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #6											
Segment 20-W1-062404	06/24/04	Confirmatory	HHC Segment 20	W-1	<0.5	<0.6	8295	0.71	19%		
Segment 20-W2-062404	"	"	"	W-2	<0.5	<0.6	"	0.018 J	29%		
Segment 20-W3-062404	"	"	"	W-3	<0.5	<0.6	"	0.025	22%		
Segment 20-W4-062404	"	"	"	W-4	<0.5	<0.6	"	0.029	25%		
Segment 20-B13-062404	"	"	"	B13	<0.5	<0.6	"	0.023	12%		
Segment 20-B14-062404	"	"	"	B14	<0.5	<0.6	"	0.22	15%		
Segment 20-B15-062404	"	"	"	B15	<0.5	<0.6	"	0.84	14%		
Segment 20-B16-062404	"	"	"	B16	<0.5	<0.6	"	0.68 J	19%		
Segment 20-B17-062404	"	"	"	B17	0.98	1.15	"	2.4	39%		See retest in batch #11 after additional excavation
Segment 20-B18-062404	"	"	"	B18	<0.5	<0.6	"	0.22	25%		
Segment 20-B19-062404	"	"	"	B19	<0.5	<0.6	"	0.69	17%		
Segment 20-B20-062404	"	"	"	B20	<0.5	<0.6	"	0.019	12%		
Segment 20-B21-062404	"	"	"	B21	<0.5	<0.6	"	0.17	18%		
2004 Field Batch #7											
SP-C6-062404	06/24/04	Confirmatory	South Pond	C6	5.13	6.04	8295	9.7	29%		See batch #8 for retest after additional excavation.
SP-D6-062404	"	"	"	D6	3.77	4.44	"	5.3	28%		See batch #10 for retest after additional excavation.
SP-Stockpile 1-062404	"	Disposal Characterization	South Pond Stockpile	ST-1	<0.5	<0.6	"	0.38	2%		
SP-Stockpile 2-062404	"	"	"	ST-2	<0.5	<0.6	"	0.82	4%		
SP-Stockpile 3-062404	"	"	"	ST-3	<0.5	<0.6	"	0.80	12%		
2004 Field Batch #8											
Segment 20-B22-062804	06/28/04	Confirmatory	HHC Segment 20	B22	<0.5	<0.6					
Segment 20-B24-062804	"	"	"	B24	<0.5	<0.6					
Segment 20-B25-062804	"	"	"	B25	<0.5	<0.6					
Segment 20-B26-062804	"	"	"	B26	<0.5	<0.6					
Segment 20-W5-062804	"	"	"	W5	<0.5	<0.6					
Segment 20-W6-062804	"	"	"	W6	<0.5	<0.6					
SP-C5-062804	"	"	South Pond	C5	<0.5	<0.6					Retest of batch #7 location after additional excavation
SP-C6-062804	"	"	"	C6	<0.5	<0.6					Retest of batch #7 location after additional excavation
2004 Field Batch #9											
SP-C8-062904	06/29/04	Confirmatory	South Pond	C8	<0.5	<0.6					Retest of batch #3 location after additional excavation
SP-C9-062904	"	"	"	C9	<0.5	<0.6					Retest of batch #3 location after additional excavation
SP-D9-062904	"	"	"	D9	<0.5	<0.6					Retest of batch #3 location after additional excavation
SP-D10-062904	"	"	"	D10	<0.5	<0.6					Retest of batch #3 location after additional excavation
Segment 18-B4-062904	"	"	HHC Segment 18	B4	<0.5	<0.6					
Segment 18-W1-062904	"	"	"	W1	<0.5	<0.6					
Segment 18-W2-062904	"	"	"	W2	<0.5	<0.6					
Segment 19-B9-062904	"	"	HHC Segment 19	B9	<0.5	<0.6					
Segment 19-B10-062904	"	"	"	B10	<0.5	<0.6					
Segment 19-B13-062904	"	"	"	B13	<0.5	<0.6					
Segment 19-W1-062904	"	"	"	W1	<0.5	<0.6					
Segment 19-W2-062904	"	"	"	W2	1.32	1.55					See retest in batch #2 after additional excavation.

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RICHARDSON HILL ROAD LANDFILL
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					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #10											
SP-C7-062904	06/29/04	Confirmatory	South Pond	C7	<0.5	<0.6					
SP-C11-062904	"	"	"	C11	<0.5	<0.6					Retest of batch #3 location after additional excavation
SP-D6-062904	"	"	"	D6	<0.5	<0.6					Retest of batch #7 location after additional excavation
SP-E8-062904	"	"	"	E8	<0.5	<0.6					Retest of batch #2 location after additional excavation
SP-E15-062904	"	"	"	E15	<0.5	<0.6					Retest of batch #2 location after additional excavation
SP-G6-062904	"	"	"	G6	<0.5	<0.6					Retest of batch #1 location after additional excavation
Segment 18-B1-062904	"	"	HHC Segment 18	B1	<0.5	<0.6					
Segment 19-B1-062904	"	"	HHC Segment 19	B1	<0.5	<0.6					
Segment 19-B2-062904	"	"	"	B2	<0.5	<0.6					
Segment 19-B10-062904	"	"	"	B10	<0.5	<0.6					
Segment 19-B11-062904	"	"	"	B11	<0.5	<0.6					
Segment 19-B14-062904	"	"	"	B14	4.19	4.93					See retest in batch #12 after additional excavation
2004 Field Batch #11											
Segment 19-B3-063004	6/302004	Confirmatory	HHC Segment 19	B3	<0.5	<0.6					
Segment 20-B1-063004	"	"	HHC Segment 20	B1	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B3-063004	"	"	"	B3	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B6-063004	"	"	"	B6	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B7-063004	"	"	"	B7	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B8-063004	"	"	"	B8	<0.5	<0.6					Retest of batch #5 location (confirmation only - no additional excavation)
Segment 20-B9-063004	"	"	"	B9	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B10-063004	"	"	"	B10	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B12-063004	"	"	"	B12	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B17-063004	"	"	"	B17	<0.5	<0.6					Retest of batch #6 location after additional excavation
Segment 20-B23-063004	"	"	"	B23	<0.5	<0.6					
Segment 20-B28-063004	"	"	"	B28	<0.5	<0.6					
2004 Field Batch #12											
Segment 18-B2-063004	06/30/04	Confirmatory	HHC Segment 18	B2	<0.5	<0.6	8332	0.0026 JN	17%		
Segment 18-B3-063004	"	"	"	B3	<0.5	<0.6	"	<0.020 J	15%		
Segment 19-B7-063004	"	"	HHC Segment 19	B7	<0.5	<0.6					
Segment 19-B8-063004	"	"	"	B8	<0.5	<0.6					
Segment 19-B14-063004&	"	"	"	B14	<0.5	<0.6	8332	<0.018 J	8%		Retest of batch #10 location after additional excavation
Segment 19-B14-070104 (lab)											
Segment 19-W2-063004	"	"	"	W2	0.73	0.86					Retest of batch #9 location after additional excavation
Segment 20-B5-063004	"	"	HHC Segment 20	B5	<0.5	<0.6					Retest of batch #5 location after additional excavation
Segment 20-B27-063004	"	"	"	B27	<0.5	<0.6					
Segment 20-B29-063004	"	"	"	B29	<0.5	<0.6					
Segment 16-01-070604	7/6/04	Disposal Characterization	HHC Segment 16	01			8355	0.79	58%		
Segment 16-02-070604	"	"	"	02			"	2.7	45%		
Segment 16-03-070604	"	"	"	03			"	8.2	59%		
Segment 16-04-070604	"	"	"	04			"	60	63%		
Segment 16-05-070604	"	"	"	05			"	160	52%		
Segment 16-06-070604	"	"	"	06			"	27	64%		
F1A-01-070804	07/08/04	Site Characterization	HHC Sample Location F1A	01			8377	1.6 J	72%		See Segment 12 samples B-12, W-10 in batch #42 after excavation.
F1A-02-070804	"	"	"	02			"	0.43 J	74%		
F1A-03-070804	"	"	"	03			"	0.053 J	66%		
F1A-04-070804	"	"	"	04			"	1.4 J	70%		See Segment 11 samples B-5, B-6, W-2 in batch #43 after excavation.
F1A-05-070804	"	"	"	05			"	0.25 J	61%		
F1A-06-070804	"	"	"	06			"	0.016 J	70%		

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					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
SVE-01-071304	07/13/04	Disposal Characterization	SVE Stockpile	01			8425	1000	78%		
SVE-02-071304	"	"	"	02			"	NA			TCLP Metals only
SVE-03-071304	"	"	"	03			"	NA			VOCs only
2004 Field Batch #13											
Segment 17-B1-071404	07/14/04	Confirmatory	HHC Segment 17	B1	<0.5	<0.6					
Segment 17-B3-071404	"	"	"	B3	<0.5	<0.6					
Segment 17-B4-071404	"	"	"	B4	<0.5	<0.6					
Segment 17-B5-071404	"	"	"	B5	1.00	1.18					See retest in batch #15 after additional excavation
Segment 17-B7-071404	"	"	"	B7	<0.5	<0.6					
Segment 17-B8-071404	"	"	"	B8	<0.5	<0.6					
Segment 17-B9-071404	"	"	"	B9	<0.5	<0.6					
Segment 17-B10-071404	"	"	"	B10	2.74	3.22					See retest in batch #15 after additional excavation
Segment 17-W1-071404	"	"	"	W1	<0.5	<0.6					
Segment 17-W2-071404	"	"	"	W2	<0.5	<0.6					
Segment 17-W4-071404	"	"	"	W4	<0.5	<0.6					
Segment 17-W5-071404	"	"	"	W5	<0.5	<0.6					
2004 Field Batch #14											
Segment 17-B2-071404	07/14/04	Confirmatory	HHC Segment 17	B2	<0.5	<0.6					
Segment 17-B6-071404	"	"	"	B6	<0.5	<0.6					
Segment 17-B11-071404	"	"	"	B11	<0.5	<0.6					
Segment 17-B12-071404	"	"	"	B12	<0.5	<0.6					
Segment 17-B14-071404	"	"	"	B14	<0.5	<0.6					
Segment 17-B16-071404	"	"	"	B16	0.72	0.85					
Segment 17-W3-071404	"	"	"	W3	<0.5	<0.6					
Segment 17-W6-071404	"	"	"	W6	2.51	2.95					See retest in batch #15 after additional excavation
Segment 17-W7-071404	"	"	"	W7	<0.5	<0.6					
Segment 17-W8-071404	"	"	"	W8	<0.5	<0.6					
Segment 17-W9-071404	"	"	"	W9	<0.5	<0.6					
2004 Field Batch #15											
Segment 17-B13-071404	07/14/04	Confirmatory	HHC Segment 17	B13	<0.5	<0.6					
Segment 17-B15-071404	"	"	"	B15	2.25	2.65					See retest in batch #15 after additional excavation
Segment 17-B17-071404	"	"	"	B17	<0.5	<0.6					
Segment 17-B18-071404	"	"	"	B18	<0.5	<0.6					
Segment 17-W10-071404	"	"	"	W10	<0.5	<0.6					
Segment 17-B5-071604	07/16/04	Confirmatory	HHC Segment 17	B5			8436	0.29 J	32%		Retest of batch #13 location after additional excavation
Segment 17-B10-071604	"	"	"	B10			"	0.12 J	17%		Retest of batch #13 location after additional excavation
Segment 17-B15-071604	"	"	"	B15			"	<0.020 J	14%		Retest of batch #14 location after additional excavation
Segment 17-W6-071604				W6			"	0.95 J	38%		Retest of batch #14 location after additional excavatior

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #16											
Segment 16-B1-072104	07/21/04	Confirmatory	HHC Segment 16	B1	1.07	1.26					See batch #17 for retest after additional excavation
Segment 16-B2-072104	"	"	"	B2	<0.5	<0.6					
Segment 16-B3-072104	"	"	"	B3	<0.5	<0.6					
Segment 16-B4-072104	"	"	"	B4	<0.5	<0.6					
Segment 16-B5-072104	"	"	"	B5	<0.5	<0.6					
Segment 16-B6-072104	"	"	"	B6	<0.5	<0.6					
Segment 16-W1-072104	"	"	"	W1	<0.5	<0.6					
Segment 16-W2-072104	"	"	"	W2	<0.5	<0.6					
Segment 16-W3-072104	"	"	"	W3	5.19	6.10	8488	4.8 J	43%		See batch # 17 for retest after additional excavation
Segment 16-W4-072104	"	"	"	W4	2.71	3.19	"	0.073 J	23%		See batch # 17 for retest after additional excavation
Segment 16-W5-072104	"	"	"	W5	<0.5	<0.6					
Segment 16-W6-072104	"	"	"	W6	<0.5	<0.6					
WP-9+50 to 9+0	"	Quality surveillance check	Work Platform	Station 9+50 to 9+00	<0.5	<0.6					Work platform quality surveillance check station 9+50 to 9+0
WP-10+50 to10+0	"	Quality surveillance check	Work Platform	Station 10+50 to 10+00	<0.5	<0.6					Work platform quality surveillance check station 10+50 to 10+0
2004 Field Batch #17											
Segment 16-B1-072204	07/22/04	Confirmatory	HHC Segment 16	B1	<0.5	<0.6					Retest of batch #16 location after additional excavation
Segment 16-W3-072204	"	"	"	W3	<0.5	<0.6					Retest of batch #16 location after additional excavation
Segment 16-W4-072204	"	"	"	W4	<0.5	<0.6					Retest of batch #16 location after additional excavation
Segment 15-B1-072304	07/23/04	"	HHC Segment 15	B1	<0.5	<0.6					
Segment 15-B2-072304	"	"	"	B2	<0.5	<0.6					
Segment 15-B3-072304	"	"	"	B3	<0.5	<0.6					
Segment 15-W1-072304	"	"	"	W1	<0.5	<0.6					
Segment 15-W2-072304	"	"	"	W2	<0.5	<0.6					
2004 Field Batch #18											
Segment 15-B4-072804	07/28/04	Confirmatory	HHC Segment 15	B4	<0.5	<0.6					
Segment 15-B5-072804	"	"	"	B5	<0.5	<0.6					
Segment 15-B6-072804	"	"	"	B6	0.69	0.81					
Segment 15-B7-072804	"	"	"	B7	3.96	4.66	8539	3.9 J	39%		See batch #19 for retest after additional excavation
Segment 15-W3-072804	"	"	"	W3	<0.5	<0.6					
Segment 15-W4-072804	"	"	"	W4	<0.5	<0.6					
Segment 15-W5-072804	"	"	"	W5	1.28	1.51	8539	1.2 J	34%		See batches # 19 & 20 for retests after additional excavation
Segment 15-W6-072804	"	"	"	W6	1.18	1.39					See batch #19 for retest after additional excavation
2004 Field Batch #19											
Segment 15-B7-073004	07/30/04	Confirmatory	HHC Segment 15	B7	<0.5	<0.6					Retest of batch #18 location after additional excavation
Segment 15-B8-083004	"	"	"	B8	2.82	3.32					See batch # 20 for retest after additional excavation
Segment 15-B9-073004	"	"	"	B9	<0.5	<0.6					
Segment 15-B10-073004	"	"	"	B10	<0.5	<0.6					
Segment 15-B11-073004	"	"	"	B11	2.29	2.69					See batch # 20 for retest after additional excavation
Segment 15-B12-073004	"	"	"	B12	1.22	1.44					See batch # 20 for retest after additional excavation
Segment 15-W5-073004	"	"	"	W5	19.4	22.8					Retest of batch #18. See batch # 20 for retest after additional excavation
Segment 15-W6-073004	"	"	"	W6	<0.5	<0.6					Retest of batch #18 location after additional excavation
Segment 15-W7-073004	"	"	"	W7	<0.5	<0.6					
Segment 15-W8-073004	"	"	"	W8	5.55	6.53					See batch #20 for retest after additional excavation
Segment 15-W9-073004	"	"	"	W9	<0.5	<0.6					
Segment 15-W10-073004	"	"	"	W10	2.16	2.54					See batches #20 & 21 for retests after additional excavation

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					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #20											
Segment 15-B8-080204	08/02/04	Confirmatory	HHC Segment 15	B8	<0.5	<0.6					Retest of batch #19 location after additional excavation
Segment 15-B11-080204	"	"	"	B11	<0.5	<0.6					Retest of batch #19 location after additional excavation
Segment 15-B12-080204	"	"	"	B12	0.77	0.91					Retest of batch #19 location after additional excavation
Segment 15-B14-080204	"	"	"	B14	2.74	3.22	8564	1 J	31%		See batch #21 for retest after additional excavation
Segment 15-W5-080204	"	"	"	W5	<0.5	<0.6					Retest of batch #19 location after additional excavation
Segment 15-W8-080204	"	"	"	W8	<0.5	<0.6					Retest of batch #19 location after additional excavation
Segment 15-W10-080204	"	"	"	W10	10.39	12.22	8564	1.7 J	25%		Retest of batch #20 location. See batch # 21 for retest after additional ex.
2004 Field Batch #21											
Segment 15-B13-080304	08/03/04	Confirmatory	HHC Segment 15	B13	<0.5	<0.6					
Segment 15-B14-080304	"	"	"	B14	<0.5	<0.6					Retest of batch #20 location after additional excavation
Segment 15-B15-080304	"	"	"	B15	0.89	1.05					See batch #23 for retest after additional excavation
Segment 15-B16-080304	"	"	"	B16	<0.5	<0.6					
Segment 15-B17-080404	08/04/04	"	"	B17	0.87	1.02					See batch #23 for retest after additional excavation
Segment 15-B18-080404	"	"	"	B18	<0.5	<0.6					
Segment 15-W10-080404	"	"	"	W10	<0.5	<0.6					
Segment 15-W11-080404	"	"	"	W11	<0.5	<0.6					
Segment 15-W12-080404	"	"	"	W12	2.25	2.65	8582	0.86 J	37%		See batch #23 for retest after additional excavation
2004 Field Batch #22											
Segment 15-B19-080404	08/04/04	Confirmatory	HHC Segment 15	B19	<0.5	<0.6					
Segment 15-B20-080404	"	"	"	B20	<0.5	<0.6					
Segment 15-W13-080404	"	"	"	W13	1.17	1.38	8582	3.7 J	38%		See batch #23 for retest after additional excavation
Segment 15-W14-080404	"	"	"	W14	<0.5	<0.6					
2004 Field Batch #23											
Segment 15-B15-080504	08/05/04	Confirmatory	HHC Segment 15	B15	<0.5	<0.6					Retest of batch #21 location after additional excavation
Segment 15-B17-080504	"	"	"	B17	<0.5	<0.6					Retest of batch #21 location after additional excavation
Segment 15-W12-080504	"	"	"	W12	<0.5	<0.6					Retest of batch #21 location after additional excavation
Segment 15-W13-080504	"	"	"	W13	<0.5	<0.6					Retest of batch #22 location after additional excavation
2004 Field Batch #24											
WP 1+50 To 1+0-081804	08/18/04	Quality Surveillance	Work Platform	Station 1+50 to 1+00	<0.5	<0.6					Work platform quality surveillance check.
WP 2+50 To 2+0-081804	"	"	Work Platform	Station 2+50 to 2+00	<0.5	<0.6					" " " " "
WP 3+50 To 3+0-081804	"	"	Work Platform	Station 3+50 to 3+00	<0.5	<0.6					" " " " "
2004 Field Batch #25											
NB-B1-082004	08/20/04	Confirmatory	N. Trench Spoil Basin	NA	<0.5	<0.6	8703	0.036 J	13%		
NB-B2-082004	"	"	"	"	<0.5	<0.6					
NB- East W1-082004	"	"	"	"	<0.5	<0.6					
NB- East W2-082004	"	"	"	"	<0.5	<0.6					
NB-West W1-082004	"	"	"	"	<0.5	<0.6					
NB-West W2-082004	"	"	"	"	<0.5	<0.6					
SB-B1-082004	"	"	S. Trench Spoil Basin	"	<0.5	<0.6	8703	0.18 J	15%		
SB-B2-082004	"	"	"	"	<0.5	<0.6					
SB- East W1-082004	"	"	"	"	<0.5	<0.6					
SB- East W2-082004	"	"	"	"	<0.5	<0.6					
SB-West W1-082004	"	"	"	"	<0.5	<0.6					
SB-West W2-082004	"	"	"	"	<0.5	<0.6					

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #26											
Segment 14-B1-082304	08/23/04	Confirmatory	HHC Segment 14	B1	0.66	0.78					
Segment 14-B2-082304	"	"	"	B2	2.51	2.95	8725	1.3 J	26%		See batch #27 for retest after additional excavation
Segment 14-B3-082304	"	"	"	B3	0.60	0.71					
Segment 14-B4-082304	"	"	"	B4	0.70	0.82					
Segment 14-B5-082304	"	"	"	B5	<0.5	<0.6					
Segment 14-B6-082304	"	"	"	B6	0.63	0.74					
Segment 14-W1-082304	"	"	"	W1	1.56	1.84	8725	1.7 J	23%		See batch #27 for retest after additional excavation
Segment 14-W2-082304	"	"	"	W2	<0.5	<0.6					
Segment 14-W3-082304	"	"	"	W3	<0.5	<0.6					
Segment 14-W4-082304	"	"	"	W4	<0.5	<0.6					
Segment 14-W5-082304	"	"	"	W5	<0.5	<0.6					
Segment 14-W6-082304	"	"	"	W6	0.53	0.62					
2004 Field Batch #27											
Segment 14-B2-082404	08/24/04	Confirmatory	HHC Segment 14	B2	<0.5	<0.6					Retest of batch #26 location after additional excavation
Segment 14-B7-082404	"	"	"	B7	<0.5	<0.6					
Segment 14-B8-082404	"	"	"	B8	<0.5	<0.6					
Segment 14-B9-082404	"	"	"	B9	<0.5	<0.6					
Segment 14-B10-082404	"	"	"	B10	<0.5	<0.6	8725	0.086 J	25%		
Segment 14-W1-082404	"	"	"	W1	0.59	0.69					Retest of batch #26 location after additional excavation
Segment 14-W7-082404	"	"	"	W7	<0.5	<0.6					
Segment 14-W8-082404	"	"	"	W8	<0.5	<0.6					
Segment 14-W9-082404	"	"	"	W9	<0.5	<0.6					
Segment 14-W10-082404	"	"	"	W10	<0.5	<0.6					
2004 Field Batch #28											
Segment 14-B11-082504	08/25/04	Confirmatory	HHC Segment 14	B11	<0.5	<0.6					
Segment 14-B12-082504	"	"	"	B12	<0.5	<0.6					
Segment 14-B13-082504	"	"	"	B13	<0.5	<0.6					
Segment 14-B14-082504	"	"	"	B14	<0.5	<0.6					
Segment 14-W11-082504	"	"	"	W11	<0.5	<0.6					
Segment 14-W12-082504	"	"	"	W12	<0.5	<0.6					
Segment 14-W13-082504	"	"	"	W13	<0.5	<0.6					
Segment 14-W14-082504	"	"	"	W14	<0.5	<0.6	8747	<0.025	33%		
2004 Field Batch #29											
Segment 14-B15-083104	08/31/04	Confirmatory	HHC Segment 14	B15	<0.5	<0.6					
Segment 14-B16-083104	"	"	"	B16	<0.5	<0.6					
Segment 14-B17-083104	"	"	"	B17	<0.5	<0.6					
Segment 14-B18-083104	"	"	"	B18	<0.5	<0.6					
Segment 14-B19-083104	"	"	"	B19	<0.5	<0.6	8816	0.013 J	31%		
Segment 14-W15-083104	"	"	"	W15	<0.5	<0.6					
Segment 14-W16-083104	"	"	"	W16	<0.5	<0.6					
Segment 14-W17-083104	"	"	"	W17	<0.5	<0.6					
Segment 14-W18-083104	"	"	"	W18	<0.5	<0.6					
2004 Field Batch #30											
Segment 14-B20-090104	09/01/04	Confirmatory	HHC Segment 14	B20	<0.5	<0.6					
Segment 14-B21-090104	"	"	"	B21	<0.5	<0.6					
Segment 14-B22-090104	"	"	"	B22	<0.5	<0.6					
Segment 14-B23-090104	"	"	"	B23	<0.5	<0.6					
Segment 14-W19-090104	"	"	"	W19	<0.5	<0.6					
Segment 14-W20-090104	"	"	"	W20	<0.5	<0.6					
Segment 14-W22-090104	"	"	"	W22	<0.5	<0.6					
Segment 14-W23-090104	"	"	"	W23	<0.5	<0.6					
Segment 14-W24-090104	"	"	"	W24	<0.5	<0.6					
Segment 14-W25-090104	"	"	"	W25	1.55	1.82	8816	0.41 J	32%		See batch #31 for retest after additional excavation

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #31											
Segment 14-B24-090204	09/02/04	Confirmatory	HHC Segment 14	B24	<0.5	<0.6					
Segment 14-B25-090204	"	"	"	B25	<0.5	<0.6					
Segment 14-B26-090204	"	"	"	B26	<0.5	<0.6					
Segment 14-B27-090204	"	"	"	B27	<0.5	<0.6					
Segment 14-W25-090204	"	"	"	W25	<0.5	<0.6					Retest of batch #30 location after additional excavation
Segment 14-W26-090204	"	"	"	W26	<0.5	<0.6					
Segment 14-W27-090204	"	"	"	W27	<0.5	<0.6					
Segment 14-W28-090204	"	"	"	W28	<0.5	<0.6	8816	0.0042 J	28%		
Segment 14-W29-090204	"	"	"	W29	0.71	0.84					
2004 Field Batch #32											
Segment 13-B1-091304	09/11/04	Confirmatory	HHC Segment 13	B1	<0.5	<0.6					
Segment 13-B2-091304	"	"	"	B2	<0.5	<0.6					
Segment 13-B3-091304	"	"	"	B3	<0.5	<0.6					
Segment 13-B4-091304	"	"	"	B4	<0.5	<0.6					
Segment 13-W1-091304	"	"	"	W1	<0.5	<0.6					
Segment 13-W2-091304	"	"	"	W2	<0.5	<0.6					
Segment 13-W3-091304	"	"	"	W3	<0.5	<0.6	8927	0.015 J	31%		
Segment 13-W4-091304	"	"	"	W4	<0.5	<0.6					
2004 Field Batch #33											
Segment 13-B5-091404	09/14/04	Confirmatory	HHC Segment 13	B5	<0.5	<0.6					
Segment 13-B6-091404	"	"	"	B6	<0.5	<0.6					
Segment 13-B7-091404	"	"	"	B7	<0.5	<0.6					
Segment 13-B8-091404	"	"	"	B8	<0.5	<0.6					
Segment 13-B9-091404	"	"	"	B9	<0.5	<0.6					
Segment 13-B10-091404	"	"	"	B10	<0.5	<0.6					
Segment 13-B15-091404	"	"	"	B15	<0.5	<0.6					
Segment 13-W5-091404	"	"	"	W5	<0.5	<0.6					
Segment 13-W6-091404	"	"	"	W6	<0.5	<0.6					
Segment 13-W7-091404	"	"	"	W7	<0.5	<0.6					
Segment 13-W8-091404	"	"	"	W8	<0.5	<0.6					
Segment 13-W10-091404	"	"	"	W10	<0.5	<0.6	8927	<0.020 J	15%		
2004 Field Batch #34											
Segment 13-B11-091404	09/14/04	Confirmatory	HHC Segment 13	B11	<0.5	<0.6					
Segment 13-B12-091404	"	"	"	B12	<0.5	<0.6	8927	0.022 J	22%		
Segment 13-B18-091404	"	"	"	B18	<0.5	<0.6					
Segment 13-W9-091404	"	"	"	W9	<0.5	<0.6					
Segment 13-W12-091404	"	"	"	W12	<0.5	<0.6					
Segment 13-W14-091404	"	"	"	W14	<0.5	<0.6					
Segment 13-W16-091404	"	"	"	W16	<0.5	<0.6					

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					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #35											
N2-B1-091504	09/15/04	Confirmatory	Area N2	B1	<0.5	<0.6				VOCs Only	VOC samples collected 9/20/04 by EarthTech.
N2-B2-091504	"	"	"	B2	<0.5	<0.6				"	
N2-B3-091504	"	"	"	B3	<0.5	<0.6				"	
N2-B4-091504	"	"	"	B4	<0.5	<0.6				"	
N2-B5-091504	"	"	"	B5	<0.5	<0.6				"	
N2-B6-091504	"	"	"	B6	21.51	25.31	8927	92 J	8%	"	See batch #36 for retest after additional excavation
N2-B7-091504	"	"	"	B7	<0.5	<0.6				"	
N2-B8-091504	"	"	"	B8	8.58	10.09				"	See batches #36 & 38 for retests after additional excavation
N2-W1-091504	"	"	"	W1	<0.5	<0.6				"	
N2-W2-091504	"	"	"	W2	<0.5	<0.6				"	
N2-W3-091504	"	"	"	W3	<0.5	<0.6				"	
2004 Field Batch #36											
Segment 13-B13-091604	09/16/04	Confirmatory	HHC Segment 13	B13	<0.5	<0.6					
Segment 13-B14-091604	"	"	"	B14	<0.5	<0.6					
Segment 13-B16-091604	"	"	"	B16	<0.5	<0.6					
Segment 13-B17-091604	"	"	"	B17	<0.5	<0.6					
Segment 13-B19-091604	"	"	"	B19	<0.5	<0.6					
Segment 13-B20-091604	"	"	"	B20	<0.5	<0.6					
Segment 13-B21-091604	"	"	"	B21	<0.5	<0.6					
Segment 13-B22-091604	"	"	"	B22	<0.5	<0.6					
Segment 13-W11-091604	"	"	"	W11	<0.5	<0.6					
Segment 13-W13-091604	"	"	"	W13	<0.5	<0.6					See batch #37 for retest after additional excavation
Segment 13-W15-091604	"	"	"	W15	4.36	5.13	8927	5.92 J	45%		See batch #37 for retest after additional excavation
N2-B6-091604	"	"	Area N2	B6	<0.5	<0.6					Retest of batch #35 location after additional excavation
N2-B8-091604	"	"	"	B8	20.30	23.88	8927	87 J	7%		Retest of batch #35 location. See batch # 38 for retest after additional ex.
2004 Field Batch #37											
N2-B9-091604	09/16/04	Confirmatory	Area N2	B9	<0.5	<0.6				VOCs Only	VOC samples collected 9/20/04 by EarthTech.
N2-B10-091604	"	"	"	B10	<0.5	<0.6				"	
N2-B11-091604	"	"	"	B11	<0.5	<0.6				"	
N2-B12-091604	"	"	"	B12	<0.5	<0.6				"	
N2-W4-091604	"	"	"	W4	<0.5	<0.6					
N2-W5-091604	"	"	"	W5	<0.5	<0.6					
N2-W6-091604	"	"	"	W6	<0.5	<0.6					
Segment 13-W13-091704	09/17/04	"	HHC Segment 13	W13	<0.5	<0.6					Retest of batch #36 location after additional excavation.
Segment 13-W15-091704	"	"	HHC Segment 13	W15	<0.5	<0.6					Retest of batch #36 location after additional excavation.
Segment 13-B23-091704	"	"	"	B23	<0.5	<0.6					
2004 Field Batch #38											
N1-B1-092104	09/21/04	Confirmatory	Area N1	B1	<0.5	<0.6	8976	0.066	20%	VOCs Only	VOC samples collected 9/20/04 by EarthTech.
N1-B2-092104	"	"	"	B2	<0.5	<0.6				"	
N1-B3-092104	"	"	"	B3	<0.5	<0.6				"	
N1-B4-092104	"	"	"	B4	<0.5	<0.6				"	
N1-B5-092104	"	"	"	B5	<0.5	<0.6				"	
N1-B6-092104	"	"	"	B6	<0.5	<0.6				"	
N1-B7-092104	"	"	"	B7	<0.5	<0.6				"	
N1-B8-092104	"	"	"	B8	<0.5	<0.6				"	
N1-W1-092104	"	"	"	W1	<0.5	<0.6				"	
N1-W2-092104	"	"	"	W2	<0.5	<0.6				"	
N1-W3-092104	"	"	"	W3	<0.5	<0.6				"	
N1-W4-092104	"	"	"	W4	1.35	1.59	8976	18	14%		See batch # 39 for retest after additional excavation
N2-B8-092104	"	"	Area N2	B8	<0.5	<0.6					Retest of batch #35 & 36 locations after additional excavation
N2-B8-092104 (Dup)	"	"	"	B8	<0.5	<0.6					Retest of batch #35 & 36 locations after additional excavation

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #39											
N3-B1-092204	09/22/04	Confirmatory	Area N3	B1	<0.5	<0.6				VOCs Only	VOC samples collected 9/27/04 by EarthTech.
N3-B2-092204	"	"	"	B2	<0.5	<0.6				"	
N3-B3-092204	"	"	"	B3	<0.5	<0.6				"	
N3-B4-092204	"	"	"	B4	<0.5	<0.6	8976	0.27	10%	"	
N3-W1-092204	"	"	"	W1	<0.5	<0.6				"	
N3-W2-092204	"	"	"	W2	<0.5	<0.6				"	
N3-W3-092204	"	"	"	W3	<0.5	<0.6				"	
N1-W4-092204	"	"	Area N1	W4	0.71	0.84					Retest of batch #38 location after additional excavation
2004 Field Batch #40											
Segment 12-B1-092204	09/22/04	Confirmatory	HHC Segment 12	B1	<0.5	<0.6					
Segment 12-B2-092204	"	"	"	B2	<0.5	<0.6					
Segment 12-B3-092204	"	"	"	B3	<0.5	<0.6					
Segment 12-B4-092204	"	"	"	B4	<0.5	<0.6					
Segment 12-W1-092204	"	"	"	W1	2.22	2.61	8976	5.6 J	46%		See batch #41 for retest after additional excavation
Segment 12-W2-092204	"	"	"	W2	<0.5	<0.6					
Segment 12-W3-092204	"	"	"	W3	<0.5	<0.6					
Segment 12-W4-092204	"	"	"	W4	<0.5	<0.6					
2004 Field Batch #41											
Segment 12-B5-092304	09/23/04	Confirmatory	HHC Segment 12	B5	1.24	1.46	9011	0.8 JN	25%		See batch #42 for retest after additional excavation
Segment 12-B6-092304	"	"	"	B6	<0.5	<0.6					
Segment 12-W1-092304	"	"	"	W1	<0.5	<0.6					Retest of batch #40 location after additional excavation
Segment 12-W5-092304	"	"	"	W5	<0.5	<0.6					
Segment 12-W6-092304	"	"	"	W6	<0.5	<0.6					
N3-B5-092304	"	"	Area N3	B5	<0.5	<0.6				VOCs Only	VOC samples collected 9/27/04 by EarthTech.
N3-B6-092304	"	"	"	B6	<0.5	<0.6				"	
N3-B7-092304	"	"	"	B7	<0.5	<0.6				"	
N3-B8-092304	"	"	"	B8	<0.5	<0.6				"	
N3-W4-092304	"	"	"	W4	<0.5	<0.6				"	
N3-W5-092304	"	"	"	W5	<0.5	<0.6	9011	0.047	22%	"	
N3-W6-092304	"	"	"	W6	<0.5	<0.6				"	
2004 Field Batch #42											
Segment 12-B5-092504	09/25/04	Confirmatory	HHC Segment 12	B5	<0.5	<0.6					Retest of batch #41 location after additional excavation
Segment 12-B7-092504	"	"	"	B7	<0.5	<0.6					
Segment 12-B8-092504	"	"	"	B8	<0.5	<0.6					
Segment 12-B9-092504	"	"	"	B9	<0.5	<0.6					
Segment 12-B10-092504	"	"	"	B10	<0.5	<0.6	9011	0.11 J	19%		
Segment 12-B11-092504	"	"	"	B11	<0.5	<0.6	9011	0.092 J	24%		
Segment 12-B12-092504	"	"	"	B12	<0.5	<0.6					Retest of FIA#01 after excavation.
Segment 12-W7-092504	"	"	"	W7	<0.5	<0.6					
Segment 12-W8-092504	"	"	"	W8	<0.5	<0.6					
Segment 12-W9-092504	"	"	"	W9	<0.5	<0.6					
Segment 12-W10-092504	"	"	"	W10	<0.5	<0.6					Retest of FIA#01 after excavation.

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #43											
Segment 11- B1-092704	09/27/04	Confirmatory	HHC Segment 11	B1	<0.5	<0.6					
Segment 11- B2-092704	"	"	"	B2	<0.5	<0.6					
Segment 11- B3-092704	"	"	"	B3	<0.5	<0.6					
Segment 11- B4-092704	"	"	"	B4	<0.5	<0.6	9022	0.043 J	26%		
Segment 11- B5-092704	"	"	"	B5	<0.5	<0.6					Retest of FIA#04 after excavation.
Segment 11- B6-092704	"	"	"	B6	<0.5	<0.6					Retest of FIA#04 after excavation.
Segment 11- W1-092704	"	"	"	W1	<0.5	<0.6					
Segment 11- W2-092704	"	"	"	W2	<0.5	<0.6					Retest of FIA#04 after excavation.
2004 Field Batch #44											
Segment 10-B10-093004	09/30/04	Confirmatory	HHC Segment 10	B10	<0.5	<0.6	9052	< 0.021	20%		
Segment 10-B11-093004	"	"	"	B11	<0.5	<0.6					
Segment 10-B12-093004	"	"	"	B12	<0.5	<0.6					
Segment 10-B13-093004	"	"	"	B13	<0.5	<0.6					
Segment 10-B14-093004	"	"	"	B14	<0.5	<0.6					
Segment 10-W1-093004	"	"	"	W1	<0.5	<0.6					
Segment 10-W2-093004	"	"	"	W2	<0.5	<0.6					
Segment 10-W3-093004	"	"	"	W3	<0.5	<0.6					
Segment 10-W4-093004	"	"	"	W4	<0.5	<0.6					
2004 Field Batch #45											
Segment 10-B7-100104	10/01/04	Confirmatory	HHC Segment 10	B7	<0.5	<0.6	9052	0.029	25%		
Segment 10-B8-100104	"	"	"	B8	<0.5	<0.6					
Segment 10-B9-100104	"	"	"	B9	<0.5	<0.6					
Segment 10-W5-100104	"	"	"	W5	<0.5	<0.6					
Segment 10-W6-100104	"	"	"	W6	<0.5	<0.6					
Segment 10-W7-100104	"	"	"	W7	<0.5	<0.6					
Segment 10-W8-100104	"	"	"	W8	<0.5	<0.6					
SVE-B1-100404	10/04/04	Confirmatory	Area L-5	B1			9052	VOCs Only			VOC samples collected by Parsons
SVE-B2-100404	"	"	"	B2				"			
2004 Field Batch #46											
Segment 10-A5-100404	10/04/04	Confirmatory	HHC Segment 10	A5	<0.5	<0.6					
Segment 10-B4-100404				B4	<0.5	<0.6					
Segment 10-B5-100404	"	"	"	B5	<0.5	<0.6					
Segment 10-B6-100404	"	"	"	B6	<0.5	<0.6					
Segment 10-C4-100404	"	"	"	C4	<0.5	<0.6	9090	< 0.021	19%		
Segment 10-C5-100404	"	"	"	C5	<0.5	<0.6					
Segment 10-C6-100404	"	"	"	C6	<0.5	<0.6					
Segment 10-D6-100404	"	"	"	D6	<0.5	<0.6					
Segment 10-W10-100404	"	"	"	W10	<0.5	<0.6					
Segment 10-W12-100404	"	"	"	W12	<0.5	<0.6					
Segment 10-W14A-100404	"	"	"	W14A	<0.5	<0.6					
Segment 10-W14B-100404	"	"	"	W14B	<0.5	<0.6					

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #47											
Segment 10-C3-100504	10/05/04	Confirmatory	HHC Segment 10	C3	<0.5	<0.6					
Segment 10-D3-100504	"	"	"	D3	<0.5	<0.6					
Segment 10-D4-100504	"	"	"	D4	<0.5	<0.6					
Segment 10-D5-100504	"	"	"	D5	<0.5	<0.6					
Segment 10-E2-100504	"	"	"	E3	<0.5	<0.6	9090	< 0.021	19%		
Segment 10-E3-100504	"	"	"	E2	<0.5	<0.6					
Segment 10-F1-100504	"	"	"	F1	<0.5	<0.6					
Segment 10-W16-100504	"	"	"	W16	<0.5	<0.6					
Segment 10-W18-100504	"	"	"	W18	<0.5	<0.6					
Segment 10-W20-100504	"	"	"	W20	<0.5	<0.6					
2004 Field Batch #48											
Segment 10-E4-100704	10/07/04	Confirmatory	HHC Segment 10	E4	<0.5	<0.6					
Segment 10-E5-100704	"	"	"	E5	<0.5	<0.6					
Segment 10-E6-100704	"	"	"	E6	<0.5	<0.6					
Segment 10-F2-100704	"	"	"	F2	<0.5	<0.6					
Segment 10-F4-100804	10/08/04	"	"	F4	<0.5	<0.6					
Segment 10-F5-100804	"	"	"	F5	<0.5	<0.6					
Segment 10-F6-100704	10/07/04	"	"	F6	<0.5	<0.6					
Segment 10-G1-100704	"	"	"	G1	<0.5	<0.6	9090	< 0.022	24%		
Segment 10-G5-100804	10/08/04	"	"	G5	<0.5	<0.6					
Segment 10-G6-100804	"	"	"	G6	<0.5	<0.6					
SVE-B3-100804	10/08/04	"	Area L-5	B3	1.78	2.09	9090	8.1	9%		See batches # 49 & 51 for retests after additional excavation
SVE-B4-100804	"	"	"	B4	7.95	9.35					See batches # 49 & 51 for retests after additional excavation
SVE-B5-100804	"	"	"	B5	31.15	36.65					See batches # 49 & 51 for retests after additional excavation
2004 Field Batch #49											
Segment 10-J1-101104	10/11/04	Confirmatory	HHC Segment 10	J1	<0.5	<0.6					
Segment 10-K1-101104	"	"	"	K1	<0.5	<0.6					
Segment 10-L1-101104	"	"	"	L1	<0.5	<0.6					
Segment 10-L2-101104	"	"	"	L2	<0.5	<0.6					
Segment 10-L3-101104	"	"	"	L3	<0.5	<0.6	9121	< 0.022	23%		
Segment 10-W13-101104	"	"	"	W13	<0.5	<0.6					
Segment 10-W15-101104	"	"	"	W15	<0.5	<0.6					
Segment 10-W17-101104	"	"	"	W17	<0.5	<0.6					
Segment 10-W19-101104	"	"	"	W19	<0.5	<0.6					
SVE-B3-100904	10/09/04	"	Area L-5	B3	1.82	2.14	9121	3.9	6%		Retest of batch #48 location. See batch # 51 for retest after additional ex.
SVE-B4-100904	"	"	"	B4	1.75	2.06					Retest of batch #48 location. See batch # 51 for retest after additional ex.
SVE-B5-100904	"	"	"	B5	1.23	1.45					Retest of batch #48 location. See batch # 51 for retest after additional ex.

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Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassy Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #50											
Segment 10-F3-101104	10/12/04	Confirmatory	HHC Segment 10	F3	<0.5	<0.6					
Segment 10-G2-101104	10/11/04	"	"	G2	<0.5	<0.6					
Segment 10-G3-101204	10/12/04	"	"	G3	<0.5	<0.6					
Segment 10-H1-101104	10/11/04	"	"	H1	<0.5	<0.6					
Segment 10-H2-101104	"	"	"	H2	<0.5	<0.6					
Segment 10-H3-101204	10/12/04	"	"	H3	<0.5	<0.6					
Segment 10-I1-101104	10/11/04	"	"	I1	<0.5	<0.6					
Segment 10-I2-101104	"	"	"	I2	<0.5	<0.6					
Segment 10-I3-101204	10/12/04	"	"	I3	<0.5	<0.6					
Segment 10-J2-101104	10/11/04	"	"	J2	<0.5	<0.6					
Segment 10-J3-101204	10/12/04	"	"	J3	<0.5	<0.6					
Segment 10-K2-101104	10/11/04	"	"	K2	<0.5	<0.6					
Segment 10-K3-101204	10/12/04	"	"	K3	<0.5	<0.6	9121	0.035	27%		
Segment 10-K4-101204	"	"	"	K4	<0.5	<0.6	9121	0.31	36%		
2004 Field Batch #51											
Segment 10-H4-101204	10/12/04	Confirmatory	HHC Segment 10	H4	<0.5	<0.6					
Segment 10-H5-101204	"	"	"	H5	<0.5	<0.6					
Segment 10-I4-101204	"	"	"	I4	<0.5	<0.6					
Segment 10-I5-101204	"	"	"	I5	<0.5	<0.6					
Segment 10-J4-101204	"	"	"	J4	<0.5	<0.6	9121	< 0.021	20%		
Segment 10-W9-101204	"	"	"	W9	<0.5	<0.6					
Segment 10-W11-101204	"	"	"	W11	<0.5	<0.6					
SVE-B2-101304	"	"	Area L-5	B2			9121	VOCs Only			VOC sample collected by Parsons.
SVE-B3-101204	"	"	"	B3	<0.5	<0.6					Retest of batch #48 & 49 locations after additional excavation
SVE-B4-101204	"	"	"	B4	<0.5	<0.6					Retest of batch #48 & 49 locations after additional excavation
SVE-B5-101204	"	"	"	B5	<0.5	<0.6					Retest of batch #48 & 49 locations after additional excavation
2004 Field Batch #52											
Segment 9-B1-101304	10/13/04	Confirmatory	HHC Segment 9	B1	<0.5	<0.6					
Segment 9-B2-101304	"	"	"	B2	<0.5	<0.6					
Segment 9-B3-101304	"	"	"	B3	<0.5	<0.6					
Segment 9-B4-101304	"	"	"	B4	<0.5	<0.6					
Segment 9-B5-101304	"	"	"	B5	<0.5	<0.6					
Segment 9-B6-101304	"	"	"	B6	<0.5	<0.6					
Segment 9-B7-101304	"	"	"	B7	<0.5	<0.6					
Segment 9-W1-101304	"	"	"	W1	<0.5	<0.6	9127	0.022 J	41%		
Segment 9-W2-101304	"	"	"	W2	<0.5	<0.6					
AR-1-101304	"	"	HHC Const. Access Road	A1	<0.5	<0.6					
AR-2-101304	"	"	"	A2	<0.5	<0.6	9127	0.19 J	2%		
AR-3-101304	"	"	"	A3	<0.5	<0.6					
AR-4-101304	"	"	"	A4	<0.5	<0.6					
AR-5-101304	"	"	"	A5	0.64	0.75					
HHC-1-101304	"	"	Herrick Hollow Creek	HHC1	<0.5	<0.6					
HHC-2-101304	"	"	"	HHC2	<0.5	<0.6					
HHC-3-101304	"	"	"	HHC3	<0.5	<0.6					
HHC-4-101304	"	"	"	HHC4	<0.5	<0.6					
HHC-5-101304	"	"	"	HHC5	<0.5	<0.6					
HHC-6-101304	"	"	"	HHC6	<0.5	<0.6	9127	0.0085 J	6%		
HHC-7-101304	"	"	"	HHC7	<0.5	<0.6					

CONFIRMATORY SAMPLING RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample Identification	Date Collected	Purpose	Location	Grid	Samples Collected by Parsons					Samples Collected by Others (Total PCBs in mg/kg)	Remarks
					Immunoassay Field Test Kit Results[1]		Validated Laboratory Results[2] (Method 8082)				
					Total PCBs (Reported as Aroclor 1254)	Total PCBs (Reported as Aroclor 1248)	SDG #	Total PCBs	Moisture Content		
2004 Field Batch #53											
SP-B1-110604	11/06/04	Confirmatory	South Pond Weir	B1	<0.5	<0.6	9305	0.23	26%		
2005 SAMPLING											
AR-1	4/28/2005	Confirmatory	HHC Const Access Road	-	-	-		0.42	16.2%		
AR-2	"	"	"	-	-	-		0.093	15.1%		
AR-3	"	"	"	-	-	-		0.19	13.7%		
AR-4	"	"	"	-	-	-		0.29	12.5%		
AR-5	"	"	"	-	-	-		0.10	15.0%		
AR-6	"	"	"	-	-	-		0.099	15.5%		
AR-7	"	"	"	-	-	-		0.10	11.5%		
AR-8	"	"	"	-	-	-		0.083	13.4%		
AR-9	"	"	"	-	-	-		0.18	13.3%		
AR-10	"	"	"	-	-	-		0.10	13.2%		
AR-11	"	"	"	-	-	-		0.11	14.3%		
AR-12	"	"	"	-	-	-		0.065	15.2%		
AR-13	"	"	"	-	-	-		0.081 J	16.8%		
AR-14	"	"	"	-	-	-		0.053	16.7%		
AR-15	"	"	"	-	-	-		0.10	13.2%		
AR-16	"	"	"	-	-	-		0.20	12.1%		
AR-17	"	"	"	-	-	-		0.060	19.6%		
AR-18	"	"	"	-	-	-		0.10	19.7%		
AR-19	"	"	"	-	-	-		0.19 J	11.3%		
AR-20	"	"	"	-	-	-		0.62 J	10.3%		
AR-21	"	"	"	-	-	-		0.19	11.7%		
AR-22	"	"	"	-	-	-		0.20	8.8%		
AR-23	"	"	"	-	-	-		0.17	13.3%		
AR-24	"	"	"	-	-	-		0.11 J	22.5%		
AR-25	"	"	"	-	-	-		0.36	11.2%		
AR-26	"	"	"	-	-	-		0.38	13.0%		
AR-27	"	"	"	-	-	-		0.53 J	9.5%		
L5-001 (North Composite)	05/12/05	Confirmatory	Area L-5	North			0505073	5.23 J	19%		See 9/7/05 samples for retests after excavation
L5-002 (Center Composite)	"	"	"	Center			"	4.69 J	13%		" " " " " " " "
L5-003 (South Composite)	"	"	"	South			"	3.71 J	16%		" " " " " " " "
L5-01	09/07/05	Confirmatory	Area L-5	North			050908018	1.8			Retest of 5/12/05 locations after excavation / See 6/20/06 retest. Adirondack Labs.
L5-02	"	"	"	Center			"	0.42			" " " " " " " " " "
L5-03	"	"	"	South			"	0.59			" " " " " " " " " "
2006 SAMPLING											
L5-01	6/20/2006	Confirmatory	Area L-5	North			60621007	0.34			Retest of 9/72/05 locations after additional excavation. Adirondack Labs.
L5-01-1	"	"	"	North (Duplicate)			"	0.363			" " " " " " "
L5-02	"	"	"	Center			"	0.59			" " " " " " "
L5-03	"	"	"	South			"	0.29			" " " " " " "

Notes:
1. RaPID Assay immunoassay test kit. The RaPid Assay is calibrated to Aroclor 1254, and exhibits 15% less sensitivity to Aroclor 1248. The RaPID assay does not distinguish between Aroclors (i.e., results reported as total PCBs). Since both Aroclors 1254 and 1248 were known to be present at the site, results were compared to clean-up criteria conservatively using two worst case scenarios as follows: in one it was assumed that all of the PCB detected by the RaPID Assay was Aroclor 1254, and for the other it was assumed that all of the PCB detected was Aroclor 1248. Because the RaPID assay is 15% less sensitive to Aroclor 1248 than for Aroclor 1254, in the second scenario, for Aroclor 1248, results were divided by 0.85 to account for the difference in sensitivity. The results for Aroclor 1254 and Aroclor 1248 were then compared to the clean-up goal of 1 mg/kg.
2. Samples analyzed by OBG Laboratories unless otherwise indicated. Higher of two GC column results shown.
3. Shaded results exceed 1 mg/kg.

TABLE 3.4
SVE SYSTEM OPERATION LOG
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Date	PID System (ppm = mg/kg)	PID 1st Carbon (ppm)	PID 2nd Carbon (ppm)	System Pressure (inches water)	System Temp. (F)	Flow (scfm)	Laterals Open	Water Collected (gal)
03/15/04	344	0.70	0.40	50	150	100	1, 2, 3	
"	319	2.8*	1.6*	54	152	95	1, 2, 3	
"	160	7.3*	1.7*	54	150	90	All	210
03/16/04	12.8	0.70	0.70	47	158	95	All	180
03/17/04	6.5	0.40	0.30	48	160	95	1, 2, 3, 4, 5	110
03/18/04	3.7	0.20	0.03	50	154	100	1, 3, 4, 5	
03/22/04	** No Sample Collected	** No Sample Collected	** No Sample collected	48	148	100	1, 3, 4, 5	
03/26/04	123	1.3	0.2	45	160	100	1, 2, 3, 4, 5	
"	136	0.7	0	30	148	110	1,2,3,4,5,6,7	65
03/31/04	191	2.7	0.7	52	150	95	1,2,3,4,5,7	110
04/06/04	68.1	2.0	0.3	49	150	100	1,2,3,4,5,6,7	40
04/14/04	172	2.3	0.3	50	120	100	1,2,3,4,5	105
04/20/04	167	2.8	0.4	40	120	105	All	90
04/22/04	49.2	8.4	1.8 ***	34	150	105	All	70
04/27/04	51.8	4.9	0.1****	36	140	105	All	65
04/29/04	37	5.8	0.1	34	150	105	All	70
05/04/04	38.6	6.8	0	30	130	105	All	85
05/06/04	52.5	8.8	0.6	34	140	105	All	30
05/10/04	284	328	79.8****	Not measured	Not measured	100	All	10
"	46.9	3.4	0.5	15	132	130	All	0
05/11/04	46	4.5	0	12	142	130	All	0
05/13/04	No PID readings due to high humidity			13	140	130	All	4
05/14/04	No PID readings due to high humidity			12	142	130	All	4
05/18/04	308	25*****	0	13	Not measured	130	All	20
System down for blower repairs (5/26 - 6/2/04)								
06/03/04	410	0	0	46	100	75	All	90
06/09/04	35.8	1.9	0	24	140	100	All	0
System down for control panel repairs (6/10 - 6/18/04)								
06/21/04	75.7	15.3	0.8	24	130	95	All	0
06/23/04	73.1	15.9	3.5****	Not measured	Not measured	Not measured	All	5
"	73.1	48	0	25	128	95	All	0
06/30/04	72.1	12	0.4	30	110	95	All	5
07/07/04	72.7	5	0.0****	30	120	95	All	0
07/13/04	**Composite sample collected for disposal characterization**							
07/21/04	119	0.1	0	50	120	80	All	0
"	**TCE treatment goal reached - system shut down**							
08/12/04	**GAC samples collected for disposal characterization**							

Notes:

1. PID System reading is prior to blower
2. PID 1st Carbon is after Carbon #1
3. PID 2nd Carbon is after Carbon #2
4. System Pressure is at knock out tank
5. System temperature is Air Stream
6. * PID readings before and after carbon influenced by temperature and humidity.
7. ** Vacuum sampling pump inoperable-being replaced.
8. *** System turned off until carbon units replaced.
9. **** Second carbon unit moved to 1st position. New carbon unit placed in 2nd position.

10***** High reading due to humidity/rain

TABLE 3.5
SVE STOCKPILE HAZARDOUS WASTE MANIFEST LOG
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Manifest No.	Date Shipped	Transporter	Truck Load Weight (Tons)	Rail Car #	Generator	Disposal Facility	Date Received/ Disposed
NYG 2918043	09/30/04	Horwith Trucking	25.60	NS193991	Amphenol	Clean Harbors Clive, Utah	11/10/04
NYG 2918052	"	"	23.38	"	"	"	"
NYG 2918214	"	"	24.82	"	"	"	"
NYG 2918223	"	"	23.60	"	"	"	"
Total Weights			**97.40**				
NYG 2918061	"	"	28.10	NS201355	"	"	11/09/04
NYG 2918259	"	"	26.60	"	"	"	"
NYG 2918268	"	"	22.26	"	"	"	"
NYG 2918304	"	"	25.05	"	"	"	"
Total Weights			**102.01**				
NYG 2918079	"	"	26.12	CRS85767	"	"	"
NYG 2918097	"	"	23.77	"	"	"	"
NYG 2918232	"	"	24.13	"	"	"	11/10/04
NYG 2918277	"	"	23.40	"	"	"	"
Total Weights			**97.42**				
NYG 2918088	"	"	24.11	NS200952	"	"	11/11/04
NYG 2918241	"	"	24.45	"	"	"	11/12/04
NYG 2918106	10/01/04	"	22.58	"	"	"	"
NYG 2918115	"	"	24.85	"	"	"	"
Total Weights			**95.99**				
NYG 2918124	"	"	22.38	NS201305	"	"	11/11/04
NYG 2918133	"	"	24.60	"	"	"	"
NYG 2918196	"	"	23.16	"	"	"	"
NYG 2918286	"	"	27.02	"	"	"	"
Total Weights			**97.16**				
NYG 2918151	"	"	23.73	NS201075	"	"	11/12/04
NYG 2918178	"	"	23.00	"	"	"	"
NYG 2918295	"	"	23.90	"	"	"	"
NYG 4421088	"	"	24.71	"	"	"	"
Total Weights			**95.34**				
NYG 2918142	"	"	25.52	NS194128	"	"	11/09/04
NYG 4421097	"	"	24.10	"	"	"	11/08/04
NYG 4421106	10/04/04	"	23.75	"	"	"	11/09/04
NYG 4421115	"	"	26.77	"	"	"	"
Total Weights			**100.14**				
NYG 2918169	10/01/04	"	23.37	NS194185	"	Clean Harbors Aragonite, Utah	10/29/04
NYG 4421124	10/04/04	"	27.69	"	"	"	"
Total Weights			**51.06**				
NYG 2918313	10/07/04	"	25.44	MHFX5672	"	"	11/08/04
NYG 2918367	"	"	25.26	"	"	"	"
NYG 4421142	"	"	22.84	"	"	"	"
NYG 2918322	10/08/04	"	25.64	"	"	"	"
Total Weights			**99.18**				
NYG 2918394	"	"	26.65	NDYX320684	"	Clean Harbors Aragonite, Utah	12/03/04
NYG 2918439	"	"	19.34	"	"	"	12/06/04
Total Weights			**45.99**				

Total: **881.69**
Total to Clean Harbors @ Clive, Utah: **784.64**
Total to Clean Harbors @ Aragonite, Utah: **97.05**

TABLE 3.6
BARRIER PROTECTION MATERIAL QA/QC TEST RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample ID	Revised Specification (FCO #009)	Barrier Material; WFBM-1 (BPM #2 (BMW-2))	Barrier Material; WFBM-2 (ROB (BPM #2-2))	Barrier Material; WFBM-3 (ROB w/Clay)	Barrier Material; WFBM-4 (Silty Sand)	Barrier Material; WFBM-5	Barrier Material; WFBM-6	Barrier Material; WFBM-7	Barrier Material: WFBM-8	Barrier Material: WFBM-9	Barrier Material; WFBM-10	Barrier Material; WFBM-11	Barrier Material; WFBM-12
Laboratory		JLT	Construction Technology	Construction Technology	JLT	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology
Report Date		8/10 - 8/16/05	8/30/05	8/1/05	8/10 - 8/16/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05
Laboratory Sample Number			TXP-7529	7366		7573	7574	7575	7576	7577	7578	7579	7580
Filter Criteria (Revised 2/28/06 by FCO #009)													
Permittivity of geotextile (minimum)(based on % passing #200)	**ASTM D4491**												
<15%	0.5 sec (-1)	0.5	0.5	0.5	-	-		0.5	0.5	-		0.5	0.5
15 to 50%	0.2 sec (-1)	-	-	-	0.2	0.2	-	-		0.2	0.2	-	
>50%	0.1 sec (-1)	-	-	-	-		0.1	-		-	-	-	-
Actual permittivity of geotextile (7-oz fabric against soil)	**1.41 sec (-1)**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
AOS of geotextile (maximum)(based on % passing #200)	**ASTM D4751**												
<15%	0.43 mm	0.43	0.43	0.43	-	-		0.43	0.43	-		0.43	0.43
15 to 50%	0.25 mm	-	-	-	0.25	0.25	-	-		0.25	0.25	-	
>50%	0.22 mm	-	-	-	-		0.22	-	-	-	-	-	-
Actual AOS of geotextile (7-oz fabric against soil)	**#70 = 0.21 mm**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Hydraulic Conductivity Testing (Revised 2/28/06 by FCO #009)	**maximum**												
Avg. Permeability (cm/sec)	**1x10(-4)**	1.97x10(-5)	1.73x10(-5)	3.88x10(-5)	2.26x10(-5)	9.58E-05	1.46E-04	2.08E-05	1.56E-05	8.27E-06	1.36E-05	2.31E-05	1.50E-04
Compaction	**95%**	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
ASTM methods	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084
Pass/Fail?		**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Fail**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Fail**
Max Dry Density (pcf)	ASTM D1557	136.0	138.1	138.3	129.3	120.5	105	139.6	139.2	135.2	132.6	133.7	134.2
Optimum Moisture (%)	ASTM D1557	7.5	6.3	7.7	8.5	11.1	13.4	6.5	6.8	7.3	8.5	8.2	6.1
Particle Size Analysis (See Note 1)	ASTM D422												
Sieve (No.)	**% Passing**												
2" **(Clarified by 7/5/06 Parsons email)**	100			100						-	-		100.0
1-1/2"	-			94.3		100.0				100.0	100.0	100.0	96.4
1"	-			94.3		93.8			100.0	94.9	97.1	84.5	87.0
3/4"	-		100.0	90.4	100	91.7		100.0	98.6	92.9	91.3	77.4	74.0
1/2"	-	100	98.6	79.7	92.6	91.1		99.0	97.3	90.6	85.7	70.9	65.5
3/8"	-	95.7	95.5	75	89.8	90.3		96.6	94.6	86.2	82.5	67.2	59.7
1/4"	-		86.1	68.1		88.1		88.4	85.6	80.3	75.9	60.0	52.0
#4	-	83.9	79.7	63.3	82.8	86.9	100.0	83.3	80.1	76.5	72.5	56.3	47.4
#8	-		63.0	51.1		83.4	99.8	67.8	66.7	67.1	63.6	47.5	35.5
#10	-	66.4			74.1								
#16	-		44.7	40		79.7	99.6	53.2	52.2	55.6	54.6	38.5	25.2
#20	-	44			62								
#30	-		26.2	29		74.3	99.5	36.5	35.7	45.5	44.2	28.3	13.5
#40	-	26.2	21.0	25.4	48.5	69.5	99.3	29.5	29.7	40.1	39.2	24.3	9.7
#50	-	19.1	16.9	23.3	40.7	62.6	98.9	23.6	24.4	35.5	34.0	21.2	7.7
#100	-	15.9	13.4	17	33.1	48.8	95.0	16.7	14.7	26.9	24.6	15.8	6.3
#200	-	13.4	11.2	11.9	23.7	33.4	68.6	12.5	13.1	20.0	19.0	12.1	4.3
PCBs (EPA Method 8082)	**Non-Detect**							Non-Detect					Non-Detect
Comments						**Stockpile BMP-3 not used**		**Stockpile BMP-3 not used**	**Stockpile BMP-3 not used**				**Resampled. See WFBM-26 & WFBM-27**

Note 1: Particle size requirements deleted as per FCO #009. Cobbles exceeding 2 inches in diameter were removed by hand-picking during BPM placement.

TABLE 3.6
BARRIER PROTECTION MATERIAL QA/QC TEST RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample ID	Revised Specification (FCO #009)	Barrier Material: WFBM-13	Barrier Material: WFBM-14	Barrier Material: WFBM-15	Barrier Material: WFBM-16	Barrier Material: WFBM-17	Barrier Material: WFBM-18	Barrier Material: WFBM-19	Barrier Material: WFBM-20	Barrier Material: WFBM-21	Barrier Material: WFBM-22	Barrier Material: WFBM-23	Barrier Material: WFBM-24
Laboratory		Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology
Report Date		9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	9/9/05	4/13/06	4/13/06	4/13/06	4/13/06	4/13/06
Laboratory Sample Number		7581	7582	7583	7584	7585	7586	7587	8058	8059	8060	8061	8062
Filter Criteria (Revised 2/28/06 by FCO #009)													
Permittivity of geotextile (minimum)(based on % passing #200)	**ASTM D4491**												
<15%	0.5 sec (-1)	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15 to 50%	0.2 sec (-1)	0.2	0.2	0.2	-	-	-	-	-	-	-	-	-
>50%	0.1 sec (-1)	-	-	-	-	-	-	-	-	-	-	-	-
Actual permittivity of geotextile (7-oz fabric against soil)	**1.41 sec (-1)**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
AOS of geotextile (maximum)(based on % passing #200)	**ASTM D4751**												
<15%	0.43 mm	-	-	-	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
15 to 50%	0.25 mm	0.25	0.25	0.25	-	-	-	-	-	-	-	-	-
>50%	0.22 mm	-	-	-	-	-	-	-	-	-	-	-	-
Actual AOS of geotextile (7-oz fabric against soil)	**#70 = 0.21 mm**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Hydraulic Conductivity Testing (Revised 2/28/06 by FCO #009)	**maximum**												
Avg. Permeability (cm/sec)	**1x10(-4)**	8.22E-05	1.09E-05	3.67E-05	1.33E-05	7.74E-05	4.84-05	2.69E-05	2.28E-05	1.14E-05	1.61E-05	1.29E-05	2.90E-05
Compaction	**95%**	95%	95%	95%	95%	96%	95%	95%	95%	95%	95%	95%	95%
ASTM methods	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084
Pass/Fail?		**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Max Dry Density (pcf)	ASTM D1557	134.6	135.5	135.7	140.2	138.8	138.4	138.7	139.3	139.7	140.1	140.7	138.5
Optimum Moisture (%)	ASTM D1557	7.1	7.7	6.6	6.0	6.3	6.1	6.2	6.7	6.4	6.1	6.6	7.6
Particle Size Analysis (See Note 1)	ASTM D422												
Sieve (No.)	**% Passing**												
2" **(Clarified by 7/5/06 Parsons email)**	100	-	-										
1-1/2"	-	100.0		100.0	100.0	100.0					100	100	
1"	-	92.0		90.1	96.9	96.9				100	97.2	96.1	
3/4"	-	88.8	100.0	90.1	94.1	86.4	100.0	100.0	100.0	99.6	97.2	96.1	100
1/2"	-	86.7	96.1	84.7	84.7	75.2	99.4	99.1	98.7	97.9	95.3	92.8	98.2
3/8"	-	83.1	91.2	82.0	77.4	70.5	96.8	95.2	94.2	93.5	89.6	89.4	95.2
1/4"	-	78.3	83.3	77.3	67.7	61.8	88.1	87.4	87.1	82	79.7	80.3	86.6
#4	-	75.4	79.0	74.3	62.1	56.8	81.4	81.2	82.0	75.8	73.8	74.9	80.9
#8	-	69.1	67.4	65.7	49.3	44.5	65.5	66.2	65.6	60.3	58.6	60.3	66.7
#10	-												
#16	-	60.3	55.0	55.2	37.9	31.4	49.8	50.2	50.1	45.8	42.1	44.2	50.7
#20	-												
#30	-	52.1	42.9	45.6	26.3	20.4	33.2	33.1	33.8	31.4	28.3	30.8	34.8
#40	-	47.5	35.9	40.2	21.8	15.3	26.9	26.8	26.7	25.2	22.4	24.4	26.6
#50	-	43.8	29.8	36.6	17.9	13.0	21.9	21.6	21.7	20.6	18.5	19.9	20.9
#100	-	30.2	21.3	30.2	12.6	9.0	16.6	16.3	15.9	15.2	13.8	14.8	14.1
#200	-	19.8	15.8	22.6	9.9	6.6	13.3	13.0	12.6	12	11	11.9	10.7
PCBs (EPA Method 8082)	**Non-Detect**					Non-Detect							
Comments													

Note 1: Particle size requirements deleted as per FCO #009. Cobbles exceeding 2 inche

TABLE 3.6
BARRIER PROTECTION MATERIAL QA/QC TEST RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample ID	**Revised Specification (FCO #009)**	Barrier Material: WFBM-25	Barrier Material: WFBM-26	Barrier Material: WFBM-27	Barrier Material: WFBM-27 QA Sample	Barrier Material: WFBM-28	Barrier Material: WFBM-29	Barrier Material: WFBM-30	Barrier Material: WFBM-31	Barrier Material: WFBM-32	Barrier Material: WFBM-32
Laboratory		Construction Technology	Construction Technology	Construction Technology	JLT	Construction Technology	Construction Technology	Construction Technology	Construction Technology	Construction Technology	JLT
Report Date		4/13/06	4/13/06	4/13/06	5/9/06	4/13/06	4/13/06	4/13/06	4/13/06	4/13/06	5/9/06
Laboratory Sample Number		8063	8064	8065		8066	8067	8068	8069	8070	
Filter Criteria (Revised 2/28/06 by FCO #009)											
Permittivity of geotextile (minimum)(based on % passing #200)	**ASTM D4491**										
<15%	0.5 sec (-1)	-	0.5	0.5	0.5	0.5			0.5	0.5	0.5
15 to 50%	0.2 sec (-1)	0.2	-	-	-	-	0.2	0.2	-	-	-
>50%	0.1 sec (-1)	-	-	-	-	-	-	-	-	-	-
Actual permittivity of geotextile (7-oz fabric against soil)	**1.41 sec (-1)**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
AOS of geotextile (maximum)(based on % passing #200)	**ASTM D4751**										
<15%	0.43 mm	-	0.43	0.43	0.43	0.43	-	-	0.43	0.43	0.43
15 to 50%	0.25 mm	0.25	-	-	-	-	0.25	0.25	-	-	-
>50%	0.22 mm	-	-	-	-	-	-	-	-	-	-
Actual AOS of geotextile (7-oz fabric against soil)	**#70 = 0.21 mm**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Hydraulic Conductivity Testing (Revised 2/28/06 by FCO #009)	**maximum**										
Avg. Permeability (cm/sec)	**1x10(-4)**	9.75E-06	6.55E-05	2.11E-05	1.38E-04	7.80E-05	1.71E-05	1.13E-05	8.96E-06	1.73E-05	1.44E-05
Compaction	**95%**	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
ASTM methods	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084	D1557 & D5084
Pass/Fail?		**Pass**	**Pass**	**Pass**	**Fail**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Max Dry Density (pcf)	ASTM D1557	137.9	139.8	140.4	134.5	136.3	132.6	132.7	138.6	137.8	137
Optimum Moisture (%)	ASTM D1557	8.2	5.7	6.8	6.8	6.1	8.1	8.0	7.2	6.9	7.2
Particle Size Analysis (See Note 1)	ASTM D422										
Sieve (No.)	**% Passing**										
2" **(Clarified by 7/5/06 Parsons email)**	100		100	100						100	
1-1/2"	-	100	94.1	92.8	100	100	100	100		88.7	
1"	-	93.2	81.6	79.4	91.5	88.6	96.7	95.8		88.7	100
3/4"	-	89.5	76.3	76.5	81.2	87.4	96	95.8	100	86.4	97.9
1/2"	-	82.5	62.7	67.3	71.4	79.7	93.9	92.2	98.8	84.7	97.1
3/8"	-	77.7	55.6	63	68	73.8	89.9	89.7	95.5	81.7	95.6
1/4"	-	71.3	46.3	56.8		63.6	83.7	81.6	87.6	75.5	
#4	-	67.8	41.5	53.8	59.9	58.1	79.9	77.1	82.4	72.1	84.3
#8	-	59.2	30.4	43.8		42.5	70.4	65.8	67	61.3	
#10	-										
#16	-	50	22.8	33.1		27.9	61.2	55.8	49.1	49.3	
#20	-										
#30	-	39.7	15.3	19.2		14	51.7	45.2	31.3	34.1	
#40	-	34.6	12.2	13.8	12.5	8.6	46.4	39.6	23.5	28	31.6
#50	-	30.4	10.7	11.1		6.2	41.5	35.1	19	23.1	
#100	-	4.5	8.9	9.3	7.2	5	31.4	27.1	14.8	15.6	18.4
#200	-	17.8	6.4	6.9	5.3	3.6	23.3	20.9	12.6	11.9	14.5
PCBs (EPA Method 8082)	**Non-Detect**										
Comments											

Note 1: Particle size requirements deleted as per FCO #009. Cobbles exceeding 2 inche

TABLE 3.7
BARRIER PROTECTION MATERIAL SHEAR TEST RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample ID	Specification	Barrier Material; DAC Transmittal #18	Barrier Material; DAC Transmittal #18	Barrier Material; DAC Transmittal #20	Barrier Material; DAC Transmittal #20	Barrier Material; DAC Transmittal #20	Barrier Material; DAC Transmittal #20	Barrier Material; DAC Transmittal #24	Barrier Material; DAC Transmittal #24	Barrier Material; DAC Transmittal #24
Laboratory		Geotechnics	Geotechnics	Geotechnics	Geotechnics	Geotechnics	Geotechnics	Geotechnics	Geotechnics	Geotechnics
Report Date		6/19/06	6/19/06	7/14/06	7/14/06	7/14/06	7/14/06	8/8/06	8/8/06	8/8/06
Laboratory Sample Number		WFBM-DSC-1	WFBM-DSC-2	WFUS-1	WFUS-2	WFUS-3	WFUS-5	WFUS-4	WFUS-6	WFUS-7
Direct Shear (ASTM D3080)	**38° minimum**	48.4	45.3	44.3	47.8	41.9	49.4	57.8	48.6	46.0
Comments				Located 60' east of WFBM-26	Located 70' southeast of WFBM-27	Located 50' north of WFBM-20	Located 50' east of WFBM-31			

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-01-0706								
7/12/2006	8	1		105.9	5.8	Review	Fail	Note 2
7/12/2006	8	1		130.5	8.6	Review	Fail	Note 2
7/12/2006	8	1		123.0	7.5	Review	Fail	Note 2
7/12/2006	8	1		125.0	8.5	Review	Fail	Note 2
CME Report #6801S-02-0706								
7/14/2006	8			124.8	6.8	Review	Fail	Note 2
7/14/2006	8			120.1	14.0	Review	Fail	Note 2
7/14/2006	8			133.5	8.7	Pass		Note 2
7/14/2006	8			70.9	28.1	Review	Fail	Note 2
7/14/2006	8			129.2	7.2	Review	Fail	Note 2
7/14/2006	8			107.4	17.6	Review	Fail	Note 2
7/14/2006	8			130.9	8.3	Review	Fail	Note 2
7/14/2006	8			117.3	15.6	Review	Fail	Note 2
7/14/2006	8			134.2	6.6	Pass		Note 2
7/14/2006	8			116.7	15.9	Review	Fail	Note 2
CME Report #6801S-03-0706								
7/18/2006	8	2		133.8	7.7	Pass		Note 2
7/18/2006	8	2		133.6	7.4	Pass		Note 2
7/18/2006	8	2		134.3	6.2	Pass		Note 2
7/18/2006	8	2		128.0	6.3	Review	Fail	Note 2
7/18/2006	8	2		129.7	5.0	Review	Fail	Note 2
7/18/2006	8	2		129.1	5.1	Review	Fail	Note 2
7/18/2006	8	2		133.0	4.6	Pass		Note 2
7/18/2006	8	1		126.0	12.6	Review	Fail	Note 2
7/18/2006	8	1		123.1	12.9	Review	Fail	Note 2
7/18/2006	8	1		122.7	13.5	Review	Fail	Note 2
7/18/2006	8	2		134.1	7.4	Pass		Note 2
7/18/2006	8	2		132.0	7.3	Pass		Note 2
7/18/2006	8	2		133.4	7.5	Pass		Note 2
7/18/2006	8	2		126.2	5.0	Review	Fail	Note 2
7/18/2006	8	2		129.9	5.5	Review	Fail	Note 2
7/18/2006	8	2		132.1	5.8	Pass		Note 2
7/18/2006	8	2		121.1	6.7	Review	Fail	Note 2
7/18/2006	8	2		133.4	6.3	Pass		Note 2

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-04-0706								
7/19/2006	7			132.8	6.8	Pass		
7/19/2006	7			133.5	6.4	Pass		
7/19/2006	7			137.1	5.8	Pass		
7/19/2006	7			133.6	5.5	Pass		
7/19/2006	7			132.9	6.5	Pass		
7/19/2006	7			131.6	6.0	Pass		
7/19/2006	7			131.6	6.0	Pass		
7/19/2006	7			127.3	5.4	Review	Fail	Note 2
7/19/2006	7			119.2	6.0	Review	Fail	Note 2
7/19/2006	8	1		133.0	8.1	Pass		Note 2
7/19/2006	8	1		125.5	12.2	Review	Fail	Note 2
7/19/2006	8	1		129.3	9.2	Review	Fail	Note 2
7/19/2006	8	1		126.7	11.1	Review	Fail	Note 2
7/19/2006	8	1		115.2	10.4	Review	Fail	Note 2
7/19/2006	8	1		121.4	10.7	Review	Fail	Note 2
7/19/2006	8	1		123.4	8.8	Review	Fail	Note 2
7/19/2006	8	1		118.0	9.6	Review	Fail	Note 2
7/19/2006	7			132.3	6.8	Pass		
7/19/2006	7			124.0	5.3	Review	Fail	Retested 7-24
CME Report #6801S-05-0706								
7/20/2006	8	1		128.3	6.1	Review	Fail	Note 2
7/20/2006	8	1		128.5	5.6	Review	Fail	Note 2
7/20/2006	8	1		135.6	7.9	Pass		Note 2
7/20/2006	8	1		136.5	7.3	Pass		Note 2
7/20/2006	8	1		123.8	6.8	Review	Fail	Note 2
7/20/2006	8	1		134.7	7.0	Pass		Note 2
7/20/2006	8	1		131.8	5.7	Pass		Note 2
7/20/2006	8	1		123.8	5.4	Review	Fail	Note 2
7/20/2006	8	1		133.7	5.1	Pass		Note 2
7/20/2006	8	2		123.5	6.0	Review	Fail	Note 2
7/20/2006	8	2		127.3	4.8	Review	Fail	Note 2
7/20/2006	8	2		122.5	5.7	Review	Fail	Note 2
7/20/2006	8	2		132.3	5.9	Pass		Note 2
7/20/2006	8	2		114.9	6.2	Review	Fail	Note 2
7/20/2006	8	2		126.4	4.9	Review	Fail	Note 2
7/20/2006	8	2		132.2	5.4	Pass		Note 2
7/20/2006	8	2		132.4	5.4	Pass		Note 2
7/20/2006	8	2		128.6	6.4	Review	Fail	Note 2
7/20/2006	8	2		127.0	4.9	Review	Fail	Note 2

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-06-0706								
7/24/2006	8	1/2 (Note 3)	2+25	132.4	7.0	Pass		50' OFFSET
7/24/2006	8	1/2 (Note 3)	2+25	136.7	7.3	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	2+25	128.9	6.2	Review	Pass	100' OFFSET (See Note 4c - Pass)
7/24/2006	8	1/2 (Note 3)	2+00	137.3	7.1	Pass		100' OFFSET
7/24/2006	8	1/2 (Note 3)	2+00	133.7	7.2	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	2+00	133.6	6.5	Pass		50' OFFSET
7/24/2006	8	1/2 (Note 3)	1+75	129.6	5.8	Review	Pass	50' OFFSET (See Note 4c - Pass)
7/24/2006	8	1/2 (Note 3)	1+75	134.6	7.2	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	1+75	133.1	8.2	Pass		100' OFFSET
7/24/2006	8	1/2 (Note 3)	1+50	133.3	6.4	Pass		100' OFFSET
7/24/2006	8	1/2 (Note 3)	1+50	129.7	6.9	Review	Pass	75' OFFSET (See Note 4c - Pass)
7/24/2006	8	1/2 (Note 3)	1+50	133.8	6.3	Pass		50' OFFSET
7/24/2006	8	1/2 (Note 3)	1+25	131.9	5.6	Pass		50' OFFSET
7/24/2006	8	1/2 (Note 3)	1+25	131.3	7.3	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	1+100	134.3	6.0	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	0+50	134.2	7.2	Pass		75' OFFSET
7/24/2006	8	1/2 (Note 3)	0+50	136.8	6.6	Pass		50' OFFSET
7/24/2006	8	1/2 (Note 3)	0+25	135.4	6.0	Pass		50' OFFSET
7/24/2006	7	2	2+25	133.8	7.7	Pass		150' OFFSET
7/24/2006	7	2	2+25	133	6.5	Pass		175' OFFSET
7/24/2006	7	2	2+25	129	6.2	Review	Pass	200' OFFSET (See Note 4c - Pass)
7/24/2006	7	2	2+00	132.4	6.0	Pass		200' OFFSET
7/24/2006	7	2	2+00	135.1	6.8	Pass		175' OFFSET
7/24/2006	7	2	2+00	130.8	7.5	Review	Pass	150' OFFSET (See Note 4c - Pass)
7/24/2006	7	2	1+75	133.6	5.8	Pass		150' OFFSET
7/24/2006	7	2	1+75	134.1	6.9	Pass		175' OFFSET
7/24/2006	7	2	1+75	133.7	5.7	Pass		200' OFFSET

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-07-0706								
7/25/2006	8	1	2+75	133.7	8.2	Pass		
7/25/2006	8	1	2+75	133.8	8.4	Pass		
7/25/2006	8	1	2+75	134.1	7.0	Pass		
7/25/2006	8	1	3+00	130.9	7.6	Review	Pass	See Note 4c - Pass
7/25/2006	8	1	3+00	134.5	7.4	Pass		
7/25/2006	7	1	3+00	134.1	7.4	Pass		
7/25/2006	7	1	3+00	135.7	7.7	Pass		
7/25/2006	7	1	2+75	133.7	8.2	Pass		
7/25/2006	7	1	2+75	134.5	8.2	Pass		
CME Report #6801S-08-0706								
7/26/2006	8	1	2+50	131.8	7.7	Pass		86' OFFSET
7/26/2006	8	1	2+50	121.6	6.9	Review	Fail	112' OFFSET. Retested on 7/31
7/26/2006	8	1	2+50	124.6	10.0	Review	Fail	112' OFFSET. Retested on 7/31
7/26/2006	8	1	2+25	131.7	9.0	Pass		134' OFFSET
7/26/2006	7	1	2+75	134.7	8.3	Pass		152' OFFSET
7/26/2006	7	1	2+75	133.1	8.9	Pass		180' OFFSET
7/26/2006	7	1	2+75	134.1	8.0	Pass		210' OFFSET
7/26/2006	7	1	3+00	132.2	7.6	Pass		210' OFFSET
7/26/2006	7	1	3+00	135.5	7.0	Pass		210' OFFSET
7/26/2006	7	1	3+00	134.0	8.4	Pass		180' OFFSET
7/26/2006	7	1	2+25	132.3	8.5	Pass		152' OFFSET
7/26/2006	7	1	2+25	131.5	7.0	Pass		152' OFFSET
7/26/2006	6	1	2+25	131.0	6.7	Pass		180' OFFSET
7/26/2006	6	1	2+25	133.3	8.0	Pass		
7/26/2006	6	1	2+00	134.0	9.1	Pass		
7/26/2006	6	1	1+75	132.3	7.5	Pass		
7/26/2006	6	1	1+75	133.3	7.9	Pass		
7/26/2006	6	1	1+50	132.6	7.0	Pass		
7/26/2006	6	1	1+50	131.8	6.1	Pass		
CME Report #6801S-09-0706								
7/27/2006	8	1	3+25	132.4	7.4	Pass		
7/27/2006	8	1	3+25	131.3	7.5	Pass		
7/27/2006	8	1	3+25	133.0	7.0	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-10-0706								
7/28/2006	5	1	3+25	133.1	6.7	Pass		
7/28/2006	5	1	3+25	135.9	7.1	Pass		
7/28/2006	5	1	3+25	134.1	8.4	Pass		
7/28/2006	5	1	3+75	134.3	7.0	Pass		
7/28/2006	5	1	3+25	132.2	7.0	Pass		
7/28/2006	5	1	3+50	137.4	6.7	Pass		
7/28/2006	5	1	4+00	138.2	7.5	Pass		
7/28/2006	5	1	4+00	132.8	9.1	Pass		
CME Report #6801S-11-0706								
7/31/2006	5	1	4+25	135.9	6.7	Pass		
7/31/2006	5	1	4+25	136.1	7.6	Pass		
7/31/2006	5	1	4+25	133.6	8.5	Pass		
7/31/2006	6	1	4+50	132.0	6.9	Pass		
7/31/2006	6	1	4+50	131.2	5.7	Pass		
7/31/2006	6	1	4+50	132.4	5.4	Pass		
7/31/2006	6	1	4+50	132.4	9.0	Pass		
7/31/2006	6	1	4+25	134.2	8.4	Pass		
7/31/2006	6	1	4+25	133.4	7.3	Pass		
7/31/2006	6	1	4+25	130.9	6.6	Review	Pass	See Note 4c
7/31/2006	6	1	4+50	133.7	7.6	Pass		
7/31/2006	5	1	4+00	134.6	7.9	Pass		
7/31/2006	5	1	3+75	132.2	6.5	Pass		
7/31/2006	7	1	2+50	131.4	8.8	Pass		
7/31/2006	7	2	2+50	132.4	6.4	Pass		
7/31/2006	8	1	2+50	131.7	7.4	Pass		
7/31/2006	7	2	2+25	131.4	8.6	Pass		
7/31/2006	7	2	2+00	131.6	8.1	Pass		
7/31/2006	7	2	2+00	130.8	8.9	Review	Pass	See Note 4c
7/31/2006	7	2	2+00	131.5	9.3	Pass		
7/31/2006	7	2	2+25	132.9	8.5	Pass		
7/31/2006	7	2	2+70	135.5	9.0	Pass		
7/31/2006	7	2	3+00	132.0	6.9	Pass		
7/31/2006	7	2	3+00	134.8	6.3	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-12-0706								
8/1/2006	6	1	4+00	135.8	7.4	Pass		
8/1/2006	6	1	4+00	135.0	6.2	Pass		
8/1/2006	6	1	4+00	132.6	6.4	Pass		
8/1/2006	6	1	3+75	131.4	6.6	Pass		
8/1/2006	6	1	3+75	132.3	7.5	Pass		
8/1/2006	6	1	3+75	133.1	5.6	Pass		
8/1/2006	6	1	3+50	133.3	6.6	Pass		
8/1/2006	6	1	3+50	135.5	7.5	Pass		
8/1/2006	6	1	3+50	132.5	7.5	Pass		
8/1/2006	6	1	3+25	131.4	6.8	Pass		
8/1/2006	6	1	3+25	128.0	7.1	Review	Pass	See Note 4c
8/1/2006	6	1	3+25	136.0	7.3	Pass		
8/1/2006	5	1	3+25	131.4	6.7	Pass		
8/1/2006	5	1	3+25	133.5	9.0	Pass		
8/1/2006	5	1	3+00	132.9	7.1	Pass		
8/1/2006	5	1	3+00	131.2	9.2	Pass		
8/1/2006	5	1	2+75	135.8	8.0	Pass		
8/1/2006	5	1	2+75	134.9	7.6	Pass		
8/1/2006	5	1	2+75	133.1	6.4	Pass		
8/1/2006	5	1	2+50	134.1	6.8	Pass		
8/1/2006	5	1	2+50	135.9	7.0	Pass		
8/1/2006	5	1	2+50	133.0	7.7	Pass		
CME Report #6801S-13-0706								
8/2/2006	8	1	4+00	135.3	8.1	Pass		
8/2/2006	8	1	4+00	133.6	7.6	Pass		
8/2/2006	8	1	4+00	131.6	7.5	Pass		
8/2/2006	8	1	3+75	131.5	7.9	Pass		
8/2/2006	8	1	3+50	133.4	6.8	Pass		
8/2/2006	8	1	3+50	133.6	7.5	Pass		
8/2/2006	5	1	2+25	136.1	7.2	Pass		
8/2/2006	5	1	2+25	137.2	6.9	Pass		
8/2/2006	5	1	2+25	135.0	7.2	Pass		
8/2/2006	5	1	2+00	136.5	8.3	Pass		
8/2/2006	5	1	2+00	137.0	6.9	Pass		
8/2/2006	5	1	2+00	131.5	8.4	Pass		
8/2/2006	5	1	1+75	131.2	7.6	Pass		
8/2/2006	5	1	1+75	133.8	8.4	Pass		
8/2/2006	5	1	1+75	131.7	9.2	Pass		
8/2/2006	5	1	1+50	132.6	9.0	Pass		
8/2/2006	5	1	1+50	132.6	8.5	Pass		
8/2/2006	5	1	1+50	134.2	8.1	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-14-0706								
8/3/2006	6	1	2+75	131.4	6.4	Pass		
8/3/2006	6	1	2+75	133.1	7.4	Pass		
8/3/2006	6	1	1+25	133.8	7.9	Pass		
8/3/2006	6	1	1+25	134.6	6.8	Pass		
8/3/2006	6	1	1+00	133.5	6.3	Pass		
8/3/2006	6	1	1+00	132.6	6.4	Pass		
8/3/2006	6	1	0+50	133.3	6.8	Pass		
8/3/2006	6	1	0+50	131.0	7.3	Pass		
8/3/2006	6	1	1+50	135.3	7.7	Pass		
8/3/2006	6	1	1+25	135.4	6.9	Pass		
8/3/2006	6	1	1+00	133.6	6.2	Pass		
8/3/2006	6	1	0+75	132.7	7.5	Pass		
8/3/2006	6	1	0+30	131.7	5.9	Pass		
8/3/2006	6	1	2+25	131.4	6.6	Pass		
8/3/2006	6	1	2+75	133.3	8.7	Pass		
8/3/2006	8	1	4+25	134.2	5.9	Pass		
8/3/2006	7	1	3+25	131.0	6.6	Pass		
8/3/2006	7	1	3+75	131.0	8.1	Pass		
8/3/2006	7	1	3+75	132.4	6.6	Pass		
8/3/2006	7	1	3+50	130.4	8.2	Review	Pass	See Note 4c
8/3/2006	7	1	3+50	136.2	7.7	Pass		
8/3/2006	7	1	3+50	132.2	6.9	Pass		
8/3/2006	7	1	3+25	132.2	8.7	Pass		
CME Report #6801S-15-0706								
8/4/2006	6	2	2+00	131.0	8.6	Pass		
8/4/2006	6	2	2+00	131.9	8.1	Pass		
8/4/2006	6	2	2+00	132.0	6.7	Pass		
8/4/2006	6	2	1+75	132.3	7.0	Pass		
8/4/2006	6	2	1+75	132.1	7.6	Pass		
8/4/2006	6	2	1+75	132.1	8.0	Pass		
8/4/2006	6	2	1+50	132.5	7.0	Pass		
8/4/2006	6	2	1+50	131.9	8.1	Pass		
8/4/2006	6	2	1+50	136.3	6.4	Pass		
8/4/2006	6	2	1+25	136.2	6.8	Pass		
8/4/2006	6	2	1+25	133.7	7.0	Pass		
8/4/2006	6	2	1+25	132.5	6.7	Pass		
8/4/2006	6	2	1+00	132.6	7.1	Pass		
8/4/2006	6	2	1+00	131.2	7.9	Pass		
8/4/2006	6	2	1+00	133.2	7.8	Pass		
8/4/2006	6	2	0+75	133.2	7.1	Pass		
8/4/2006	6	2	0+75	131.9	7.7	Pass		
8/4/2006	6	2	0+75	132.0	7.1	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/4/2006	7	2	3+25	131.1	7.6	Pass		
8/4/2006	7	2	3+25	132.0	7.7	Pass		
8/4/2006	7	2	3+25	131.5	8.2	Pass		
8/4/2006	7	2	3+50	131.0	7.4	Pass		
8/4/2006	7	2	3+50	132.1	7.1	Pass		
8/4/2006	7	2	3+50	131.5	8.6	Pass		
8/4/2006	7	2	3+75	131.5	7.1	Pass		
8/4/2006	7	2	3+75	131.0	7.2	Pass		
8/4/2006	7	2	3+75	132.4	7.7	Pass		
8/4/2006	8	2	3+25	135.9	7.2	Pass		
8/4/2006	8	2	3+25	131.1	7.5	Pass		
8/4/2006	8	2	3+25	136.0	6.4	Pass		
8/4/2006	8	2	3+50	133.8	5.3	Pass		
8/4/2006	8	2	3+50	131.4	6.7	Pass		
8/4/2006	8	2	3+50	132.0	9.1	Pass		
8/4/2006	8	2	3+75	131.2	8.3	Pass		
8/4/2006	8	2	3+75	134.5	9.1	Pass		
8/4/2006	8	2	3+78	131.5	7.4	Pass		
8/4/2006	8	2	4+00	132.0	7.1	Pass		
8/4/2006	8	2	4+00	134.6	7.4	Pass		
8/4/2006	8	2	4+00	133.8	7.7	Pass		
8/4/2006	8	2	4+25	131.1	8.1	Pass		
8/4/2006	8	2	4+25	132.2	6.7	Pass		
8/4/2006	8	2	4+25	132.3	7.1	Pass		
CME Report #6801S-16-0706								
8/7/2006	6	2	2+75	131.2	5.0	Pass		
8/7/2006	6	2	2+75	131.3	6.0	Pass		
8/7/2006	6	2	2+75	131.7	6.3	Pass		
8/7/2006	6	2	2+50	132.6	6.0	Pass		
8/7/2006	6	2	2+50	131.7	8.0	Pass		
8/7/2006	6	2	2+50	134.4	5.4	Pass		
8/7/2006	6	2	2+25	131.3	6.1	Pass		
8/7/2006	6	2	2+25	132.3	6.7	Pass		
8/7/2006	6	2	2+25	131.2	6.7	Pass		
8/7/2006	8	2	4+00	137.1	7.0	Pass		
8/7/2006	8	2	4+00	131.1	7.0	Pass		
8/7/2006	8	2	4+00	131.4	5.9	Pass		
8/7/2006	8	1	4+25	131.3	7.0	Pass		
8/7/2006	8	1	4+25	136.0	7.5	Pass		
8/7/2006	8	1	4+25	135.2	7.5	Pass		
8/7/2006	8	1	4+25	132.9	8.7	Pass		Access Road
8/7/2006	8	1	4+50	136.5	7.6	Pass		
8/7/2006	8	1	4+50	131.0	8.5	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/7/2006	8	1	4+50	131.3	7.2	Pass		
8/7/2006	6	2	3+00	131.4	7.7	Pass		
8/7/2006	6	2	3+00	132.9	6.7	Pass		
8/7/2006	6	2	3+00	136.0	7.5	Pass		
8/7/2006	5	1	1+25	134.1	7.0	Pass		
8/7/2006	5	1	1+25	134.1	5.9	Pass		
8/7/2006	5	1	1+25	131.7	8.3	Pass		
8/7/2006	5	1	0+90	132.5	8.1	Pass		
8/7/2006	5	1	0+90	134.1	7.4	Pass		
8/7/2006	5	1	0+90	131.8	7.6	Pass		
8/7/2006	5	1	0+50	131.6	6.1	Pass		
8/7/2006	5	1	0+50	132.0	6.1	Pass		
8/7/2006	5	1	0+50	137.0	7.1	Pass		
CME Report #6801S-17-0706								
8/8/2006	5	2	0+10	135.8	6.0	Pass		
8/8/2006	5	2	0+10	131.4	6.9	Pass		
8/8/2006	5	2	0+10	131.8	6.5	Pass		
8/8/2006	5	2	0+25	134.7	6.2	Pass		
8/8/2006	5	2	0+25	137.3	6.0	Pass		
8/8/2006	5	2	0+25	131.8	6.8	Pass		
8/8/2006	5	2	0+75	134.3	6.7	Pass		
8/8/2006	5	2	0+75	135.7	6.7	Pass		
8/8/2006	5	2	0+75	132.0	6.1	Pass		
8/8/2006	5	2	1+00	136.0	6.1	Pass		
8/8/2006	5	2	1+00	136.9	6.9	Pass		
8/8/2006	5	2	1+00	138.3	6.3	Pass		
8/8/2006	5	2	1+25	136.5	5.9	Pass		
8/8/2006	5	2	1+25	131.3	6.0	Pass		
8/8/2006	5	2	1+25	134.9	5.7	Pass		
8/8/2006	5	2	1+50	136.3	7.7	Pass		
8/8/2006	5	2	1+50	131.1	5.9	Pass		
8/8/2006	5	2	1+50	131.7	6.3	Pass		
8/8/2006	5	2	2+00	131.7	5.9	Pass		
8/8/2006	5	2	2+00	132.9	5.2	Pass		
8/8/2006	5	2	2+00	137.2	6.1	Pass		
8/8/2006	5	2	2+25	132.3	6.3	Pass		
8/8/2006	5	2	2+25	134.7	6.5	Pass		
8/8/2006	5	2	2+25	135.1	6.3	Pass		
8/8/2006	5	2	2+50	134.4	6.9	Pass		
8/8/2006	5	2	2+50	133.3	6.2	Pass		
8/8/2006	5	2	2+50	132.8	5.7	Pass		
8/8/2006	5	2	2+75	131.6	7.2	Pass		
8/8/2006	5	2	2+75	132.1	6.4	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/8/2006	5	2	2+75	131.9	5.0	Pass		
CME Report #6801S-18-0706								
8/9/2006	5	2	3+00	136.7	5.3	Pass		
8/9/2006	5	2	3+00	136.1	7.0	Pass		
8/9/2006	5	2	3+00	130.8	7.2	Review	Pass	See Note 4c
8/9/2006	6	2	3+25	132.6	7.7	Pass		
8/9/2006	6	2	3+25	131.4	8.7	Pass		
8/9/2006	6	2	3+25	134.4	8.8	Pass		
8/9/2006	6	2	3+50	133.9	7.2	Pass		
8/9/2006	6	2	3+50	134.9	8.0	Pass		
8/9/2006	6	2	3+50	132.4	8.2	Pass		
8/9/2006	6	2	3+75	133.7	7.4	Pass		
8/9/2006	6	2	3+75	132.8	8.4	Pass		
8/9/2006	6	2	3+75	131.1	8.3	Pass		
8/9/2006	6	2	3+15	132.8	6.4	Pass		Access Road
8/9/2006	6	2	3+15	132.0	7.7	Pass		
8/9/2006	6	2	3+15	132.3	6.3	Pass		
CME Report #6801S-19-0706								
8/10/2006	6	2	4+50	128.5	5.8	Review	Pass	See Note 4c
8/10/2006	6	2	4+50	137.2	7.1	Pass		
8/10/2006	6	2	4+50	132.4	5.6	Pass		
8/10/2006	6	2	4+75	133.6	6.6	Pass		
8/10/2006	6	2	4+75	136.2	5.1	Pass		
8/10/2006	7	1	4+00	127.1	4.6	Review	Pass	Retested on 8/11
8/10/2006	7	1	4+25	130.3	5.2	Review	Pass	See Note 4c

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-20-0706								
8/11/2006	1	1	5+05	131.0	5.9	Pass		
8/11/2006	1	1	5+05	131.5	7.6	Pass		
8/11/2006	1	1	5+05	136.4	6.9	Pass		
8/11/2006	1	1	5+30	137.2	6.0	Pass		
8/11/2006	1	1	5+30	135.3	6.0	Pass		
8/11/2006	1	1	5+75	132.3	5.2	Pass		
8/11/2006	1	1	5+75	132.8	6.7	Pass		
8/11/2006	7	1	4+50	132.4	6.3	Pass		
8/11/2006	7	1	4+50	131.7	5.8	Pass		
8/11/2006	7	1	4+50	130.8	6.9	Review	Pass	See Note 4c
8/11/2006	7	1	4+25	131.3	6.1	Pass		
8/11/2006	7	1	4+25	133.4	6.2	Pass		
8/11/2006	7	1	4+25	131.3	6.6	Pass		
8/11/2006	7	1	4+00	133.1	5.9	Pass		
8/11/2006	7	1	4+00	130.8	4.8	Review	Pass	See Note 4c
8/11/2006	7	1	4+00	131.6	5.9	Pass		
8/11/2006	4	1	6+15	135.3	7.2	Pass		
8/11/2006	4	1	6+00	134.1	6.8	Pass		
8/11/2006	4	1	6+00	133.8	6.9	Pass		
8/11/2006	4	1	5+75	131.9	6.8	Pass		
8/11/2006	4	1	6+15	131.3	6.6	Pass		
8/11/2006	4	1	6+25	131.6	7.1	Pass		
8/11/2006	4	1	6+25	132.9	6.5	Pass		
8/11/2006	4	1	6+25	135.7	6.2	Pass		
8/11/2006	4	1	6+50	131.9	8.0	Pass		
8/11/2006	4	1	6+50	131.9	6.5	Pass		
8/11/2006	4	1	6+50	131.3	6.9	Pass		
8/11/2006	4	1	6+75	132.3	6.9	Pass		
8/11/2006	4	1	6+75	131.5	8.8	Pass		
8/11/2006	4	1	6+75	133.9	6.0	Pass		
8/11/2006	4	1	5+75	131.2	8.4	Pass		
8/11/2006	4	1	5+75	134.6	8.3	Pass		
8/11/2006	4	1	5+50	132.9	6.5	Pass		
8/11/2006	4	1	5+50	133.0	7.5	Pass		
8/11/2006	4	1	5+50	133.0	6.8	Pass		
8/11/2006	4	1	5+25	131.5	7.0	Pass		
8/11/2006	4	1	5+25	133.3	7.4	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-21-0706								
8/12/2006	8	1	5+00	132.1	4.1	Pass		
8/12/2006	8	1	5+00	133.6	5.0	Pass		
8/12/2006	8	1	4+50	131.5	4.4	Pass		
8/12/2006	8	1	4+50	130.5	4.7	Review	Pass	See Note 4c
8/12/2006	7	2	3+75	131.4	5.1	Pass		
8/12/2006	7	2	3+75	131.9	4.6	Pass		
8/12/2006	7	2	4+00	135.6	7.7	Pass		
8/12/2006	7	2	4+00	132.1	6.3	Pass		
8/12/2006	7	2	4+00	131.1	6.0	Pass		
8/12/2006	7	2	4+25	135.3	7.1	Pass		
8/12/2006	7	2	4+25	135.7	6.5	Pass		
8/12/2006	7	2	4+25	131.5	6.3	Pass		
8/12/2006	7	2	4+50	133.0	6.2	Pass		
8/12/2006	7	2	4+50	137.6	6.0	Pass		
8/12/2006	7	2	4+50	131.9	7.0	Pass		
8/12/2006	7	2	4+75	133.0	7.2	Pass		
8/12/2006	7	2	4+75	135.9	5.8	Pass		
8/12/2006	7	2	4+75	133.7	6.1	Pass		
8/12/2006	7	1	5+00	131.6	5.1	Pass		
8/12/2006	7	1	5+00	131.5	5.3	Pass		
8/12/2006	7	1	5+00	130.4	5.0	Review	Pass	See Note 4c
8/12/2006	7	1	5+25	133.5	6.3	Pass		
8/12/2006	7	1	5+25	133.0	7.2	Pass		
8/12/2006	7	1	5+50	133.8	4.4	Pass		
8/12/2006	7	1	5+50	134.0	5.2	Pass		
8/12/2006	7	1	5+50	132.6	5.8	Pass		
8/12/2006	3	1	6+75	131.6	5.8	Pass		
8/12/2006	3	1	6+75	131.9	5.7	Pass		
8/12/2006	3	1	6+75	136.2	5.9	Pass		
8/12/2006	3	1	6+50	135.3	6.1	Pass		
8/12/2006	3	1	6+50	136.1	6.0	Pass		
8/12/2006	3	1	6+50	131.5	5.9	Pass		
8/12/2006	3	1	6+25	132.1	5.8	Pass		
8/12/2006	3	1	6+25	133.5	6.9	Pass		
8/12/2006	3	1	6+25	139.4	6.9	Pass		
8/12/2006	3	1	6+00	135.1	7.4	Pass		
8/12/2006	3	1	6+00	132.8	6.6	Pass		
8/12/2006	4	1	6+00	137.3	6.2	Pass		
8/12/2006	4	1	6+00	133.0	5.8	Pass		
8/12/2006	4	1	5+75	133.3	6.8	Pass		
8/12/2006	4	1	5+75	133.2	7.9	Pass		
8/12/2006	4	1	5+50	131.3	6.5	Pass		
8/12/2006	4	1	5+50	131.7	6.4	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/12/2006	4	1	6+25	134.8	6.3	Pass		
8/12/2006	4	1	6+25	138.4	7.1	Pass		
8/12/2006	4	1	6+50	131.8	7.6	Pass		
8/12/2006	4	1	6+50	136.8	6.1	Pass		
8/12/2006	4	1	5+25	132.3	7.6	Pass		
8/12/2006	4	1	5+25	133.9	7.0	Pass		
8/12/2006	4	1	5+50	132.9	7.6	Pass		
8/12/2006	4	1	5+75	132.5	7.7	Pass		
8/12/2006	4	1	6+00	137.4	6.0	Pass		
8/12/2006	4	1	6+25	137.2	7.2	Pass		
8/12/2006	4	1	6+50	136.8	7.4	Pass		
CME Report #6801S-22-0706								
8/14/2006	4	2	6+25	130.9	7.5	Review	Pass	See Note 4c
8/14/2006	4	2	6+25	131.4	6.9	Pass		
8/14/2006	4	2	6+25	131.5	6.8	Pass		
8/14/2006	4	2	6+50	131.4	6.4	Pass		
8/14/2006	4	2	6+50	131.8	7.5	Pass		
8/14/2006	4	2	6+50	131.4	8.5	Pass		
8/14/2006	4	2	6+75	135.0	8.1	Pass		
8/14/2006	4	2	6+75	131.7	7.5	Pass		
8/14/2006	4	2	6+75	134.1	8.2	Pass		
8/14/2006	3	2	6+75	136.0	8.1	Pass		
8/14/2006	3	2	6+75	134.2	6.8	Pass		
8/14/2006	3	2	6+75	131.1	5.9	Pass		
8/14/2006	3	2	6+50	137.5	5.9	Pass		
8/14/2006	3	2	6+50	135.0	7.0	Pass		
8/14/2006	3	2	6+50	131.9	7.9	Pass		
8/14/2006	3	2	6+25	132.2	6.6	Pass		
8/14/2006	3	2	6+25	131.8	8.2	Pass		
8/14/2006	3	2	6+25	131.2	6.1	Pass		
8/14/2006	3	2	6+00	132.0	6.8	Pass		
8/14/2006	3	2	6+00	137.4	6.4	Pass		
8/14/2006	3	2	6+00	138.2	5.8	Pass		
8/14/2006	3	2	5+75	134.0	6.2	Pass		
8/14/2006	3	2	5+75	134.2	6.5	Pass		
8/14/2006	8	1	5+75	135.2	7.0	Pass		
8/14/2006	8	1	5+75	131.1	4.7	Pass		
8/14/2006	8	1	5+75	133.8	5.4	Pass		
8/14/2006	8	1	6+00	132.0	5.2	Pass		
8/14/2006	8	1	6+00	131.8	4.9	Pass		
8/14/2006	8	1	6+00	134.5	6.7	Pass		
8/14/2006	8	1	6+25	133.7	6.5	Pass		
8/14/2006	8	1	6+25	133.0	6.6	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/14/2006	8	1	6+25	131.3	4.8	Pass		
8/14/2006	8	1	6+50	131.8	6.2	Pass		
8/14/2006	8	1	6+50	132.2	6.6	Pass		
8/14/2006	8	1	6+50	131.2	4.7	Pass		
8/14/2006	1	1	6+00	133.4	6.9	Pass		
8/14/2006	1	1	6+00	131.5	4.8	Pass		
8/14/2006	1	1	6+25	133.3	6.9	Pass		
8/14/2006	1	1	6+25	132.7	7.8	Pass		
8/14/2006	1	1	6+50	132.0	7.9	Pass		
8/14/2006	1	1	6+50	134.7	7.8	Pass		
CME Report #6801S-23-0706								
8/15/2006	5	2	4+25	135.9	7.2	Pass		
8/15/2006	5	2	4+25	135.6	6.6	Pass		
8/15/2006	5	2	4+00	138.6	6.1	Pass		
8/15/2006	5	2	4+00	134.5	6.4	Pass		
8/15/2006	1	1	6+75	133.5	6.3	Pass		
8/15/2006	1	1	6+75	131.9	7.4	Pass		
8/15/2006	1	1	6+75	135.6	6.6	Pass		
8/15/2006	1	1	6+80	131.4	6.8	Pass		
8/15/2006	1	1	6+80	131.2	7.5	Pass		
8/15/2006	1	1	7+00	132.6	6.7	Pass		
8/15/2006	1	1	7+00	131.6	7.0	Pass		
8/15/2006	1	1	7+25	131.4	7.3	Pass		
8/15/2006	1	1	7+25	132.5	7.4	Pass		
8/15/2006	4	1	6+75	131.6	8.1	Pass		
8/15/2006	4	1	6+75	131.9	8.9	Pass		
8/15/2006	4	1	6+75	133.5	6.6	Pass		
8/15/2006	4	1	7+00	134.2	7.3	Pass		
8/15/2006	4	1	7+00	132.0	8.0	Pass		
8/15/2006	4	1	7+00	131.7	8.5	Pass		
8/15/2006	4	1	7+25	131.3	9.2	Pass		
8/15/2006	4	1	7+25	133.5	7.9	Pass		
8/15/2006	4	1	7+25	131.6	8.4	Pass		
8/15/2006	4	1	7+50	134.3	8.1	Pass		
8/15/2006	4	1	7+50	131.8	8.8	Pass		
8/15/2006	4	1	7+50	131.2	7.9	Pass		
8/15/2006	4	1	7+75	132.3	8.0	Pass		
8/15/2006	4	1	7+75	133.6	7.8	Pass		
8/15/2006	4	1	7+75	134.1	8.1	Pass		
CME Report #6801S-24-0706								
8/16/2006	4	1	8+00	132.0	7.3	Pass		
8/16/2006	4	1	8+00	132.2	7.7	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/16/2006	4	1	8+00	131.5	8.0	Pass		
8/16/2006	4	1	8+25	131.1	7.4	Pass		
8/16/2006	4	1	8+25	131.5	8.1	Pass		
8/16/2006	4	1	8+25	132.1	8.2	Pass		
8/16/2006	4	2	7+75	131.5	8.2	Pass		
8/16/2006	4	2	7+75	131.4	7.5	Pass		
8/16/2006	4	2	7+75	131.8	7.6	Pass		
8/16/2006	4	2	7+50	131.2	9.3	Pass		
8/16/2006	4	2	7+50	132.2	8.0	Pass		
8/16/2006	4	2	7+50	133.8	7.3	Pass		
8/16/2006	4	2	7+25	131.0	7.7	Pass		
8/16/2006	4	2	7+25	133.9	8.2	Pass		
8/16/2006	4	2	7+25	131.9	8.8	Pass		
8/16/2006	4	2	7+00	132.1	8.4	Pass		
8/16/2006	4	2	7+00	132.2	7.7	Pass		
8/16/2006	2	1	8+00	132.3	7.0	Pass		
8/16/2006	2	1	8+00	132.8	7.6	Pass		
8/16/2006	2	1	8+25	131.7	7.9	Pass		
8/16/2006	2	1	8+25	131.8	8.5	Pass		
8/16/2006	2	1	8+50	134.0	7.6	Pass		
8/16/2006	2	1	8+50	133.7	8.3	Pass		
8/16/2006	2	1	8+75	133.5	7.7	Pass		
8/16/2006	2	1	8+75	135.5	7.6	Pass		
8/16/2006	4	1	8+50	131.3	6.1	Pass		
8/16/2006	4	1	8+50	131.8	7.9	Pass		
8/16/2006	4	1	8+50	131.3	7.6	Pass		
8/16/2006	4	1	8+75	131.5	7.6	Pass		
8/16/2006	4	1	8+75	132.8	7.3	Pass		
8/16/2006	4	1	8+75	133.5	7.6	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-25-0706								
8/17/2006	2	1	7+25	134.3	8.0	Pass		
8/17/2006	2	1	7+25	132.8	7.7	Pass		
8/17/2006	2	1	7+25	131.6	7.2	Pass		
8/17/2006	2	1	7+00	131.3	8.6	Pass		
8/17/2006	2	1	7+00	133.0	7.9	Pass		
8/17/2006	2	1	7+00	131.5	8.6	Pass		
8/17/2006	2	1	6+75	131.7	9.4	Pass		
8/17/2006	2	1	6+75	135.5	7.1	Pass		
8/17/2006	2	1	6+75	132.8	6.9	Pass		
8/17/2006	2	1	6+50	131.7	8.5	Pass		
8/17/2006	2	1	6+50	132.8	8.0	Pass		
8/17/2006	2	2	7+75	132.0	8.2	Pass		
8/17/2006	2	2	7+75	131.7	7.3	Pass		
8/17/2006	2	2	7+75	132.9	8.7	Pass		
8/17/2006	2	2	8+00	131.7	9.4	Pass		
8/17/2006	2	2	8+00	135.5	7.1	Pass		
8/17/2006	2	2	8+00	132.8	6.9	Pass		
8/17/2006	2	2	8+25	132.1	8.4	Pass		
8/17/2006	2	2	8+25	135.5	8.2	Pass		
8/17/2006	2	2	8+25	132.8	8.4	Pass		
8/17/2006	2	2	8+50	133.0	8.7	Pass		
8/17/2006	2	2	8+50	131.7	6.7	Pass		
8/17/2006	2	2	8+50	135.5	7.8	Pass		
8/17/2006	2	2	8+75	131.9	8.2	Pass		
8/17/2006	2	2	8+75	131.7	8.0	Pass		
8/17/2006	2	2	8+75	133.0	7.5	Pass		
8/17/2006	4	2	8+00	131.8	6.2	Pass		
8/17/2006	4	2	8+00	132.3	6.8	Pass		
8/17/2006	4	2	8+00	130.3	6.6	Review	Pass	See Note 4c
8/17/2006	4	2	8+25	132.0	6.9	Pass		
8/17/2006	4	2	8+25	132.3	6.3	Pass		
8/17/2006	4	2	8+25	134.3	7.1	Pass		
8/17/2006	4	2	8+50	132.6	6.5	Pass		
8/17/2006	4	2	8+50	131.0	7.7	Pass		
8/17/2006	4	2	8+50	132.0	8.0	Pass		
8/17/2006	4	2	8+75	135.3	6.0	Pass		
8/17/2006	4	2	8+75	131.5	6.4	Pass		
8/17/2006	4	2	8+75	131.3	6.7	Pass		
8/17/2006	3	1	8+75	132.1	6.5	Pass		
8/17/2006	3	1	8+75	135.5	7.4	Pass		
8/17/2006	3	1	8+75	134.7	6.4	Pass		
8/17/2006	3	1	8+50	135.3	8.2	Pass		
8/17/2006	3	1	8+50	138.9	6.6	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/17/2006	3	1	8+50	134.2	6.4	Pass		
8/17/2006	3	1	8+25	130.8	7.4	Review	Pass	See Note 4c
8/17/2006	3	1	8+25	132.7	8.5	Pass		
8/17/2006	3	1	8+25	132.2	7.9	Pass		
8/17/2006	3	1	8+00	136.0	7.5	Pass		
8/17/2006	3	1	8+00	137.9	6.7	Pass		
8/17/2006	3	1	8+00	133.9	6.3	Pass		
8/17/2006	3	1	7+75	132.6	6.4	Pass		
8/17/2006	3	1	7+75	134.1	7.8	Pass		
8/17/2006	3	1	7+75	132.7	7.1	Pass		
8/17/2006	3	1	7+50	132.1	7.9	Pass		
8/17/2006	3	1	7+50	136.0	7.6	Pass		
8/17/2006	3	1	7+50	131.5	7.1	Pass		
8/17/2006	3	1	7+25	132.6	7.6	Pass		
8/17/2006	3	1	7+25	131.5	7.7	Pass		
8/17/2006	3	1	7+25	132.2	6.6	Pass		
8/17/2006	3	1	7+00	136.2	6.6	Pass		
8/17/2006	3	1	7+00	132.2	7.9	Pass		
8/17/2006	3	1	7+00	135.5	7.9	Pass		
8/17/2006	1	1	7+50	134.3	7.3	Pass		
8/17/2006	1	1	7+75	133.0	7.9	Pass		
8/17/2006	1	1	8+00	134.8	7.9	Pass		
8/17/2006	1	1	8+25	133.5	7.4	Pass		
8/17/2006	1	1	8+50	134.5	5.8	Pass		
CME Report #6801S-26-0706								
8/18/2006	3	2	7+30	133.1	6.5	Pass		
8/18/2006	3	2	7+30	135.8	6.4	Pass		
8/18/2006	3	2	7+30	133.6	6.8	Pass		
8/18/2006	3	2	7+00	133.4	6.7	Pass		
8/18/2006	3	2	7+00	136.6	6.9	Pass		
8/18/2006	3	2	7+00	131.2	6.2	Pass		
8/18/2006	3	2	7+50	131.2	6.1	Pass		
8/18/2006	3	2	7+50	134.7	7.2	Pass		
8/18/2006	3	2	7+50	131.3	7.6	Pass		
8/18/2006	3	2	7+86	133.7	6.6	Pass		
8/18/2006	3	2	7+86	133.8	7.6	Pass		
8/18/2006	3	2	7+86	132.5	6.5	Pass		
8/18/2006	3	2	8+10	132.2	6.3	Pass		
8/18/2006	3	2	8+10	134.7	6.0	Pass		
8/18/2006	3	2	8+10	134.8	5.9	Pass		
8/18/2006	3	2	8+50	131.7	6.6	Pass		
8/18/2006	3	2	8+50	134.4	7.2	Pass		
8/18/2006	3	2	8+50	132.5	6.2	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
8/18/2006	3	2	7+00	137.7	6.9	Pass		
8/18/2006	3	2	7+00	131.2	7.3	Pass		
8/18/2006	3	2	7+00	135.7	7.0	Pass		
8/18/2006	3	2	6+75	131.7	6.8	Pass		
8/18/2006	3	2	6+75	137.4	6.8	Pass		
8/18/2006	3	2	6+75	131.4	7.4	Pass		
8/18/2006	3	2	6+50	138.8	6.8	Pass		
8/18/2006	3	2	6+50	131.7	6.7	Pass		
8/18/2006	3	2	6+50	131.5	7.4	Pass		
8/18/2006	3	2	6+25	134.1	5.9	Pass		
8/18/2006	3	2	6+25	135.0	6.1	Pass		
8/18/2006	3	2	6+25	131.3	7.5	Pass		
8/18/2006	3	2	6+00	136.3	6.3	Pass		
8/18/2006	1	2	7+00	133.0	6.1	Pass		
8/18/2006	1	2	7+25	131.2	6.9	Pass		
8/18/2006	1	2	7+50	131.4	6.3	Pass		
8/18/2006	1	2	8+00	131.6	8.1	Pass		
8/18/2006	1	2	8+50	131.8	8.2	Pass		
8/18/2006	1	2	8+25	135.2	8.4	Pass		
CME Report #6801S-27-0706								
8/22/2006	2	2	8+75	131.5	7.9	Pass		
8/22/2006	2	2	8+75	132.4	7.6	Pass		
8/22/2006	2	2	8+60	131.4	7.0	Pass		
8/22/2006	2	2	8+30	134.8	7.4	Pass		
8/22/2006	2	2	8+30	132.7	6.4	Pass		
8/22/2006	2	2	8+30	133.1	7.1	Pass		
8/22/2006	2	2	8+00	131.5	6.8	Pass		
8/22/2006	2	2	7+50	131.8	7.6	Pass		
8/22/2006	2	2	7+60	131.3	6.0	Pass		
8/22/2006	2	2	7+60	138.0	5.9	Pass		
8/22/2006	2	2	7+25	134.2	7.6	Pass		
8/22/2006	2	2	7+00	133.7	8.9	Pass		
8/22/2006	2	2	7+00	134.2	6.4	Pass		
8/22/2006	2	2	7+00	131.6	7.6	Pass		
8/22/2006	2	2	7+00	136.2	6.9	Pass		
8/22/2006	2	2	6+80	136.1	7.4	Pass		
8/22/2006	2	2	6+80	134.7	7.5	Pass		
8/22/2006	2	2	6+25	135.0	7.2	Pass		
8/22/2006	2	2	6+15	132.2	5.3	Pass		

TABLE 3.8
BARRIER PROTECTION MATERIAL FIELD DENSITY COMPACTION TESTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

DATE	CAP AREA	LIFT NO.	TEST LOCATION (Note 1)	NUCLEAR DENSOMETER FIELD DRY DENSITY (pcf)	NUCLEAR DENSOMETER FIELD MOISTURE (%)	STATUS (Note 4) 1st Criteria Pass (≥131 pcf) or Review by 2nd Criteria	STATUS (Note 4) 2nd Criteria Review (>128 pcf) or Fail	COMMENTS
CME Report #6801S-28-0706								
8/23/2006	1	2	6+25	131.5	5.9	Pass		
8/23/2006	1	2	6+25	132.6	5.5	Pass		
8/23/2006	1	2	6+25	131.5	6.0	Pass		
8/23/2006	1	2	6+20	132.3	6.8	Pass		
8/23/2006	1	2	5+75	132.3	6.8	Pass		
8/23/2006	1	2	5+75	135.4	6.8	Pass		
8/23/2006	1	2	5+75	132.6	7.9	Pass		
8/23/2006	1	2	5+50	137.6	7.5	Pass		

Notes:

1. A formal grid for test locations was established starting on 7/24/06. Stationing for compaction tests begins at the south edge of the landfill (0+00) and progresses to the north.

2. Compaction tests prior to 7/24/06 in Cap Area 8 were during a trial period in which various means and methods of obtaining compaction were attempted in areas wetted immediately after initial placement of the barrier protection material.

3. Tests in these sections of Cap Area 8 were from a combination of Lift 1 and Lift 2. The material was wetted immediately after placement and, as opposed to removing the material and risking damage to the underlying GDC and geomembrane, the area was reworked in various lifts until one lift achieved the compaction criteria. The design intent was considered achieved once the compaction criteria was achieved for one lift.

4. Per Parson's 7/27/06 email to Earthtech and DA Collins, these tests were considered acceptable. The criteria as presented in the email were as follows:
a. It is recommended that the Contractor place and compact the materials in the range of 6% to 8% water content. If water contents are outside this range, moisture conditioning (i.e. wetting or drying the BPM) may be required to achieve desired water contents.
b. **First criteria:** The target dry density of 131 pcf (i.e. 95% when maximum dry density (MDD) is 138 pcf) is generally an appropriate compaction standard.
c. **Second criteria:** 1 of 4 (25%) field compaction tests results below 131 pcf yet above 128 pcf will be acceptable. This is based on the range of BPM compaction properties and the laboratory results which indicate that BPM compacted to greater than 128 pcf generally achieved the required permeabilities.
d. It is recommend that these acceptances be done in the field, but the statistics should be evaluated daily by the Contractor and the Engineer to provide QA on this acceptance methodology.
e. The Engineer will evaluate outlier values on a case by case basis once it is clear that the Contractor has made a good faith effort to follow appropriate procedures.

TABLE 3.9
TOPSOIL QA/QC TEST RESULTS
RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

Sample ID	**Specification**	Topsoil; Shaw Transmittal #118	Topsoil; Shaw Transmittal #143	Topsoil; Shaw Transmittal #144	Topsoil; DAC 8/15/05 Transmittal	Topsoil; DAC 7/26/06 Transmittal #21	Topsoil; DAC 7/26/06 Transmittal #21
Laboratory		Mitkem & Emcon/OWT	Mitkem & Emcon/OWT	Mitkem & Emcon/OWT	CME Assoc & Adirondack	Const Tech & Adirondack	Const Tech & Adirondack
Report Date		6/4/04	6/4/04	10/27/04	5/26/05 & 8/15/05	7/20/06 & 7/24/06	7/20/06 & 7/24/06
Laboratory Sample Number		WFTS060104	WFTS091304	WFTS102704	20013S-79-0505 & 050812057	WF Topsoil-2	WF Topsoil-3
Sieve (No.)	**% Passing**						
2"	100				100	100	100
1-1/2"	-	100			100		
1"	85 to 100	95	100		99.4	100	100
3/4"	-	92	88	100	97.8	94.5	93.4
1/2"	-	88	79	96	92.7	91.6	89.0
3/8"	-	86	73	91		88.3	87.6
1/4"	65 to 95				85.7	85.5	84.3
#4	-	80	63	83	81.9	84.1	82.2
#8	-					79.2	76.4
#10	-	73	57	85			
#16	-					73.4	70.2
#30	-	61	45	61		67.2	63.9
#40	-	56	40	58	57.5	63.4	59.9
#50	-					57.9	54.6
#60	-	48	36	48			
#100	-	39	32	38		43.8	40.9
#200	20 to 80	31	27	32	27.3	33.2	31.0
Clay Content	<30	8.2	8.4	6.5	<27.3	Not tested	Not tested
pH (See Note 1)	5.5 to 7.5	5.9	5.6	5.8	5.4	6.5	6.5
Organic Content (See Note 1)	3 to 20%	3.65	3.38	3.22	2.80	3.60	3.50
PCBs	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect

Note 1: The pH and organic content requirements were revised by Field Change Order (FCO) #011. The revised requirements achieve the minimums recommended in NYSDOT Specification Section 713-01.

SECTION 4

CHRONOLOGY OF EVENTS

A chronology of major events related to the design and construction of Remedial Work Element I, starting with the signing of the Record of Decision, is presented below:

CHRONOLOGY OF EVENTS

DATE	ACTIVITY
September 30, 1997	Record of Decision (ROD) for RHRL signed.
February 16, 1999	Consent Decree between USEPA, AlliedSignal, and Amphenol lodged with US District Court.
August 18, 1999	Remedial Design Work Plan submitted to USEPA.
September 22, 1999	Remedial Design Work Plan approved by USEPA.
October 11, 1999	Revisions to Remedial Design Work Plan distributed.
April 7, 2000	Pre-Design Investigation Report submitted to USEPA.
August 22, 2002	Final (100%) Remedial Design Report submitted to USEPA.
August 26, 2002	Remedial Design Report approved by USEPA (GWTP portion only).
March 17, 2003	Draft Remedial Action Work Plan for Remedial Work Element I submitted to USEPA.
April 7, 2003	USEPA conditionally approves Remedial Action Work Plan for Stage 1 activities.
April 7, 2003	Mobilization for Remedial Work Element I
May 7, 2003	Remedial Design Report approved by USEPA. (Balance of remediation, including Remedial Work Element I. Approval based on letters submitted by Parsons on January 16, 2003 and April 11, 2003). Herrick Hollow Creek Segments #9 through #13 incorporated into remedial excavations.
May 15, 2003	Response to comments on Remedial Action Work Plan submitted to USEPA.
May 23, 2003	Completed excavation and restoration of Area L-3.
June 2, 2003	Completed relocation of waste from Area L-2A.
June 16, 2003	Remedial Action Work Plan for Stage 1 and Stage 2 activities distributed.

June 25, 2003	Completed excavation and restoration of Area L-1.
October 7, 2003	Completed excavation and restoration of Area L-2.
October 8, 2003	Completed excavation and backfilling of Area L-4.
November 1, 2003	Completed excavation and backfilling of Waste Oil Pit
December 19, 2003	Winter demobilization
May 26, 2004	Spring remobilization
May 21, 2004	Final Remedial Action Work Plan conditionally approved by USEPA.
June 11, 2004	Final Remedial Action Work Plan distributed.
June 30, 2004	Completed excavation of South Pond.
October 5, 2004	Completed excavation and restoration of Areas N-1, N-2, N-3
October 8, 2004	Completed off-site disposal of Waste Oil Pit Soils
October 14, 2004	Completed excavation of Herrick Hollow Creek
October 25, 2004	Completed TSCA cell cap geomembrane layer.
November 16, 2004	Completed topsoil placement and seeding at South Pond.
November 29, 2004	Drainage sand washout
December 12, 2004	Completed backfilling, topsoil placement, seeding, and installed plantings at Herrick Hollow Creek.
January 28, 2005	Winter demobilization
July 18, 2005	Spring remobilization
September 14, 2005	Completion of drainage sand removal and associated liner repairs
December 7, 2005	Winter demobilization
April 11, 2006	Spring remobilization (including for post-winter 2006 liner assessment activities)
August 29, 2006	Pre-Final Inspection.
September 29, 2006	Completed excavation and restoration of Area L-5.
October 5, 2006	Completed landfill perimeter fence.
October 5, 2006	Completed landfill cap.
October 10, 2006	Final Inspection.
November 30, 2006	Final Survey field work completed.

It is also notable that major storm events that caused localized and regional flooding occurred over the course of the construction, including storms in September 2004 (remnants of Hurricanes Ivan and Jeanne), November 2004 (Thanksgiving storm), April 2005, June 2006, August 2006, and November 2006. These storms individually and collectively had a negative impact on project schedule. Most notably, the November 2004 storm resulted in a washout of the drainage sand that was being placed on the northern half of the landfill. In 2005 the drainage sand was removed and associated liner repairs made. The cap was completed in 2006.

SECTION 5

PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL

5.1 OVERVIEW

The construction was implemented pursuant to the Construction Quality Assurance Project Plan, which was appended to the Final (100%) Remedial Design Report (Parsons, 2002). A comparison of design remedy components to constructed remedy components is presented in Section 2.4. Documentation collected during the construction is discussed in Section 5.2, below.

5.2 DOCUMENTATION

5.2.1 Remedial Action Work Plan

In accordance with the Consent Decree, a RAWP was submitted to and approved by USEPA prior to commencement of the Remedial Work Element I work. Section 4 provides information regarding submittal, approval, and/or distribution dates.

5.2.2 Daily Field Reports

Parsons prepared and submitted Daily Field Reports for each day that work occurred. The daily reports documented the date, work activities, equipment, work force, deliveries, visitors, Health and Safety incidents/reportables, expected next day work activities, and photographs. Copies of the Daily Field Reports are included in Appendix D.

5.2.3 Photographic Log

Parsons took photographs to document progress of the work. Photographs were frequently submitted with the Daily Field Report. Select photographs that summarize the construction activities described in this report are included in Appendix C. A photo ID, description and date accompany each photograph.

5.2.4 Meeting Agendas and Minutes

Weekly and monthly status meetings were held while work was being performed. Meetings were not held during winter shutdown periods. The meeting discussions included, but were not limited to, safety, work completed the previous week, work expected for the next week, documentation, and other issues. Parsons prepared and distributed meeting agendas and minutes to record issues and action items.

5.2.5 Submittals

Parsons reviewed and commented on contractor submittals provided pursuant to the Technical Specifications. Submittals discussed in Section 3 of the report are included in Appendix G.

5.2.6 Testing

Material testing was conducted pursuant to the Construction Quality Assurance Project Plan, which was appended to the Final (100%) Remedial Design Report (Parsons, 2002). Test results discussed in Section 3 of the report are included in Appendix G.

5.3 USEPA OVERSIGHT ACTIVITIES

USEPA has two objectives for overseeing RD/RAs conducted by Potentially Responsible Parties (PRPs) on PRP-lead cleanups: 1) Ensure the remedies are protective of public health and the environment throughout the life of the project; and 2) Ensure the Remedial Action (RA) is implemented in compliance with the terms of the Consent Decree.

The intent of the oversight program is to focus USEPA efforts on the most significant aspects of the project, such as overall quality assurance (QA), scheduling, major changes due to changed field conditions, emergency actions, and project close out.

The responsibilities of the USEPA oversight contractor during Remedial Design included the following:

- assist in reviewing the professional qualifications of Remedial Design Professional, Remedial Action Constructor, and the Independent Quality Assurance Team;
- review the Remedial Design and Remedial Action Work Plans;
- review design support data including field investigations and treatability study results; and
- review Remedial Design submittals to determine if they are protective of the public health and the environment, comply with the Record of Decision (ROD), and will attain the performance criteria specified in the Consent Decree.

During Remedial Action, the USEPA oversight contractor provided full time field oversight and reviewed work for compliance with the Construction Quality Assurance Project Plan, schedule, and the approved plans and specifications. Construction oversight was limited to observing construction and comparing the work to a set of standards (in this case, the design plans and specifications, and the Construction Quality Assurance Project Plan prepared by contractors to the PRP's). The USEPA oversight contractor also performed spot checks of the Construction Quality Assurance Plan and reviewed quality assurance reports.

SECTION 6

SUPPLEMENTAL INFORMATION

6.1 HEALTH AND SAFETY

The Remedial Design included a project-specific Health and Safety Plan, which the remedial action contractors used as a basis to prepare Health and Safety Plans specific to their activities and procedures. The Health and Safety Plans prepared were dated as follows: Shaw, March 8, 2003; and DA Collins, June 23, 2005).

Periodic safety meetings were conducted throughout the duration of the construction. Particular attention was given to safety along Richardson Hill Road, both for the perspective of the public using the road, and crews working in the vicinity of the road.

The daily reports, included in Appendix D, indicate that there were 3 injuries during the construction of Remedial Work Elements I and II, all occurring in 2003: on May 1, 2003, a surveyor from B&B Surveying, subcontracted to Shaw, slid off the edge of a roadway and fell on his shoulder; on May 2, 2003, an air hose broke and struck an employee from Fayette Transportation, subcontracted to Shaw, in the forehead; and on July 16, 2003, an employee of CME, subcontracted to Parsons, cut his thumb on a Shelby tube. The daily reports indicate that there were no injuries in 2002, 2004, 2005, or 2006.

6.2 SITE SPECIFIC OBSERVATIONS AND LESSONS LEARNED

Site specific observations and lessons learned include:

- Treatment of 882 tons of soil excavated from the waste oil pit via soil vapor extraction was successful in reducing TCE contaminant levels to below land ban levels (60 ppm); thereby reducing disposal costs by eliminating the need for incineration.
- The use of deflection testing in lieu of nuclear density testing for peat excavated from the South Pond and placed in the landfill was necessary because of the low density of the peat.
- The use of field test kits (immunoassay kits) for PCB analyses of soil and sediment proved reliable and expedited remedial decisions in the field.
- The Catskill region has a higher frequency of heavy rain events than the rest of New York State. Enhanced erosion control measures, interim project milestones, and limits on earthwork performed in the Fall, should be considered for earthwork projects in the Catskill region.
- The use of statistical moisture and density control of the barrier soil protection layer was able to eliminate substantial delays due to variable moisture-density curves while still providing for the design strength and permeability conductivities to be maintained. The statistical approach accounted for the natural variation of the borrow source material by

allowing for a relatively small percentage of the test results to be below the typical moisture-density curve acceptance criteria while the use of absolute minimum densities as an additional acceptance criteria maintains the required minimum performance properties in the fill mass. This allowed the contractor to place fill rapidly while maintaining appropriate quality assurance. Rapid fill placement reduced the chance of another washout due to intense rain falling on partially completed fill. The statistical relationship was developed early in the fill placement process through the use of the moisture-density, permeability, and strength testing that was performed as part of the submittal and quality control process. USEPA and NYSDEC responded quickly to the request which helped make it an effective tool for this project.

6.3 PROJECT COSTS

A summary of project costs as provided by Amphenol is presented on Table 6-1. Raw costs provided by Amphenol, and calculations showing an adjustment to 2006 $$ using the ENR Building cost index, are presented in Appendix H.

6.4 STATUS OF INSTITUTIONAL CONTROLS

The status of institutional controls and planned future land use will be provided to USEPA by separate communication by Amphenol and Honeywell.

TABLE 6-1
RICHARDSON HILL ROAD LANDFILL SITE
REMEDIAL WORK ELEMENTS I AND II
COST SUMMARY

Cost Item	ROD Estimate (1997 $$)	ROD Estimate (2006 $$)[2]	Actual Cost (2006 $$)[3,5]	Notes
RA Capital Cost	$7,871,000	$10,232,000	$22,616,000	4
RA O&M Cost (Annual)	$479,000	$623,000	$700,000	5
RA O&M Cost (PW)[1]	$5,993,000	$7,787,000	$8,690,000	
RA Present Worth	$13,864,000	$18,019,000	$31,306,000	
Difference between Actual RA Capital Cost and ROD Capital Cost Estimate:	$12,384,000, or +121%.			6

Notes:

1. ROD assumed discount rate of 7% for future work (e.g., O&M).
2. ROD Costs for work performed from 1997 to 2006 adjusted from 1997 $$ to 2006 $$ using ENR Building Cost Index (4369/3364).
3. Actual costs provided by Amphenol adjusted to 2006 $$ using ENR Building Cost Index. See Appendix H for. information provided by Amphenol.
4. Actual RA Capital Costs do not include approximately $1,200,000 in EPA oversight costs (EPA, 2007b).
5. Actual O&M Costs in 2005 and 2006 were approximately $500,000 for each year. Costs in these years were primarily for GWTP. Other site maintenance and monitoring not conducted in these years (RWE I Remedial Action ongoing). Total annual O&M cost estimated at $700,000. See Appendix H for cost information provided by Amphenol.
6. Difference between RA Capital Cost and ROD Estimate attributable to factors that include weather, schedule, and inclusion in the RA of the excavation and restoration of Herrick Hollow Creek segments #9 through #13.

SECTION 7

OPERATION AND MAINTENANCE

7.1 OPERATION AND MAINTENANCE MANUAL

A site-wide Operation and Maintenance Manual for Post Remedial Activities (site-wide O&M Manual) has been prepared for the site (Parsons, 2007b). This site-wide O&M Manual includes procedures for inspection and maintenance of the landfill cap, TSCA cell, stormwater control features, and other site features. Monitoring activities identified in the plan include those associated with groundwater, surface water, sediment, fish, leachate, and landfill gases. Operation and maintenance activities at the site have been initiated pursuant to the site-wide O&M Manual and previously submitted draft and interim plans.

SECTION 8

FINAL INSPECTION AND CERTIFICATIONS

8.1 FINAL INSPECTIONS

DA Collins, Parsons, and Earth Tech conducted a pre-final inspection of the Remedial Work Element I construction, including the landfill cap, on August 29, 2006. A punchlist prepared from that inspection was updated on October 5, 2006 for use in a final site inspection, which was conducted on October 10, 2006. Attending the final inspection were representatives from USEPA, NYSDEC, Earth Tech, Amphenol, Honeywell, JTM Associates, DA Collins, and Parsons. The punchlist, indicating completion of outstanding items, is included in Appendix G.

8.2 RECORD DRAWINGS

Pursuant to Section 10.C.4.b of the Statement of Work, Record Drawings, for Remedial Work Element I facilities constructed pursuant to the Consent Decree, signed and stamped by a professional engineer licensed in New York, are included in Appendix B.

8.3 NOTICE OF COMPLETION

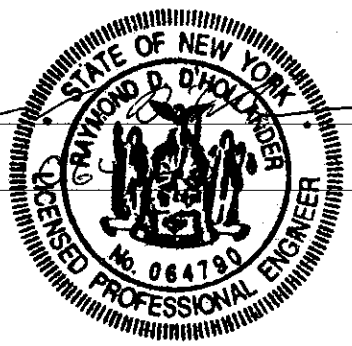
Pursuant to Section 10.C.6 of the Statement of Work, the following notice of completion is provided, signed by a qualified licensed professional engineer in New York:

> I certify that I am a Professional Engineer licensed in the State of New York. In my professional opinion, based on review of available project documents and observations during site visits, the Remedial Construction for Remedial Work Element I was completed in full satisfaction of the Consent Decree, Statement of Work, and the EPA-approved Remedial Design, as documented in this Remedial Action Report which includes EPA-approved Field Change Orders and other design and construction modifications.

By: _____ 8/31/07

NYS PE # _____

PARSONS



UNAUTHORIZED ALTERATION OR ADDITION TO THIS ENGINEERING DOCUMENT IS A VIOLATION OF SECTION 7209. PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

8.4 CERTIFICATION

Pursuant to Section 10.C.8 of the Statement of Work, the following certification is provided, signed by a responsible corporate official of Amphenol:

> To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

By: _____

Title: Director, EHS & Support Services

Amphenol

SECTION 9

REFERENCES

JTM Associates, 2006. MW-12 Group Assessment Plan. Prepared for Amphenol Corporation and Honeywell International by JTM Associates, LLC. May 2006.

JTM Associates, 2006. MW-12 Group Assessment Plan Response to Comments. Prepared for Amphenol Corporation and Honeywell International by JTM Associates, LLC. May 2007.

O'Brien & Gere, 1995. Remedial Investigation Report for the Richardson Hill Road Municipal Landfill. Prepared for Amphenol Corporation by O'Brien & Gere Engineers, Inc. August 1995.

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PAF, 1991. Cultural Resource Management Survey Stage 1A Archaeological Reconnaissance for the Richardson Hill Road Landfill. Public Archaeological Facility, 1991.

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PAF, 2003. Cultural Resource Management Report, Phase 1 Archaeological Addendum Survey, Downstream Property, Richardson Hill Road Landfill. Public Archaeological Facility, 2003.

PAF, 2005. Phase 3 Data Recovery, Herrick Hollow Archaeological District, Herrick Hollow I – VII Sites, Richardson Hill Road Landfill. Public Archaeological Facility, 2005.

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Parsons, 2000. Pre-Design Investigation Report for the Richardson Hill Road Landfill. Prepared for Amphenol Corporation, March 2000.

Parsons, 2002. Final (100%) Design Report for the Richardson Hill Road Landfill. Prepared for Amphenol Corporation, July 2002 (Revised)

Parsons, 2003a. Richardson Hill Road Landfill - Groundwater Treatment Plant – Phase 1 Construction Certification Report. Prepared for Amphenol Corporation, July 2003.

Parsons, 2003b. Groundwater Treatment Plant Construction Certification Report – Response to Comments. Letter by Parsons on behalf of Amphenol Corporation to United States Environmental Protection Agency, Region II, dated December 1, 2003.

Parsons, 2006. Draft Operation and Maintenance Manual for Post-Remedial Activities at the Richardson Hill Road Landfill. Prepared for Amphenol Corporation, August 2006.

Parsons, 2007a. Final Interim Remedial Action Report, Remedial Work Element II, Groundwater Extraction and Treatment, Richardson Hill Road Landfill Site. Prepared for Amphenol Corporation, August 2007.

Parsons, 2007b. Operation and Maintenance Manual for Post Construction Activities Richardson Hill Road Landfill Site. Prepared for Amphenol Corporation, August 2007.

USEPA, 1997. Record of Decision for the Richardson Hill Road Landfill Site. United States Environmental Protection Agency, Region II. September 30, 1997.

USEPA, 1999. Consent Decree for the Richardson Hill Road Landfill Site. United States Environmental Protection Agency, Region II.

USEPA, 2000. Close Out Procedures for National Priorities List Sites. EPA 540-R-98-016. OSWER Directive 9320.2-09A-P. United States Environmental Protection Agency, Office of Emergency and Remedial Response. January 2006.

USEPA, 2003. Comments to Draft Construction Certification Report – Ground Water Treatment Plant. Letter by United States Environmental Protection Agency, Region II to Amphenol Corporation, dated December 1, 2003.

USEPA, 2007a. Comments on the MW-12 Group Assessment Plan. Letter by United States Environmental Protection Agency, Region II to Amphenol Corporation, dated May 15, 2007.

USEPA, 2007b. Comments on Draft Remedial Action Report, Remedial Work Element I. Letter by United States Environmental Protection Agency, Region II to Amphenol Corporation, dated May 31, 2007.