Engineering Report

Former Drainage Swale Interim Remedial Measure Former IFG Facility (Site No. 7-34-057) Syracuse, New York

General Motors Corporation
Syracuse, New York

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Vice President

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O'BRIEN & GERE ENGINEERS, INC.

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List of abbreviations and acronyms located within the text

BUD	Beneficial Use Determination
CWM	Chemical Waste Management
DUSR	Data Usability Summary Report
EDI	EDI Engineering and Science
EPA	Environmental Protection Agency
GM	General Motors Corporation
IFG	Inland Fisher Guide
IRM	Interim Remedial Measure
IWTP	industrial wastewater treatment plant
LCS	laboratory control sample
NIMO	Niagara Mohawk – A National Grid Company
NYSDEC	New York State Department of Environmental Conservation
PCB	Polychlorinated biphenyl
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SPDES	State Pollutant Discharge Elimination System
SRI	Supplemental Remedial Investigation
SVOC	Semivolatile Organic Compound
TAGM	Technical and Administrative Guidance Manual
TSCA	Toxic Substance Control Act
TSDF	Transportation, Storage and Disposal Facility
VOC	Volatile Organic Compound

1. Introduction

This engineering report documents the Interim Remedial Measure (IRM) implementation for the Former Drainage Swale at the Former Inland Fisher Guide (IFG) Facility. This report has been prepared in accordance with the requirements set forth in Paragraph VI.C. of the Administrative Order on Consent (Index # D-7-001-97-06; Order) between General Motors Corporation (GM) and the New York State Department of Environmental Conservation (NYSDEC), which became effective September 25, 1997.

Between August of 2001 and December of 2005, three large-scale IRMs were designed and implemented at the Former IFG Facility under the Order. These IRMs addressed environmental media investigated as part of a Remedial Investigation/Feasibility Study (RI/FS) being conducted under the Order, storm sewer investigations, and State Pollution Discharge Elimination System (SPDES) permit excursions at the facility's discharge outfalls. The IRMs were the Former Landfill IRM, the Former Drainage Swale IRM, and the SPDES Treatment System IRM and were performed as IRMs prior to completion of the RI/FS with the objective of accelerating facility remediation to accommodate redevelopment of the facility. The Former Landfill IRM consisted of the construction of a landfill cover to address a former landfill located in the northwestern portion of the facility property. The Former Drainage Swale IRM consisted of the removal of PCB (polychlorinated biphenyl)-containing subsurface material. The SPDES Treatment System IRM consisted of the construction of a large retention basin and treatment system to treat facility storm water for PCBs and volatile organic compounds (VOCs) prior to discharge off-site. Construction work for the Former Drainage Swale and the SPDES Treatment System IRMs was largely co-located in the central northern portion of the facility property. The Former Landfill IRM and the SPDES Treatment System IRM are documented in separate Engineering Reports dated June 10, 2005 and January 20, 2006 (O'Brien & Gere 2005, 2006).

1.1. Site description

The Former IFG Facility and Ley Creek Deferred Media (collectively designated the Site) comprises approximately 65 acres of property located in the Town of Salina, Onondaga County, New York. The Site was classified by NYSDEC as a Class 2 Site in the Registry of Inactive Hazardous Waste Disposal Sites (Site 7-34-057). A site location map is provided as Figure 1-1.

Structures include the main manufacturing building, the attached administration building, the primary switch house, the powerhouse, the industrial wastewater treatment plant (IWTP), mold storage (former tank farm) building, and bulk handling building. Various paved parking lots and undeveloped areas are present on the property. A facility plan is provided as Figure 1-2.

The facility is bounded to the south by Conrail railroad tracks and a wood pallet recycling facility; to the east and northeast by Military Circle (formerly GM Circle) and Townline Road; to the west by a Niagara Mohawk – A National Grid Company (NIMO) electrical transfer station; and to the north by Factory Avenue and an undeveloped area adjacent to Ley Creek. New York State Wetland SYE – 6 is located north of the electrical transfer station.

The facility is currently being redeveloped for tenant use. Currently, over ten different tenants occupy space or are preparing to occupy space at the Former IFG Facility.

The facility is located in an area zoned for industrial use in the Town of Salina; a small portion of the facility (entrance gate area and a portion of the parking lot) is located in the Town of Dewitt. The area surrounding the facility can generally be characterized as highly urbanized. The area is also characterized by a high degree of industrial activity, as evidenced by the presence of manufacturing facilities such as Carrier Corporation, Syracuse China Corporation, New Process Gear, Inc., and Bristol-Myers Squibb Company. Numerous small industrial businesses are present along Factory Avenue and in nearby areas of the City of Syracuse. Syracuse International Airport-Hancock Field is located approximately 1½ miles north of the facility.

1.2. Site history

General. Historically, the facility was used for the manufacture of metal automotive trim components such as bumpers, grills, wheel disks and hubcaps. More recently, the facility was used for the manufacture of interior and exterior plastic trim components such as bumpers, grills and door panels. The facility began operations in 1952 as the Brown-Lipe-Chapin Division of GM. Operations conducted at the facility included metal die casting; nickel, chromium and copper cyanide electroplating; stamping; polishing; buffing; painting and machining. The products of these operations were the metal automotive parts as previously mentioned. In 1961 Brown-Lipe-Chapin merged with another GM division, Ternstedt, and subsequently became part of GM's Fisher Body Division in 1968. During the early 1960's injection molding operations were added to the existing metal operations. Metal finishing and die casting were subsequently reduced and replaced by injection molding by

the early 1970's. The facility operated as the Fisher Body Division until 1984, when it became the Fisher Guide Division until 1989. The facility then operated as the Inland Fisher Guide Division of GM from 1989 until the facility ceased manufacturing operations in December 1993. In 1992, prior to ceasing of manufacturing operations, the facility was operating 127 injection molding machines. After the facility ceased manufacturing operations in 1993, the facility was reassigned to GM's North American Operations Property Management Group, which was later re-designated the Worldwide Facilities Group.

Former drainage swale. Historical aerial photographs of the Former IFG Facility from 1957 to 1972 indicated the presence of a drainage swale running from GM's property to Ley Creek. Topographic information from 1973 indicated the presence of a branch of the former drainage swale leading from the eastern edge of the former Surface Impoundment No. 1.

Former Drainage Swale North of Factory Avenue. Subsurface soil samples were collected in the vicinity of the approximate location of the former drainage swale at the Ley Creek PCB Dredgings site as part of the 1986/87 Hydrogeological Investigation of fill area along Ley Creek (O'Brien & Gere 1987). This investigation indicated the presence of PCBs at concentrations up to 81 mg/kg. Also, during the 1992 Remedial Investigation (O'Brien & Gere 1993) for the Ley Creek Dredged Material Area, additional sampling was performed to further delineate the location of the former drainage swale. PCB concentrations were detected at concentrations up to 140 mg/kg.

Further evaluation of the concentrations of PCBs in the vicinity of the former drainage swale area was conducted as part of the Remedial Construction for the Ley Creek PCB Dredgings Site, which was to address the Record Of Decision (ROD) for that site (NYSDEC 1997). A total of four test pits were excavated to evaluate the potential presence of PCBs greater than or equal to 50 mg/kg in a former drainage swale believed to be present at the Ley Creek PCB Dredgings Site, in accordance with the NYSDEC-approved Remedial Design (O'Brien & Gere 1999a). Three test pits provided visual identification of a black silt layer mixed with organic matter, which was visually identified to be former drainage swale material. Three grab samples were collected from each test pit and analyzed for PCBs (Environmental Protection Agency (EPA) Method 8082). One sample was collected from visually identified former drainage swale material; a second was collected approximately one foot above the first sample; and a third was collected approximately one foot below the first sample. Data from the test pitting were submitted to NYSDEC in a letter from O'Brien & Gere dated December 14, 1999 (O'Brien & Gere, 1999c). Table 1-1 presents the test pitting data. Figure 1-3 shows the approximate location of the test pits.

Areas associated with the former drainage swale North of Factory Avenue at the Ley Creek PCB Dredgings Site found to be visually

impacted by the presence of PCBs were remediated in late December 1999 in accordance with the December 14, 1999 NYSDEC-approved work as part of the PCB Dredging Site Remedial Construction (O'Brien & Gere 2001). Figure 1-3 depicts the area remediated as part of the Ley Creek PCB Dredgings Site.

Former Drainage Swale South of Factory Avenue. During the December 1985 Phase II Hydrogeological Investigation (EDI 1986) that was performed at the Former IFG Facility, EDI Engineering and Science (EDI) installed a series of soil borings to evaluate soil quality in the suspected location of a former drainage swale which, based on a review of aerial photos, existed in this area. The investigation consisted of the installation of eleven soil borings. The results of the PCB analysis performed on thirty samples from ten of the eleven soil borings indicated PCBs present at varying concentrations and depths, ranging from less than detectable to 8000 mg/kg. In general, the analytical data indicated the higher concentrations of PCBs were present within the upper 8 ft of soil, but were not concentrated at one soil horizon. PCB concentrations in the gray silty clay at the bottom of the suspected fill were below or slightly above detection limits, with detectable concentrations present in borings which had higher concentrations in the overlying fill materials.

O'Brien & Gere performed a soil sampling and analysis program in the vicinity of the former drainage swale in 1990, which was performed to identify the limits of soil excavation and disposal efforts that were to be conducted as an IRM by GM This program consisted of the installation and sampling of eighteen soil borings along the right of way for the proposed Ley Creek Relief Interceptor Sewer, which extended in the east-west direction just north of GM's northern property boundary. Samples from the soil borings were analyzed for PCBs, with the results indicating PCB concentrations ranging from 5.5 to 9600 mg/kg. These samples were collected from depths of up to 10 ft bgs. As with the previous sampling performed by EDI, the results indicated that the highest PCB concentrations were present in the upper 8 ft of soil. The highest concentrations appeared in soil borings installed west of Outfall 003 (O'Brien & Gere 1990).

The area of the proposed sewer line was excavated in 1991, and GM implemented an IRM program to address the PCB-impacted soil and ground water, which was generated by the project. The NYSDEC-approved IRM work plan (O'Brien & Gere Technical Services 1991) called for a confirmatory sampling and analysis program to be performed following removal of the PCB-impacted soil, and prior to the installation of the sewer line. The confirmatory sampling program included the collection and analysis of fifteen soil samples from the base of the IRM excavation. The results indicated non-detectable concentrations of PCBs (O'Brien & Gere 1992).

In conjunction with installation of the Ley Creek Relief Interceptor Sewer, Onondaga County collected subsurface soil samples from borings

installed in the pipeline route, and from the pipeline excavation. PCB concentrations in subsurface soil samples ranged from less than detectable to 2500 mg/kg. Higher PCB detections were generally present at depths of 6 to 10 ft (Onondaga County 1991).

Onondaga County also collected surface soil samples in the vicinity of the Former IFG Facility along the route of the Ley Creek Relief Interceptor Sewer following completion of construction. PCBs were detected above the detection limit of 1 mg/kg in twelve of sixteen samples collected between the sewer and Factory Avenue. Detected PCB concentrations ranged from 2 mg/kg to 130 mg/kg, above the New York State Technical and Administrative Guidance Manual (TAGM) 4046 screening level for surface soil, 1 mg/kg.

The former drainage swale was further investigated as part of the Supplemental Remedial Investigation (SRI; O'Brien & Gere 1999b), at the Former IFG Facility. In November 1999, eight test trenches (test trenches 5 through 12) were excavated in the vicinity of the former drainage swale to evaluate its limits. The former drainage swale was visually evident as a black silt layer mixed with some organic matter which was encountered in test trenches 6 through 9 and in trenches 11 and 12. Twelve soil samples (T5-1, T5-2, T6-1, T7-1, T8-1, T8-2, T8-3, T9-1, T10-1, T11-1, T12-1, and T12-2) were collected from the test trenches. Five samples (T6-1, T7-1, T8-1, T11-1, and T12-2) were collected from within the former drainage swale material based on visual observation. These five samples were analyzed for PCBs and site related metals that consisted of arsenic, chromium, copper, lead, and zinc. As described on the April 2000 SRI Report (O'Brien & Gere 2000), PCBs and site-related metals were detected above TAGM 4046 soil screening values. Table 1-2 contains the detected concentrations of the submitted samples. The approximate location of the former drainage swale, based on these trenching activities, is depicted in Figure 1-3.

GM proposed to conduct an IRM to remediate the area impacted by the former drainage swale at the Former IFG Facility. A work plan was developed (Hartnett 2002a and 2002d) and approved by NYSDEC (NYSDEC 2002c).

1.3. Interim remedial measure objectives

The objectives for the Former Drainage Swale IRM consisted of the following:

- Reduce, control, or eliminate the PCB contamination present within the former drainage swale
- Reduce the threat to ground water, surface water and sediments by removal of former drainage swale material.

1.4. Interim remedial measure summary

The Former Drainage Swale IRM included the following major components:

- Excavation and transportation of drainage swale material/soil containing PCBs greater than 50 mg/kg for disposal off-site
- Excavation and relocation of overburden material/soil containing PCBs greater than 10 mg/kg and less than 50 mg/kg for reuse on-site as fill within the limits of the former landfill.
- Excavation and relocation of overburden material/soil containing PCBs less than 10 mg/kg for reuse on-site as fill
- Backfilling.

Royal Environmental, Inc. (Royal) performed the construction activities for the Former Drainage Swale IRM. CT Male Associates, P.C. (CT Male) provided surveying services and Riccelli Enterprises (Riccelli) provided transportation services for the importing of off-site backfill material for the IRM. Both CT Male and Riccelli were subcontractors to Royal. Various transportation companies provided transportation services for the off-site disposal of the drainage swale material/soil containing PCBs greater than 50 mg/kg to Chemical Waste Management (CWM) in Model City, New York. O'Brien & Gere served as the design engineering firm and provided engineering field observation throughout the implementation of the IRM.

The site clearing component of the IRM commenced in July 2002. IRM implementation proceeded through 2002 and 2003 with completion of backfilling in October 2004. Final inspection was conducted on December 15, 2004.

1.5. Interim remedial measure documents

The work plan prepared to implement the Former Drainage Swale IRM comprised of the following documents:

- April 26, 2002 letter to NYSDEC proposing reuse of soil spoils from excavation of proposed retention basin (Hartnett 2002b)

- June 27, 2002 letter to NYSDEC proposing soil characterization plan for Former Drainage Swale IRM and SPDES Treatment System IRM (Hartnett 2002c)
- Former Drainage Swale IRM Work Plan (Hartnett 2002a and 2002d)
- Health and Safety Plan (Royal 2002a)
- Perimeter and On-site Air Monitoring and Dust Control Plan (Royal 2002b)
- Construction Quality Control Plan (Royal 2002c)
- Material Handling Plan (Royal 2002d) and Amendment #1 (Royal 2002i)
- Storm Water Pollution Prevention Plan (O'Brien & Gere 2002a)
- Storm Water Conveyance Maintenance Plan – Amendment #1 (Royal 2002f)
- Construction Water Management Plan (Royal 2002e), Amendment #1 (Royal 2002h), and Amendment #3 (Royal 2002j)
- Former Drainage Swale IRM Soil Characterization Plan (Hartnett 2002b)
- Pipe Abandonment Plan (Hartnett 2002e).

1.6. Interim remedial measure chronology of events

The following table includes a chronology of events that occurred as part of the Former Drainage Swale IRM, starting with submission of the Former Drainage Swale IRM Work Plan and ending with Final Inspection:

Table 1-1. *Chronology of events*

Date	***Event***
April 26, 2002	Proposed Former Drainage Swale IRM Work Plan submitted to NYSDEC for review
April 26, 2002	Reuse of soil spoils from excavated proposed retention basin submitted to NYSDEC for review

Table 1-1. *Chronology of events*

Date	***Event***
June 27, 2002	SPDES Treatment System IRM and Former Drainage Swale IRM Soil Characterization Plan submitted to NYSDEC for review
June 27, 2002	NYSDEC provided comments regarding the Former Drainage Swale IRM Work Plan
June 28, 2002	NYSDEC approved the SPDES Treatment System IRM and Former Drainage Swale IRM Soil Characterization Plan
July 17, 2002	Revised Former Drainage Swale IRM Work Plan submitted to NYSDEC for review
July 18, 2002	Health and Safety Plan submitted to NYSDEC for review
July 18, 2002	Perimeter Air Monitoring and Dust Control Plan submitted to NYSDEC for review
July 18, 2002	Construction Water Management Plan submitted to NYSDEC for review
July 18, 2002	Material Handling Plan submitted to NYSDEC for review
July 26, 2002	Storm Water Pollution Prevention Plan submitted to NYSDEC for review
July 26, 2002	Health and Safety attachment submitted to NYSDEC for review
August 1, 2002	Storm Water Conveyance Maintenance Plan submitted to NYSDEC for review
August 1, 2002	Construction Water Management Plan - Amendment #1 submitted to NYSDEC for review
August 3, 2002	NYSDEC approved the Revised Former Drainage Swale IRM Work Plan
August 6, 2002	Storm Water Conveyance Maintenance Plan – Revision #1 submitted to NYSDEC for review
August 22, 2002	Material Handling Plan - Amendment #1 submitted to NYSDEC for review
August 27, 2002	Modification to characterization sampling frequency submitted to NYSDEC for review
September 3, 2002	NYSDEC approved the modification to characterization sampling frequency
September 6, 2002	NYSDEC approved Construction Water Management Plan - Amendment # 1 via email
September 10, 2002	Former Drainage Swale IRM modification to the Confirmation Sampling Plan submitted to NYSDEC for review

Table 1-1. *Chronology of events*

Date	*Event*
September 13, 2002	Pipe Abandonment Plan submitted to NYSDEC for review
September 18, 2002	Soil reuse notice form for OB-1, OB-2, OB-3, OB-4, OB-5, and OB-10 submitted to NYSDEC for review
September 19, 2002	Soil reuse notice form for OB-6, OB-8, and OB-9 submitted to NYSDEC for review
September 30, 2002	NYSDEC approved soil reuse for OB-1, OB-2, OB-3, OB-4, OB-5, and OB-10
September 30, 2002	NYSDEC approved soil reuse for OB-6, OB-8, and OB-9
October 2, 2002	NYSDEC approved the modification to the Former Drainage Swale IRM Confirmation Sampling Plan
October 2, 2002	NYSDEC approved the Pipe Abandonment Plan
October 2, 2002	Soil reuse notice form for OB-7, OB-11, OB-12, and OB-13 submitted to NYSDEC for review
October 3, 2002	NYSDEC approved soil reuse for OB-7, OB-11, OB-12, and OB-13
October 22, 2002	Debris/soil reuse notice form for OB-14, OB-15, OB-16, OB-17, OB-18, and pipe bedding material submitted to NYSDEC for review
October 29, 2002	NYSDEC approved soil reuse for soil piles OB-14, OB-15, OB-16, OB-17, OB-18
November 15, 2002	Modification to overburden sampling within limits of former landfill submitted to NYSDEC for review via e-mail
November 15, 2002	NYSDEC approved modification to overburden sampling within limits of former landfill via e-mail
December 4, 2002	Debris/soil reuse notice form for OB-19, OB-20, pipe sludge/reinforced concrete pipe, and pipe bedding material
December 6, 2002	NYSDEC approved soil reuse for soil piles OB-19, OB-20, pipe sludge/reinforced concrete pipe, and pipe bedding material
December 17, 2002	Construction Water Management Plan – Amendment #3 submitted to NYSDEC for review
December 26, 2002	NYSDEC approved Construction Water Management Plan – Amendment #3
June 18, 2004	Debris/soil reuse notice form for the soil from the hillside south of Mold Storage Building
June 22, 2004	NYSDEC approved debris/soil reuse notice form for the soil from the hillside south of Mold Storage Building
July 18, 2003	NYSDEC approved soil originating from excavation of the hillside southeast of the Mold Storage Building as subsurface backfill for the former drainage swale via telephone conversation

Table 1-1. *Chronology of events*

Date	***Event***
September 1, 2004	Revised debris/soil reuse notice form for soil from the Western Courtyard
September 7, 2004	NYSDEC approves revised debris/soil reuse notice form for soil from the Western Courtyard
September 15, 2004	Revised debris/soil reuse notice form for soil from East and West of CDM Parking and Storage area
September 16, 2004	NYSDEC approves revised debris/soil reuse notice form for soil from East and West of CDM Parking and Storage area
December 15, 2004	Final Inspection
February 11,2005	Debris/soil reuse notice form for OB-21, OB-22, COB-1, COB-8, COB-9, COB-10, and COB-11
March 7,2005	NYSDEC approves debris/soil reuse notice form for OB-21, OB-22, COB-1, COB-8, COB-9, COB-10, and COB-11

Source: O'Brien and Gere

2. Interim remedial measure

The IRM consisted of the following work elements:

- overburden material excavation and disposal
- former drainage swale material excavation and disposal
- removal of abandoned storm water piping/materials
- backfilling.

Due to the presence of the former drainage swale within the limits of work for both the Former Landfill IRM and the SPDES Treatment System IRM, the footprint of the swale was broken up into three areas. The three areas (Area 1, Area 2, and Area 3) are depicted on Figure 2-1 and are denoted as former drainage swale within the Former Landfill IRM work limits, former drainage swale within the SPDES Treatment System IRM work limits that are outside the retention basin footprint, and former drainage swale within the SPDES Treatment System IRM work limits that are inside the retention basin footprint, respectively. Details of these steps are presented in the following subsections.

2.1. Overburden material

2.1.1. Overburden material excavation

The excavation of overburden material required to reach the former drainage swale material was conducted in accordance with the July 17, 2002 NYSDEC-approved Work Plan (Hartnett 2002d). Sheet G-1 of the Record Drawings documents the limits of overburden material that was excavated, which is synonymous with the limits of the excavated former drainage swale.

The estimated limits of the former drainage swale were segregated into three areas denoted as Area 1, 2, and 3. Figure 2-1 depicts these areas.

2.1.2. Overburden material characterization

Characterization sampling in Area 1 (within Former Landfill IRM work limits): The overburden material excavated from within the work limits of the Former Landfill IRM, excluding the area located on Onondaga County property between the northern property boundary and Factory Avenue, was not sampled for characterization purposes in accordance with the NYSDEC-approved work plan modification (O'Brien & Gere

2002c). The overburden material that was not sampled was used as subsurface fill within the limits of the former landfill that received a low permeability cover system. With the exception of the 0-1-ft interval of the hot spot between 4+05 – 6+20, overburden soil from the area located on Onondaga County property between the GM northern property boundary and Factory Avenue was either consolidated on-site within the low permeability cover system limits or sampled for further characterization. Soil excavated from the 0-1 ft interval of the hot spot between 4+05 – 6+20 was excavated as part of the Former Landfill IRM and was disposed of off-site. Subsequent overburden material from this hot spot area was sampled for further characterization.

Characterization sampling in Area 2 (within SPDES Treatment System IRM work limits that are outside the footprint of the retention basin limits): The overburden material was staged in 500 cubic yard (CY) stockpiles and sampled in accordance with the NYSDEC-approved July 17, 2002 Work Plan.

Characterization sampling in Area 3 (within SPDES Treatment System IRM work limits that are inside the footprint of the retention basin limits): The overburden material was staged first in five 500 CY and then 2500 CY stockpiles and sampled in accordance with the NYSDEC-approved July 17, 2002 Work Plan. Due to an inconsistency of PCB concentrations in the 2500 CY piles, sampling frequency reverted back to one sample per 500 CY. Tables 2-1 and 2-2 summarize the data of the overburden pile sampling. Electronic copies of the overburden sampling analytical data are presented in Appendix A.

A Data Usability Summary Report (DUSR) was prepared for the data generated as part of the overburden soil pile characterization. The data usability review consisted of a review of the following quality control parameters:

- Chain of custody records
- Holding times and sample preservation
- Surrogate recoveries
- Laboratory method blank analyses
- Laboratory control sample (LCS) and LCS duplicate analyses.

The following observations were made during the data usability review process:

- For samples collected for the GM Main Plant Former Drainage Swale IRM, the overall data usability with respect to completeness is greater than 99 percent for the VOC data, and 100 percent for the semivolatile organic compound (SVOC), PCB, and metal data

- VOC results for chloroethane in samples OB-1, OB-2, OB-3, OB-4, OB-5, FD-OB1 (OB-5), Trip Blank 8/19/02, OB-6, OB-7, OB-8, OB-9, OB-10, Trip Blank 9/3/02, and Trip Blank 9/5/02 were

rejected due to low response factors in the associated calibration verifications

- Based on the review performed, the remaining data were determined to be usable for qualitative and quantitative purposes.

The DUSR is presented in Appendix B. Based on the data of the overburden pile sampling, the piles were characterized for either off-site disposal or on-site reuse. It should be noted that VOC data for these piles was not critical to disposition decisions, therefore, rejection of VOC data for chloroethane does not affect the outcome of disposition decisions. Table 2-3 presents a summary of the information pertaining to the characterized piles.

2.1.3. Off-site disposal of overburden material containing PCBs greater than or equal to 50 mg/kg

Based on the overburden pile characterization described in Section 2.1.2, overburden piles OB-7, OB-13, OB-18, OB-22, COB-9, and COB-10W were characterized for off-site disposal. Portions of OB-7 and OB-22 disposed of off-site after additional sampling was performed on the soil pile by dividing the piles into five and eight sections, respectively. This excavated overburden material containing PCBs greater than or equal to 50 mg/kg was transported to the CWM Transportation, Storage, and Disposal Facility (TSDF) in Model City, New York. The CWM TSDF is a Toxic Substance Control Act (TSCA)-permitted facility.

Based on manifested weights for material received at the TSDF, approximately 9495 tons (approximately 6330 CY) of overburden material containing PCBs greater than or equal 50 mg/kg were disposed of at the CWM TSDF. A summary table, electronic copies of the manifests, and certificates of disposal for the overburden material containing PCBs greater than or equal 50 mg/kg disposed of at the CWM TSDF are presented in Exhibit A.

2.1.4. Consolidation of overburden material containing PCBs greater than or equal to 50 mg/kg

Overburden piles OB-1, OB-2, OB-3, OB-4, OB-5, OB-9, OB-15, and OB-16 were used as subsurface fill within the limits of the Northern Dock. NYSDEC approved the reuse of these piles in letters dated September 30, 2002 (NYSDEC 2002d and 2002e) and October 29, 2002 (NYSDEC 2002h). The quantity of these piles was estimated to be 5000 CY.

Overburden pile OB-10 was used as subsurface fill as part of the SPDES Treatment System IRM. This pile was used as subsurface fill underneath the SPDES Treatment Building. NYSDEC approved reuse of this pile in the letter dated September 30, 2002 (NYSDEC 2002d). The quantity of this pile was estimated to be 500 CY.

Overburden piles OB-6, OB-7, OB-8, OB-11, OB-12, OB-17, OB-20, OB-21, OB-22, COB-1, COB-8, and COB-10E were used as subsurface fill within the limits of the former landfill, which will ultimately be beneath a low permeability cover system. Portions of OB-7 and OB-22 were used as subsurface fill within the limits of the former landfill after additional sampling was performed on the soil pile by dividing the piles into five and eight sections, respectively. COB-8 and COB-10E was overburden material that was generated from a section of the former drainage swale that was located north of the former landfill. NYSDEC approved reuse of these piles in letters dated September 30, 2002 (NYSDEC 2002e), October 3, 2002 (NYSDEC 2002f), October 29, 2002 (NYSDEC 2002g), December 6, 2002 (NYSDEC 2002h), and March 7, 2005 (NYSDEC 2005). Reuse of this soil as fill underneath the low permeability cover system is consistent with NYSDEC's Beneficial Use Determination (BUD) 721-7-34, dated May 2, 2002 (NYSDEC 2002a). The quantity of these piles was estimated to be 12,500 CY.

Overburden piles OB-14 and OB-19 were used as subsurface fill within the limits of the former drainage swale. NYSDEC approved reuse of these piles in letters dated October 29, 2003 (NYSDEC 2002g) and December 6, 2003 (NYSDEC 2002h). The quantity of these piles was estimated to be 1000 CY.

2.2. Former drainage swale material

2.2.1. Former drainage swale material excavation

The former drainage swale material was excavated in accordance with the July 17, 2002 NYSDEC-approved Work Plan. Limits of the excavated former drainage swale are depicted on Record Drawing Sheet G-1. In general, the former drainage swale was encountered approximately 8 ft to 10 ft from original grade and varied in thickness from a few inches up to approximately 2 ft. The former drainage swale material was visually characterized as a black silt layer mixed with some organic matter, which is consistent with previous observations.

The limits of the former drainage swale excavation along Factory Avenue were within approximately 2 ft of the underground NIMO high-pressure gasline.

2.2.2. Confirmatory sampling and analysis

Soil samples from the wall and floor of excavations were collected and analyzed for PCBs in accordance with the July 17, 2002 NYSDEC-approved Work Plan. The approximate locations and depth from original grade of the confirmatory analysis samples are depicted on Record Drawing Sheet G-1. Table 2-4 summarizes the confirmatory sampling

data. Electronic copies of the confirmatory sampling analytical data are presented in Appendix C.

A DUSR was prepared for the data generated as part of confirmatory sampling. The data usability review consisted of a review of the following quality control parameters:

- Chain of custody records
- Holding times and sample preservation
- Surrogate recoveries
- Laboratory method blank analyses
- Laboratory control sample (LCS) and LCS duplicate analyses.

The following observations were made during the data usability review process:

- For samples collected for the GM Main Plant Former Drainage Swale IRM, the overall data usability with respect to completeness is greater than 99 percent for the VOC data, and 100 percent for the SVOC, PCB, and metal data. The 1 percent of VOC data not meeting completeness was for samples other than confirmation samples
- Based on the review performed, the confirmation data were determined to be usable for qualitative and quantitative purposes.

The DUSR is included in Appendix B.

2.2.3. Off-site disposal of former drainage swale material

Excavated former drainage swale material containing PCBs greater than or equal to 50 mg/kg was loaded into dump trailers for off-site disposal. The dump trailers were transported to the CWM TSDF in Model City, New York.

Based on manifested weights for material received at the TSDF, approximately 12,688 tons (approximately 8459 CY) of former drainage swale material containing PCBs greater than or equal 50 mg/kg were disposed of at the CWM TSDF. A summary table, electronic copies of the manifests, and certificates of disposal for the former drainage swale material containing PCBs greater than or equal 50 mg/kg disposed of at the CWM TSDF are presented in Exhibit B.

2.3. Abandoned storm water piping

2.3.1. Abandoned storm water piping/material management

During the excavation of the retention basin as part of the Former Drainage Swale IRM and SPDES Treatment System IRM, pipe sections and an abandoned vault were encountered. Black sludge-like material was observed within the piping. The abandoned pipe, abandoned vault, pipe bedding and contents of the piping were removed from within the limits of the retention basin and staged at the former landfill for characterization in accordance with the September 13, 2002 NYSDEC-approved pipe abandonment plan (Hartnett 2002e).

Abandoned storm water piping outside the limits of the Former Drainage Swale IRM in the south-central portion of the retention basin was cleaned and left in place as GM proposed to utilize this piping in the rerouting of the storm water flows from Outfall 004 to the retention basin in a letter to NYSDEC dated September 11, 2003 (Hartnett 2003a) and approved by NYSDEC in a letter dated October 9, 2003 (NYSDEC 2003).

Abandoned storm water piping outside the limits of the former drainage swale in the western portion of the retention basin was left in place, with the exception of removing one section of the pipe. Subsequent to the pipe section removal, the remaining piping leading into the former landfill area was abandoned by plugging the section of. The remaining section of piping leading from the section of removed piping to the retention basin limit was cleaned and left in place without being plugged.

2.3.2. Abandoned storm water piping/material characterization

The abandoned pipe, abandoned vault, pipe bedding, and pipe contents were sampled for VOCs, SVOCs, PCBs, and site-related metals in accordance with the July 17, 2002 and September 13, 2002 work plans. Table 2-5 summarizes the characterization sampling data. Electronic copies of the abandoned storm water piping/material sampling analytical data are presented in Appendix D.

A DUSR was prepared for the data generated as part of the abandoned storm water piping/material characterization. The data usability review consisted of a review of the following quality control parameters:

- Chain of custody records
- Holding times and sample preservation
- Surrogate recoveries
- Laboratory method blank analyses
- Laboratory control sample (LCS) and LCS duplicate analyses.

The following observations were made during the data usability review process:

- For samples collected for the GM Main Plant Former Drainage Swale IRM, the overall data usability with respect to completeness was greater than 99 percent for the VOC data, and 100 percent for the SVOC, PCB, and metal data. The 1 percent of VOC data not meeting completeness was for samples other than those associated with abandoned piping/material
- Based on the review performed, the abandoned piping/material data were determined to be usable for qualitative and quantitative purposes.

The DUSR is included in Appendix B. Based on the data from this the characterization sampling, the storm water piping/material was categorized for final disposition. Table 2-6 presents a summary of the information pertaining to the characterized storm water piping/material.

2.3.3. On-site consolidation of storm water piping/material

The abandoned pipe, abandoned vault, pipe bedding, and pipe content were used as subsurface fill within the limits of the former landfill, beneath the low permeability cover system. The abandoned pipe and abandoned vault were crushed prior to placement as subsurface fill within the limits of the former landfill. NYSDEC approved reuse of this material in letters dated October 29, 2003 and December 6, 2003.

2.4. Backfilling

Following excavation activities, excavations were backfilled with the following materials to meet the design grades associated with the Former Landfill IRM and SPDES Treatment System IRM:

- restricted overburden material requiring 1 ft of cover material (OB-14 – approximately 300 CY). OB-14 was approved for reuse by NYSDEC in a letter dated October 29, 2003.
- unrestricted overburden material (OB-19 – approximately 100 CY). OB-19 was approved for reuse by NYSDEC in a letter dated December 06, 2003.
- restricted overburden material requiring 1 ft of cover material, which was generated as part of the SPDES Treatment System IRM retention basin grading from grids (TB-02-01 through TB-02-07 and TB-02-13). Table 2-7 provides a summary of the grid material status. The material was approved for reuse by NYSDEC in letters dated September 3, 2002 (NYSDEC 2002b) and September 27, 2002 (NYSDEC 2002c).

- subsurface material from the hillside southeast of the Mold Storage Building (approximately 1000 CY). NYSDEC approved the reuse of the material generated from the hillside southeast of the Mold Storage Building as subsurface material via a conversation with O'Brien & Gere (O'Brien & Gere 2003).
- subsurface material from the hillside south of the Mold Storage Building (approximately 300 CY). This material was approved for reuse by NYSDEC in a letter dated June 22, 2004.
- subsurface material from Western Courtyard (approximately 330 CY). This material was approved for reuse by NYSDEC in a letter dated September 7, 2004.
- subsurface material from east and west of the CDM Parking Storage area (approximately 3000 CY). This material was approved for reuse by NYSDEC in a letter dated September 16, 2004.
- overburden material generated during excavation activities within the former landfill limits. This material was approved for reuse within the limits of the former landfill by NYSDEC in an email dated November 15, 2002.
- off-site embankment material in accordance with the Technical Specifications.

3. Construction quality assurance/construction quality control

O'Brien & Gere observed Royal's activities during implementation of the IRM. Daily field observation reports and field notes were prepared by O'Brien & Gere representative that identified daily remedial activities, work progress, encountered conditions, and notification of changed conditions or field alternatives to the original design. O'Brien & Gere provided review of shop drawings submitted for the project.

3.1. Former drainage swale excavation

The former drainage swale was excavated as shown on Record Drawing G-1, and the former drainage swale material was disposed off-site at a TSCA-permitted disposal facility. O'Brien & Gere performed confirmatory sampling of the excavations as discussed in Section 2.2.2.

When confirmatory samples indicated PCB concentrations greater than 10 mg/kg, for Areas 2 and 3, which were outside the limits of the Former Landfill IRM, excavation progressed in accordance with the NYSDEC-approved IRM work plan or to the extent feasible due to utilities. NYSDEC was generally present and concurred in the field when the extent of removal was not feasible due to utilities being encountered. Where utilities were encountered, informational samples were collected for PCB analysis to document the PCB concentration left in place.

When confirmatory samples indicated PCB concentrations greater than 50 mg/kg, for Area 1, which was within the limits of the Former Landfill IRM, excavation progressed in accordance with the NYSDEC-approved IRM work plan, until visible swale material was no longer present, or to the extent feasible due to utilities.

Following excavation activities, the excavations were backfilled with on-site material or clean embankment material in accordance with the Technical Specifications. Prior to placement of the on-site materials, sampling was performed; electronic copies of the analytical data are presented as Appendix E. Prior to placement of the off-site clean embankment material, the borrow source was qualified in accordance with the Technical Specifications. Off-site clean embankment material borrow source data are presented in Exhibit C.

Backfilling of the excavations was conducted by placing the on-site material or off-site clean embankment material in lifts of varying thickness. Lift thicknesses varied from approximately 1 ft to 3 ft. Each

lift was compacted using a vibratory roller or a track-mounted dozer. Field compaction testing of the lifts was not performed.

4. Institutional controls

The Former IFG Facility Site is currently located in the Town of Salina in an industrial zone (I-1 District), which allows for industrial use such as heavy manufacturing. The scope of the remediation conducted in this area of the Site will allow for both future industrial and commercial use.

As the last component of the Former Drainage Swale IRM, a deed restriction should be recorded that limits the future use of this IRM-remediated area of the Site to commercial and industrial use (the "Use Restriction") and imposes such other post-remediation operation, maintenance and monitoring (OM&M) restrictions that are necessary to protect human health and the environment, including but not limited to, a restriction on the use of Site ground water without the prior written consent of GM and NYSDEC.

There would also be an easement conveyed to NYSDEC (and reserved to GM in the event of a future transfer of the Site) that would allow access to confirm that all OM&M restrictions are being observed, including the Use Restriction.

The deed restriction and easement would be recorded following NYSDEC's issuance of a final Record of Decision for the Site.

5. Record drawings/as-builts

Following completion of construction, Record Drawings and as-builts were compiled. The Record Drawings show the areas where the former drainage swale was excavated and approximate location and depth from original grade of the confirmatory samples. The as-builts show the surveyed limits of excavation and final grade elevations. The Record Drawings are presented in Appendix F and the as-builts are provided in Exhibit D.

6. Summary of project costs

The costs for the Former Drainage Swale IRM were tracked together with those for the SPDES Treatment System IRM. The estimated capital cost to complete these projects was approximately $3.2 Million. The final construction and engineering cost was approximately $6.4 Million. Of the final construction and engineering costs, disposal of PCB-containing material accounted for approximately $2.6 Million of the total costs. NYSDEC oversight costs for programs at the facility between 2001 and 2004 were approximately $347,000. It is estimated that there will be no annual OM&M costs for the Former Drainage Swale IRM.

Due to the concurrent implementation of the SPDES Treatment System IRM, the Former Drainage Swale IRM, the Former Landfill IRM and various site redevelopment activities, GM was able to beneficially reuse over 78,000 cubic yards of soil and debris. This resulted in an estimated project savings of $8.4 million to $13.4 million in transportation and disposal costs, waste taxes, and fill purchase expenses.

7. Lessons learned

The following lessons were learned as a result of the implementation of the Former Drainage Swale IRM:

- Working cooperatively with NYSDEC and sharing real time project information using an Internet-based server enhanced project communication and enabled expeditious decision making

- The decision to perform this remedial action as an IRM enabled accelerated implementation of necessary remediation, thereby creating an environment suitable for expedited redevelopment of the property

- Substantial site-wide benefits were realized through the concurrent scheduling of the Former Landfill IRM, the SPDES Treatment System IRM and the Former Drainage Swale IRM and forward planning for site redevelopment projects. The benefits included the beneficial reuse of more than 78,000 cubic yards of soil. This eliminated the need for off-site disposal of this material, reducing its negative impact on the environment and resulting in substantial cost savings. This also substantially reduced the volume of fill that needed to be imported from off-site

- A sampling and analysis program demonstrated that the former drainage swale material that required removal could be identified by certain physical characteristics. This enabled expeditious removal of the material based on visual observations of its physical characteristics.

8. Interim remedial measure contact information

The Project Manager for GM was:

James F. Hartnett
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The Project Manager for the Design Engineering firm and Construction Observation firm was:

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The Project Manager for the IRM Contractor used by GM was:

David Woodruff
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PO Box 15719
Rochester, NY 14615
Phone: 585-254-1840

The NYSDEC Project Manager was:

Susan L. Edwards, P.E.
NYSDEC Project Manager
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7016
Phone: 518-402-9767

The USEPA Project Manager was:

Robert Nunes
Onondaga Lake Project Manager
U.S. Environmental Protection Agency, Region II
290 Broadway, 20th Floor
New York, New York 10007-1866
Phone: 212-637-4254

9. Operation, maintenance, and monitoring

No OM&M activities associated with the Former Drainage Swale IRM are anticipated. OM&M activities associated with seeded areas will be conducted as part of the OM&M for the SPDES Treatment System IRM and the Former Landfill IRM. Section 4 describes the institutional controls associated with the Former Drainage Swale IRM.

10. Certification

Based on field observations made during the implementation of the NYSDEC-approved IRM, O'Brien & Gere hereby certifies, as required by the Order on Consent (Index # D-7-001-97-06), that the IRM was completed in accordance with the NYSDEC-approved IRM work plan with the exceptions discussed in this engineering report.

By: _____ Date: 2/1/06

Douglas M. Crawford, P.E.
Vice President
O'Brien & Gere Engineers, Inc.

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Table 1 –1. *Ley Creek Test Pit Sampling Results.*

Test Pit Sample ID	Sample Depth (feet)	Detected Aroclor Concentration (mg/kg)
TP3-1	7	8.9 * (1242)
TP3-2	8	110 * (1242)
TP3-3	9	ND
T4-1	5	ND
T4-2	5	12 * (1242)
T4-3	7	ND
TP5-1	1	ND
TP5-2	2	ND
TP5-3	3	ND
TP5-4	1.5	ND
TP5-5	3	ND
TP5-6	4	ND
TP5-7	4	27 * (1248)
TP5-8	5	10 * (1248)
TP5-9	6	ND
TP5-10	4.5	8.1 * (1248)
TP5-11	5.5	ND
TP5-12	6.5	1.6 * (1248)
TP5-13	3	0.83 (1248)
TP5-14	4.5	ND
TP5-15	7.5	ND
TP6-1	1.5	ND
TP6-2	2.5	29 (1248)
TP6-3	3.5	ND

Notes:
*- Altered aroclor
ND- Less than detection limit

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Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8021 VOC Data

Sample ID	T01-2	T01-4	T02-2	T02-4	T03-1	T03-4	T04-2	T04-3
Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
Sample Date	11/01/99	11/02/99	11/03/99	11/04/99	11/03/99	11/05/99	11/04/99	11/05/99
Sample Depth								
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound								
Benzene	—	—	0.001 J	—	—	—	—	—
Chlorobenzene	—	—	—	—	—	—	—	—
Methylene chloride	—	—	—	0.002 N	—	—	—	0.002 N
Ethylbenzene	11 NJ	—	—	—	—	0.039 N	0.71 N	—
Toluene	110 NJ	—	—	—	—	0.045 N	0.37 N	—
Trichloroethene	—	—	—	—	—	0.053 J	—	0.004
Xylene (total)	84 NJ	—	—	—	—	0.33 N	4 N	—
cis-1,2-Dichloroethene	—	0.002 J	—	—	0.47 J	0.45	—	—
trans-1,2-Dichloroethene	—	—	—	—	0.011 J	0.009 J	—	—

NOTES: J - estimated value, N - tentatively identified, — - not detected.

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Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8021 VOC Data

Sample ID	T05-1	T08-2	T08-3	T10-1	T11-1	T12-2
Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
Sample Date	11/11/99	11/09/99	11/09/99	11/09/99	11/10/99	11/10/99
Sample Depth						
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound						
Benzene	---	---	---	---	---	---
Chlorobenzene	---	13	---	---	---	---
Methylene chloride	0.002 N	---	---	0.001 N	---	---
Ethylbenzene	---	---	0.021 N	---	---	10 N
Toluene	---	---	0.009 N	---	---	8.8 N
Trichloroethene	---	---	---	---	---	---
Xylene (total)	---	---	0.035 NJ	---	---	110 N
cis-1,2-Dichloroethene	---	---	---	---	---	11
trans-1,2-Dichloroethene	---	---	---	---	0.003	---

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8260 VOC Data

	Sample ID	T02-1	T03-2
	Area	N. Property Trench	N. Property Trench
	Sample Date	11/03/99	11/03/99
	Sample Depth		
	Units	mg/Kg	mg/Kg
Compound			
1,1-Dichloroethene		0.002 J	—
2-Butanone (MEK)		—	0.007 J
Acetone		0.032	0.025 J
Benzene		0.002 J	0.001 J
Carbon disulfide		0.002 J	0.004 J
Ethylbenzene		0.0008 NJ	0.002 J
Toluene		0.002 NJ	0.002 J
Trichloroethene		0.006 J	—
Xylene (total)		0.002 NJ	0.006 J
cis-1,2-Dichloroethene		0.027	—

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8270 SVOC Data

Compound	Sample ID	T01-1	T01-2	T01-3	T01-4	T02-1	T02-2	T02-3	T02-4
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/01/99	11/01/99	11/02/99	11/02/99	11/03/99	11/03/99	11/03/99	11/04/99
	Sample Depth								
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
1,2-Dichlorobenzene		—	—	—	—	—	—	—	—
2,4-Dimethylphenol		3.2	7	—	—	0.24 J	0.22 J	—	—
2-Methylnaphthalene		0.11 J	0.34 J	0.079 J	—	1.9	1.6	6.1 J	—
2-Methylphenol		—	0.44 J	—	—	0.15 J	0.14 J	—	—
4-Bromophenyl phenyl ether		—	—	—	—	—	—	3.1 J	—
4-Chloro-3-methylphenol		—	0.28 J	—	—	—	—	—	—
4-Methylphenol		0.54	—	0.043 J	—	0.18 J	0.22 J	—	—
Acenaphthene		—	—	0.086 J	—	0.058 J	0.086 J	—	—
Anthracene		—	—	—	—	—	0.092 J	—	—
Benzo(a)anthracene		—	—	—	—	—	0.1 J	—	—
Benzo(b)fluoranthene		—	—	—	—	—	0.089 J	—	0.041 J
Butyl benzyl phthalate		—	—	—	—	—	—	—	0.14 J
Carbazole		—	—	—	—	—	0.1 J	—	—
Chrysene		—	—	—	—	—	0.12 J	—	—
Dibenzofuran		—	—	—	—	0.28 J	0.36 J	—	—
Fluoranthene		—	—	—	—	—	0.14 J	—	0.042 J
Fluorene		—	—	0.081 J	—	—	—	—	—
Naphthalene		0.1 J	2.3 J	0.052 NJ	—	1.6	1.4	2.1 J	—
Phenanthrene		—	0.34 J	—	—	0.34 J	0.68	—	—
Phenol		—	—	—	—	0.072 J	0.099 J	—	—
Pyrene		0.22 J	—	0.15 J	0.048 J	0.14 J	0.45 J	—	0.073 J
Bis(2-ethylhexyl)phthalate (BEHP)		—	8.8 J	0.93 J	0.35 J	0.058 J	1.6 J	0.46 J	—

NOTES: J - estimated value, N - tentatively identified, — - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8270 SVOC Data

Sample ID	T03-1	T03-2	T03-3	T03-4	T03-5	T03-6	T04-1	T04-2
Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
Sample Date	11/03/99	11/03/99	11/05/99	11/05/99	11/05/99	11/09/99	11/04/99	11/04/99
Sample Depth								
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound								
1,2-Dichlorobenzene	---	---	---	---	0.81 J	---	---	---
2,4-Dimethylphenol	0.25 NJ	0.078 J	0.27 J	---	15	---	---	0.56 J
2-Methylnaphthalene	1.7	0.082 J	0.17 J	0.18 J	11	---	7.3	0.88 J
2-Methylphenol	0.11 J	---	0.1 J	---	---	---	---	---
4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	---	---	---	---	---	---	---	---
4-Methylphenol	0.38 J	0.54 J	3.9	2.1	3.4 J	---	---	1.6 J
Acenaphthene	---	---	---	---	---	---	---	---
Anthracene	---	---	---	---	---	---	---	---
Benzo(a)anthracene	0.13 J	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.12 J	---	---	---	---	---	---	---
Butyl benzyl phthalate	---	---	---	---	---	---	---	---
Carbazole	---	---	---	---	---	---	---	---
Chrysene	0.25 J	---	---	---	---	---	---	---
Dibenzofuran	0.34 J	---	---	---	---	---	---	---
Fluoranthene	0.14 J	---	---	---	---	0.043 J	---	---
Fluorene	---	---	---	---	---	---	---	---
Naphthalene	1.4	0.079 J	0.2 J	0.19 J	8	---	0.82 J	2.2 J
Phenanthrene	1.1	0.11 J	0.31 J	0.35 J	---	---	---	0.5 J
Phenol	0.067 J	0.068 J	0.23 J	0.13 J	---	---	---	---
Pyrene	0.51 J	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate (BEHP)	0.34 J	---	0.58 J	0.53 J	10	0.07 J	16	21

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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O'BRIEN & GERE
ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8270 SVOC Data

	Sample ID	T04-3	T09-1
	Area	N. Property Trench	N. Property Trench
	Sample Date	11/05/99	11/09/99
	Sample Depth		
	Units	mg/Kg	mg/Kg
Compound			
1,2-Dichlorobenzene		—	—
2,4-Dimethylphenol		0.18 J	—
2-Methylnaphthalene		0.51	—
2-Methylphenol		—	—
4-Bromophenyl phenyl ether		—	—
4-Chloro-3-methylphenol		—	—
4-Methylphenol		0.25 J	—
Acenaphthene		—	—
Anthracene		—	—
Benzo(a)anthracene		0.045 J	0.1 J
Benzo(b)fluoranthene		—	—
Butyl benzyl phthalate		—	—
Carbazole		—	—
Chrysene		0.072 J	0.15 J
Dibenzofuran		0.12 J	—
Fluoranthene		—	0.097 J
Fluorene		—	—
Naphthalene		0.39 J	—
Phenanthrene		0.28 J	0.12 J
Phenol		—	—
Pyrene		0.17 J	0.51 J
Bis(2-ethylhexyl)phthalate (BEHP)		0.21 J	1.8 J

NOTES: J - estimated value, N - tentatively identified, — - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8082 PCB Data

	Sample ID	T01-1	T01-2	T01-3	T01-4	T02-1	T02-2	T02-3	T02-4
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/01/99	11/01/99	11/02/99	11/02/99	11/03/99	11/03/99	11/03/99	11/04/99
	Sample Depth								
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound									
Aroclor 1242		---	---	---	---	---	---	---	---
Aroclor 1248		1200 J	1500	1000	9	2	26	2700	0.9
Aroclor 1254		---	---	---	---	---	---	---	---

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8082 PCB Data

	Sample ID	T03-1	T03-2	T03-3	T03-4	T03-5	T03-6	T04-1	T04-2
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/03/99	11/03/99	11/05/99	11/05/99	11/05/99	11/09/99	11/04/99	11/04/99
	Sample Depth								
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound									
Aroclor 1242		---	---	---	---	1400	5	---	---
Aroclor 1248		17	79	---	---	---	---	1500	34
Aroclor 1254		---	---	98	99 J	---	---	---	---

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8082 PCB Data

Sample ID	T04-3	T05-1	T05-2	T06-1	T07-1	T08-1	T08-2	T08-3
Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
Sample Date	11/05/99	11/11/99	11/11/99	11/08/99	11/08/99	11/09/99	11/09/99	11/09/99
Sample Depth								
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound								
Aroclor 1242	---	---	---	6800	330 J	380 J	1600	84
Aroclor 1248	150	0.06	0.02 J	---	---	---	---	---
Aroclor 1254	---	---	---	---	---	---	---	---

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected 8082 PCB Data

	Sample ID	T09-1	T10-1	T11-1	T12-1	T12-2
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/09/99	11/09/99	11/10/99	11/10/99	11/10/99
	Sample Depth					
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound						
Aroclor 1242		230 J	---	190	---	---
Aroclor 1248		---	3	---	3800	4300
Aroclor 1254		---	---	---	---	---

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected Metals Data

Compound	Sample ID	T01-1	T01-2	T01-3	T01-4	T02-1	T02-2	T02-3	T02-4
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/01/99	11/01/99	11/02/99	11/02/99	11/03/99	11/03/99	11/03/99	11/04/99
	Sample Depth								
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aluminum		—	—	—	—	11500	—	—	—
Arsenic		14.5	9.4	4.2	4.3	65.7	21.1	16	4.3
Barium		—	—	—	—	311	—	—	—
Beryllium		—	—	—	—	0.95 J	—	—	—
Cadmium		—	—	—	—	—	—	—	—
Calcium		—	—	—	—	23600	—	—	—
Chromium		95.8	512	27.9	19.1	33.5	2560	17200	29.1
Cobalt		—	—	—	—	6.3	—	—	—
Copper		114	23200	76.2	22.1	168	3140	3530	34.7
Iron		—	—	—	—	45900	—	—	—
Lead		59.5	291	21.2	7.3	8	23.5	44.5	11.5
Magnesium		—	—	—	—	3540	—	—	—
Manganese		—	—	—	—	213	—	—	—
Mercury		0.06 J	0.16	0.036 J	0.035 J	0.13	0.085 J	0.14 J	0.027 J
Nickel		167	1180	56	22.2	82.6	533	7940	25.1
Potassium		—	—	—	—	1120	—	—	—
Selenium		—	—	—	—	2.9	—	—	—
Silver		—	—	—	—	—	—	—	—
Sodium		—	—	—	—	369	—	—	—
Thallium		—	—	—	—	0.97 J	—	—	—
Cyanide		—	1.2	—	—	—	57.7	132	—
Vanadium		—	—	—	—	24.2	—	—	—
Zinc		468	24000	789	52.1	461	348	1440	63.7

NOTES: J - estimated value, N - tentatively identified, — - not detected.

O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected Metals Data

Compound	Sample ID	T03-1	T03-2	T03-3	T03-4	T03-5	T03-6	T04-1	T04-2
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/03/99	11/03/99	11/05/99	11/05/99	11/05/99	11/09/99	11/04/99	11/04/99
	Sample Depth								
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aluminum		—	3670	—	—	—	—	—	—
Arsenic		45.5	6.5	7.3	7.7	16.7	4.7	9.9	13.8
Barium		—	83	—	—	—	—	—	—
Beryllium		—	0.19 J	—	—	—	—	—	—
Cadmium		—	0.78 J	—	—	—	—	—	—
Calcium		—	264000	—	—	—	—	—	—
Chromium		181	39.6	778	794	409	34.2 J	3170	436
Cobalt		—	2.2 J	—	—	—	—	—	—
Copper		1450	1520	5410	4520	2130	22.6	4990	3920
Iron		—	10100	—	—	—	—	—	—
Lead		22	21.3	79.4	61.1	51.1	26.6 J	185	243
Magnesium		—	8770	—	—	—	—	—	—
Manganese		—	235	—	—	—	—	—	—
Mercury		0.12 J	0.055 J	0.043 J	0.033 J	0.078 J	0.059 J	0.12 J	0.064 J
Nickel		506	242	1040	1040	635	23.1	3820	500
Potassium		—	32.5 J	—	—	—	—	—	—
Selenium		—	—	—	—	—	—	—	—
Silver		—	0.23 J	—	—	—	—	—	—
Sodium		—	5400	—	—	—	—	—	—
Thallium		—	—	—	—	—	—	—	—
Cyanide		—	—	0.98	1.6	5.8	—	102	—
Vanadium		—	4 J	—	—	—	—	—	—
Zinc		2410	53300	8470	7990	1800	67.7 J	2520	1330

NOTES: J - estimated value, N - tentatively identified, — - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected Metals Data

Compound	Sample ID / Area / Sample Date / Sample Depth / Units	T04-3 N. Property Trench 11/05/99 mg/Kg	T05-1 N. Property Trench 11/11/99 mg/Kg	T05-2 N. Property Trench 11/11/99 mg/Kg	T06-1 N. Property Trench 11/08/99 mg/Kg	T07-1 N. Property Trench 11/08/99 mg/Kg	T08-1 N. Property Trench 11/09/99 mg/Kg	T08-2 N. Property Trench 11/09/99 mg/Kg	T08-3 N. Property Trench 11/09/99 mg/Kg
Aluminum		—	—	—	—	—	—	—	—
Arsenic		21	2.6	3.3	5.2	11	12.9	11.9	4.5
Barium		—	—	—	—	—	—	—	—
Beryllium		—	—	—	—	—	—	—	—
Cadmium		—	—	—	—	—	—	—	—
Calcium		—	—	—	—	—	—	—	—
Chromium		355	22.4 J	13.9 J	3250 J	2480 J	2910 J	34900 J	775 J
Cobalt		—	—	—	—	—	—	—	—
Copper		2010	14.6	16.8	781	2460	541	6990	270
Iron		—	—	—	—	—	—	—	—
Lead		174	5 J	12.2 J	25.3 J	61.2 J	19.1 J	57.1 J	17.4 J
Magnesium		—	—	—	—	—	—	—	—
Manganese		—	—	—	—	—	—	—	—
Mercury		0.14	—	—	—	—	—	—	—
Nickel		592	20.3	13	1580	1190	1240	19700	584
Potassium		—	—	—	—	—	—	—	—
Selenium		—	—	—	—	—	—	—	—
Silver		—	—	—	—	—	—	—	—
Sodium		—	—	—	—	—	—	—	—
Thallium		—	—	—	—	—	—	—	—
Cyanide		—	—	—	11.9	—	1.3 J	13.2	0.68 J
Vanadium		—	—	—	—	—	—	—	—
Zinc		3510	33.9 J	33.6 J	547 J	496 J	422 J	4730 J	145 J

NOTES: J - estimated value, N - tentatively identified, — - not detected.

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O'BRIEN & GERE ENGINEERS, INC.

Table 1-2
Former IFG Facility
Syracuse, NY
Trench Data Summary
Detected Metals Data

	Sample ID	T09-1	T10-1	T11-1	T12-1	T12-2
	Area	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench	N. Property Trench
	Sample Date	11/09/99	11/09/99	11/10/99	11/10/99	11/10/99
	Sample Depth					
	Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Compound						
Aluminum		---	---	---	---	---
Arsenic		3.4	4.4	7.8	5.6	16.9
Barium		---	---	---	---	---
Beryllium		---	---	---	---	---
Cadmium		---	---	---	---	---
Calcium		---	---	---	---	---
Chromium		36 J	20 J	2250 J	853 J	14200 J
Cobalt		---	---	---	---	---
Copper		19.4	15.5	456	1040	2920
Iron		---	---	---	---	---
Lead		13 J	6.8 J	28.7 J	52 J	208 J
Magnesium		---	---	---	---	---
Manganese		---	---	---	---	---
Mercury		---	---	---	---	---
Nickel		20.6	19.3	1720	514	14400
Potassium		---	---	---	---	---
Selenium		---	---	---	---	---
Silver		---	---	---	---	---
Sodium		---	---	---	---	---
Thallium		---	---	---	---	---
Cyanide		6.2	---	13.2	11.8	166
Vanadium		---	---	---	---	---
Zinc		85.4 J	49 J	447 J	565 J	2720 J

NOTES: J - estimated value, N - tentatively identified, --- - not detected.

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Table 2-1. *Overburden Charaterization Sampling Results.*

Parameter	NYSDEC TAGM 4046	OB-1 8/19/02	OB-2 8/19/02	OB-3 8/19/02	OB-4 8/19/02	OB-5 8/19/02	FD-OB1 8/19/02	Trip Blank 8/19/02	OB-6 9/3/02	OB-7 9/3/02	OB-8 9/3/02	OB-9 9/3/02	OB-10 9/5/02	Trip Blank 9/3/2002
PCBs - mg/kg														
Aroclor 1248	10	6.5 J	2.6 J	1.6 J	5.1 J	1.4 J	1.8 J	NA	17	52	24	1.9	7.7	NA
VOCs - µg/kg														
Acetone	200	3 J	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ	3 J	11 UJ	10 UJ	11 UJ	10 UJ	11 UJ	3 J
Methylene Chloride	100	<5 UJ	<6 UJ	<6 UJ	<6 UJ	<6 UJ	<6 UJ	0.8 J	<3 U	3 U	3 U	3 U	3 U	0.7 J
Trichloroethene	700	<3 UJ	<3 UJ	<3 UJ	<3 UJ	0.8 J	1 J	<2 UJ	<3 U	<3 U	<3 U	< 3 U	<3 U	<2 U
Tetrachloroethene	1400	3 UJ	3 UJ	3 UJ	3 UJ	<3 UJ	3 UJ	<2 UJ	2 J	<3 U	2 J	2 J	<3 U	<2 U
SVOCs - µg/kg														
Acenaphthylene	41000	<360 UJ	39 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Acenaphthene	50000	52 J	770 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Dibenzofuran	6200	<360 UJ	570 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Fluorene	50000	62 J	1000 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Phenanthrene	50000	630 UJ	7600	120 J	250 J	54 J	67 J	NA	40 J	80 J	69J	110 J	<360U	NA
Di-n-butyl phthalate	8100	<360 UJ	<380 UJ	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Naphthalene	13000	<360 UJ	200 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
2-Methylnapthalene	36400	<360 UJ	110 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	49 J	<350U	<360U	NA
Anthracene	50000	180 J	1600 J	<370 UJ	50 J	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Carbazole	NA	96 J	1200 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340 U	<370U	<350U	<360U	NA
Fluoranthene	50000	750 J	7800	260 J	660 J	100 J	130 J	NA	100 J	180 J	89 J	230 J	50 J	NA
Pyrene	50000	630 J	6400	210 J	600 J	96 J	120 J	NA	85 J	200 J	90 J	210 J	48 J	NA
Benzo [a] anthracene	224 or MDL	320 J	3100 J	120 J	300 J	52 J	63 J	NA	52 J	140 J	61 J	100 J	<360U	NA
Chrysene	400	290 J	3000 J	130 J	350 J	56 J	65 J	NA	55 J	110 J	46 J	110 J	<360U	NA
bis (2-Ethylhexyl) phthalate	50000	92 J	110 J	37 J	81 J	61 J	280 J	NA	73 J	140 J	72 J	97 J	73 J	NA
Benzo [b] fluoranthene	224 or MDL	370 J	4300 J	180 J	580 J	84 J	100 J	NA	83 J	190J	64 J	170 J	47 J	NA
Benzo [k] fluoranthene	224 or MDL	130 J	1500 J	57 J	180 J	<390 UJ	<380 UJ	NA	<350 U	61J	<370U	45 J	<360U	NA
Benzo [a] pyrene	61 or MDL	250 J	3000 J	120 J	370 J	54 J	64 J	NA	52 J	130 J	44 J	110 J	<360U	NA
Indeno [1,2,3-cd] pyrene	3200	96 J	1300 J	90 J	180 J	<390 UJ	<380 UJ	NA	42 J	86 J	<370U	73 J	<360U	NA
Dibenz [a,h] anthracene	14 or MDL	<360 UJ	330 J	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340U	<370U	<350U	<360U	NA
Benzo [g,h,i] perylene	50000	74 J	1100 J	82 J	160 J	<390 UJ	<380 UJ	NA	<350 U	65 J	<370U	63 J	<360U	NA
4-Methylphenol	900	<360 UJ	<380 UJ	<370 UJ	<370 UJ	<390 UJ	<380 UJ	NA	<350 U	<340U	<370U	<350U	<360U	NA
Heavy metals mg/kg														
Arsenic	7.5	4	4.4	3.7	4.5	5.2	4.6	NA	4.8	3.6	4.2	3.4	4.5	NA
Chromium	50	80.4 J	27.3 J	30.4 J	20.8 J	26.6 J	30.1 J	NA	61.4J	104J	129J	17.3J	37.3J	NA
Copper	25	100	24.3	21.1	24.1	28.3	24	NA	49	37.8	44.8	19.7	57.4	NA
Lead	400	9.5	16.4	10.1	15.4	14.3	10.4	NA	16.1	16.1	11.4	8.6	11.5	NA
Nickel	13	55.5 J	27.6 J	21.6 J	27.5 J	26.6 J	32.6 J	NA	57.5J	37.2J	67.5J	18.8J	38.8J	NA
Zinc	20	60.4	73.6	55.2	102	57	56.8	NA	161	148	72.4	43.5	91	NA

Source: O'Brien & Gere Engineers, Inc.

Notes:
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ - The analyte was not detected above the reported sample quantitation limits. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
B - Analyte detected above the PQL in the associated Prep Blank
PCB TAGM value is applicable to subsurface concentrations
For SVOC TAGM values, MDL was assumed to be equal to the CRQL of 330 µg/kg for detected SVOCs
TAGM values are from 1995 proposed TAGM 4046
Shading indicates detected concentration is above TAGM 4046 soil screening level
ND - Not Detected
NA - Not Analyzed

Table 2-1. *Overburden Charaterization Sampling Results.*

Parameter	NYSDEC TAGM 4046	OB-11 9/12/2002	OB-12 9/12/2002	OB-13 9/12/2002	Trip Blank 9/12/2002	OB-14 9/17/2002	OB-15 9/17/2002	OB-16 9/17/2002	OB-17 9/17/2002	Trip Blank 9/17/2002	OB-18 9/19/2002	Trip Blank 9/19/2002	OB-19 10/16/2002	OB-20 10/16/2002
PCBs - mg/kg														
Aroclor 1248	10	16	7.6	130	NA	2.5	3	5.9	24	NA	47J	NA	0.26J	36
VOCs - µg/kg														
Acetone	200	< 3	<11	10 U	4 J	10U	10U	5 J	3 J	2 J	10U	<10 UJ	<12U	<11U
Methylene Chloride	100	5 UJ	5 UJ	5 U	0.6 J	6U	6U	6 B	5 J	6 B	6U	6 B	6UJ	6UJ
Trichloroethene	700	<3 U	<3 U	0.6 J	<2 U	<3U	<3U	<3 U	0.7 J	<2 U	<3U	<2 U	<3U	<3U
Tetrachloroethene	1400	<3 U	<3 U	<3 U	<2 U	<3U	<3U	<3 U	<3 U	<2 U	<3U	<2 U	<3U	<3U
SVOCs - µg/kg														
Acenaphthylene	41000	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390UJ	NA	<410U	<370U
Acenaphthene	50000	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	<370U
Dibenzofuran	6200	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	<370U
Fluorene	50000	<360	<370	41 J	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	<370U
Phenanthrene	50000	40 J	74 J	340 J	NA	<360U	<370U	210J	87J	NA	43 J	NA	<410U	88J
Di-n-butyl phthalate	8100	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	130J
Naphthalene	13000	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	<370U
2-Methylnapthalene	36400	<360	<370	<306	NA	<360U	<370U	<380U	<370U	NA	60 J	NA	<410U	<370U
Anthracene	50000	<360	<370	67 J	NA	<360U	<370U	<380U	<370U	NA	<390UJ	NA	<410U	<370U
Carbazole	NA	<360	<370	<360	NA	<360U	<370U	<380U	<370U	NA	<390U	NA	<410U	<370U
Fluoranthene	50000	98 J	200 J	780	NA	55J	<370U	270J	260J	NA	89 J	NA	<410U	160J
Pyrene	50000	77 J	170 J	1100	NA	50J	<370U	220J	230J	NA	83J	NA	<410U	180J
Benzo [a] anthracene	224 or MDL	48 J	110 J	530	NA	37J	<370U	120J	110J	NA	42 J	NA	<410U	82J
Chrysene	400	52 J	99 J	500	NA	<360U	<370U	120J	110J	NA	42 J	NA	<410U	94J
bis (2-Ethylhexyl) phthalate	50000	86 J	100 J	300 J	NA	<360U	<370U	79J	160J	NA	160 J	NA	<410U	180J
Benzo [b] fluoranthene	224 or MDL	72 J	150 J	770	NA	41J	<370U	150J	220J	NA	51 J	NA	<410U	150J
Benzo [k] fluoranthene	224 or MDL	<360	52 J	260 J	NA	<360U	<370U	56J	53J	NA	<390UJ	NA	<410U	47J
Benzo [a] pyrene	61 or MDL	45 J	100 J	510	NA	<360U	<370U	100J	120J	NA	<390U	NA	<410U	92J
Indeno [1,2,3-cd] pyrene	3200	37 J	77 J	260 J	NA	<360U	<370	48J	69J	NA	<390U	NA	<410U	52J
Dibenz [a,h] anthracene	14 or MDL	<360	<370	40 J	NA	<360U	<370UJ	<380UJ	<370UJ	NA	<390UJ	NA	<410U	<370U
Benzo [g,h,i] perylene	50000	<360 UJ	72 J	220 J	NA	<360U	<370	<380U	59J	NA	<390UJ	NA	<410U	55J
4-Methylphenol	900	<360 UJ	<370 UJ	<360 UJ	NA	<360U	<370UJ	<380UJ	<370U	NA	<390U	NA	<410U	<370U
Heavy metals mg/kg														
Arsenic	7.5	3.7	4.1	4.1	NA	4	4.7	4.6	4.3	NA	5.5	NA	3.6	4.6
Chromium	50	57.7 J	82.9 J	139 J	NA	38.1J	51.1J	55.2J	733J	NA	296J	NA	18.3	216
Copper	25	46.3	43.4	57.6	NA	42.8	36.1	179	248	NA	316	NA	33.4	92.8
Lead	400	15.4	14	20.9	NA	10.2	12.1	11.8	20.4	NA	25.1	NA	9.3J	21J
Nickel	13	44.8 J	52.4 J	77.7 J	NA	37.4J	45.6J	73.3J	430J	NA	391J	NA	22.4	118
Zinc	20	64.1	68.9	132	NA	87.8	65.6	206	256	NA	207	NA	63.3J	222J

Source: O'Brien & Gere Engineers, Inc.

Notes:
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ - The analyte was not detected above the reported sample quantitation limits. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
B - Analyte detected above the PQL in the associated Prep Blank
PCB TAGM value is applicable to subsurface concentrations
For SVOC TAGM values, MDL was assumed to be equal to the CRQL of 330 µg/kg for detected SVOCs
TAGM values are from 1995 proposed TAGM 4046
Shading indicates detected concentration is above TAGM 4046 soil screening level
ND - Not Detected
NA - Not Analyzed

Source: O'Brier

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Table 2-1. *Overburden Charaterization Sampling Results.*

Parameter	NYSDEC TAGM 4046	FD #1 (OB-20) 10/16/2002	OB-21 6/17/2003	Trip Blank 6/17/2003	OB-22 6/25/2003	Trip Blank 6/25/2003	COB-1 10/9/2003	COB-8 8/16/2004	COB-9 8/16/2004	COB-10 9/15/2004	COB-11 9/20/2004
PCBs - mg/kg											
Aroclor 1248	10	50	18	NA	75	ND	44	15J	130J	130J	11J
VOCs - µg/kg											
Acetone	200	11U	<11 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA
Methylene Chloride	100	6UJ	<0.6U	0.5 J	<0.5U	<0.5U	NA	NA	NA	NA	NA
Trichloroethene	700	<3U	<0.3U	<0.3U	3	<0.3U	NA	NA	NA	NA	NA
Tetrachloroethene	1400	<3U	<0.3U	<0.3U	<0.3U	<0.3U	NA	NA	NA	NA	NA
SVOCs - µg/kg											
Acenaphthylene	41000	<370U	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Acenaphthene	50000	39J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Dibenzofuran	6200	<370U	<380U	NA	94 J	NA	NA	NA	<350U	NA	NA
Fluorene	50000	46J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Phenanthrene	50000	470J	43 J	NA	160 J	NA	NA	NA	<350U	NA	NA
Di-n-butyl phthalate	8100	72J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Naphthalene	13000	<370U	<380U	NA	360	NA	NA	NA	<350U	NA	NA
2-Methylnapthalene	36400	<370U	<380U	NA	480	NA	NA	NA	<350U	NA	NA
Anthracene	50000	100J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Carbazole	NA	<370U	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Fluoranthene	50000	750J	84 J	NA	88 J	NA	NA	NA	<350U	NA	NA
Pyrene	50000	800J	91 J	NA	96 J	NA	NA	NA	<350U	NA	NA
Benzo [a] anthracene	224 or MDL	360J	43 J	NA	46 J	NA	NA	NA	<350U	NA	NA
Chrysene	400	360J	56 J	NA	65 J	NA	NA	NA	<350U	NA	NA
bis (2-Ethylhexyl) phthalate	50000	320J	220 J	NA	150 J	NA	NA	NA	<350U	NA	NA
Benzo [b] fluoranthene	224 or MDL	500J	71 J	NA	91 J	NA	NA	NA	<350U	NA	NA
Benzo [k] fluoranthene	224 or MDL	210J	<380U	NA	<350U	NA	NA	NA	1100	NA	NA
Benzo [a] pyrene	61 or MDL	340J	46 J	NA	46 J	NA	NA	NA	<350U	NA	NA
Indeno [1,2,3-cd] pyrene	3200	170J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Dibenz [a,h] anthracene	14 or MDL	46J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
Benzo [g,h,i] perylene	50000	180J	<380U	NA	<350U	NA	NA	NA	<350U	NA	NA
4-Methylphenol	900	<370U	<380U	NA	40 J	NA	NA	NA	<350U	NA	NA
Heavy metals mg/kg											
Arsenic	7.5	4.3	4	NA	8.2	NA	NA	NA	2.6	NA	NA
Chromium	50	244	109	NA	198	NA	NA	NA	185	NA	NA
Copper	25	108	57.2	NA	164	NA	NA	NA	117	NA	NA
Lead	400	24.4J	11.7	NA	22.8	NA	NA	NA	10.9	NA	NA
Nickel	13	137	70.5	NA	181	NA	NA	NA	140	NA	NA
Zinc	20	263J	74.5	NA	132	NA	NA	NA	100	NA	NA

ı & Gere Engineers, Inc.

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Table 2-2. *Additional overburden sampling results*

Parameter	NYSDEC TAGM 4046	OB-7-1 9/10/2002	OB-7-2 9/10/2002	OB-7-3 9/10/2002	OB-7-4 9/10/2002	OB-7-5 9/10/2002	OB-22-1 7/17/2003	OB-22-2 7/17/2003	OB-22-3 7/17/2003	OB-22-4 7/17/2003	OB-22-5 7/17/2003	OB-22-6 7/17/2003	OB-22-7 7/17/2003	OB-22-8 7/17/2003	OB-10W 9/20/2004	OB-10E 9/20/2004
PCBs - mg/kg																
Aroclor 1248	10	1200 J	82 J	26 J	74 J	64 J	47	55	110	140	36	58	65	130	970	8.1

Source: O'Brien & Gere Engineers, Inc.

Notes:
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
PCB TAGM value is applicable to subsurface concentrations
TAGM values are from 1995 proposed TAGM 4046
Shading indicates detected concentration is above TAGM 4046 soil screening level

Table 2-3. *Overburden Soil Pile Status Table.*

Soil pile (*sample ID*)	Origin	Current location at site	Exceeds TAGM? * (yes/ no)	Intended reuse/ disposition	Notice - Date approved for reuse on-site	Final disposition
OB-1	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice:9/18/02 Approval: 9/30/02	Northern Dock
OB-2	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: Yes Site Metals: Yes	Subsurface fill	Notice: 9/18/02 Approval: 9/30/02	Northern Dock
OB-3	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 9/18/02 Approval: 9/30/02	Northern Dock
OB-4	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: Yes Site Metals: Yes	Subsurface fill	Notice: 9/18/02 Approval: 9/30/02	Northern Dock
OB-5	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 9/18/02 Approval: 9/30/02	Northern Dock
OB-6	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: No SVOCs: No Site Metals:Yes	Landfill subsurface fill	Notice: 9/19/02 Approval: 9/30/02	Landfill subsurface fill
OB-7	Swale Overburden	Landfill Staging Area	PCBs: Yes (TSCA) VOCs: No SVOCs: No Site Metals: Yes	Off-site dispoal	Notice:10/02/02 Approval: 10/03/02	Landfill subsurface fill/Off-site disposal (see note 1 below)
OB-8	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: No	Landfill subsurface fill	Notice: 9/19/02 Approval:	Landfill subsurface fill

Table 2-3. *Overburden Soil Pile Status Table.*

Soil pile (*sample ID*)	Origin	Current location at site	Exceeds TAGM? * (yes/ no)	Intended reuse/ disposition	Notice - Date approved for reuse on-site	Final disposition
			SVOCs: No Site Metals: Yes		9/30/02	
OB-9	Swale Overburden	Northern Dock	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 9/19/02 Approval: 9/30/02	Northern Dock
OB-10	Swale Overburden	Near Western Swale Branch	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 9/18/02 Approval: 9/30/02	Subsurface backfill underneath SPDES building
OB-11	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: No SVOCs: No Site Metals: Yes	Landfill subsurface fill	Notice:10/02/02 Approval: 10/03/02	Landfill subsurface fill
OB-12	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Landfill Subsurface fill	Notice:10/02/02 Approval: 10/03/02	Landfill Subsurface fill
OB-13	Swale Overburden	Landfill Staging Area	PCBs: Yes (TSCA) VOCs: No SVOCs: Yes Site Metals: Yes	Off-site disposal	Notice:10/02/02 Approval: 10/03/02	Off-site disposal
OB-14	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 10/22/02 Approval: 10/29/02	Former Drainage swale subsurface fill
OB-15	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Subsurface fill	Notice: 10/22/02 Approval: 10/29/02	Northern Dock
OB-16	Swale Overburden	Landfill Staging	Surface PCBs: Yes	Subsurface fill	Notice: 10/22/02	Northern Dock

Table 2-3. *Overburden Soil Pile Status Table.*

Soil pile (*sample ID*)	Origin	Current location at site	Exceeds TAGM? * (yes/ no)	Intended reuse/ disposition	Notice - Date approved for reuse on-site	Final disposition
		Area	Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes		Approval: 10/29/02	
OB-17	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: No SVOCs: No Site Metals: Yes	Landfill subsurface fill	Notice: 10/22/02 Approval: 10/29/02	Landfill subsurface fill
OB-18	Swale Overburden	Landfill Staging Area	PCBs: Yes (TSCA) VOCs: No SVOCs: No Site Metals: Yes	Off-site disposal	Notice: 10/22/02 Approval: 10/29/02	Off-site disposal
OB-19	Swale Overburden	Landfill Staging Area	PCBs: No VOCs:No SVOCs: No Site Metals:Yes	Unrestricted surface fill	Notice:12/04/02 Approval: 12/06/02	Former Drainage swale subsurface fill
OB-20	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: No SVOCs: Yes Site Metals: Yes	Landfill subsurface fill	Notice:12/04/02 Approval: 12/06/02	Landfill subsurface fill
OB-21	Swale Overburden	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: Yes SVOCs: No Site Metals: Yes	Landfill subsurface fill	Notice: 2/11/05 Approval: 3/7/05	Landfill subsurface fill
OB-22	Swale Overburden	Landfill Staging Area	PCBs: Yes (TSCA) VOCs: No SVOCs: No Site Metals: Yes	Off-site disposal	Notice: 2/11/05 Approval: 3/7/05	Landfill subsurface fill/Off-site disposal (see note 2 below)
COB-1	Swale Overburden (off-site on Onondaga County Property near Former Landfill IRM hot spot 4+05 –6+20)	Landfill Limits	Surface PCBs: Yes Subsurface PCBs: Yes	Landfill subsurface fill	Notice: 2/11/05 Approval: 3/7/05	Landfill subsurface fill
COB-8 (see note 3)	Swale Overburden (off-site on Onondaga County Property)	Landfill Limits	Surface PCBs: Yes Subsurface PCBs: Yes	Landfill subsurface fill	Notice: 2/11/05	Landfill subsurface fill

Table 2-3. *Overburden Soil Pile Status Table.*

Soil pile (*sample ID*)	Origin	Current location at site	Exceeds TAGM? * (yes/ no)	Intended reuse/ disposition	Notice - Date approved for reuse on-site	Final disposition
					Approval: 3/7/05	
COB-9	Swale Overburden (off-site on Onondaga County Property)	Landfill Limits	PCBs: Yes (TSCA) SVOCs: Yes Site Metals: Yes	Off-site disposal	Notice: 2/11/05 Approval: 3/7/05	Off-site disposal
COB-10	Swale Overburden (off-site on Onondaga County Property)	Landfill Limits	PCBs: Yes (TSCA)	Landfill subsurface fill	Notice: 2/11/05 Approval: 3/7/05	Landfill subsurface fill/Off-site disposal (see note 4 below)
COB-11	Swale Overburden (off-site on Onondaga County Property)	Landfill Limits	Surface PCBs: Yes Subsurface PCBs: Yes	Landfill subsurface fill	Notice: 2/11/05 Approval: 3/7/05	Landfill subsurface fill

Source: O'Brien & Gere Engineers, Inc.

Notes:
* TAGM 4046 screening value for chromium is 10 ppm, however, based on communications with NYSDEC, the proposed screening value for chromium (50 ppm) was used.

1) OB-7 sample result was 52 mg/kg. OB-7 soil pile was resampled by breaking it out into 5 sections. Sections containing PCB concentrations greater than or equal to 50 mg/kg were disposed of off-site. Sections containing PCB concentrations less than 50 mg/kg were consolidated within the former landfill limits, which will ultimately be underneath the low permeability cover system.

2) OB-22 sample result was 75 mg/kg. OB-22 soil pile was resampled by breaking it out into 8 sections. Sections containing PCB concentrations greater than or equal to 50 mg/kg were disposed of off-site. Sections containing PCB concentrations less than 50 mg/kg were consolidated within the former landfill limits, which will ultimately be underneath the low permeability cover system.

3) COB-2 through COB-7 were overburden material not assocaited with the Former Drainage Swale IRM and were managed in accordance with the Former Landfill IRM work plan.

4) COB-10 sample result was 190 mg/kg. COB-10 soil pile was resampled by breaking it out into 2 piles. The section containing PCB concentrations greater than or equal to 50 mg/kg was disposed of off-site. The section containing PCB concentrations less than 50 mg/kg was consolidated within the former landfill limits, which will ultimately be underneath the low permeability cover system.

Table 2-4. *Former Drainage Swale Confirmatory Sampling Results.*

Sample ID	Former Drainage Swale Branch	Visual Description	PCB Screening Level (mg/kg)	Date	Result PCBs mg/kg
SW1	South Branch	Wall sample - gray silt/clay	10	9/3/2002	1.9 J
SW2	South Branch	Wall sample - dark brown soil	10	9/3/2002	<0.79 U
SW3	South Branch	Floor sample - black material with reed organic matter	10	9/3/2002	110 J
SB1-1	South Branch	Wall sample - dark brown soil	10	9/4/2002	<0.82 U
SB1-2	South Branch	Wall sample - dark brown soil	10	9/4/2002	<0.81 U
SB1-3	South Branch	Wall sample - dark brown soil	10	9/4/2002	<0.83 U
SB1-4	South Branch	Wall sample - brown silt	10	9/4/2002	1.5
SB1-5	South Branch	Wall sample - dark brown soil	10	9/4/2002	8.3
SB1-6	South Branch	Wall sample -dark brown soil	10	9/4/2002	<0.74 U
SB1-7	South Branch	Wall sample - dark brown soil	10	9/4/2002	<0.69 U
SB1F-1	South Branch	Floor sample - brown silt	10	9/4/2002	<0.58 U
SB1F-2	South Branch	Floor sample - brown silt	10	9/4/2002	<0.61 U
SB1F-3	South Branch	Floor sample - gray sand with some gray silt/clay	10	9/4/2002	<0.57 U
SB1F-4	South Branch	Floor sample - gray sand with some gray silt/clay	10	9/4/2002	<0.57 U
SB1F-4 DUP	South Branch	Floor sample - gray sand with some gray silt/clay	10	9/4/2002	<0.57 U
SB1F-5	South Branch	Floor sample - gray sand with some gray silt/clay	10	9/4/2002	<0.57 U
SB1F-6	South Branch	Floor sample - brown silt	10	9/4/2002	4.3
WS-1	Western Branch	Wall sample - dark brown soil	10	9/5/2002	<0.93 U
WS-2	Western Branch	Wall sample - dark brown soil	10	9/5/2002	<0.82 U
WS-F1	Western Branch	Floor sample - gray sand with some gray silt/clay	10	9/5/2002	<0.62 U
WS-3	Western Branch	Wall sample - black/brown with reed material	10	9/13/2002	3200 J
WS-4	Western Branch	Floor sample - dark brown topsoil	10	9/18/2002	1.1
EB-1	Eastern Branch	Wall sample - black/brown with reed material	10	9/13/2002	31000 J
EB-2	Eastern Branch	Wall sample - brown silt/clay	10	9/13/2002	0.89 J
EB-F1	Eastern Branch	Floor sample - dark brown topsoil	10	9/13/2002	<0.86 UJ
EB-F1 DUP	Eastern Branch	Floor sample - dark brown topsoil	10	9/13/2002	<0.86 UJ
EB-1-W12.5'	Eastern Branch	Wall sample - gray silt/clay with some reed material	10	9/20/2002	840 J
EB-1-E18'	Eastern Branch	Wall sample - gray silt/clay	10	9/20/2002	2 J
EB-1-E38'	Eastern Branch	Wall sample - gray silt/clay with some sand	10	9/20/2002	0.6 J
EB-F2	Eastern Branch	Floor sample - dark brown topsoil	10	9/20/2002	<0.83 U
EB-1-E14	Eastern Branch	Wall sample - gray silt/clay	10	9/25/2002	85 NJ
EB-1-W28.5	Eastern Branch	Wall sample - gray sily/clay with black material	10	9/25/2002	0.72 J
EB-1-E31	Eastern Branch	Wall sample - gray silt/clay with some sand	10	9/25/2002	17 NJ
EB-WW	Eastern Branch	Wall sample - gray silty/clay with black material	10	9/25/2002	8.1 NJ
NB-1	Northern Branch	Wall sample - brown silt/clay	10	10/11/2002	3.4
NB-F	Northern Branch	Floor sample - gray silt/clay	10	10/11/2002	38 J
FD#1 (NB-F)	Northern Branch	Floor sample - gray silt/clay	10	10/11/2002	42
NB-F2	Northern Branch	Floor sample - gray silt/clay	10	10/16/2002	43
NB-F3	Northern Branch	Floor sample - gray silt/clay	10	10/18/2002	<0.63 U
WB at Landfill	Western Branch	Wall sample - black/brown with reed material	50	10/21/2002	420J
WB-F2 (landfill)	Western Branch	Floor sample - dark brown topsoil	50	6/10/2003	8 J

Table 2-4. *Former Drainage Swale Confirmatory Sampling Results.*

Sample ID	Former Drainage Swale Branch	Visual Description	PCB Screening Level (mg/kg)	Date	Result PCBs mg/kg
WB-5	Western Branch	Wall - dark brown topsoil with some black material	50	6/10/2003	**64 J**
WB-6	Western Branch	Wall - black material/dark brown topsoil	50	6/10/2003	**12000 J**
FD (WB-6)	Western Branch	Wall - black material/dark brown topsoil	50	6/10/2003	**19000 J**
WB-7	Western Branch	Wall - black material with some potential black granular material (suspect fly ash)	50	6/12/2003	**300 J**
WB-8	Western Branch	Wall -brown sandy silt with some black material	50	6/12/2003	**560 J**
EB-3	Eastern Branch	Wall - black/dark brown soil	10	6/19/2003	<0.83 U
EB-3-15'E	Eastern Branch	Wall - black/dark brown soil	10	6/30/2003	<0.78 U
EB-3-25'W	Eastern Branch	Wall - black/dark brown soil	10	6/30/2003	2.9
NB-F	Northern Branch	Floor - brown silty clay	10	6/30/2003	33
NB-F2	Northern Branch	Floor - brown silty sand	10	7/3/2003	<0.62 U
NBL-F1	Northern Branch	Floor - dark brown topsoil	50	9/10/2003	1.7 J
NBL-SW1	Northern Branch	Wall - mixture of black fly ash/brown silty clay	50	9/10/2003	2.6 J
NBL-WW1	Northern Branch	Wall- black material with petroleum odor	50	9/10/2003	**5400 J**
NBL-FD#1(WW1)	Northern Branch	Wall- black material with petroleum odor	50	9/10/2003	**1400 J**
NBL-WW2	Northern Branch	Wall-mix of gravel and black material	50	9/11/2003	**270 J**
NBL-NW1	Northern Branch	Wall- black material with petroleum odor	50	9/11/2003	**3400 J**
NBL-NW2	Northern Branch	Wall- black material with petroleum odor	50	9/11/2003	**11000 J**
NBL-NW3	Northern Branch	Wall- brown silt and clay	50	9/11/2003	0.21 J
4+40-F	NB (4+05 - 6+20 Hot Spot)	Floor-black granular material (suspect fly ash) and black material with petroleum odor	10	9/30/2003	14
4+90-F	NB (4+05 - 6+20 Hot Spot)	Floor-black granular material (suspect fly ash) and organic material	10	9/30/2003	200
5+40-F	NB (4+05 - 6+20 Hot Spot)	Floor-black granular material (suspect fly ash)	10	9/30/2003	96
5+90-F	NB (4+05 - 6+20 Hot Spot)	Floor-black granular material (suspect fly ash) and gray silty-clay (native)	10	9/30/2003	830
4+40-N	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay with some gravel	10	9/30/2003	0.13
4+90-N	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay with some gravel	10	9/30/2003	40
5+40-N	NB (4+05 - 6+20 Hot Spot)	Wall-Brown silty clay with little black granular material (suspect fly ash)	10	9/30/2003	23
5+90-N	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay with some gravel	10	9/30/2003	23
5+85 N-A	NB (4+05 - 6+20 Hot Spot)	Wall-black granular material (suspect fly ash)	10	10/9/2003	170
5+85 N-B	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay	10	10/9/2003	14
5+85 N-C	NB (4+05 - 6+20 Hot Spot)	Wall-black material with petroleum odor	10	10/9/2003	5400**
5+85 F	NB (4+05 - 6+20 Hot Spot)	Floor-dark brown organic material (topsoil)	10	10/9/2003	16 **
5+40 N-B	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay	10	10/9/2003	7.3
5+40 N-C	NB (4+05 - 6+20 Hot Spot)	Wall-black material with petroleum odor	10	10/9/2003	5600
4+85 N-B	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay	10	10/9/2003	0.7
4+85 N-C	NB (4+05 - 6+20 Hot Spot)	Wall-black material with petroleum odor	10	10/9/2003	18000
4+40 N-B	NB (4+05 - 6+20 Hot Spot)	Wall-brown silty clay	10	10/9/2003	48
4+40 N-C	NB (4+05 - 6+20 Hot Spot)	Wall-black material with petroleum odor	10	10/9/2003	6700
4+40 F	NB (4+05 - 6+20 Hot Spot)	Floor-dark brown organic material (topsoil)	10	10/9/2003	1.0
5+90-F	NB (4+05 - 6+20 Hot Spot)	Floor-brown silty clay	10	10/14/2003	<0.61
5+40-F	NB (4+05 - 6+20 Hot Spot)	Floor- brown sandy soil	10	10/14/2003	<0.60
4+40-F	NB (4+05 - 6+20 Hot Spot)	Floor-brown silty clay	10	10/14/2003	<0.62
4+85-F	NB (4+05 - 6+20 Hot Spot)	Floor- brown sandy soil	10	10/14/2003	<0.60

Table 2-4. *Former Drainage Swale Confirmatory Sampling Results.*

Sample ID	Former Drainage Swale Branch	Visual Description	PCB Screening Level (mg/kg)	Date	Result PCBs mg/kg
6+26-F	Northern Branch	Floor-dark brown organic material (topsoil)	10	10/9/2003	0.52 J
FD (6+26-F)	Northern Branch	Floor - brown clayey sand	10	8/17/2004	0.36
6+52-NW	Northern Branch	Wall - brown silty clay	10	8/17/2004	10*J
6+79-F	Northern Branch	Floor - brown clayey sand	10	8/17/2004	<0.61 UJ
7+33-F	Northern Branch	Floor - brown clayey sand	10	8/18/2004	0.16 J
7+77-F	Northern Branch	Floor - brown sand	10	8/18/2004	<0.61 UJ
7+52-NW	Northern Branch	Wall - brown silty clay	10	8/18/2004	11* J
7+33-F2	Northern Branch	Floor - brown clayey sand	10	8/24/2004	<0.64
8+36-F	Northern Branch	Floor - brown silty sand	50	9/14/2004	<0.60 UJ
8+52-NW	Northern Branch	Wall- black material with petroleum odor	50	9/14/2004	4900*J
FD (8+52-NW)	Northern Branch	Wall- black material with petroleum odor	50	9/14/2004	800 J
8+70-EW	Northern Branch	Wall - black granular material (suspect fly ash)	50	9/14/2004	<0.94 UJ
10+07-F	Eastern Branch	Floor - brown silty sand	50	9/15/2004	<0.61 U
10+00-NW	Eastern Branch	Wall - black/dark brown soil	50	9/15/2004	4.5 J
10+50-EW	Eastern Branch	Wall- black material with petroleum odor	50	9/15/2004	52 J
9+70-WW	Eastern Branch	Wall- black material with petroleum odor	50	9/15/2004	770 J
9+58-F	Eastern Branch	Floor- brown silty sand	50	9/20/2004	<0.61 U
9+31-NW	Eastern Branch	Wall - black/dark brown soil	50	9/20/2004	<0.82* U
9+13-WW	Eastern Branch	Wall - black granular material (suspect fly ash)	50	9/20/2004	0.35 U
10+74-EW	Eastern Branch	Wall - black granular material (suspect fly ash)	50	9/21/2004	<1.1 U

Source: O'Brien & Gere Engineers, Inc.

Notes:

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

NJ - The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration

UJ - The analyte was not detected above the reported sample quantitation limits. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Samples represent a grab sample.

Shading indicates detected concentration is above TAGM 4046 screening level.

Bold sample results are above the 50 mg/kg confirmatory level for swale within the former landfill area

Detected Aroclors are Aroclor 1248, unless otherwise noted.

Samples EB-1 and EB-1-W12.5 were collected to document swale material remaining in place in close proximity of the northern fenceline and the Niagara Mohawk Gas Line, and Sample WS-3 was collected to verify swale material encountered east of the anticipated swale footprint.

N - indicates the northern wall and the A,B, and C indicate from top to bottom separate layers of material in the sample ID

*- This sample was collected as an informational sample to document the PCB concentrations left behind due to the limitations of excavation due to the Niagara Mohawk underground gasline.

Table 2-5. *Abandoned Storm Water Piping/Material Sampling Results*

Parameter	NYSDEC TAGM 4046	Pipe bedding G12-PB 8/20/02	Pipe sludge PS1 9/3/2002	Pipe bedding Aban. Pipe Bed to A1A 9/25/2002	RCP-1 9/26/2002	IAPB 10/16/2002	RCP-2 6/25/2002
PCBs - mg/kg	10	ND	3.5	<0.68	11	1.3	2.1J
VOCs - µg/kg							
Vinyl chloride	200	<5U	11J	<7UJ	NA	<6U	NA
Acetone	200	3J	76J	380J	NA	<11U	NA
Methylene chloride	100	<5U	0.8J	7UJ	NA	6UJ	NA
Carbon disulfide	2700	<3U	1J	1UJ	NA	<3J	NA
2-Butanone	300	<3U	8J	73J	NA	<3J	NA
cis-1,2-DCE	250	<3U	36J	<3UJ	NA	<3J	NA
TCE	700	<3U	21J	<3UJ	NA	<3J	NA
4-Methyl-2-pentanone	1000	<3U	3J	<3UJ	NA	<3J	NA
Toluene	1500	<3U	0.8J	<3UJ	NA	<3J	NA
Ethylbenzene	5500	<3U	9J	<3UJ	NA	<3J	NA
Styrene	NA	<3U	2J	<3UJ	NA	<3J	NA
Xylene	1200	<3U	9J	<3UJ	NA	<3J	NA
SVOCS - µg/kg							
Phenol	30 or MDL	<350U	810J	<460UJ	NA	<370U	NA
4-Methylphenol	900	<350U	220J	<460UJ	NA	<370U	NA
2,4-Dimethylphenol	NA	<350U	81J	<460UJ	NA	<370U	NA
Naphthalene	13000	<350U	87J	<460UJ	NA	<370U	NA
2-Methylnaphthalene	36400	<350U	91J	<460UJ	NA	<370U	NA
Acenaphthalene	50000	<350U	260J	<460UJ	NA	<370U	NA
Dibenzofuran	6200	<350U	110J	<460UJ	NA	<370U	NA
Fluorene	50000	<350U	260J	<460UJ	NA	<370U	NA
Phenanthrene	50000	<350U	3300J	<460UJ	NA	60J	NA
Anthracene	50000	<350U	360J	<460UJ	NA	<370U	NA
Carbazole	NA	<350U	380J	<460UJ	NA	<370U	NA
Di-n-butyl phthalate	8100	<350U	1100J	460UJ	NA	<370U	NA
Fluoranthene	50000	<350U	5600J	<460UJ	NA	120J	NA
Pyrene	50000	<350U	4300J	<460UJ	NA	120J	NA
Butyl benzyl phthalate	50000	<350U	350J	<460UJ	NA	<370U	NA
Benzo(a)anthracene	224 or MDL	<350U	1400J	<460UJ	NA	47J	NA
Chrysene	400	<350U	1500J	<460UJ	NA	64J	NA

Table 2-5. *Abandoned Storm Water Piping/Material Sampling Results*

Parameter	NYSDEC TAGM 4046	Pipe bedding G12-PB 8/20/02	Pipe sludge PS1 9/3/2002	Pipe bedding Aban. Pipe Bed to A1A 9/25/2002	RCP-1 9/26/2002	IAPB 10/16/2002	RCP-2 6/25/2002
bis (2-Ethylhexyl) phthalate	50000	<350U	2600J	<460UJ	NA	56J	NA
Benzo(b)fluoranthene	224 or MDL	<350U	3000J	<460UJ	NA	97J	NA
Benzo(k)fluoranthene	224 or MDL	<350U	720J	<460UJ	NA	<370U	NA
Benzo(a)pyrene	61 or MDL	<350U	1100J	<460UJ	NA	59J	NA
Indeno(1,2,3-cd)pyrene	3200	<350U	480J	<460UJ	NA	<370U	NA
Benzo(g,h,I)perylene	50000	<350U	430J	<460UJ	NA	<370U	NA
Heavy metals - mg/kg							
Arsenic	7.5	1.5	38.5	3.6	NA	2.9	NA
Chromium	50	6.3	52.3	13.8	NA	18.6	NA
Copper	25	3.9	79.6	29.3	NA	14.3	NA
Lead	400	2.4	72.2	9.8	NA	6.4J	NA
Nickel	13	4 J	47.4	13.7	NA	14	NA
Zinc	20	11.8	309	53.9	NA	33.5J	NA

Source: O'Brien & Gere Engineers, Inc.

NOTES:

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ - The analyte was not detected above the reported sample quantitation limits. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

PCB TAGM value is applicable to subsurface concentrations

For SVOC TAGM values, MDL was assumed to be equal to the CRQL of 330 mg/kg for detected SVOCs

TAGM values are from 1995 proposed TAGM 4046

NA - No TAGM value available or not applicable

Shading indicates detected concentration is above TAGM 4046 soil screening level

Table 2-6. *Abandoned Storm Water Ppiping/Materials Pile Status Ttable*

Soil pile (*sample ID*)	Origin	Current location at site	Exceeds TAGM? * (yes/ no)	Intended reuse/ disposition	Notice - Date approved for reuse on-site	Final disposition
Aban. Pipe Bed to A1A	Pipe bedding material from abandoned pipe to A1A	Landfill Staging Area	Surface PCBs: No Subsurface PCBs: No VOCs: Yes SVOCs: No Site Metals: Yes	Landfill subsurface fill	Notice: 10/22/02 Approval: 10/29/02	Landfill Subsurface Fill
Pipe Sludge/RCP	Pipe sludge and RCP from piping near Impoundment # 2	Landfill Staging Area	Surface PCBs: Yes Subsurface PCBs: Yes VOCs: Yes SVOCs: Yes Site Metals: Yes	Landfill subsurface fill	Notice: 12/04/02 Approval: 12/06/02	Landfill subsurface fill
IAPB	Pipe bedding material from impoundment area towards Outfall 003	Staging Area	Surface PCBs: Yes Subsurface PCBs: No VOCs: No SVOCs: No Site Metals: Yes	Landfill subsurface fill	Notice: 12/04/02 Approval: 12/06/02	Landfill subsurface fill

Source: O'Brien & Gere Engineers, Inc.

Notes:

* TAGM 4046 screening value for chromium is 10 ppm, however, based on communications with NYSDEC, the proposed screening value for chromium (50 ppm) was used.

Table 2-7. *SPDES Treatment System IRM soil grid tracking table*

Grid ID	Grid Interval (ft)	Characterization	Current Location at the Site	Intended reuse/disposition	Final Disposition
TB-02-01	0 – 14	Restricted use	Northern Dock, Staging Area, and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-02	0 – 14	Restricted use	Northern Dock, Staging Area, and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-03	0 – 14	Restricted use	Staging Area , and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-04	0 – 14	Restricted use	Northern Dock, Staging Area, and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-05	0 – 10	Restricted use	Northern Dock, Staging Area, and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-06	0 - 10	Restricted use	Northern Dock, Staging Area, and Northern Basin Embankment	Use as subsurface fill in Northern Dock, Northern Basin Embankment, and staging area	Northern Dock, Northern Basin Embankment and Staging Area
TB-02-07	0 – 12	Restricted use	Northern Dock, Staging Area, and Northern Basin	Use as subsurface fill in Northern Dock, Northern Basin	Northern Dock, Northern Basin Embankment and

Table 2-7. *SPDES Treatment System IRM soil grid tracking table*

Grid ID	Grid Interval (ft)	Characterization	Current Location at the Site	Intended reuse/disposition	Final Disposition
			Embankment	Embankment, and staging area	Staging Area
TB-02-08	0 – 6	Unrestricted use	Staging Area	Cover material in staging area over restricted fill	Cover material in staging area over restricted fill
TB-02-08	6 – 12	Restricted use	Staging Area	Use as subsurface fill in staging area	Use as subsurface fill in staging area
TB-02-09	0 – 8	Unrestricted use	Staging Area	Cover material in staging area over restricted fill	Cover material in staging area over restricted fill
TB-02-09	8 – 10	Restricted Use	Staging Area	Subsurface fill material	Subsurface fill material
TB-02-09	10 – 12	Special Restricted Use (SVOCs high)	Landfill Staging Area	Subsurface material under landfill cover	Subsurface material under landfill cover
TB-02-10	0 – 12	Unrestricted use	Staging Area	Cover material in staging area over restricted fill	Cover material in staging area over restricted fill
TB-02-11	0 - .5	Unrestricted use	Staging Area	Topsoil for SPDES basin	Cover material in staging area over restricted fill
TB-02-11	.5 – 8	Unrestricted use	Staging Area	Cover material in staging area over restricted fill	Cover material in staging area over restricted fill
TB-02-12	0 – 8	Restricted use	Northern Dock, Landfill Staging Area	Use as subsurface fill in Northern Dock	Northern Dock
TB-02-13	0 – 4	Special Restricted use (PCBs > 10 ppm)	Landfill Staging Area	Subsurface material under landfill cover	Subsurface material under landfill cover
TB-02-13	4 – 6	Unrestricted use	Eastern end of basin	Eastern end of basin	Eastern end of basin
TB-02-14	0 - .5	Unrestricted use	Staging Area	Topsoil for SPDES	Cover material in

Table 2-7. *SPDES Treatment System IRM soil grid tracking table*

Grid ID	Grid Interval (ft)	Characterization	Current Location at the Site	Intended reuse/disposition	Final Disposition
				basin	staging area over restricted fill
TB-02-14	.5 – 4	Unrestricted use	Staging Area	Topsoil for SPDES basin	Cover material in staging area over restricted fill
TB-02-15	0 - .5	Unrestricted use	Staging Area	Topsoil for SPDES basin	Cover material in staging area over restricted fill
TB-02-15	0 - 2	Unrestricted use	Staging Area	Cover material in staging area over restricted fill	Cover material in staging area over restricted fill

Source: O' Brien & Gere Engineers, Inc.

Notes:
* Unrestricted use refers to soil that can be utilized for any use on-site, inclusive of surface fill.

* Restricted use refers to soil that will be utilized as subsurface fill under a minimum of 1 ft of unrestricted use soil.

* Special restricted use refers to soil that will be utilized as subsurface fill at the former landfill underneath the low permeability cover system.