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GF Project No.
47743

FINAL REMEDIAL INVESTIGATION REPORT

202-218 MORGAN AVENUE

BROOKLYN, NEW YORK

NEW YORK STATE BROWNFIELD CLEANUP PROGRAM

SITE NUMBER C224133

PROJECT #47743

July 2010

Gannett Fleming

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NEW YORK STATE PROFESSIONAL ENGINEER'S CERTIFICATION

"I certify that this Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with applicable guidance for site investigation and remediation, and that all activities were performed in full accordance with the DER approved work plan and any DER approved modifications."

	7/8/2010	059115-1
Vincent Frisina, P.E. (Seal and Signature)	Date	Registration No:
Gannett Fleming Engineers , P.C.		State of New York

EXECUTIVE SUMMARY

A Remedial Investigation (RI) was performed at the Frito-Lay site (Site) located at 202-218 Morgan Avenue in Brooklyn, New York. The RI Work Plan was prepared and submitted to New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) for review and approval. On October 9, 2009, NYSDEC approved the RI Work Plan for the Frito-Lay site and sampling activities commenced on November 4 through 6 and November 20, 2009. All work was performed in accordance with New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), DER-10 Technical Guidance for Site Investigation and Remediation, the signed BCP Agreement with Frito-Lay dated August 21, 2009, and the NYSDEC Approved RI Work Plan dated September 2009. NYSDEC has assigned site number C224133 to the Site.

A Phase II Environmental Site Assessment (ESA) was conducted on the Site in December 2007 and January 2008 and the RI was conducted in response to NYSDEC's May 5, 2009 comment letter requesting the collection of additional Site data. The results of Phase II ESA indicated that volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) are present in the soil at concentrations above the 6 NYCRR Part 375-6 - Soil Cleanup Objectives (SCOs). The groundwater analytical results indicate the presence of aluminum, iron, manganese, methyl tert-butyl ether (MTBE), sodium, thallium, vinyl chloride at concentrations above the Technical and Operational Guidance (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Standards (TOGS standards).

The RI sampling program was conducted to quantify and delineate subsurface impacted soil and groundwater, identify potential contaminant sources, migration paths and receptors, assess the actual and potential threat to human health, fish and wildlife and the environment, and assess remedial alternatives based upon the findings.

The RI sampling program included the collection of: two (2) soil borings along English Kills; thirteen (13) soil borings at various on site locations to complete the 50' x 50' sampling grid; two (2) surface water samples and four (4) sediment samples from the English Kills; three (3) soil gas samples, one (1) on-site and two (2) off-site upgradient groundwater monitoring wells, and eight (8) groundwater monitoring well samples.

The soil sample results indicate that arsenic, lead, mercury, PCBs, and SVOCs are present in surface and subsurface soils at concentrations exceeding Restricted Use - Commercial and/or Industrial SCOs. SVOCs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene have been detected at concentrations exceeding Part 375 Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or Restricted Use - Industrial SCOs. The soil contamination is located throughout the Site to depths of 11 to 12 feet below ground surface (ft-bgs), which is the approximate depth of groundwater beneath the Site. Potentially hazardous levels of PCBs and lead are present in several locations within the Site boundary.

The results of the RI, as well as the groundwater results from the previous investigations conducted since 2003 indicate the presence of benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride at concentrations above their respective TOGS standards in several on- and off-site monitoring wells. Concentrations of aluminum, arsenic, iron, magnesium, manganese, nickel, and sodium are also present at concentrations above their TOGS standards in several on- and off-site monitoring wells.

The presence of chlorinated VOCs (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) in groundwater is most likely due to anaerobic dechlorination of PCE from an off-site source. Given that these daughter by-products are present, it is most likely anaerobic dechlorination will continue to occur at the Site. In MW-1, chlorinated VOCs were detected at concentrations above the TOGS standards. However, the off-site and upgradient monitoring well also exhibited chlorinated VOCs at higher concentrations than MW-1 which may indicate that MW-7 is impacting the groundwater quality at MW-1. In MW-2, the PCE daughter product (1,1-DCA,

1,2-DCA, DCE, and vinyl chloride) concentrations have increased from the December 2007 to the November 2009 sampling events indicating that anaerobic dechlorination is occurring in this portion of the Site. MW-2 is proposed to be decommissioned to allow for the soil surrounding MW-2 to be excavated as part of remedial excavation of SB-3 and a depth of 13 feet which will remove any residual VOC contamination in soil and MW-2 will be reinstalled at this location. MW-3 and MW-6 will also likely be decommissioned to allow for the remedial excavations at SB-8 and SB-11.

The unfiltered TAL Metal groundwater samples are significantly higher for most metals than the filtered samples. Aluminum, arsenic, iron, magnesium, manganese, and sodium are present in several on-site monitoring well at concentrations in excess of the TOGS standards. The filtered samples for aluminum, chromium, iron, lead, manganese, nickel, and sodium were detected in MW-7 and MW-8 (off-site monitoring wells) and may be indicative of a regional or localized groundwater conditions. Arsenic was detected in both the unfiltered and filtered samples with similar concentrations above the TOGS standards which could indicate a localized elevated arsenic groundwater condition at MW-3 and MW-4.

The results of the RI did not indicate the presence of VOCs, SVOCs, and pesticides at concentrations above the applicable NYSDEC Guidance Values for sediments. TAL metal concentrations exceed the Severe Effect Level (SEL) criteria at all four (4) sediment sample locations. PCB concentrations were also detected above HHB and/or WB criteria at all four (4) sediment sample locations. The data collected during the RI sampling program is inconclusive that the Site is responsible for, or attributable to the sediment contamination. A more extensive sediment sampling program would need to be implemented to make this determination.

The results of the RI did not indicate the presence of VOC, SVOC, PCBs, or pesticides in surface water at concentrations above the applicable NYSDEC Guidance Values. However, a copper concentration was detected above the FS-SW. Based on the surface results collected during the November 2009 sampling event, there do not appear to be surface water impacts from the Site, therefore, no further action is proposed.

The soil gas results indicate the presence of VOCs collected from three (3) soil gas sampling points installed at the Site. The most notable soil gas concentrations include acetone, benzene, 2-butanone, carbon disulfide, chloroform, cyclohexane, ethylbenzene, heptane, hexane, toluene, tert-butyl alcohol, tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethene, trichlorofluoromethane, 1,2,4-trimethylbenzene, 2,2,4-trimethylpentane cyclohexane, o-xylene, and m/p-xylene.

Remedial activities will be required where there is soil contamination that exceeds Part 375 concentrations and a remedial work plan will be prepared to evaluate and recommend remedial alternatives that will address the soil contamination. Upon completion of soil remedial activities, the Site covered with a 6-inch asphalt pavement for use as a parking lot for Frito-Lay operations.

Implementation of continued groundwater monitoring upon completion of remedial activities is proposed to monitor the VOC concentrations above the TOGC standards. Additional soil gas sampling is not proposed for the Site, as the end use upon completion of remedial activities is a parking lot. No permanent structures are proposed and an environmental easement will contain specific requirements for the design of a mitigative system to be installed for any future structures constructed on the Site. Additional surface water sampling is also not proposed, as these conditions are reflective of regional rather than site-specific impacts. In addition, the data collected during the RI sampling program is inconclusive that the Site is responsible for or attributable to the sediment contamination. A more extensive sediment sampling program would need to be implemented to make this determination.

1.0 INTRODUCTION

Gannett Fleming, Inc. (GF) was retained by Frito-Lay, Inc. to prepare a Remedial Investigation (RI) Work Plan (WP) to further assess environmental conditions at the 202-218 Morgan Avenue site (Site) located in Brooklyn, New York (Figure 1-1). The RIWP was prepared and submitted to New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) for review and approval. On October 9, 2009, NYSDEC approved the RI Work Plan for the 202-218 Morgan Avenue site and field sampling activities were performed on November 4 through 6, 2009 and completed on November 20, 2009. A Phase II Environmental Site Assessment (ESA) was conducted on the Site in December 2007 and January 2008 and the RI was conducted in response to NYSDEC's May 5, 2009 comment letter requesting the collection of additional Site data.

All work was performed in accordance with New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), DER-10 Technical Guidance for Site Investigation and Remediation, the signed BCP Agreement with Frito-Lay dated August 21, 2009, and the NYSDEC Approved RI Work Plan dated September 2009. NYSDEC has assigned site number C224133 to the Site.

Previous soil and groundwater investigations, including the Phase II ESA, have been conducted at the Site since 2003. Soil and groundwater samples have been collected to evaluate the presence of contaminants above NYSDEC Technical and Administrative Guidance Memorandum (TAGM) Recommended Soil Cleanup Objectives (RSCOs), 6 NYCRR Part 375-6 - Soil Cleanup Objectives (SCOs), and the Technical and Operational Guidance (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Standards (TOGS standards). The results of these investigations have concluded that both the soil and groundwater quality at the Site have likely been impacted by on-site and possibly by off-site sources, as well as potentially impacting off-site receptors.

The results of previous remedial investigations conducted in December 2007 and January 2008 indicate that volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) are present in the soil at concentrations above the NYSDEC TAGM RSCOs and/or 6 NYCRR Part 375-6 - SCOs. The groundwater analytical results indicate the presence of aluminum, iron, manganese, methyl tert-butyl ether (MTBE), sodium, thallium, and vinyl chloride at concentrations above the TOGS standards.

1.1 Remedial Investigation Sampling Program

This RI sampling program was prepared based on the results of GF's Phase II ESA Soils and Groundwater sampling program conducted in December 2007 and January 2008 which was submitted to NYSDEC for review and comment in March 2008 and several other previous environmental investigations which are further discussed in Section 3.0.

On May 5, 2009, NYSDEC provided a comment letter to Frito-Lay concerning the proposed RIWP. NYSDEC requested the drilling and sampling of several additional soil borings, as well the collection of surface water and sediment samples from the English Kills, and the installation of soil gas probes to assess surface and subsurface soil contamination at the Site.

The RI sampling program was implemented from November 4 through 6, 2009 and on November 20, 2009. The RI sampling program was conducted to assess surface and subsurface soil concentrations related to VOCs, SVOCs, PCBs, and metals. The RI sampling program also assessed the presence of sediment and surface water contamination and the presence of soil gas vapors along the northern and western property boundaries of the Site in the vicinity of Morgan Avenue.

1.2 Purpose and Objectives of the RI Sampling Program

The purpose of this RI is to quantify and delineate subsurface impacted soil, sediments, surface water, and groundwater, identify potential contaminant sources, migration paths and receptors,

assess the actual and potential threat to human health, fish and wildlife and the environment, and assess remedial alternatives based upon the findings.

The scope of work as presented in the Remedial Investigation Work Plan (RIWP) included the following:

- Two (2) soil borings would be advanced on site along English Kills;
- Thirteen (13) soil borings would be advanced at various on site locations to complete the 50' x 50' sampling grid;
- Two (2) surface water samples would be collected from the English Kills;
- Four (4) sediment samples would be collected from the English Kills;
- Three (3) soil gas vapor samples would be collected from soil vapor collection points advanced to an approximate depth of groundwater;
- One (1) on-site and two (2) off-site upgradient groundwater monitoring wells would be installed and sampled; and,
- Eight (8) groundwater monitoring wells would be sampled.

The objectives of the RI sampling program were to:

- characterize and delineate subsurface soil impacts;
- evaluate the potential presence of soil gas vapors along the northern and western property boundaries of the Site;
- evaluate current groundwater concentrations/conditions of the 6 on-site and 2 off-site groundwater monitoring wells;
- evaluate surface water and sediment conditions in the English Kills which is immediately adjacent to the Site;
- provide data for development of the Final RI Report, Qualitative Human Health Exposure Assessment;
- identify potential exposure pathway (ingestion, inhalation and dermal contact) for soil. soil gas, and groundwater; and,

- provide site-specific information for the development and selection of remedial alternative to reduce and/or eliminate the toxicity, volume, or mobility of site-specific contaminants.

1.3 Scope of Work for the RI Sampling Program

The RI Sampling Program was implemented to collect surface and subsurface soil samples to characterize VOC, SVOC, metal, pesticide, and PCB concentrations which exceed TAGM RSCOs and/or Part 375 Unrestricted and Restricted Use SCOs. Soil vapor gas samples were collected along the northern and western property boundaries of the Site to assess potential soil gas impacts to on- and off-site receptors. Sediment and surface water samples were collected from the English Kills to assess potential Site impacts to this surface water body. In addition, groundwater sampling was performed to assess current groundwater quality conditions and to assess off-site impacts.

Project-specific Health and Safety Plan (HASP) and Quality Assurance Project Plan (QAPP) were prepared and followed to provide safe procedures, practices, and quality assurance criteria for GF employees and their subcontractor personnel engaged in performing RI activities at the Site. The HASP and QAPP were included in Appendix A and in Section 5.0, respectively, in the RIWP. A Community Air Monitoring Program (CAMP) was prepared and followed to provide air quality monitoring procedures to be followed to protect the downwind community (i.e., off-site receptors, including residents and off-site outside workers) from potential airborne contaminant releases that may be as a direct result of the sampling activities.

The soil, sediment, soil gas, surface water, and groundwater samples were collected for constituents of concern that have established NYSDEC standards, criteria, and guidance (SCGs) to evaluate potential impacts on human health, and/or the environment.

1.4 Organization of the RI and Remedial Alternative Report

The RI Report discusses the following topics:

- Introduction: Background and objectives of the project, and report organization are presented;
- Site Description: The description, topography, geology, hydrology, and history of the Site;
- Historical Environmental Investigations: History, scope, and results of the Site and remedial investigations that have been conducted at the Site since 2003;
- RI Sampling Plan: Scope of work for the investigation of surface and subsurface soils, soil gas vapor, and groundwater;
- Soil sampling, sediment sampling, soil gas sampling, surface water sampling, and groundwater sampling procedures and analytical results;
- Soil, sediment, soil gas, surface water, and groundwater results assessment;
- Qualitative Human Health Exposure Assessment; and,
- Conclusions and Recommendations.

2.0 SITE DESCRIPTION

2.1 Site Location and Description

The Site is located at 202-218 Morgan Avenue, Brooklyn, New York and approximately 2.85 acres in size. The Site is located adjacent to the west side of English Kills on the eastern side of Morgan Avenue between Ten Eyck Street and Stagg Street. The Site is located near the north end of the borough of Brooklyn approximately 1.9 miles east of the East River, and approximately 5.5 miles south of LaGuardia Airport. The Site is located approximately at latitude 40º 42' 42" North and Longitude 73º 55' 59" West and found in the New York City Borough, Block, and Lot designation system at Borough 3, Block 2942, and Lot 105. A site location map created from the United States Geological Survey (USGS) 7.5-minute "Brooklyn, New York" Quadrangle is presented as Figure 2-1.

The Site is currently vacant and past use of the Site as a solid waste storage facility has potentially impacted subsurface conditions. Past historical uses of surrounding properties within the inferred upgradient groundwater flow path of the Site included a chromium-plating business, multiple machine shops, metal finishing shops, foundries, and electrical equipment manufacturing. Regional groundwater quality has potentially been impacted by the heavy industrial use of the neighborhood. This impacted upgradient groundwater has potentially impacted subsurface conditions at the Site.

2.2 Site Geology and Topography

The Site lies approximately 13 feet above mean sea level. The general topographic gradient at the Site is flat. Depth to groundwater at the Site is approximately 11 to 15 feet below ground surface (ft-bgs). Since the Site is mostly vacant, surface runoff is directed by the natural topography of the land and percolates through site soil down to the water table. The nearest water body is the English Kills located adjacent to the east side of the Site. Groundwater elevation contour data shows that the regional inferred groundwater flow direction is to the east

towards the English Kills with on-site flow radiating from northeast to southeast across the Site towards the English Kills.

According to maps and reports published by the United States Geologic Survey (USGS) and others, the Site is underlain by unconsolidated Cretaceous to Quaternary age sand and gravel deposits that comprise Long Island's groundwater system. These hydrogeologic units consist of alternating interbedded lenses of gravel, sand, silt, and clay, which form a layered sequence of aquifers and confining units that dip gently to the south and east. Based on USGS data, underlying soil at the Site consists of well graded fine to coarse grained sand with gravel (SW) or poorly graded fine to coarse grained sand with gravel (SP) as defined by the Unified Soil Classification System (USCS).

Surface soils consist of many metal pieces, wire, rubber, glass, plastic, ceramics, brick, concrete, wood pieces, and other various types of fill material. These fill materials found in the soils extend to the groundwater interface. The subsurface fill materials consist mostly of concrete, wood, bricks, and rubbish (including metals, plastic, and glass). Peat, organic matter, and other soils (gray sand and black silt) were found near the surface in borings near the English Kills. Near Morgan Avenue, pockets of coal ash and coal spoils were observed in the fill.

2.3 Public/Private Wells

The New York water supply system serves Westchester County and New York City, except for Jamaica in Queens County. It utilizes three separate systems of reservoirs which obtain water from some 2,000 square miles of watershed in upstate New York. Today, 50% of the City's water comes from the Delaware system, 40% from the Catskill system, and the remaining 10% comes from the Croton system. The City now has 19 reservoirs; the farthest is 120 miles from central Manhattan. There are no public or private wells in the area for domestic use.

2.4 Sensitive Human Receptors

Sensitive Human Receptors are limited to employees of the industrial properties surrounding the Site and employees of Frito-Lay, Inc. Residential communities in this section of Brooklyn are located approximately 0.25 miles to the north, south, and west. There are no residential structures within the immediate vicinity of the Site.

3.0 HISTORIC ENVIRONMENTAL INVESTIGATIONS

A review of available records indicates that several environmental assessments/investigations and/or work plans have been completed since 2003. There is no information available that indicate environmental-types of investigations have occurred at the Site prior to 2003.

3.1 Previous Environmental Investigations

The table below summarizes the environmental investigations and remedial activities performed at the Site between 2003 and 2009.

Work Performed	Environmental Consultant	Date
Subsurface Investigation	Gannett Fleming	October 2003
Phase I Environmental Site Assessment	Gannett Fleming	December 2006
Surface Pile Characterization Work Plan	Gannett Fleming	January 2007
Phase II Environmental Site Assessment	Gannett Fleming	March 2008

The scope of work and findings from each investigation are briefly summarized below. Based on GF's review of these reports, the data appear to be suitable for their intended use, unless qualified or otherwise noted.

3.2 Historical Site Investigation and Remediation Activities

In October 2003, Gannett Fleming Engineers, P.C. (GF) performed a Subsurface Investigation at 202-218 Morgan Avenue in Brooklyn, New York. The subsurface investigation was performed to assess the environmental quality of the Site prior to the potential purchase by Steel Quattro, LLC. The subsurface investigation included the collection and analysis of eight (8) soil borehole samples, five (5) surficial soil samples, and four (4) groundwater samples.

These analytical results were originally compared to NYSDEC TAGM recommended soil cleanup objective (RSCOs). Based upon the analysis of surface and subsurface soil samples collected as compared to RSCOs, semi-volatile organic compounds (SVOC) and metal impacts were prevalent throughout most of the Site. SVOC impacts appeared to be greatest to the east of the building located near the middle of the Site. Elevated lead and mercury concentrations appeared to be ubiquitous. Polychlorinated biphenyl (PCB) surface soil impacts were encountered throughout the Site, as well as subsurface soil impacts east of the building. Elevated volatile organic compound (VOC) concentrations, including chlorinated compounds were encountered in surface and subsurface soils collected between the lean-to and the building. Several drums were observed in this area which potentially may represent an on-site VOC source area.

The 2003 soil sample results were compared to Brownfields Cleanup Objectives (BCO) Restricted Use for Protection of Groundwater (Restricted Use - PG) and BCO for Protection of Public Health-Commercial (Restricted Use - Commercial) and are presented on Figures 3 through 16.

3.2.1 Surficial Soil Sample Analytical Results - 2003

Surficial soil sample results reported VOCs consisting of 1,2-dichloroethene, acetone, tetrachloroethene, trichloroethene, and vinyl chloride at concentrations above the Restricted Use – PG SCOs, but below Restricted Use - Commercial SCOs. VOCs were detected at SS-3 acetone was detected at a concentration of 260 micrograms per kilogram (µg/kg) which is above the Restricted Use - PG SCO of 50 µg/kg, 1,2-dichloroethene (DCE) was detected at a concentration of 290 µg/kg which is above the Restricted Use - PG SCO of 190 µg/kg, tetrachloroethene (PCE) was detected at a concentration of 29,000 µg/kg which is above the Restricted Use - PG SCO of 1,300 µg/kg, trichloroethene (TCE) was detected at a concentration of 1,500 µg/kg which is above the Restricted Use - PG SCOs of 470 µg/kg, and vinyl chloride was detected at a concentration of 310 µg/kg which is above the Restricted Use - PG SCO of 20 µg/kg. These results are presented in Table 1 and Figure 3 in the September 2009 RIWP.

Surficial soil sample results reported concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene above Restricted Use - Commercial SCO at SS-1, SS-2, SS-3, and SS-4. Benzo(a)pyrene was detected at concentrations ranging from 4,500 µg/kg (SS-1) to 1,500 µg/kg (SS-3). Dibenz(a,h)anthracene was detected at concentrations ranging from of 1,300 µg/kg (SS-1) to 620 µg/kg (SS-3). These reported concentrations are above the Restricted Use - Commercial SCOs of 1,000 µg/kg for benzo(a)pyrene and 560 µg/kg dibenzo(a,h)anthracene. These results are presented in Table 2 and Figure 4 in the September 2009 RIWP.

Surficial soil sample results reported concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above the Restricted Use - PG SCO at SS-1, SS-2, SS-3, and SS-4. Benzo(a)anthracene was detected at concentrations ranging from 4,300 µg/kg (SS-2) to 1,600 µg/kg (SS-3). Benzo(b)fluoranthene was detected at concentrations ranging from 4,000 µg/kg (SS-1) to 1,900 µg/kg (SS-3). Benzo(k)fluoranthene was detected at concentrations ranging from 4,000 µg/kg (SS-1) to 1,900 µg/kg (SS-3). Chrysene was detected at concentrations ranging from 4,200 µg/kg (SS-2) to 1,800 µg/kg (SS-3). These reported concentrations are above the Restricted Use - PG SCOs of 1,000 µg/kg for benzo(a)anthracene and chrysene and 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene. These results are presented in Table 2 and Figure 5 in the September 2009 RIWP.

Surficial soil sample results reported concentration of PCBs above the Restricted Use - Commercial at SS-1, SS-2, SS-3, SS-4 and SS-5. Aroclor 1242 was detected at SS-3, SS-4, and SS-5 with concentrations ranging from 8,500 µg/kg (SS-3) to 190,000 µg/kg (SS-5). Aroclor 1254 was detected at SS-2 with a concentration of 2,900 µg/kg. Aroclor 1260 was detected at SS-1 with a concentration of 11,000 µg/kg. These PCB concentrations are above the Restricted Use - Commercial SCO of 1,000 µg/kg for Aroclor 1242, 1254, and 1260 and above the Restricted Use - PG SCO of 3,200 µg/kg for Aroclor 1242 and 1260. These results are presented in Table 3 and Figures 6 and 7 in the September 2009 RIWP.

Surficial soil samples results reported concentrations of arsenic, barium, cadmium, lead, and mercury above Restricted Use - Commercial SCOs. Arsenic was detected at SS-1 and SS-4 with concentrations ranging from 26 milligrams per kilogram (mg/kg) (SS-1) to 34 mg/kg (SS-4).

Barium was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 400 mg/kg (SS-2) to 820 mg/kg (SS-1). Cadmium was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 15 mg/kg (SS-3) to 54 mg/kg (SS-5). Lead was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 1,000 mg/kg (SS-3) to 50,000 mg/kg (SS-1). Mercury was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 2.8 mg/kg (SS-4) to 20 mg/kg (SS-1). These concentrations are above the Restricted Use - Commercial SCO of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 1,000 mg/kg for lead), and 2.8 mg/kg for mercury. These results are presented in Table 4 and Figure 8 in the September 2009 RIWP.

Surficial soil samples results reported concentrations of arsenic, barium, cadmium, chromium, lead, mercury, and selenium above Restricted Use - PG SCOs. Arsenic was detected at SS-1 and SS-4 with concentrations ranging from 26 milligrams per kilogram (mg/kg) (SS-1) to 34 mg/kg (SS-4). Barium was detected at SS-1 with a concentration of 820 mg/kg. Cadmium was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 15 mg/kg (SS-3) to 54 mg/kg (SS-5). Chromium was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 38 mg/kg (SS-2) to 200 mg/kg (SS-5). Lead was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 740 mg/kg (SS-2) to 50,000 mg/kg (SS-1). Mercury was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 1.2 mg/kg (SS-2) to 20 mg/kg (SS-1). Selenium was detected at SS-1, SS-2, SS-3, and SS-4 with concentrations ranging from 4.2 mg/kg (SS-1) to 120 mg/kg (SS-4). These reported concentrations are above the Restricted Use - PG SCOs of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 30 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, and 4 mg/kg for selenium. These results are presented in Table 4 and Figure 9 in the September 2009 RIWP.

Soil boring sample results reported concentrations of 1,2-dichloroethene, 2-butanone, acetone, benzene, ethyl benzene, toluene, vinyl chloride, and total xylenes above Restricted Use - PG SCOs, but below Restricted Use - Commercial SCOs. 1,2-dichloroethene was detected at SB-4 (4.5 to 6 feet) with a concentration of 490 µg/kg. 2-butanone was detected at SB-7 (4 to 5.5 feet) with a concentration of 200 µg/kg. Acetone was detected at SB-6 (6 to 8 feet) and SB-8 (0 to 3

feet) with concentrations ranging from 150 µg/kg (SB-8) to 820 µg/kg (SB-7). Benzene was detected at SB-4 and SB-6 with concentrations ranging from 65 µg/kg (SB-6) to 160 µg/kg (SB-4). Ethylbenzene was detected at SB-6 with a concentration of 1,100 µg/kg. Toluene was detected at SB-6 ad SB-7 with concentrations ranging from 870 µg/kg (SB-7) to 1,600 µg/kg (SB-6). Vinyl chloride was detected at SB-6 with a concentrations 6,900 µg/kg. Total xylenes were detected at a concentration of 2,700 µg/kg at SB-6. These reported concentrations are above the Restricted Use - PG SCOs of 190 µg/kg for 1,2-dichloroethene, 120 µg/kg for 2-butanone, 50 µg/kg for acetone, 60 µg/kg for benzene, 1,000 for ethylbenzene, 700 µg/kg for toluene, 20 µg/kg for vinyl chloride, and 1,600 µg/kg for total xylenes. These results are presented in Table 5 and Figure 10 in the September 2009 RIWP.

Soil boring sample results reported concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) above Restricted Use - Commercial SCO and benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above Restricted Use - PG SCOs. Benzo(a)anthracene was detected at SB-5 (0 to 4 feet) and SB-6 (6 to 8 feet) with concentrations ranging from 14,000 µg/kg (SB-6) to 20,000 µg/kg (SB-5). Benzo(a)pyrene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,400 µg/kg (SB-4) to 14,000 µg/kg (SB-5). Benzo(b)fluoranthene was detected at SB-5 (0 to 4 feet) and SB-6 (6 to 8 feet) with concentrations ranging from 12,000 µg/kg (SB-6) to 15,000 µg/kg (SB-5). Dibenz(a,h)anthracene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 590 µg/kg (SB-8) to 2,600 µg/kg (SB-5). Indeno(1,2,3-cd)pyrene) was detected at SB-5 (0 to 4 feet) with a concentration of 6,400 µg/kg. These reported concentrations are above the Restricted Use - Commercial of 5,600 µg/kg for benzo(a)anthracene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-cd)pyrene. These results are presented in Table 6 and Figure 11 in the September 2009 RIWP.

Soil boring sample results reported concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above Restricted Use - PG SCOs. Benzo(a)anthracene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and

SB-8 (0 to 3 feet) with concentrations ranging from 1,500 µg/kg (SB-4) to 20,000 (SB-5). Benzo(a)pyrene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,400 µg/kg (SB-4) to 14,000 µg/kg (SB-5). Benzo(b)fluoranthene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 3,500 µg/kg (SB-7) to 15,000 µg/kg (SB-5). Benzo(k)fluoranthene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 3,500 µg/kg (SB-7) to 15,000 µg/kg (SB-5). Chrysene was detected at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,100 µg/kg (SB-3) to 17,000 µg/kg (SB-5). These reported concentrations are above the Restricted Use - PG SCOs of 1,000 µg/kg for benzo(a)anthracene, 1,700 µg/kg for benzo(b)fluoranthene, 1,700 µg/kg for benzo(k)fluoranthene, and 1,000 µg/kg for chrysene. These results are presented in Table 6 and Figure 12 in the September 2009 RIWP.

Soil boring sample results reported concentrations of PCBs above the Restricted Use - Commercial SCO at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet). Aroclor 1242 was detected at SB-3, SB-6, and SB-8 with concentrations ranging from 1,300 µg/kg (SB-3) to 85,000 µg/kg (SB-8). Aroclor 1254 was detected at SB-4, SB-5, and SB-7 with concentrations ranging from 1,600 µg/kg (SB-4) to 33,000 µg/kg (SB-7). These PCB concentrations are above the Restricted Use - Commercial SCO of 1,000 µg/kg for Aroclor 1242 and 1254. These results are presented in Table 7 and Figure 13 in the September 2009 RIWP.

Soil boring sample results reported concentrations of PCBs above the Restricted Use - PG SCO at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet). Aroclor 1242 was detected at SB-6 and SB-8 with concentrations ranging from 32,000 µg/kg (SB-6) to 85,000 µg/kg (SB-8). Aroclor 1254 was detected at SB-5 and SB-7 with concentrations ranging from 3,400 µg/kg (SB-5) to 33,000 µg/kg (SB-7). These PCB concentrations are and above the Restricted Use - PG SCO of 3,200 µg/kg for Aroclor 1242 and 1254. These results are presented in Table 7 and Figure 14 in the September 2009 RIWP.

Soil boring sample results reported concentrations of arsenic, barium, cadmium, lead, and mercury above Restricted Use - Commercial SCOs. Arsenic was detected at SB-4 (4.5 to 6 feet) with a concentration of 28 mg/kg. Barium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 440 mg/kg (SB-8) to 590 mg/kg (SB-7). Cadmium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 17 mg/kg (SB-8) to 43 mg/kg (SB-7). Lead was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,000 mg/kg (SB-8) to 8,200 mg/kg (SB-8). Mercury was detected at SB-6 (6 to 8 feet) and SB-7 (4 to 5.5 feet) with concentrations ranging from 6.5 mg/kg (SB-6) to 9.9 mg/kg (SB-7). These concentrations are above the Restricted Use - Commercial SCOs of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 1,000 mg/kg for lead, and 2.8 mg/kg for mercury. These results are presented in Table 8 and Figure 15 in the September 2009 RIWP.

Soil boring sample results reported concentrations of arsenic, cadmium, chromium, lead, mercury, and selenium above Restricted Use - PG SCOs. Arsenic was detected at SB-4 (4.5 to 6 feet) with a concentration of 28 mg/kg. Cadmium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 17 mg/kg (SB-8) to 43 mg/kg (SB-7). Chromium was detected at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 30 mg/kg (SB-4) to 220 mg/kg (SB-6). Lead was detected at SB-3 (7 to 9.5 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 700 mg/kg (SB-3) to 8,200 mg/kg (SB-8). Mercury was detected at SB-3 (7 to 9.5 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1.2 mg/kg (SB-5) to 9.9 mg/kg (SB-7). Selenium was detected at SB-3 (7 to 9.5 feet) with a concentration of 5.7 mg/kg. These reported concentrations are above the Restricted Use - PG SCOs of 16 mg/kg for arsenic, 7.5 mg/kg for cadmium, 30 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, and 4 mg/kg for selenium. These results are presented in Table 8 and Figure 16 in the September 2009 RIWP.

Elevated lead and mercury concentrations were observed in the groundwater throughout the Site. The highest levels of metal impacts were detected in the groundwater sample collected from the

eastern edge of the Site along the English Kills. Elevated VOC concentrations were detected in the groundwater sample collected between the lean-to and the building. At GW-3, 1,2-dichloroethene was detected at a concentration of 2,900 µg/L, benzene was detected at a concentration of 2 µg/L, tetrachloroethene was detected at a concentration of 12 µg/L, trichloroethene was detected at a concentration of 15 µg/L, and vinyl chloride was detected at a concentration of 2,500 µg/L, and at GW-4, acetone was detected at a concentration of 76 µg/L. These concentrations are above the TOGS standard of 5 µg/L for 1,2-dichloroethene, 50 µg/L for acetone, 1 µg/L for benzene, 5 µg/L for tetrachloroethene, 5 µg/L for trichloroethene, and 2 µg/L for vinyl chloride. These results are presented in Table 9 and Figure 17 in the September 2009 RIWP.

An elevated SVOC concentration was detected in the groundwater sample collected at GW-1. Bis(2-ethylhexyl)phthalate was detected at a concentration of 6 µg/L, which is above the TOGS standard of 5 µg/L. This result is presented in Table 10 and Figure 18 in the September 2009 RIWP.

Elevated metal concentrations were detected in all groundwater monitoring wells installed at the Site. At GW-1, lead was detected at a concentration 0.11 mg/L, at GW-2, arsenic was detected at a concentration of 0.031 mg/L, lead was detected at a concentration of 0.61 mg/L, and mercury was detected at a concentration of 0.002 mg/L, at GW-3, cadmium was detected at a concentration of 0.006 mg/L, lead was detected at a concentration of 2.7 mg/L, and mercury was detected at a concentration of 0.0018 mg/L, and at GW-4, arsenic was detected at a concentration of 0.32 mg/L, barium was detected at a concentration of 310 mg/L, cadmium was detected at a concentration of 0.13 mg/L, chromium was detected at a concentration of 0.8 mg/L, lead was detected at a concentration of 19 mg/L, and mercury was detected at a concentration of 0.092 mg/L. These concentrations are above the TOGS standard of 0.25 mg/L for arsenic, 1 mg/L for barium, 0.005 mg/L for cadmium, 0.05 mg/L for chromium, 0.025 mg/L for lead, and 0.0007 mg/L for mercury. These results are presented in Table 11 and Figure 19 in the September 2009 RIWP.

3.2.2 Phase I Environmental Site Assessment - 2006

In December 2006, Frito Lay, Inc. retained GF to perform a Phase I Environmental Site Assessment (ESA) of 202-218 Morgan Avenue, Brooklyn, New York. Pre-inspection activities consisted of an environmental database search and historical document review. On-site activities consisted of a site reconnaissance to assess current conditions, to identify visible evidence of spills, discharges, or other potential environmental liabilities, and to review historical Site operations. Freedom of Information Law (FOIL) requests were submitted to federal, state, and local regulatory agencies.

The Phase I ESA revealed six (6) environmental conditions (ECs) and two (2) *de minimis* concerns in connection with the Site.

The following lists the recommendations included in the Phase I ESA report based upon the ECs:

- During the site reconnaissance performed by GF in December 2006, numerous debris piles were observed throughout the Site. These piles contained an array of miscellaneous debris ranging from tires and concrete pillars to plastics and domestic wastes. Additionally, the October 2003 investigation report by GF identified VOC, SVOC, PCB, and metals impacts to soil and groundwater on the Site. Due to the past usage of the Site as a scrap metal yard, and the present condition of the Site, soil, groundwater and soil gas sampling and analysis were recommended.

- Past historical uses of surrounding properties within the inferred upgradient groundwater flow path of the Site include a chromium-plating business, multiple machine shops, metal finishing shops, foundries, and electrical equipment manufacturing. Regional groundwater quality has potentially been impacted by the heavy industrial use of the neighborhood. This impacted upgradient groundwater potentially impacted subsurface conditions at the Site. Soil, groundwater, and soil gas sample collection and analysis were recommended to identify whether the Site was impacted by upgradient site

activities. Additionally, the surrounding sites of concern should be researched to determine if more information is available from regulatory agencies.

3.2.3 Surficial Soil and Debris Pile Analytical Results - 2007

In January 2007, GF prepared the Surface Pile Characterization Work Plan to address the disposal issues. Surficial soil and debris pile samples were collected on February 23, 2007. The results of the debris pile and surficial investigation indicate the presence of elevated levels of VOCs, SVOCs, PCBs and metals.

Surficial soil and debris pile sample results reported acetone, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) above Restricted Use – PG SCOs, but below Restricted Use - Commercial SCO in one surficial soil sample (SS-3) located in the southern portion of the Site alone English Kills. Acetone was detected at SS-2 with a concentration of 62 µg/kg. At SS-3, cis-1,2-dichloroethene was detected at a concentration of 260 µg/kg, tetrachloroethene was detected at a concentration of 11,000 µg/kg, trichloroethene was detected at a concentration of 470 µg/kg, and vinyl chloride was detected at a concentration of 23 µg/kg. These results are above the Restricted Use - PG SCO of 50 µg/kg for acetone, 250 µg/kg for cis-1,2-dichloroethene, 1,300 µg/kg for tetrachloroethene, 470 µg/kg for trichloroethene, and 20 µg/kg for vinyl chloride. These results are presented in Tables 12 and 13, and Figure 20 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) above the Restricted Use - Commercial SCOs. At SS-5, benzo(a)anthracene was detected at a concentration of 16,000 µg/kg, benzo(a)pyrene was detected at a concentration of 21,000 µg/kg, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, dibenzo(a,h)anthracene was detected at a concentration of 5,200 µg/kg, and indeno(1,2,3-cd)pyrene was detected at a concentration of 18,000 µg/kg. These results are above the Restricted Use - Commercial SCO of 5,600 µg/kg for benzo(a)pyrene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-

cd)pyrene. These results are presented in Tables 14 and 15, and Figure 21 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, and phenol above Restricted Use - PG SCOs. At SS-2, phenol was detected at a concentration of 13,000 µg/kg, at SS-3, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, at SS-5, benzo(a)anthracene was detected at a concentration of 16,000 µg/kg, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, benzo(k)fluoranthene was detected at a concentration of 4,000 µg/kg, chrysene was detected at a concentration of 15,000 µg/kg, indeno(1,2,3-cd)pyrene was detected at a concentration of 18,000 µg/kg, and naphthalene was detected at a concentration of 16,000 µg/kg. These results are above the Restricted Use - PG SCO of 1,000 µg/kg for benzo(a)pyrene and chrysene, 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene, 8,200 µg/kg for indeno(1,2,3-cd)pyrene, 12,000 µg/kg for naphthalene, and 330 µg/kg for phenol. These results are presented in Tables 14 and 15, and Figure 22 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported concentrations of PCBs above Restricted Use - Commercial SCO. Aroclor 1248 was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-6, with concentrations ranging from 8,200 µg/kg (SS-5) to 75,000 µg/kg (SS-2). Aroclor 1260 was detected at SS-2, SS-6, and DP-5 with concentrations ranging from 4,200 µg/kg to 7,400 µg/kg. These results are above the Restricted Use - Commercial SCO of 1,000 µg/kg for Aroclor 1248 and Aroclor 1260. These results are presented in Tables 16 and 17, and Figure 23 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported concentrations of PCBs above Restricted Use - PG SCO. Aroclor 1248 was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-5 with concentrations ranging from 8,200 µg/kg (SS-5) to 75,000 µg/kg (SS-2). Aroclor 1260 was detected at SS-2, SS-6, and DP-5 with concentrations ranging from 4,200 µg/kg to 7,400 µg/kg. These results are above the Restricted Use - PG SCO of 3,200 µg/kg for

Aroclor 1248 and Aroclor 1260. These results are presented in Tables 16 and 17, and Figure 24 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported concentrations of arsenic, barium, cadmium, chromium, lead, and mercury above Restricted Use - Commercial SCOs. Arsenic was detected at SS-1, SS-2, and SS-6 with concentrations ranging from 22 mg/kg (SS-1) to 52.6 mg/kg (SS-2). Barium was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, DP-5, and DP-6 with concentrations ranging from 464 mg/kg (DP-2) to 4,580 mg/kg (DP-6). Cadmium was detected at SS-1, SS-2, SS-3, SS-4, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 16.9 mg/kg (SS-4) to 82 mg/kg (SS-6). Lead was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-6 with concentrations ranging from 1,040 mg/kg (DP-2) to 9,790 mg/kg (SS-2). Mercury was detected at SS-2, SS-3, SS-6, and DP-3 with concentrations ranging from 4.9 mg/kg (DP-3) to 11.1 mg/kg (SS-6). These concentrations are above the Restricted Use - Commercial SCO of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 400 mg/kg for chromium, 1,000 mg/kg for lead, and 2.8 mg/kg for mercury. These results are presented in Tables 18 and 19, and Figure 25 in the September 2009 RIWP.

Surficial soil and debris pile sample results reported concentrations of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver above Restricted Use - PG SCO. Arsenic was detected at SS-1, SS-2, and SS-6 with concentrations ranging from 22 mg/kg (SS-1) to 52.6 mg/kg (SS-2). Barium was detected at SS-2, SS-4, SS-5, SS-6, DP-3, and DP-6 with concentrations ranging from 873 mg/kg (SS-4) to 4,580 mg/kg (DP-6). Cadmium was detected at SS-1, SS-2, SS-3, SS-4, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 16.9 mg/kg (SS-4) to 82 mg/kg (SS-6). Chromium was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 47.6 mg/kg (SS-5) to 798 mg/kg (SS-6). Lead was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, DP-5, and DP-6 with concentrations ranging from 930 mg/kg (DP-5) to 9,790 mg/kg (SS-2). Mercury was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-2, and DP-3 with concentrations ranging from 1.4 mg/kg (SS-4) to 11.1 mg/kg (SS-6). Selenium was detected at SS-1, SS-2, SS-6, and DP-5 with concentrations ranging from 21.9 mg/kg (SS-6) to 56.2 mg/kg (SS-2). Silver was detected at SS-1, SS-2, SS-3, SS-6, and DP-1 with concentrations ranging from 9.44 mg/kg (DP-

1) to 56.2 mg/kg (SS-2). These reported concentrations are above the Restricted Use - PG SCO of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 30 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, 4 mg/kg for selenium, and 8 mg/kg for silver. These results are presented in Tables 18 and 19, and Figure 26 in the September 2009 RIWP.

3.2.4 Phase II ESA – Soil Analytical Results (2007-2008)

In December 2007 and January 2008, GF on behalf of Frito-Lay Inc., conducted a Phase II ESA investigation. The scope of this investigation was to identify potential on-site impacts to the soil, groundwater, and soil gas from ECs observed and reported during GF's Phase I ESA.

On December 10 and 11, 2007, 15 borings were advanced and five (5) monitoring wells were installed. On December 12, the monitoring wells were gauged and developed. On December 26, the monitoring wells were gauged, sampled and surveyed by Naik Consulting Group, P.C. (Naik). On January 26 through 28, 2008, Naeva Geophysics, Inc. (Naeva) performed a geophysical survey for the Site. On January 18, 2008, the five monitoring wells were gauged.

VOC soil concentrations exceeded the Unrestricted Use SCOs and Restricted Use - PG SCOs throughout the Site, with the highest VOC (non-chlorinated) concentrations located at the center of the Site (SB-6, SB-8, SB-9, and SB-11). VOC concentrations did not exceed the Restricted Use - Commercial SCOs in any of the soil samples collected. 1,2,4-trimethylbenzene was detected at SB-8 and SB-9 with concentrations ranging from 3,700 µg/kg (0 to 5 feet) (SB-9) to 4,800 µg/kg (0 to 5 feet) (SB-8). 2-butanone was detected at SB-8 with a concentration of 310 µg/kg (0 to 5 feet). Acetone was detected at SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10 and SB-11 with concentrations ranging from 170 µg/kg (0 to 5 feet) to 1,900 µg/kg (5 to 7 feet). Benzene was detected at SB-8 with a concentration of 150 µg/kg (0 to 5 feet). Ethylbenzene was detected at SB-8 with a concentration of 2,200 µg/kg (0 to 5 feet). M&P xylene was detected at SB-8 and SB-9 with concentrations ranging from 990 µg/kg (0 to 5 feet) (SB-9) to 1,700 µg/kg (0 to 5 feet) (SB-8). Naphthalene was detected at SB-8 with a concentration of 160,000 µg/kg (0 to 5 feet). O-xylene was detected at SB-8 and SB-9 with concentrations ranging from 880 µg/kg (0 to 5 feet) (SB-9) to 1,100 µg/kg (0 to 5 feet) (SB-8).

These results are above the Restricted Use - PG SCO of 3,600 µg/kg for 1,2,4 trimethylbenzene, 50 µg/kg for acetone, 120 µg/kg for 2-butanone, 60 µg/kg for benzene, 1,000 µg/kg for ethylbenzene, 1,600 µg/kg for m&p xylene, 12,000 µg/kg for naphthalene, and 1,600 µg/kg for o-xylene. These results are presented in Table 3-1A, B, C, and D, and Figures 3-1 and 3-3.

VOC soil concentrations exceeded Unrestricted Use SCOs and Restricted Use - PG SCOs throughout the Site, with the highest VOC (chlorinated) concentrations located at the center of the Site (SB-6, SB-8, SB-9, and SB-11). VOC concentrations did not exceed the Restricted Use - Commercial SCOs in any of the soil samples collected. 1,2-dichlorobenzene was detected at SB-9 with a concentration of 4,700 µg/kg (0 to 5 feet). Cis-1,2-dichloroethene was detected SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-14, and SB-15 with concentrations ranging from 280 µg/kg (5 to 7 feet) to 15,000 µg/kg (9 to 11 feet). Tetrachloroethene was detected SB-6, SB-10, and SB-11 with concentrations ranging from 4,700 µg/kg (9 to 11 feet) (SB-10) to 140,000 µg/kg (0 to 5 feet) (SB-11). Trichloroethene was detected SB-6 and SB-11 with concentrations ranging from 590 µg/kg (9 to 11 feet) (SB-11) to 2,300 µg/kg (0 to 5 feet) (SB-6). Vinyl chloride was detected SB-5, SB-6, SB-7, SB-8, SB-9, SB-11 and SB-15 with concentrations ranging from 32 µg/kg (0 to 5 feet) (SB-10) to 2,100 µg/kg (0 to 5 feet) (SB-10). These results are above the Restricted Use - PG SCO of 1,100 µg/kg for 1,2-dichlorobenzene, 250 µg/kg for cis-1,2-dichloroethene, 1,300 µg/kg for tetrachloroethene, 470 µg/kg for trichloroethene, and 20 µg/kg for vinyl chloride. These results are presented in Table 3-1A, B, C, and D and Figures 3-2 and 3-4.

SVOC concentrations in soil exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs throughout the Site. The highest SVOC concentrations were located in the center and northeast corner of the Site and spanned a depth of 0-5 ft-bgs. Benzo(a)anthracene was detected at a SB-2, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 6,600 µg/kg (9 to 11 feet) (SB-10) to 100,000 µg/kg (5 to 7 feet) (SB-10). Benzo(a)pyrene was detected at a SB-1, SB-2, SB-3, SB-4, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,000 µg/kg (0 to 5 feet) (SB-3) (9 to 11 feet) (SB-4) to 75,000 µg/kg (5 to 7 feet) (SB-10). Benzo(b)fluoranthene was detected at a SB-2, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13,

SB-14, and SB-15 with concentrations ranging from 6,200 µg/kg (0 to 5 feet) (SB-13) to 110,000 µg/kg (5 to 7 feet) (SB-10). Chrysene was detected at a SB-8 and SB-10 with concentrations ranging from 75,000 µg/kg (0 to 5 feet) (SB-8) to 97,000 µg/kg (5 to 7 feet) (SB-10). Dibenz(a,h)anthracene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 960 µg/kg (7 to 9 feet) (SB-14) to 3,700 µg/kg (5 to 7 feet) (SB-10). Indeno(1,2,3-cd)pyrene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 7,900 µg/kg (7 to 9 feet) (SB-14) to 37,000 µg/kg (5 to 7 feet) (SB-10). These results are above the Restricted Use - Commercial SCO of 5,600 µg/kg for benzo(a)anthracene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 56,000 µg/kg for chrysene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-cd)pyrene. These results are presented in Table 3-2A, B, C, and D and Figures 3-5, 3-6, and 3-7.

SVOC concentrations in soil exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs throughout the Site. The highest SVOC concentrations were located in the center and northeast corner of the Site and spanned a depth of 0-5 feet below grade. 3+4 methylphenol was detected at SB-8 with a concentration of 2,300 µg/kg (0 to 5 feet). Benzo(a)anthracene was detected at a SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,000 µg/kg (5 to 7 feet) (SB-3) to 100,000 µg/kg (5 to 7 feet) (SB-10). Benzo(a)pyrene was detected at a SB-8, SB-10, and SB-14 with concentrations ranging from 28,000 µg/kg (0 to 5 feet) (SB-14) to 75,000 µg/kg (5 to 7 feet) (SB-10). Benzo(b)fluoranthene was detected at a SB-1, SB-2, SB-4, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,700 µg/kg (5 to 7 feet) (SB-4) to 110,000 µg/kg (5 to 7 feet) (SB-10). Chrysene was detected at a SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, Sb-13, SB-14, and SB-15 with concentrations ranging from 1,100 µg/kg (5 to 7 feet) (SB-3) (5 to 7 feet) (SB-5) to 97,000 µg/kg (5 to 7 feet) (SB-10). Indeno(1,2,3-cd)pyrene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 10,000 µg/kg (0 to 5 feet) (SB-12) to 37,000 µg/kg (5 to 7 feet) (SB-10). Naphthalene was detected at a SB-8 and SB-10 with concentrations ranging from 20,000 µg/kg (5 to 7 feet) (SB-10) to 57,000 µg/kg (0 to 5 feet) (SB-8). Phenol was detected at a SB-10, SB-11, and SB-13 with concentrations ranging from 880 µg/kg (9 to 11 feet) (SB-10) to 3,100 µg/kg (5 to 7 feet) (SB-11). These results are above

the Restricted Use - PC SCO of 650 µg/kg for 3+4 methylphenol, 1,100 µg/kg for benzo(a)anthracene, 22,000 µg/kg for benzo(a)pyrene, 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene, 1,000 µg/kg for chrysene, 8,200 µg/kg for indeno(1,2,3-cd)pyrene, 12,000 µg/kg for naphthalene, and 330 µg/kg for pyrene. These results are presented in Table 3-2A, B, C, and D and Figures 3-5, 3-6, and 3-7.

Total PCB concentrations in soil exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs with the highest concentration reported in the samples collected from 9 to 11 feet below grade. Restricted Use - Commercial SCO (1,000 µg/kg) is an order of magnitude lower than RSCOs (10,000 µg/kg). Aroclor 1242 was detected at SB-2, SB-4, SB-5, SB-7, and SB-8 with concentrations ranging from 130 µg/kg (5 to 7 feet) (SB-5) to 73,000 µg/kg (0 to 5 feet) (SB-8). Aroclor 1248 was detected at SB-9, SB-10, SB-11, SB-13, and SB-15 with concentrations ranging from 140 µg/kg (0 to 5 feet) (SB-10) to 22,000 µg/kg (0 to 5 feet) (SB-9) (9 to 11 feet) (SB-13). Aroclor 1254 was detected at SB-2, SB-5, SB-6, SB-7, SB-8, and SB-14 with concentrations ranging from 390 µg/kg (0 to 5 feet) (SB-5) to 33,000 µg/kg (5 to 7 feet) (SB-6). Aroclor 1260 was detected at SB-1, SB-7, and SB-12 with concentrations ranging from 170 µg/kg (0 to 5 feet) (SB-1) to 1,600 µg/kg (0 to 5 feet) (SB-7). These results are above the Restricted Use - Commercial SCO of 1,000 µg/kg for Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260. These results are presented in Table 3-3A, B, C, and D and Figures 3-8, 3-9, and 3-10.

Total PCB concentrations in soil exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs with the highest concentration reported in the samples collected from 9 to 11 feet below grade. Aroclor 1242 was detected at SB-2 and SB-8 with concentrations ranging from 5,600 µg/kg (5 to 7 feet) (SB-8) to 73,000 µg/kg (0 to 5 feet) (SB-8). Aroclor 1248 was detected at SB-9, SB-10, SB-11, SB-13, and SB-15 with concentrations ranging from 4,600 µg/kg (0 to 5 feet) (SB-11) to 22,000 µg/kg (0 to 5 feet) (SB-9) (9 to 11 feet) (SB-13). Aroclor 1254 was detected at SB-2, SB-6, SB-7, SB-8, and SB-14 with concentrations ranging from 9,500 µg/kg (7 to 9 feet) (SB-14) to 33,000 µg/kg (5 to 7 feet) (SB-6). These results are above the Restricted Use - PG SCO of 3,200 µg/kg for Aroclor 1242, Aroclor 1248,

and Aroclor 1254. These results are presented in Table 3-3A, B, C, and D and Figures 3-8, 3-9, and 3-10.

Soil metals concentrations exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs throughout the Site. Arsenic, barium, cadmium, chromium, copper, lead, mercury, and nickel concentrations all exceeded Restricted Use - Commercial SCOs. The highest concentrations were reported from the soil samples obtained at the center of the Site (SB-8, SB-9, and SB-11). Soils from 0 to 5 feet below grade were reported with the highest metals impacts. Arsenic was detected at SB-1, SB-3, SB-8, SB-9, SB-10, and SB-13 with concentrations ranging from 18.6 mg/kg (7 to 8 feet) (SB-9) to 168 mg/kg (0 to 5 feet) (SB-1). Barium was detected at SB-1, SB-2, SB-3, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, and SB-12 with concentrations ranging from 430 mg/kg (5 to 7 feet) (SB-12) to 1,590 mg/kg (0 to 5 feet) (SB-8). Cadmium was detected at SB-8, SB-9, SB-11, and SB-12 with concentrations ranging from 10.1 mg/kg (7 to 8 feet) (SB-9) to 45.2 mg/kg (0 to 5 feet) (SB-8). Chromium was detected at SB-8 and SB-9 with concentrations ranging from 441 mg/kg (0 to 5 feet) (SB-8) to 454 mg/kg (0 to 5 feet) (SB-9). Copper was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 281 mg/kg (9 to 11 feet) (SB-11) to 2,430 mg/kg (7 to 8 feet) (SB-9). Lead was detected at SB-1, SB-2, SB-3, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 1,180 mg/kg (0 to 5 feet) (SB-15) to 9,020 mg/kg (5 to 7 feet) (SB-8). Mercury was detected at SB-1, SB-2, SB-3, SB-5, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 2.9 mg/kg (0 to 5 feet) (SB-6) to 11.2 mg/kg (0 to 5 feet) (SB-5). Nickel was detected at SB-9 with a concentration of 565 mg/kg (0 to 5 feet). These concentrations are above the Restricted Use - Commercial SCO of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 400 mg/kg for chromium, 270 mg/kg for copper, 1,000 mg/kg for lead, 2.8 mg/kg for mercury, and 310 mg/kg for nickel. These results are presented in Table 3-4A, B, C, and D and Figures 3-11, 3-12, and 3-13.

Soil metals concentrations exceeded Unrestricted Use SCOs, Restricted Use - PG SCOs, and Restricted Use - Commercial SCOs throughout the Site. Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc concentrations all exceeded Restricted

Use - PG SCOs. Arsenic was detected at SB-1, SB-3, SB-8, SB-9, SB-10, and SB-13 with concentrations ranging from 18.6 mg/kg (7 to 8 feet) (SB-9) to 168 mg/kg (0 to 5 feet) (SB-1). Barium was detected at SB-1, SB-3, SB-6, SB-8, and SB-9 with concentrations ranging from 875 mg/kg (0 to 5 feet) (SB-1) to 1,590 mg/kg (0 to 5 feet) (SB-8). Cadmium was detected at SB-7, SB-8, SB-9, SB-11, SB-12, and SB-13 with concentrations ranging from 7.83 mg/kg (9 to 11 feet) (SB-13) to 45.2 mg/kg (0 to 5 feet) (SB-8). Chromium was detected at SB-1, SB-2, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 30.1 mg/kg (5 to 7 feet) (SB-2) to 454 mg/kg (0 to 5 feet) (SB-9). Copper was detected at SB-9 with concentrations ranging from 2,330 mg/kg (0 to 0 feet) (SB-9) to 2,430 mg/kg (7 to 8 feet) (SB-9). Lead was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 503 mg/kg (9 to 11 feet) (SB-14) to 9,020 mg/kg (5 to 7 feet) (SB-8). Mercury was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1.4 mg/kg (5 to 7 feet) (SB-4) to 11.2 mg/kg (0 to 5 feet) (SB-5). Nickel was detected at SB-8, SB-9, SB-10, SB-11, and SB-12 with concentrations ranging from 130 mg/kg (5 to 7 feet) (SB-12) to 565 mg/kg (0 to 5 feet) (SB-9). Selenium was detected at SB-1, SB-10, and SB-13 with concentrations ranging from 11.1 mg/kg (0 to 5 feet) (SB-10) to 71.1 mg/kg (9 to 11 feet) (SB-13). Silver was detected at SB-11 with a concentration of 10.7 mg/kg (0 to 5 feet). Zinc was detected at SB-2, SB-7, SB-8, SB-9, SB-11, SB-12, and SB-15 with concentrations ranging from 2,690 mg/kg (5 to 7 feet) (SB-11) to 6,592 mg/kg (5 to 7 feet) (SB-8). These reported concentrations are above the Restricted Use - PG SCO of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 30 mg/kg for chromium, 1,720 mg/kg for copper, 450 mg/kg for lead, 0.73 mg/kg for mercury, 1130 mg/kg for nickel, 4 mg/kg for selenium, 8 mg/kg for silver, and 2,480 mg/kg for zinc. These results are presented in Table 3-4A, B, C, and D and Figures 3-11, 3-12, and 3-13.

3.2.5 Phase II ESA – Groundwater Analytical Results (2007-2008)

Groundwater results reported limited concentrations of VOCs, SVOCs, and metals. Slight exceedences of Guidance Values for vinyl chloride were reported in the two upgradient groundwater monitoring wells (MW-1 and MW-2). Slight exceedences of Guidance Values for

methyl tert-butyl ether (MTBE) were reported in the two downgradient wells (MW-4 and MW-5). SVOCs were not detected or detected below Guidance Values for all five groundwater samples. Aluminum, iron, manganese, and thallium were reported at concentrations slightly above Guidance Values. Sodium was reported in all groundwater samples at orders of magnitude above TOGS standards. The Site is surrounded to the east and south by English Kills. Groundwater is tidally influenced and brackish conditions exist below the Site. Therefore, further investigation into the high sodium concentrations was not recommended.

Vinyl chloride was detected at MW-1 and MW-2 with concentrations ranging from 12 µg/L (MW-1) to 13 µg/L (MW-2). Cis-1,2-dichloroethene was detected at MW-2 with a concentration of 12 µg/L. MTBE was detected at MW-4 and MW-5 with concentrations ranging from 12 µg/L to 28 µg/L, respectively. Aluminum was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 0.129 mg/L (MW-1) to 0.485 mg/L (MW-3). Antimony was detected at MW-3 at a concentration of 0.0156 mg/L. Iron was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 0.412 mg/L (MW-5) to 1.08 mg/L (MW-2). Lead was detected at MW-4 at a concentration of 0.0252 mg/L. Magnesium was detected at MW-4 at a concentration of 62.4 mg/L. Manganese was detected at MW-1, MW-2, MW-3, and MW-5 with concentrations ranging from 0.36 mg/L (MW-5) to 1.82 mg/L (MW-1). Sodium was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 165 mg/L (MW-5) to 203 mg/L (MW-3). Thallium was detected at MW-1 and MW-3 with concentrations ranging from 0.0097 mg/L (MW-5) to 0.0117 mg/L (MW-3). These results exceed the TOGS standard of 0.10 mg/L for aluminum, 0.003 mg/L for antimony, 0.30 mg/L for iron, 0.025 mg/L for lead, 35 mg/L for magnesium, 0.30 mg/L for manganese, 20 mg/L for sodium, and 0.0005 mg/L for thallium. These results are presented in Tables 3-9, 3-10, and 3-11, and Figures 3-14 and 3-15. No SVOC concentrations were detected above TOGS standards, therefore, no figure has been provided.

GF understands that Frito Lay is planning to develop the Site by constructing a parking lot. Future plans may include expanding the adjacent storage warehouse and using the remainder of the Site as parking space. GF also understands that Frito Lay is committed to remediating impacts that exist on the Site that would prevent the development of the Site. GF recommended

applying for the NYS Brownfields Program to develop the Site under Restricted Use - Commercial SCOs. Due to the VOC, PCB, and metal concentrations on the Site, the Restricted Use - Commercial SCOs as set forth in Part 375 would focus the soil cleanup on the SVOC, PCB, and metals impacts.

4.0 SCOPE OF WORK - REMEDIAL INVESTIGATION

The scope of work implemented at the Site in conjunction with NYSDEC recommendations included the following:

- Two (2) soil borings were advanced on Site along English Kills;
- Thirteen (13) soil borings were advanced at various locations on Site to complete a 50' x 50' sampling grid;
- Three (3) soil vapor points were installed and sampled along the perimeter of the Site;
- Two (2) surface water samples were collected from the English Kills;
- Four (4) sediment samples will be collected from the English Kills;
- Three (3) soil gas vapor samples would be collected from soil vapor collection points advanced to an approximate depth of groundwater;
- Two (2) off-site were groundwater monitoring wells were installed upgradient of the Site; and,
- Eight (8) groundwater monitoring wells were sampled.

All newly drilled and existing soil boring locations, soil vapor collection points, newly installed and existing monitoring well locations, sediment sampling locations, and surface water sampling locations are presented on Figure 4-1.

4.1 Utilities Clearance

The geophysical survey performed by Naeva Geophysics, Inc. in January 2008 was reviewed to identify any potential underground obstructions prior to on-site drilling activities. The drilling contractor (Aquifer Drilling) contacted New York One-Call to perform public property utility markouts for the off-site well installation.

4.2 Soil Boring Drilling and Sampling

The investigation included the drilling and sampling of 15 additional soil borings based on discussions with the NYSDEC representatives. The on-site boring locations were proposed throughout the Site to complete a 50' x 50' sampling grid. Each boring was advanced using a track mounted hollow stem auger drill rig to the approximate depth of groundwater which is approximately 11 to 15 ft-bgs. The actual locations of borings were biased towards areas of concern identified by the Phase I and II ESAs, geophysical survey, historical investigation results, and in accordance with NYSDEC recommendations to complete sampling from a 50' x 50' grid pattern across the Site.

On November 4 and 5, 2009, 15 borings were advanced as shown on Figure 4-1. Nine (9) borings were advanced along the east side (SB-16, SB-17, SB-18, SB-19, SB-20, SB-21, SB-22, SB-101, and SB-102) and six (6) borings on the west side (SB-23, SB-24, SB-25 SB-26, SB-27, and SB-28). Each boring was advanced using a track mounted hollow stem auger (HAS) drill rig to groundwater, approximately 9 to 13 feet below ground surface. HAS services were provided by Aquifer Drilling and Testing (New Hyde Park, New York).

There were a few sample deviations from the NYSDEC-approved September 2009 RIWP that resulted during implementing the RI sampling program. The deeper samples for SB-21, SB-23, SB-24, and SB-25 were not collected due to refusal. SB-21, SB-23, SB-24, and SB-25 were also drilled at off-set locations in an attempt to collect the deeper samples. According to field sampling personnel, refusal was likely due to encountering wood, steel, and concrete which was based on field observations at the time of drilling. Pieces of wood were observed from the drill borehole and several drill bit teeth broke off indicating the potential for steel or other metal to be obstructing the drill. There were no other sampling deviations during the RI sampling program.

The initial laboratory report containing the laboratory analysis for SB-23 and SB-27 was modified as a result of a labeling error. SB-23 (8-10) was mistaken for SB-27 (8-10) which has been corrected by the laboratory. There was no sample collected at SB-23 (8-10) due to refusal. The soil boring logs are presented in Appendix A.

The first soil sample was collected from equal portions of the soil boring from 0 to 2 ft-bgs and the other half from 2 to 4 ft-bgs. The second soil sample was collected from the most contaminated depth below 4 ft-bgs determined visually by staining and/or by the highest photoionization detector (PID) reading. If the second soil sample depth could not be determined visually or using the PID, the default sample collection depth was just above the water table. Soil samples were collected continuously from the surface to the groundwater table using stainless steel spilt spoons. All drill cuttings were drummed and temporarily stored on site pending results of waste characterization analysis.

GF personnel documented soil lithology and field screen soil vapor headspace in sealable plastic bags using a PID calibrated to a 100 parts per million (ppm) isobutylene standard. Sample depths were altered, when necessary, due to field limitations and the actual depth of groundwater at the time of sampling. Soil samples were placed into laboratory-supplied glassware, immediately stored in an ice-filled cooler, and shipped with chain-of-custody documentation to Chemtech Labs of Mountainside, New Jersey, a NYSDOH-certified laboratory. All soil samples were analyzed for Target Compound List (TCL) VOCs by United States Environmental Protection Agency (EPA) Method 8260, TCL SVOCs by EPA Method 8270, PCBs by EPA Method 8082, pesticides by EPA Method 8081, and Target Analyte List (TAL) metals by EPA Method 6010/7471 in conformance with Category B protocol.

4.3 Subsurface Soil Gas Vapor Sampling

Soil vapor gas samples were collected, as per NYSDEC's request, along the perimeter of the Site to evaluate the potential for soil vapor intrusion into future on-site construction and the potential for off-site soil vapor migration to assess the presence of VOCs that were detected in the soil and groundwater samples collected from the Site.

The soil vapor collection points were advanced to an approximate depth of 11 ft-bgs, which is generally one (1) foot above the shallowest depth to groundwater at the Site. Three (3) temporary soil vapor collection points were installed on-site with one (1) collection point located

along the northern Site boundary, one located along the western Site boundary in the vicinity of Morgan Avenue, and the remaining soil vapor collection point located approximately 40 feet north of MW-3 (Figure 4-1).

The objective of the subsurface soil vapor sampling was to characterize potential vapor impacts from the subsurface soil and/or groundwater. Subsurface soil vapor sampling followed the protocols outlined in Sections 2.6.1 and 2.7.1 of the NYSDOH Guidance document.

A Geoprobe® installed each soil vapor collection point using direct push technology. Each soil vapor collection point was installed in the following manner:

- A Geoprobe® penetrated the surface to expose the soil.
- Once the surface was penetrated, 1-½ inch hollow rods with a disposable point and a 6-inch discreet sampler attachment were advanced down to one foot above the water table.
- The disposable point was pushed from the bottom of the rods using inner rods.
- ¼ inch poly tubing was inserted into the rods.
- The rods were pulled up, exposing the discreet sampler and ¼ inch poly tubing.
- Bentonite was then placed at the top three (3) to four (4) inches of the borehole sealing off ambient air from entering the borehole.

After the installation of the temporary soil vapor collection points, each sample point was purged one (1) to three (3) volumes (the volume of the sample probe and tubing) of ambient air using a peristaltic pump prior to collecting the sample to ensure that the sample is representative of the sampling environment. Each point was screened for VOCs using a PID. While purging the gas point, a helium test was performed to ensure the integrity of the bentonite seal between the ground surface and the borehole. The helium test was performed as follows:

- A small bucket or bag with a hole through the bottom was placed upside down over the borehole. The tubing was pulled through the hole in the bucket or bag.
- Bentonite was placed along the edges of the bucket or bag to create a seal with the ground surface.
- Helium was introduced into the bucket through a small tube inserted at the base of the bucket or bag.

- The helium detector was placed at the sample port of the tubing to determine if the helium has penetrated into the borehole. If the helium detector had a reading of higher than 10% helium, the sample point was resealed with bentonite and the helium test repeated.
- The helium detector was used to record helium readings prior to and after the soil vapor sampling to document that the levels of helium are less than 10% helium.

Each sample point was purged of ambient air using a peristaltic pump after the completion of the integrity test. The peristaltic pump was removed from the sample port once the soil vapor point is determined to be adequately sealed using the helium test and the purge was completed.

Once the soil gas point was determined to be adequately sealed using the helium test and the purge was completed, the peristaltic pump was removed from the sample port. Once the sampling was complete, the borehole was filled with sand and patched at the surface with material similar to the original material.

Subsurface air samples were collected with a laboratory-certified clean 6-liter Summa canister which were fitted with a two (2) hour regulator and were installed on the sample port to begin sampling. The flow rates for sample collection did not exceed 0.2 liters per minute. The sample was collected over a period of approximately two (2) hours. The sample start time and vacuum (in inches of mercury) contained in the Summa canister were documented. The sample was deemed complete when the vacuum remaining in the Summa canister reaches between 4- and 8-inches of mercury.

The laboratory-certified clean Summa canisters were submitted to an Environmental Laboratory Accreditation Program (ELAP)-certified laboratory to perform VOC analyses in accordance with EPA Air Compendium Method TO-15. The analyses were performed for the entire suite of VOCs according to EPA Method TO-15. The laboratory attained the Method Reporting Limits (MRLs) of 1.0 microgram per cubic meter ($\mu g/m^3$). The soil gas results data set was reported in $\mu g/m^3$.

The data package provided by the laboratory meets the specifications of a full ASP Category B deliverable package. The methods and data packages provided by the laboratory were consistent with the specifications of the most current version of the ASP.

Additional information was collected to assist in the interpretation of the soil gas results which includes barometric pressure, wind speed, and wind direction.

The field sampling team maintained a sample log sheet summarizing the following:

- sample identification
- date and time of sample collection
- sampling depth
- identity of samplers
- sampling methods and devices
- purge volumes
- volume of soil vapor extracted
- the vacuum reading of canisters before and after samples are collected
- apparent moisture content (dry, moist, saturated, etc.) of the sampling zone
- chain of custody protocols and records used to track samples from sampling point to analysis

Pertinent observations were also recorded, such as odors and readings from field instrumentation during soil gas probe installation and field sampling activities. The soil gas sampling logs are provided as Appendix B.

4.4 Monitoring Well Installation

One (1) on-site monitoring well and two (2) off-site up gradient monitoring wells were installed at the proposed locations presented on Figure 4-1. The installed two (2) new monitoring wells (MW-7 and MW-8) were installed west of Morgan Avenue and a new on-site monitoring well (MW-6) was installed in the vicinity of SB-11. The monitoring wells were located on the west side of Morgan Avenue within the sidewalk.

The water-level in the borehole were measured periodically during drilling and immediately before construction of the well. To allow proper well and sand pack installation, the borehole was over-drilled to at least 10 feet below the depth of the static water table, and the depth of the borehole was

measured with a weighted tape just prior to well construction to determine if there has been any borehole collapse. The wells were installed a minimum of 5 feet below the groundwater interface. Ten (10) feet of new, clean 2-inch Schedule 40 PVC well screen and the appropriate length of casing were used. The well materials was stored and assembled on clean plastic sheeting. Once the well was inserted into the borehole, the annulus between the well casing and the borehole was filled with sand pack, a bentonite seal, cement/bentonite grout, and a flush-mount protective surface casing with a locking cap.

The sand pack (Morie No. 0 sand) was placed so that it extends to a minimum depth of 6 inches below the bottom of the screen and a minimum depth of 2 feet above the top of the well screen. The depth to the top of the sand pack was confirmed by measuring down the annular space between the well casing and the borehole with a weighted tape. If heaving sands were encountered, potable water was pumped into the borehole to maintain a positive head in the annular space to facilitate well installation. If difficulties were encountered during placement of the sand pack, then the sand was tamped with a small diameter (2-inch) rod.

A bentonite seal (minimum of 2 ft) was placed above the sand pack. The top of the bentonite seal was measured with a weighted tape and hydrated with potable water prior to grouting. The cement/bentonite grout was used to fill the annulus of the borehole from above the bentonite seal to land surface. The cement/bentonite grout was mixed at a ratio of 94 pounds of cement to 3 to 5 pounds of bentonite and 6.5 gallons of potable water. A flush-mount, protective steel casing with locking "J" cap was installed after completion of the well. The monitoring well construction logs are provided as Appendix C.

4.5 Well Development Procedures

On November 5, 2009, the three (3) new monitoring wells were developed using a submersible pump to ensure the removal of any drilling fines and to restore the hydraulic properties of the surrounding water bearing material. The flow rate of the pump was controlled to create draw-down in the well but not dry the well. The wells were developed until the turbidity was below 50 NTUs or ten well volumes were removed, to provide sediment-free water for sampling.

New polyethylene tubing was used for development of each well. Development water was drummed and temporarily stored on-site pending receipt of laboratory analytical data to determine proper disposal. The monitoring well development logs are provided as Appendix D.

4.6 Well Sampling Procedures

A groundwater sample was collected for laboratory analysis from the three (3) newly installed monitoring wells and the existing five (5) monitoring wells located at 202-218 Morgan Avenue on November 20, 2009 two weeks after development. Wells were purged of three (3) well volumes and a groundwater sample was collected from each well using a dedicated disposable bailer. Purge water was drummed and temporarily stored on-site pending receipt of laboratory analytical data to determine proper disposal. Table 4-2 provides the groundwater filed data collected during the RI sampling program. The monitoring well sampling logs are provided as Appendix E.

The newly installed two (2) monitoring wells located west of Morgan Avenue, the newly installed monitoring well in the vicinity of SB-11, and existing five (5) monitoring wells were sampled and analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, PCBs by method 8082, and filter and unfiltered TAL metals by EPA method 6010/7470 in conformance with Category B protocol.

4.7 Surface Water Sampling Procedures

Two (2) surface water sampling were collected from Newton Creek located east and south of the Site as presented on Figure 4-1. The samples were collected from each location using a dedicated disposable bailer. The two (2) surface water samples were analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, pesticides by EPA method 8081, PCBs by EPA method 8082, and TAL metals by EPA method 6010/7470 in conformance with Category B protocol.

4.8 Sediment Sampling Procedures

Four (4) sediment samples were collected from the bottom of Newton Creek, two (2) samples from south of the Site and two (2) samples from the east as presented on Figure 4-1. The samples were collected from sediments located at the bottom of the creek and during low tide. The samples were collected using a bottom dredge sampler tool and analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, pesticides by EPA Method 8081, PCBs by EPA Method 8082, and TAL metals by EPA Method 6010/7471 in conformance with Category B protocol.

4.9 Surveying

On November 26, 2009, Naik Consulting Group, P.C. (Naik) performed an elevation survey for the eight (8) wells (3 installed and 5 existing) located at the Site, and surveyed the soil borings, and soil gas sampling locations. The drawing provided by the surveyor is presented on Figure 4-2.

4.10 Analytical Services

Analytical services were provided by Chemtech Labs of Mountainside, New Jersey. Laboratory data reports were provided in the NYSDEC Full ASP Category B Deliverables reporting format. The laboratory data reports are provided in Appendix F in CD format.

4.11 Quality Assurance / Quality Control

The integrity, representativeness and usability of the data generated by the RI were evaluated, maintained and controlled through the use of various quality assurance and quality control QA/QC procedures in the field, including equipment calibration checks, decontamination of non-dedicated sampling equipment, and collection of field duplicates, and field and trip blank samples.

Disposable sampling equipment was used to the extent practicable to minimize the need for field decontamination. When non-dedicated equipment was necessary, the decontamination process consisted of a potable water rinse followed by scrubbing in a solution of potable water and laboratory-grade detergent. The equipment was then rinsed again with potable water followed by distilled water.

Field blanks, trip blanks, field duplicates and MS/MSD samples were collected to provide additional QA/QC support. Field blanks were used to document the adequacy of the field decontamination process. The blanks were collected by pouring analyte-free water provided by the laboratory over cleaned field equipment, capturing the rinsate in sample containers and submitting the samples to the laboratory for analysis. The field blanks were analyzed for the same suite of parameters as the field samples collected that day. Trip blanks were used to monitor the integrity of the sample set during transport when aqueous phase samples were collected. The blanks were prepared by the laboratory, shipped to the Site with the sample containers then returned to the laboratory unopened with the field samples. MS/MSD samples were used to document sample matrix effects on the analytical process. The MS/MSD samples consisted of a three volume sample set from one sample location.

4.12 Community Air Monitoring Program

A Community Air Monitoring program (CAMP) was implemented during the RI sampling program. Specifically, this CAMP outlines the air quality monitoring procedures followed to protect the downwind community (i.e., off-site receptors, including residents and off-site outside workers) from potential airborne contaminant releases that may be as a direct result of the sampling activities. This CAMP is consistent with the NYSDOH Generic CAMP.

The following sections describe the specific CAMP monitoring procedures for both VOCs and particulates.

4.12.1 Particulate Monitoring

The air was monitored in real-time during the RI sampling program. Air monitoring for particulates (i.e., dust) was performed continuously during sampling using both air monitoring equipment and visual observations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM-10) and capable of integrating (averaging) over periods of 15 minutes or less, at a minimum, were set up at one upwind (background) and one downwind location, at heights approximately 4 feet to 5 feet above land surface (i.e., the breathing zone). This equipment logged the 15-minute average concentrations for subsequent downloading and reporting. An audible alarm on the downwind particulate monitoring device was set at 100 micrograms per cubic meter ($\mu g/m^3$) above the background level (i.e., the upwind location).

Upwind concentrations were measured at the start of each workday and periodically throughout the day thereafter to establish background conditions. The CAMP coordinator recorded the wind direction and speed as described below. These readings allowed the CAMP coordinator to ensure that CAMP equipment was located appropriately based upon the wind direction. The particulate monitoring equipment was calibrated at the start of each day and as necessary throughout the day.

The monitoring results were compared to the following:

- If the downwind PM-10 particulate level was 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust was observed leaving the work area, then dust suppression techniques (e.g., soil wetting) were employed. Work may continue with dust suppression techniques, provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels were greater than 150 $\mu g/m^3$ above the upwind level, work was reevaluated and changes initiated to reduce particulate levels to less than 150 $\mu g/m^3$ above background conditions and to prevent visible dust migration, including work stoppage if necessary.

Meteorological Data - Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure were recorded at a minimum of three times each day. These results were utilized to position the particulate monitoring equipment in appropriate upwind and downwind locations. A Davis Corporation wireless instrument station (or equivalent) was used to collect all meteorological monitoring data.

Potential Suppression Techniques - If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 µg/m^3 at any time during sampling activities, then dust suppression techniques were to be employed.

Work may continue with dust suppression techniques, provided that downwind PM-10 levels are not more than 150 µg/m^3 greater than the upwind levels; all measures necessary to ensure PM-10 levels of less than 150 µg/m^3 above background were utilized. There may also be situations where visible dust was generated by sampling activities and migrates to downwind locations but was not detected by the monitoring equipment at or above the action levels. Therefore, if visible dust was observed leaving the working area, dust suppression techniques was to be employed. If dust suppression techniques did not lower particulates to below 150 µg/m^3 or visible dust persists, additional measures, including work suspension if necessary, was to be implemented to remedy the situation.

4.12.2 Volatile Organic Compound Monitoring

VOCs were monitored at the downwind perimeter of the immediate work area on a continuous basis. Upwind concentrations were measured at the start of each workday and periodically thereafter (not less than three times per day) to establish background conditions. The monitoring work was performed using equipment appropriate to measure the types of contaminants known or suspected to be present (MiniRAE 2000 PID or equivalent). The equipment was calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment was capable of calculating 15-minute running average concentrations, which was compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted in the area of concern and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities at the Site must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level at the downwind perimeter of the work area is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is more than 25 ppm above background at the downwind perimeter of the work area, activities must be halted in the area of concern until corrective measures are identified and implemented to reduce emissions as described above.

All air monitoring data and the locations of monitoring equipment were recorded in the on-site files and are available for review.

4.13 PID Readings during RI Activities

The following table lists the PID result soil samples, and rationale for collecting each sample that was laboratory analyzed.

Sample Location	Sample Depth	PID Reading (ppm)	Reason for Sample Collection	Description
SB-16	0-4 feet	4.4	Initial Sampling Depth	Strong Petroleum Odor
SB-16	4-7 feet	14.2	Deeper Sampling Depth	Strong Petroleum Odor
SB-17	0-4 feet	0.9	Initial Sampling Depth	No description provided
SB-17	4-6 feet	6.3	Deeper Sampling Depth	No description provided
SB-18	0-4 feet	2	Initial Sampling Depth	No description provided
SB-18	4-6 feet	28	Deeper Sampling Depth	No description provided
SB-19	0-4 feet	9.7	Initial Sampling Depth	Organic odor
SB-19	4-6 feet	5.4	Deeper Sampling Depth	Petroleum (slight) odor

Sample Location	Sample Depth	PID Reading (ppm)	Reason for Sample Collection	Description
SB-20	0-4 feet	18.7	Initial Sampling Depth	Strong Petroleum Odor
SB-20	4-6 feet	81.5	Deeper Sampling Depth	Strong Petroleum Odor
SB-21	0-2 feet	12.8	Initial Sampling Depth	Strong Petroleum Odor
SB-22	0-4 feet	18.7	Initial Sampling Depth	Strong Petroleum Odor
SB-22	4-7.5 feet	81.5	Deeper Sampling Depth	Strong Petroleum Odor
SB-23	0-4 feet	12.9	Initial Sampling Depth	Petroleum Odor
SB-23	8-10 feet	NA	Deeper Sampling Depth	No description provided
SB-24	0-2 feet	0.0	Initial Sampling Depth	No description provided
SB-25	0-4 feet	8.1	Initial Sampling Depth	Strong Petroleum Odor
SB-26	0-4 feet	38.8	Initial Sampling Depth	Strong Solvent Odor
SB-26	4-6 feet	100	Deeper Sampling Depth	Strong Solvent Odor
SB-27	0-4 feet	3.9	Initial Sampling Depth	No description provided
SB-28	0-4 feet	0.8	Initial Sampling Depth	No description provided
SB-28	4-8 feet	2.7	Deeper Sampling Depth	No description provided
SB-101	0-4 feet	2.1	Initial Sampling Depth	Strong Petroleum Odor
SB-101	4-6 feet	3.0	Deeper Sampling Depth	No description provided
SB-102	0-4 feet	3.4	Initial Sampling Depth	Petroleum Odor
SB-102	4-6 feet	4.2	Deeper Sampling Depth	No description provided

Organic vapors were detected with the PID at all of the boring locations. PID readings ranged from 0.0 to greater than 100 ppm. The highest reading was reported from the shallow SB-26 soil sample. The boring logs are presented in Appendix A and were prepared for each soil boring indicating the depth interval, lithologic description, and headspace PID measurements for each sample.

4.14 Laboratory Analysis

Soil and groundwater samples were analyzed by a laboratory certified by the NYSDOH ELAP. Sample analysis were performed primarily using methodology contained in *Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Office of Solid Waste, EPA (with latest updates).* Additional methodology is contained in *Methods for the Evaluation of Water and Waste, EPA 600/4- 79-02, revised March 1983 (with latest updates).* The laboratory methods for the selected comprehensive analysis and recommended holding times for soil and water matrices are presented in the following table.

Sample Parameters, Analytical Methods, Containers, Holding Times			
Parameter	**Analytical Method**	**Containers/ Preservation**	**Holding Time**
Matrix: Soil/Sediment			
Volatile Organics	8260 [1]	1-8oz glass, Teflon lined cap	14 days
Semi-Volatile Organics	8270 [1]	1-8oz glass, Teflon lined cap 0.008% $Na_2S_2O_3$ Cool to 4°C	14 days
PCB	8082 [1]	1-8oz glass, Teflon lined cap Cool to 4°C	14 days
TAL Metals	6010/7471 [1]	1-8oz glass, Teflon lined cap Cool to 4°C	6 months
Mercury	7471B [1]	1-8oz glass HNO_3 to pH < 2 Cool to 4°C	28 days
Pesticides	8081A [1]	1-8oz glass, Teflon lined cap Cool to 4°C	14 days
Matrix: Surface Water and Groundwater			
Volatile Organics	8260 [1]	3-40ml glass w/septum cap Cool to 4°C	7 days without HCL, 14 days with HCL
Semi-Volatile Organics	8270 [1]	40ml glass w/septum cap Cool to 4°C	7 days until extraction 40 days for analysis
PCB	8082 [1]	2-1 L glass Cool to 4°C	7 days until extraction 40 days for analysis
TAL Metals	6010B/7000 [1]	1-500 ml plastic, HNO_3 Cool to 4°C	6 months (28 days for mercury)

Notes: **1. Test Methods for Evaluating Solid Waste, SW-846, Office of Solid Waste, USEPA (latest update)**

A review of the laboratory data packages, as well as confirmation with Chemtech, indicated that all holding times were met for VOCs for soil (EPA Method 8260), VOCs for groundwater (EPA Method 624), SVOC for soil (EPA Method 8270) and groundwater (EPA Method 625), Pesticides/PCBs for soil (EPA Methods 8081A/8082) and groundwater (EPA Method 608). In addition the holding times for TAL Metals for soil (EPA Method 6010/7471) and groundwater

(EPA Method 6010B/7000) were also met by Chemtech for the samples collected for the November 2009 RI sampling event.

5.0 REMDIAL INVESTIGAITON ANALYTICAL RESULTS

The RI soil sample results were compared to NYSDEC Part 375 Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR Part 375) Brownfield Cleanup Program for Unrestricted Use, Restricted Use for Protection of Public Health-Commercial (Restricted Use - Commercial) and Restricted Use for Protection of Public Health-Commercial (Restricted Use - Industrial) SCOs for on-site soil. The surface water and groundwater analytical results were compared to TOCS standards. The soil gas vapor results were evaluated to assess the presence of volatile organic vapors. Sediment sample results were compared to NYSDEC's Technical Guidance for Screening Contaminated Sediments (January 25, 1999).

5.1 Soil Sample Results

Soil sample analytical results are presented in Tables 1 through 5. All of the compounds exceeding Unrestricted Use SCOs, Restricted Use - Commercial SCOs, Restricted Use - Protection of Groundwater (PG) SCOs, and Restricted Use - Industrial SCOs have been listed within the tables. In accordance with the BCP Agreement, the sample results were compared to the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs which is further discussed in this section.

5.1.1 Soil Boring SB-16

VOCs

VOCs were not detected in SB-16 (0-4) and SB-16 (4-7) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Sixteen (16) SVOCs were reported in SB-16 (0-4). Six (6) of the 16 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	10,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	8,100 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	11,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,000 J
Chrysene	BCO Unrestricted=1,000 µg/kg	9,600 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	5,100 J

Seventeen (17) SVOCs were reported in SB-16 (4-7). Five (5) of the 17 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	4,000 J
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	3,200 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,900 J
Chrysene	BCO Unrestricted=1,000 µg/kg	4,200 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,300 J

TAL Metals

Nine (9) TAL Metals were detected in SB-16 (0-4) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	488
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	11.1
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	54.3 J
Copper	BCO Unrestricted=50 mg/kg	597
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	1,220
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	1.9 J
Nickel	BCO Unrestricted=30 mg/kg	60.2
Zinc	BCO Unrestricted=109 mg/kg	2,460 J

Eight (8) TAL Metals were detected in SB-16 (4-7) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	1,250
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	41.3
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	260 J
Copper	BCO Unrestricted=50 mg/kg	1,100 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	6,130
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	310
Mercury	BCO Unrestricted=0.18 mg/kg	7.3 D
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	10,700
	BCO Commercial=10,000 mg/kg	
	BCO Industrial=10,000 mg/kg	

PCBs

PCBs were reported in SB-16 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	26,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-16 (4-7) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	33,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-16 (0-4) and SB-16 (4-7) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.2 Soil Boring SB-17

VOCs

VOCs were not detected in SB-17 (0-4) and SB-17 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Ten (10) SVOCs were reported in SB-17 (0-4). Five (5) of the 10 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	20,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	17,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted =1,000 µg/kg	22,000 J
	BCO Commercial =5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Chrysene	BCO Unrestricted=1,000 µg/kg	19,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	10,000 J
	BCO Commercial=5,600 µg/kg	

Eighteen (18) SVOCs were reported in SB-17 (4-6). Seven (7) of the 18 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	38,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	30,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	41,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	14,000 J
Chrysene	BCO Unrestricted=1,000 µg/kg	38,000 J
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	4,900 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	17,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	

TAL Metals

Eight (8) TAL Metals were detected in SB-17 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	706
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	27.4
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	104 J
Copper	BCO Unrestricted=50 mg/kg	1,540 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	1,340
	BCO Commercial=1,000 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	216
Mercury	BCO Unrestricted=0.18 mg/kg	7.6 J
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	12,300 J
	BCO Commercial=10,000 mg/kg	
	BCO Industrial=10,000 mg/kg	

Six (6) TAL Metals were detected in SB-17 (4-6) at concentrations above the above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	BCO Unrestricted=2.5 mg/kg	3.67
Chromium	BCO Unrestricted=1/30 mg/kg	47.8 J
Copper	BCO Unrestricted=50 mg/kg	244 J
Lead	BCO Unrestricted=63 mg/kg	1,100
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	2.1 J
Zinc	BCO Unrestricted=109 mg/kg	1,140 J

PCBs

PCBs were reported in SB-17 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	69,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-17 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	31,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-17 (0-4) and SB-17 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.3 Soil Boring SB-18

VOCs

VOCs were not detected in SB-18 (0-4) and SB-18 (4-6) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Fourteen (14) SVOCs were reported in SB-18 (0-4). None of the 14 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10.

Twenty-one (21) SVOCs were reported in SB-18 (4-6). Seven (7) of the 21 SVOCs were detected at concentrations above the Unrestricted Use SCOs and/or the Restricted Use -

Commercial SCOs, but not above the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	4,300
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	3,400 J
	BCO Commercial=1,000 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,600
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,400 J
Chrysene	BCO Unrestricted=1,000 µg/kg	4,100
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	690 J
	BCO Commercial=560 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,500 J

TAL Metals

Six (6) TAL Metals were detected at SB-18 (0-4) with concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	BCO Unrestricted=2.5 mg/kg	2.91
Chromium	BCO Unrestricted=1/30 mg/kg	30.4 J
Copper	BCO Unrestricted=50 mg/kg	899 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	397
Mercury	BCO Unrestricted=0.18 mg/kg	4.4 J
	BCO Commercial=2.8 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	1,100 J

Five (5) TAL Metals was detected in SB-18 (4-6) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	BCO Unrestricted=1/30 mg/kg	21.6
Copper	BCO Unrestricted=50 mg/kg	866
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	421
Mercury	BCO Unrestricted=0.18 mg/kg	2.4
Zinc	BCO Unrestricted=109 mg/kg	388

PCBs

PCBs were reported in SB-18 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	4,800 D
	BCO Commercial=1,000 µg/kg	

PCBs were reported in SB-18 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	6,500 D
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-18 (0-4) and SB-18 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.4 Soil Boring SB-19

VOCs

VOCs were not detected in SB-19 (0-4) and SB-19 (4-6) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Thirteen (13) SVOCs were reported in SB-19 (0-4). Six (6) of the 13 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	8,500 J
	BCO Commercial=5,600 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	7,400 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	9,400 J
	BCO Commercial=5,600 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,200 J
Chrysene	BCO Unrestricted=1,000 µg/kg	8,200 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	5,500 J

Fourteen (14) SVOCs were reported in SB-19 (4-6). Six (6) of the 14 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	11,000 J
	BCO Commercial=5,600 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	14,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	16,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Chrysene	BCO Unrestricted=1,000 µg/kg	11,000 J

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	2,100 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	9,400 J
	BCO Commercial=5,600 µg/kg	

TAL Metals

Eight (8) TAL Metals were detected at SB-19 (0-4) with concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	784
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	20.9
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	133
Copper	BCO Unrestricted=50 mg/kg	3,120
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	4,190
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	12.7
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	171
Zinc	BCO Unrestricted=109 mg/kg	6,120`

Ten (10) TAL Metals were detected at SB-19 (4-6) with concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Arsenic	BCO Unrestricted=13 mg/kg	27.7
	BCO Commercial=16 mg/kg	
	BCO Industrial=16 mg/kg	
Barium	BCO Unrestricted=350 mg/kg	1,430
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	48.2
	BCO Commercial=9.3 mg/kg	

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	BCO Unrestricted=1/30 mg/kg	227
Copper	BCO Unrestricted=50 mg/kg	2,350
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	10,100
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	6.1
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	279
Selenium	BCO Unrestricted=3.9 mg/kg	9.19 J
Zinc	BCO Unrestricted=109 mg/kg	43,800 D
	BCO Commercial=10,000 mg/kg	

PCBs

PCBs were reported in soil sample SB-19 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1254	BCO Unrestricted=100 µg/kg	14,000 J
	BCO Commercial=1,000 µg/kg	

PCBs were reported in soil sample SB-19 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1254	BCO Unrestricted=100 µg/kg	22,000 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-19 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. Pesticides were detected in SB-19 (4-6) at concentrations above the Unrestricted Use SCOs, but below the

Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25. The following table lists the reported exceedence:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Delta-BHC	BCO Unrestricted=40 µg/kg	94 J

5.1.5 Soil Boring SB-20

VOCs

One (1) VOC was detected in SB-20 (0-4) and SB-20 (4-6) at a concentration above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
m/p-Xylenes	BCO Unrestricted=260 µg/kg	270

SVOCs

Thirteen (13) SVOCs were reported in SB-20 (0-4). Seven (7) of the 13 SVOCs was detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	5,000 J
Benzo(a)pyrene	BCO Commercial=1,000 µg/kg	3,900 J
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	5,200 J
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,700 J
Chrysene	BCO Unrestricted=1,000 µg/kg	4,400 J
Dibenz(a,h)anthracene	BCO Commercial=560 µg/kg	780 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,700 J

Twenty-one (21) SVOCs were reported in SB-20 (4-6). Thirteen (13) of the 21 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial

SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Acenaphthene	BCO Unrestricted=20,000 µg/kg	23,000
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	88,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	69,000
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	84,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	30,000
Chrysene	BCO Unrestricted=1,000 µg/kg	82,000
	BCO Commercial=56,000 µg/kg	
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	12,000 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Fluoranthene	BCO Unrestricted=100,000 µg/kg	230,000 D
Fluorene	BCO Unrestricted=30,000 µg/kg	33,000
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	44,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Naphthalene	BCO Unrestricted=12,000 µg/kg	13,000 J
Phenanthrene	BCO Unrestricted=100,000 µg/kg	210,000 D
Pyrene	BCO Unrestricted=100,000 µg/kg	190,000 D

TAL Metals

Eight (8) TAL Metals were detected in SB-20 (0-4) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	651
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	22.7
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	174
Copper	BCO Unrestricted=50 mg/kg	789
	BCO Commercial=270 mg/kg	

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Lead	BCO Unrestricted=63 mg/kg	1,980
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	4.6
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	124
Zinc	BCO Unrestricted=109 mg/kg	3,760

Nine (9) TAL Metals were detected in SB-20 (4-6) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	602
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	14.1
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	255
Copper	BCO Unrestricted=50 mg/kg	721
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	2,000
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Commercial=2.8 mg/kg	3.8
Nickel	BCO Unrestricted=30 mg/kg	149
Selenium	BCO Unrestricted=3.9 mg/kg	4.29
Zinc	BCO Unrestricted=109 mg/kg	2,460

PCBs

PCBs were reported in SB-20 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1254	BCO Unrestricted=100 µg/kg	56,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-20 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1254	BCO Unrestricted=100 µg/kg	19,000 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were detected in SB-20 (0-4) at concentrations above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25. The following table lists the reported exceedence:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Delta-BHC	BCO Unrestricted=40 µg/kg	660 J

Pesticides were detected in SB-20 (4-6) at concentrations above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs. The following table lists the reported exceedence:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Delta-BHC	BCO Unrestricted=40 µg/kg	150 J

5.1.6 Soil Boring SB-21

VOCs

One VOC was detected in SB-21 (0-2) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Acetone	BCO Unrestricted=50 µg/kg	81

SVOCs

Twenty-three (23) SVOCs were reported in SB-21 (0-2). Eleven (11) of the 23 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	45,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	37,000
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	43,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	16,000 J
Chrysene	BCO Unrestricted=1,000 µg/kg	44,000
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	6,000 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	23,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Naphthalene	BCO Unrestricted=12,000 µg/kg	14,000 J
Phenanthrene	BCO Unrestricted=100,000 µg/kg	110,000
Phenol	BCO Unrestricted=330 µg/kg	2,800 J
Pyrene	BCO Unrestricted=100,000 µg/kg	110,000

TAL Metals

Eight (8) TAL Metals were detected in SB-21 (0-2) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	BCO Unrestricted=2.5 mg/kg	17.1
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	53.7
Copper	BCO Unrestricted=50 mg/kg	290
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	668
Mercury	BCO Unrestricted=0.18 mg/kg	1.8
Nickel	BCO Unrestricted=30 mg/kg	57.1
Selenium	BCO Unrestricted=3.9 mg/kg	14.9
Zinc	BCO Unrestricted=109 mg/kg	1,810

PCBs

PCBs were reported in SB-21 (0-2) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	9,900 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were detected in SB-21 (0-2) at concentrations above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25. The following table lists the reported exceedence:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Delta-BHC	BCO Unrestricted=40 µg/kg	140

5.1.7 Soil Boring SB-22

VOCs

VOCs were not detected in SB-22 (0-4) and SB-22 (4-7.5) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Fourteen (14) SVOCs were reported in SB-22 (0-4). Six (6) of the 14 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	15,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	12,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	15,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,400 J
Chrysene	BCO Unrestricted=1,000 µg/kg	15,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	8,100 J
	BCO Commercial=5,600 µg/kg	

Twenty-two (22) SVOCs were reported in SB-22 (4-7.5). Twelve (12) of the 22 SVOC were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Acenaphthene	BCO Unrestricted=20,000 µg/kg	22,000 J
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	45,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	31,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	40,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	14,000 J
Chrysene	BCO Unrestricted=1,000 µg/kg	38,000 J
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	4,600 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Fluorene	BCO Unrestricted=30,000 µg/kg	38,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	19,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Naphthalene	BCO Unrestricted=12,000 µg/kg	56,000
Phenanthrene	BCO Unrestricted=100,000 µg/kg	170,000
Pyrene	BCO Unrestricted=100,000 µg/kg	110,000

TAL Metals

Nine (9) TAL Metals were detected in SB-22 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	1,050
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	32.5
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	411 J
	BCO Commercial=400 mg/kg	
Copper	BCO Unrestricted=50 mg/kg	755
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	110,000
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	4.1 J
	BCO Commercial=2.8 mg/kg	

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Nickel	BCO Unrestricted=30 mg/kg	370
	BCO Commercial=310 mg/kg	
Silver	BCO Unrestricted=2 mg/kg	20.5
Zinc	BCO Unrestricted=109 mg/kg	8,070 J

Nine (9) TAL Metals were detected in SB-22 (4-7.5) at concentrations above the Unrestricted Use SCOs and/or the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Arsenic	BCO Unrestricted=13 mg/kg	28.1 J
	BCO Commercial=16 mg/kg	
	BCO Industrial=16 mg/kg	
Barium	BCO Unrestricted=350 mg/kg	1,980
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	44.5
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	379 J
Copper	BCO Unrestricted=50 mg/kg	1,260 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	8,940
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	4.1 J
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	334
	BCO Commercial=310 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	9,720 J

PCBs

PCBs were reported in SB-22 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	27,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-22 (4-7.5) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	78,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-22 (0-4) and SB-22 (4-7.5) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.8 Soil Boring SB-23

VOCs

VOCs were not detected in SB-23 (0-4) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Fourteen (14) SVOCs were reported in SB-23 (0-4). Six (6) of the 14 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	20,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	17,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	22,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,700 J
Chrysene	BCO Unrestricted=1,000 µg/kg	21,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	9,700 J
	BCO Commercial=5,600 µg/kg	

TAL Metals

Nine (9) TAL Metals were detected in SB-23 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	1,080
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	40.9
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	484 J
	BCO Commercial=400 mg/kg	
Copper	BCO Unrestricted=50 mg/kg	1,060 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	10,900
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	15.1 J
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	297
Selenium	BCO Unrestricted=3.9 mg/kg	4.65
Zinc	BCO Unrestricted=109 mg/kg	6,190 J

PCBs

PCBs were reported in SB-23 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	28,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-23 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.9 Soil Boring SB-24

VOCs

VOCs were not detected in SB-24 (0-2) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Thirteen (13) SVOCs were reported in SB-24 (0-2). Five (5) of the 13 SVOCs were detected at a concentration above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	3,700 J
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	3,600 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	5,000 J
Chrysene	BCO Unrestricted=1,000 µg/kg	3,700 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	3,200 J

TAL Metals

Nine (9) TAL Metals were detected in SB-24 (0-2) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	871
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	19.2
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	140
Copper	BCO Unrestricted=50 mg/kg	2,230
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	2,160
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	3.6
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	164
Selenium	BCO Unrestricted=3.9 mg/kg	5.51
Zinc	BCO Unrestricted=109 mg/kg	17,600 D
	BCO Commercial=10,000 mg/kg	
	BCO Industrial=10,000 mg/kg	

PCBs

PCBs were reported in SB-24 (0-2) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	74,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-24 (0-2) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.10 Soil Boring SB-25

VOCs

VOCs were not detected in SB-25 (0-4) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Eighteen (18) SVOCs were reported in SB-25 (0-4). Seven (7) of the 18 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	23,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	17,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	22,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,800 J
Chrysene	BCO Unrestricted=1,000 µg/kg	24,000
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	3,000 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	11,000 J
	BCO Commercial=5,600 µg/kg	

TAL Metals

Ten (10) TAL Metals were detected in SB-25 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Arsenic	BCO Unrestricted=13 mg/kg	44.8
	BCO Commercial=16 mg/kg	
	BCO Industrial=16 mg/kg	
Barium	BCO Unrestricted=350 mg/kg	594
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	15.3
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	163

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Copper	BCO Unrestricted=50 mg/kg	2,480
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	3,390
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	3.8
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	94.5
Selenium	BCO Unrestricted=3.9 mg/kg	4.04
Zinc	BCO Unrestricted=109 mg/kg	15,900 D
	BCO Commercial=10,000 mg/kg	
	BCO Industrial=10,000 mg/kg	

PCBs

PCBs were reported in SB-25 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	2,300 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-25 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.11 Soil Boring SB-26

VOCs

VOC were not detected in SB-26 (0-4) and SB-26 (4-6) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Thirteen (13) SVOCs were reported in SB-26 (0-4). Six (6) of the 13 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or

the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	18,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	14,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	23,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,400 J
Chrysene	BCO Unrestricted=1,000 µg/kg	21,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	9,500 J
	BCO Commercial=5,600 µg/kg	

Nine (9) SVOCs were reported in SB-26 (4-6). Five (5) of the 9 SVOCs was detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	3,700 J
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	3,300 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,600 J
Chrysene	BCO Unrestricted=1,000 µg/kg	3,800 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,200 J

TAL Metals

Five (5) TAL Metals were detected in SB-26 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	BCO Unrestricted=1/30 mg/kg	26 J

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Copper	BCO Unrestricted=50 mg/kg	176 J
Lead	BCO Unrestricted=63 mg/kg	1,680
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	7.3 D
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	289 J

Five (5) TAL Metal were detected in SB-26 (4-6) at a concentration above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	BCO Unrestricted=1/30 mg/kg	19 J
Copper	BCO Unrestricted=50 mg/kg	104 J
Lead	BCO Unrestricted=63 mg/kg	350
Mercury	BCO Unrestricted=0.18 mg/kg	5.6 J
	BCO Commercial=2.8 mg/kg	
Zinc	BCO Unrestricted=109 mg/kg	233 J

PCBs

PCBs were detected in SB-26 (0-4) at concentrations above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCO, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	460

PCBs were detected in SB-26 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCO. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	1,300
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-26 (0-4) or SB-26 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.12 Soil Boring SB-27

VOCs

VOCs were not detected in SB-27 (0-4) and SB-27 (8-10) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Twelve (12) SVOCs were reported in SB-27 (0-4). Six (6) of the 12 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	19,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	14,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	20,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,700 J
Chrysene	BCO Unrestricted=1,000 µg/kg	20,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	8,400 J
	BCO Commercial=5,600 µg/kg	

Ten (10) SVOCs were reported in SB-27 (8-10). Six (6) of the 10 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	9,600 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	8,800 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	12,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,300 J
Chrysene	BCO Unrestricted=1,000 µg/kg	10,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	5,400 J
	BCO Commercial=5,600 µg/kg	

TAL Metals

Nine (9) TAL Metals were detected in SB-27 (0-4) at concentrations above the Unrestricted Use SCOs, but below Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	732
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	23.3
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	221 J
Copper	BCO Unrestricted=50 mg/kg	588 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	4,780
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	17 J
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	161
Selenium	BCO Unrestricted=3.9 mg/kg	4.44
Zinc	BCO Unrestricted=109 mg/kg	3,830 J
	BCO Commercial=10,000 mg/kg	
	BCO Industrial=10,000 mg/kg	

Four (4) TAL Metal were detected in SB-27 (8-10) at a concentration above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	BCO Unrestricted=1/30 mg/kg	8.13 J
Copper	BCO Unrestricted=50 mg/kg	51.2 J
Lead	BCO Unrestricted=63 mg/kg	191
Mercury	BCO Unrestricted=0.18 mg/kg	1.1 J

PCBs

PCBs were detected in SB-27 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	3,200,000 D
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-27 (8-10) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	31,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

Pesticides

Pesticides were not detected in SB-27 (0-4) and SB-27 (8-10) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.13 Soil Boring SB-28

VOCs

VOCs were not detected in SB-28 (0-4) and SB-28 (4-8) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Sixteen (16) SVOCs were reported in SB-28 (0-4). Three (3) of the 16 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, but not above the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	1,500 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	1,000 J
Phenol	BCO Unrestricted=330 µg/kg	430 J

Seventeen (17) SVOCs were reported in SB-28 (4-8). Seven (7) of the 17 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	2,800
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	4,300
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,300
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,100 J
Chrysene	BCO Unrestricted=1,000 µg/kg	2,900
Dibenz(a,h)anthracene	BCO Commercial=560 µg/kg	670 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	3,100

TAL Metals

Eleven (11) TAL Metals were detected in SB-28 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs,

as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Arsenic	BCO Unrestricted=13 mg/kg	104
	BCO Commercial=16 mg/kg	
	BCO Industrial=16 mg/kg	
Barium	BCO Unrestricted=350 mg/kg	1,730
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	23.2
	BCO Commercial=9.3 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	153
Copper	BCO Unrestricted=50 mg/kg	14,000 D
	BCO Commercial=270 mg/kg	
	BCO Industrial=10,000 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	3,270
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	4
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	229
Selenium	BCO Unrestricted=3.9 mg/kg	241
Silver	BCO Unrestricted=2 mg/kg	6.05
Zinc	BCO Unrestricted=109 mg/kg	4,110

Seven (7) TAL Metals were detected in SB-28 (4-8) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	BCO Unrestricted=2.5 mg/kg	2.97
Chromium	BCO Unrestricted=1/30 mg/kg	20.9
Copper	BCO Unrestricted=50 mg/kg	518
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	718
Mercury	BCO Unrestricted=0.18 mg/kg	8.7
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Selenium	BCO Unrestricted=3.9 mg/kg	7.74
Zinc	BCO Unrestricted=109 mg/kg	583

PCBs

PCBs were detected in SB-28 (4-8) at concentrations above the Unrestricted Use SCOs, but below the Restricted Use - Commercial, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	210

PCBs were detected but in soil sample SB-28 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	4,800 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-28 (0-4) or SB-28 (4-8) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.14 Soil Boring SB-101

VOCs

One (1) VOC was detected in SB-101 (0-4) and SB-101 (4-6) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Acetone	BCO Unrestricted=50 µg/kg	54

SVOCs

Thirteen (13) SVOCs were reported in SB-101 (0-4). Six (6) of the 13 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	12,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	9,500 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	13,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	4,700 J
Chrysene	BCO Unrestricted=1,000 µg/kg	12,000 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	5,400 J

Nineteen (19) SVOCs were reported in SB-101 (4-6). Seven (7) of the 19 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	23,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	18,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	25,000
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	9,100 J
Chrysene	BCO Unrestricted=1,000 µg/kg	23,000
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	2,700 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	9,300 J
	BCO Commercial=5,600 µg/kg	

TAL Metals

Nine (9) TAL Metals were detected in SB-101 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	405
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	5.52
Chromium	BCO Unrestricted=1/30 mg/kg	20.9
Copper	BCO Unrestricted=50 mg/kg	278 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	718
Mercury	BCO Unrestricted=0.18 mg/kg	5.7 J
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	35.3
Selenium	BCO Unrestricted=3.9 mg/kg	4.42
Zinc	BCO Unrestricted=109 mg/kg	1,470 J

Eight (8) TAL Metals were detected in SB-101 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	691
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	16.8
Chromium	BCO Unrestricted=1/30 mg/kg	155 J
Copper	BCO Unrestricted=50 mg/kg	2,600 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	2,770
	BCO Commercial=1,000 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	10.1 J
	BCO Commercial=2.8 mg/kg	
	BCO Industrial=5.7 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	151
Zinc	BCO Unrestricted=109 mg/kg	2,190 J

PCBs

PCBs were reported in SB-101 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	11,000 D
	BCO Commercial=1,000 µg/kg	

PCBs were reported in SB-101 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	2,500 J
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-101 (0-4) or SB-101 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

5.1.15 Soil Boring SB-102

VOCs

VOCs were not detected at SB-102 (0-4) and SB-102 (4-6) at concentrations above the Unrestricted Use SCOs, Restricted Use - Commercial SCOs, and Restricted Use - Industrial SCOs, as presented in Table 5-1 and Figures 5-1 and 5-2.

SVOCs

Eighteen (18) SVOCs were reported in SB-102 (0-4). Seven (7) of the 18 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs,

and/or the Restricted Use - Industrial SCOs, as presented in Table 5-2 and Figures 5-3 through 5-10. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	18,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	16,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	20,000 J
	BCO Commercial=5,600 µg/kg	
	BCO Industrial=11,000 µg/kg	
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,500 J
Chrysene	BCO Unrestricted=1,000 µg/kg	17,000 J
Dibenz(a,h)anthracene	BCO Unrestricted=330 µg/kg	2,800 J
	BCO Commercial=560 µg/kg	
	BCO Industrial=1,100 µg/kg	
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	10,000 J
	BCO Commercial=5,600 µg/kg	

Twenty (20) SVOCs were reported in SB-102 (4-6). Seven (7) of the 20 SVOCs were detected at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	3,500 J
Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg	3.200 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=1,100 µg/kg	
Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,600 J
Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,500 J
Chrysene	BCO Unrestricted=1,000 µg/kg	3,800 J
Dibenz(a,h)anthracene	BCO Commercial=560 µg/kg	590 J
Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	1,900 J

TAL Metals

Eight (8) TAL Metals were detected in SB-102 (0-4) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial

SCOs, as presented in Table 5-3 and Figures 5-11 through 5-18. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	389
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	8.63
Chromium	BCO Unrestricted=1/30 mg/kg	56.4 J
Copper	BCO Unrestricted=50 mg/kg	355 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	968
Mercury	BCO Unrestricted=0.18 mg/kg	3.4 J
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	78.3
Zinc	BCO Unrestricted=109 mg/kg	3,030 J

Nine (9) TAL Metals were detected in SB-102 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Barium	BCO Unrestricted=350 mg/kg	699
	BCO Commercial=400 mg/kg	
Cadmium	BCO Unrestricted=2.5 mg/kg	60.8
	BCO Commercial=9 mg/kg	
	BCO Industrial=60 mg/kg	
Chromium	BCO Unrestricted=1/30 mg/kg	1,610 J
	BCO Commercial=400 mg/kg	
	BCO Industrial=800 mg/kg	
Copper	BCO Unrestricted=50 mg/kg	1,910 J
	BCO Commercial=270 mg/kg	
Lead	BCO Unrestricted=63 mg/kg	17,200
	BCO Commercial=1,000 mg/kg	
	BCO Industrial=3,900 mg/kg	
Mercury	BCO Unrestricted=0.18 mg/kg	3.3 J
	BCO Commercial=2.8 mg/kg	
Nickel	BCO Unrestricted=30 mg/kg	933
	BCO Commercial=310 mg/kg	
Selenium	BCO Unrestricted=3.9 mg/kg	5.12
Zinc	BCO Unrestricted=109 mg/kg	7,270 J

PCBs

PCBs were reported in SB-102 (0-4) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-4 and Figures 5-19 through 5-22. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	37,000 J
	BCO Commercial=1,000 µg/kg	
	BCO Industrial=25,000 µg/kg	

PCBs were reported in SB-102 (4-6) at concentrations above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1242	BCO Unrestricted=100 µg/kg	14,000 D
	BCO Commercial=1,000 µg/kg	

Pesticides

Pesticides were not detected in SB-101 (0-4) or SB-101 (4-6) at concentrations above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs, as presented in Table 5-5 and Figures 5-23 through 5-25.

A summary of the laboratory results for each soil sample are included on Tables 5-1 through 5-5. Laboratory analytical data and chain-of-custody are included in Appendix F.

5.2 Sediment Sample Results

Sediment sample analytical results are presented in Tables 5-6 through 5-9. All of the compounds exceeding NYSDEC Human Health Bioaccumulation (HHB), Benthic Aquatic Life Toxicity (BALT), Benthic Aquatic Life Chronic Toxicity (BALCT), and Wildlife Bioaccumulation (WB) Guidance Values have been listed in tables within the report. The TAL

metal concentrations were also compared to the Lowest Effect Level (LEL) and Severe Effect Level (SEL) criteria.

5.2.1 Sediment Sample SED-1

VOCs

Three (3) VOCs were detected at SED-1 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-6.

SVOCs

Eight (8) SVOCs were detected at SED-1 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-7.

TAL Metals

TAL Metal concentrations were detected above the Severe Effect Level (SEL) from SED-1, as presented on Table 5-8A and 5-8B, and Figures 26 and 27. The following table lists the reported TAL metals concentrations that exceed SEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	SEL=9 mg/kg	22.5 J
Chromium	SEL=110 mg/kg	147 J
Copper	SEL=110 mg/kg	610 J
Iron	SEL=40,000 mg/kg	134,000
Lead	SEL=110 mg/kg	1,220 J
Nickel	SEL=50 mg/kg	124 J
Zinc	SEL=270 mg/kg	2,050 J

TAL Metals

TAL Metal concentrations were detected above the Lowest Effect Level (LEL) from SED-1. The following table lists the reported TAL metals concentrations that exceed LEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Antimony	LEL=2 mg/kg	18.10
Arsenic	LEL=6 mg/kg	21.4 J
Cadmium	LEL=0.6 mg/kg	22.5 J

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Chromium	LEL=26 mg/kg	147 J
Copper	LEL=16 mg/kg	610 J
Iron	LEL=20,000 mg/kg	134,000
Lead	LEL=31 mg/kg	1,220 J
Manganese	LEL=460 mg/kg	811 J
Mercury	LEL=0.15 mg/kg	1.2
Nickel	LEL=16 mg/kg	124 J
Zinc	LEL=120 mg/kg	2,050 J

PCBs

PCBs were reported in SED-1 at concentrations above HHB and WB criteria, as presented on Table 5-9 and Figures 28 and 29. The following table lists the reported PCB concentrations:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1248	HHB=0.8 µg/kg	1,300

Pesticides

Pesticide concentrations were not detected in the sample collected from SED-1, as presented on Table 5-10.

5.2.2 Sediment Sample SED-2

VOCs

Three (3) VOCs were detected at SED-2 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-6.

SVOCs

Five (5) SVOCs were detected at SED-2 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-7.

TAL Metals

TAL Metal concentrations were detected above the SEL from SED-2, as presented on Table 5-8A and 5-8B, and Figures 5-26 through 5-27. The following table lists the reported TAL metals concentrations that exceed SEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Antimony	SEL=25 mg/kg	31.1
Arsenic	SEL=33 mg/kg	34.2 J
Cadmium	SEL=9 mg/kg	57.5 J
Chromium	SEL=110 mg/kg	283 J
Copper	SEL=110 mg/kg	1,380 J
Iron	SEL=40,000 mg/kg	101,000
Lead	SEL=110 mg/kg	2,250 J
Mercury	SEL=1.3 mg/kg	2.5 D
Nickel	SEL=50 mg/kg	245 J
Zinc	SEL=270 mg/kg	5,290 J

TAL Metals

TAL Metal concentrations were not detected above the LEL from SED-2. The following table lists the reported TAL metals concentrations that exceed LEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Antimony	LEL=2 mg/kg	31.1
Arsenic	LEL=6 mg/kg	34.2 J
Cadmium	LEL=0.6 mg/kg	57.5 J
Chromium	LEL=26 mg/kg	283 J
Copper	LEL=16 mg/kg	1,380 J
Iron	LEL=20,000 mg/kg	101,000
Lead	LEL=31 mg/kg	2,250 J
Mercury	LEL=0.15 mg/kg	2.5
Nickel	LEL=16 mg/kg	245 J
Zinc	LEL=120 mg/kg	5,290 J

PCBs

PCBs were reported in SED-2 at concentrations above HHB criteria, as presented on Table 5-9. The following table lists the reported PCB concentrations:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1248	HHB=0.8 µg/kg	790 J

Pesticides

Pesticide concentrations were not detected in the sample collected from SED-2, as presented on Table 5-10.

5.2.3 Sediment Sample SED-3

VOCs

Two (2) VOCs were detected at SED-3 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-6.

SVOCs

Three (3) SVOCs were detected at SED-3 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-7.

TAL Metals

TAL Metal concentrations were detected above the SEL from SED-3, as presented on Table 5-8A and 5-8B, and Figures 26 and 27. The following table lists the reported TAL metals concentrations that exceed SEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Cadmium	SEL=9 mg/kg	33.4 J
Chromium	SEL=110 mg/kg	214 J
Copper	SEL=110 mg/kg	941 J
Lead	SEL=110 mg/kg	1,360 J
Iron	SEL=40,000 mg/kg	43,800
Lead	SEL=110 mg/kg	1,360 J
Mercury	SEL=1.3 mg/kg	2.7
Nickel	SEL=50 mg/kg	171 J
Silver	SEL=2.2 mg/kg	13.2 J
Zinc	SEL=270 mg/kg	3,560 J

TAL Metals

TAL Metal concentrations were not detected above the LEL from SED-3. The following table lists the reported TAL metals concentrations that exceed LEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
Antimony	LEL=2 mg/kg	17.7
Arsenic	LEL=6 mg/kg	23.1 J
Cadmium	LEL=0.6 mg/kg	33.4 J
Chromium	LEL=26 mg/kg	214 J
Copper	LEL=16 mg/kg	941 J
Iron	LEL=20,000 mg/kg	43,800
Lead	LEL=31 mg/kg	1,360 J
Mercury	LEL=0.15 mg/kg	2.7
Nickel	LEL=16 mg/kg	171 J
Silver	LEL=1 mg/kg	13.2 J
Zinc	LEL=120 mg/kg	3,560 J

PCBs

PCBs were detected in SED-3 at concentrations above HHB and WB criteria, as presented on Table 5-9 and Figures 28 and 29. The following table lists the reported TAL metals concentrations:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1248	HHB=0.8 µg/kg	1,900
	WB=1,400 µg/kg	

Pesticides

Pesticide concentrations were not detected in the sample collected from SED-3, as presented on Table 5-10.

5.2.4 Sediment Sample SED-4

VOCs

Eleven (11) VOCs were detected at SED-4 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-6.

SVOCs

Seven (7) SVOCs were detected at SED-4 with concentrations below the HHB, BALT, BALCT, and WB criteria, as presented on Table 5-7.

TAL Metals

TAL Metal concentrations were detected above the SEL from SED-4, as presented on Table 5-8A and 5-8B, and Figures 26 and 27. The following table lists the reported TAL metals concentrations that exceed SEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)	
Cadmium	SEL=9 mg/kg	76.5	J
Chromium	SEL=110 mg/kg	397	J
Copper	SEL=110 mg/kg	1,340	J
Iron	SEL=40,000 mg/kg	53,900	
Lead	SEL=110 mg/kg	1,880	J
Mercury	SEL=1.3 mg/kg	8.4	
Nickel	SEL=50 mg/kg	250	J
Silver	SEL=2.2 mg/kg	9.79	J
Zinc	SEL=270 mg/kg	5,120	J

TAL Metals

TAL Metal concentrations were not detected above the LEL from SED-4. The following table lists the reported TAL metals concentrations that exceed LEL criteria:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)	
Antimony	LEL=2 mg/kg	24.9	
Arsenic	LEL=6 mg/kg	26	J
Cadmium	LEL=0.6 mg/kg	76.5	J
Chromium	LEL=26 mg/kg	397	J
Copper	LEL=16 mg/kg	1,370	J
Iron	LEL=20,000 mg/kg	53,900	
Lead	LEL=31 mg/kg	1,880	J
Mercury	LEL=0.15 mg/kg	8.4	
Nickel	LEL=16 mg/kg	250	J
Silver	LEL=1 mg/kg	9.79	J
Zinc	LEL=120 mg/kg	5,120	J

PCBs

PCBs were detected in SED-4 at concentrations above HHB and WB criteria, as presented on Table 5-9 and Figures 28 and 29. The following table lists the reported TAL metals concentrations:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
Aroclor-1248	HHB=0.8 µg/kg	4,800
	WB=1,400 µg/kg	

Pesticides

Pesticide concentrations were not detected in the sample collected from SED-4, as presented on Table 5-10.

5.3 Surface Water Sample Results

Surface water sample analytical results are presented in Tables 5-11 through 5-14. All of the compounds exceeding NYSDEC Human Consumption of Fish - Saline Waters (HCF-SW), Fish Survival - Saline Waters (FS-SW), Wildlife Protection - Saline Waters (WP-SW), and Aesthetic Waters - Saline Waters (AW-SW) Guidance Values have been listed in tables within the report.

5.3.1 Surface Water Sample SW-1

VOCs

Seven (7) VOCs were detected at SW-1 with concentrations below the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-11.

SVOCs

No SVOCs were detected at SW-1 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-12.

TAL Metals

No TAL Metals were detected at SW-1 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-13.

PCBs

No PCBs were detected at SW-1 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-14.

5.3.2 Surface Water Sample SW-2

VOCs

Six (6) VOCs were detected at SW-2 with concentrations below the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-11.

SVOCs

No SVOCs were detected at SW-2 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-12.

TAL Metals

No TAL Metals were detected at SW-2 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, with the exception of a copper concentration of 0.005 J mg/L which is above the FS-SW of 0.0048 mg/L, as presented on Table 5-13 and Figure 5-30.

PCBs

No PCBs were detected at SW-2 with concentrations above the HCF-SW, FS-SW, WP-SW, and AW-SW criteria, as presented on Table 5-14.

5.4 Groundwater Sample Results

All of the compounds exceeding TOGS standards have been listed in tables within the report. Unfiltered sample were collected for VOCs, SVOCs, and PCBs groundwater analysis. TAL Metal groundwater samples were collected for unfiltered and filtered sample analysis. These results are provided in the following section. Groundwater sample analytical results are presented in Tables 5-15 through 5-19 and on Figures 5-31, 5-32, and 5-33. The Quality Assurance/Quality Control sample results for the groundwater samples collected on November 20, 2009 are presented on Tables 5-20, 5-21, 5-22, and 5-23.

5.4.1 Monitoring Well MW-1

VOCs

One (1) VOC was detected at a concentration above the TOGS standard, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
Vinyl chloride	TOGS=5 µg/L	10

SVOCs

No SVOCs were detected at concentrations above the TOGS standards, as presented in Table 5-16.

TAL Metals

Four (4) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	0.171
Iron	TOGS=0.30 mg/L	6.81
Manganese	TOGS=0.30 mg/L	2.1
Sodium	TOGS=20 mg/L	183

TAL Metals

Three (3) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Iron	TOGS=0.30 mg/L	2.41
Manganese	TOGS=0.30 mg/L	2.21
Sodium	TOGS=20 mg/L	190

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.2 Monitoring Well MW-2

VOCs

Four (4) VOCs were detected with concentrations above the TOGS standards, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
1,1-dichloroehtanne	TOGS=5 µg/L	6
Cis-1,2-dichloroehtene	TOGS=5 µg/L	4.6
Vinyl chloride	TOGS=5 µg/L	4.2
1,2-dichloroehtane	TOGS=0.6 µg/L	1 J

SVOCs

No SVOCs were detected at concentrations above the TOGS standards, as presented in Table 5-16.

TAL Metals

Five (5) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	1.67
Iron	TOGS=0.30 mg/L	26.1
Lead	TOGS=0.025 mg/L	0.0477
Manganese	TOGS=0.30 mg/L	0.857
Sodium	TOGS=20 mg/L	125

TAL Metals

Two (2) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Manganese	TOGS=0.30 mg/L	0.776
Sodium	TOGS=20 mg/L	128

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.3 Monitoring Well MW-3

VOCs

One (1) VOC was detected at a concentration above the TOGS standard, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedence:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
MTBE	TOGS=10 µg/L	10

SVOCs

One (1) SVOC was detected at concentrations below the TOGS standard, as presented in Table 5-16.

TAL Metals

Eleven (11) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	4.66
Antimony	TOGS=0.003 mg/L	0.0087 J
Arsenic	TOGS=0.025 mg/L	0.0429
Cobalt	TOGS=0.005 mg/L	0.00845 J
Iron	TOGS=0.300 mg/L	19.4
Lead	TOGS=0.025 mg/L	0.594
Magnesium	TOGS=35 mg/L	70.3
Manganese	TOGS=0.300 mg/L	1.2
Mercury	TOGS=0.0007 mg/L	0.0014 J
Sodium	TOGS=20 mg/L	194
Vanadium	TOGS=0.014 mg/L	0.0287

TAL Metals

Five (5) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Arsenic	TOGS=0.025 mg/L	0.0429
Iron	TOGS=0.30 mg/L	0.454
Magnesium	TOGS=35 mg/L	57.5
Manganese	TOGS=0.30 mg/L	1.04
Sodium	TOGS=20 mg/L	192

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.4 Monitoring Well MW-4

VOCs

One (1) VOC was detected a concentration above the TOGS standards, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
MTBE	TOGS=10 µg/L	63

SVOCs

One (1) SVOC was detected at concentrations below the TOGS standards, as presented in Table 5-16.

TAL Metals

Five (5) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	0.665
Arsenic	TOGS=0.025 mg/L	0.0746
Iron	TOGS=0.30 mg/L	4.73
Lead	TOGS=0.025 mg/L	0.0548
Sodium	TOGS=20 mg/L	148

TAL Metals

Two (2) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Arsenic	TOGS=0.025 mg/L	0.0631
Sodium	TOGS=20 mg/L	152 J

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.5 Monitoring Well MW-5

VOCs

One (1) VOC was detected at concentrations above the TOGS standards, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
Vinyl chloride	TOGS=5 µg/L	30

SVOCs

No SVOCs were detected at concentrations above the TOGS standards, as presented in Table 5-16.

TAL Metals

Five (5) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	0.830
Iron	TOGS=0.30 mg/L	2.08
Lead	TOGS=0.025 mg/L	0.0497
Manganese	TOGS=0.30 mg/L	0.427
Sodium	TOGS=20 mg/L	155

TAL Metals

Two (2) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Manganese	TOGS=0.30 mg/L	0.364
Sodium	TOGS=20 mg/L	143

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.6 Monitoring Well MW-6

VOCs

Two (2) VOCs were detected at concentrations below the TOGS standards, as presented in Table 5-15.

SVOCs

One (1) SVOC was detected at concentrations below the TOGS standards, as presented in Table 5-16.

TAL Metals

Six (6) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	0.807
Iron	TOGS=0.30 mg/L	2.17
Lead	TOGS=0.025 mg/L	0.0492
Manganese	TOGS=0.30 mg/L	1.69
Sodium	TOGS=20 mg/L	168
Thallium	TOGS=0.014 mg/L	0.0028 J

TAL Metals

Three (3) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.10 mg/L	0.123
Manganese	TOGS=0.30 mg/L	1.70
Sodium	TOGS=20 mg/L	171

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.7 Monitoring Well MW-7

VOCs

Three (3) VOCs were detected at concentrations above the TOGS standards, as presented in Table 5-15 and Figure 5-31. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/L)
Benzene	TOGS=1 µg/L	12
Cis-1,2-dichloroehtene	TOGS=5 µg/L	6
Vinyl chloride	TOGS=5 µg/L	12

SVOCs

No SVOCs were detected at concentrations above the TOGS standards, as presented in Table 5-16.

TAL Metals

Fourteen (14) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	45.3
Antimony	TOGS=0.003 mg/L	0.0166 J
Cadmium	TOGS=0.005 mg/L	0.0064
Chromium	TOGS=0.050 mg/L	5.35
Cobalt	TOGS=0.005 mg/L	0.0514
Copper	TOGS=0.20 mg/L	0.227
Iron	TOGS=0.30 mg/L	122
Lead	TOGS=0.025 mg/L	0.743
Manganese	TOGS=0.30 mg/L	2.14
Mercury	TOGS=0.0007 mg/L	0.0028 J
Selenium	TOGS=0.010 mg/L	0.0152
Sodium	TOGS=20 mg/L	101
Thallium	TOGS=0.0005 mg/L	0.0031 J
Vanadium	TOGS=0.014 mg/L	0.158

TAL Metals

Seven (7) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.10 mg/L	2.10
Chromium	TOGS=0.050 mg/L	0.254
Lead	TOGS=0.025 mg/L	0.054
Manganese	TOGS=0.30 mg/L	1.14
Nickel	TOGS=0.10 mg/L	0.325
Sodium	TOGS=20 mg/L	95.6
Vanadium	TOGS=0.014 mg/L	0.007 J

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

5.4.8 Monitoring Well MW-8

VOCs

Three (3) VOCs were detected at concentrations below the TOGS standards, as presented in Table 5-15.

SVOCs

No SVOCs were detected at concentrations above the TOGS standards, as presented in Table 5-16.

TAL Metals

Eleven (11) TAL Metals (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-17 and Figure 5-32. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.30 mg/L	71.1
Chromium	TOGS=0.05 mg/L	0.163
Cobalt	TOGS=0.005 mg/L	0.027
Iron	TOGS=0.30 mg/L	98.3
Lead	TOGS=0.025 mg/L	0.271
Manganese	TOGS=0.30 mg/L	2.44
Mercury	TOGS=0.0007 mg/L	0.0011 J
Selenium	TOGS=0.010 mg/L	0.0096 J
Sodium	TOGS=20 mg/L	478
Thallium	TOGS=0.0005 mg/L	0.0049 J
Vanadium	TOGS=0.014 mg/L	0.179

TAL Metals

Four (4) TAL Metals (filtered) were detected at concentrations above the TOGS standards, as presented in Table 5-18 and Figure 5-33. The following table lists the reported exceedences:

COMPOUND	CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/L)
Aluminum	TOGS=0.10 mg/L	1.07
Iron	TOGS=0.30 mg/L	1.88
Manganese	TOGS=0.30 mg/L	1.15
Sodium	TOGS=20 mg/L	487

PCBs

No PCBs (unfiltered) were detected at concentrations above the TOGS standards, as presented in Table 5-19.

A summary of the laboratory results for each groundwater sample are included on Tables 5-15 through 5-19. Laboratory analytical data and chain-of-custody are included in Appendix F.

5.5 Soil Gas Sample Results

Soil vapor gas samples were collected, as per NYSDEC's request, along the perimeter of the Site to evaluate the potential for soil vapor intrusion into future on-site construction and the potential for off-site soil vapor migration to assess the presence of VOCs that were detected in the soil and groundwater samples collected from the Site. The objective of the subsurface soil vapor sampling was to characterize potential vapor impacts from the subsurface soil and/or groundwater.

Subsurface soil vapor sampling will follow the protocols outlined in Sections 2.6.1 and 2.7.1 of the NYSDOH Guidance document. The soil vapor collection points were advanced to an approximate depth of 11 ft-bgs, which is generally one (1) foot above the shallowest depth to groundwater at the Site. Three (3) temporary soil vapor collection points were installed on-site with one (1) collection point located along the northwestern corner of the Site boundary, one (1) collection point located along the western Site boundary in the vicinity of Morgan Avenue, and the remaining soil vapor collection point located approximately 100 feet north of MW-3 along the north-central Site boundary.

Table 5-24 provides the soil gas sample designations and the associated laboratory analysis. Figure 5-34 presents the location and the laboratory analytical results for the three (3) soil gas samples collected at the Site.

5.5.1 SG-1

Thirty (30) VOCs were detected from the soil gas sample collected from SG-01. Most notable are the soil gas concentrations of acetone (23 D µg/m^3), benzene (2.3 µg/m^3), 2-butanone (72 D µg/m^3), carbon disulfide (3.4 µg/m^3), chloroform (1.4 µg/m^3), cyclohexane (2 µg/m^3), ethylbenzene (2.5 µg/m^3), heptane (1.4 µg/m^3), hexane (2.9 µg/m^3), toluene (13 D µg/m^3), tert-butyl alcohol (6 µg/m^3), tetrachloroethene (PCE) (19 D µg/m^3), trichloroethene (TCE) (0.74 µg/m^3), 1,1,1-trichloroethene (8 µg/m^3), trichlorofluoromethane (28 D µg/m^3), 1,2,4-trimethylbenzene (2.9 µg/m^3), 2,2,4-trimethylpentane cyclohexane (0.75 µg/m^3), o-xylene (2.5 µg/m^3), and m/p-xylene (9.6 µg/m^3) were detected from soil gas sample from SG-1.

5.5.2 SG-2

Twenty-four (24) VOCs were detected from the soil gas sample collected from SG-02. Most notable are the soil gas concentrations of acetone (260 D µg/m^3), benzene (2.2 µg/m^3), 2-butanone (67 D µg/m^3), carbon disulfide (2.3 µg/m^3), dichlorodifluoromethane (1.7 µg/m^3), ethylbenzene (2.1 µg/m^3), heptane (1 µg/m^3), hexane (1.8 µg/m^3), toluene (12 µg/m^3), tert-butyl alcohol (4.7 µg/m^3), PCE (20 D µg/m^3), TCE (0.65 µg/m^3), 1,1,1-trichloroethene (8 µg/m^3), 1,2,4-trimethylbenzene (2 µg/m^3), 2,2,4-trimethylpentane (3 µg/m^3), o-xylene (2.5 µg/m^3), and m/p-xylene (8.3 µg/m^3) from SG-2.

5.5.3 SG-3

Thirteen (13) VOCs were detected from the soil gas sample collected from SG-03. Most notable are the soil gas concentrations of benzene (3.5 J µg/m^3), 2-butanone (11 µg/m^3), cyclohexane (27 µg/m^3), dichlorodifluoromethane (440 D µg/m^3), ethylbenzene (1.4 J µg/m^3), hexane (11 µg/m^3), toluene (8 µg/m^3), PCE (11 µg/m^3), trichlorofluoromethane (490 D µg/m^3), 1,2,4-trimethylbenzene (1.3 J µg/m^3), 2,2,4-trimethylpentane (2,200 D µg/m^3), o-xylene (3 J µg/m^3), and m/p-xylene (6.3 J µg/m^3) from SG-3.

5.6 Field and Trip Blank Results

The field and trip blanks collected during the RI sampling program conducted in November 2009 are provided in Tables 5-1, 5-2, 5-3, 5-4, 5-5, 5-20, 5-21, 5-22, and 5-23.

Table 5-1 provides the VOC soil sample field and trip blanks collected on November 4, 2009 and November 5, 2009. Table 5-2 provides the SVOC soil sample field blanks collected on November 4, 2009 and November 5, 2009. Table 5-3 provides the TAL Metal soil sample field blanks collected on November 4, 2009 and November 5, 2009. Table 5-4 provides the PCB soil sample field blanks collected on November 4, 2009 and November 5, 2009. Table 5-5 provides the pesticide soil sample field blanks collected on November 4, 2009 and November 5, 2009. Table 5-20 provides the VOC groundwater sample field and trip blanks collected on November 20, 2009, Table 5-21 provides the SVOC groundwater sample field blank, Table 5-22 provides the TAL Metal (filtered) groundwater sample field blank, and Table 5-23 provides the PCB groundwater sample field blank.

5.7 Community Air Monitoring Results

Air monitoring was conducted in accordance with the NYSDOH CAMP provided in the RI Work Plan dated September 2009. VOCs and particulates were monitored continuously during all intrusive investigation activities. Action levels described in the CAMP were utilized to monitor site activities. Monitors were set upgradient and downgradient of the intrusive investigation areas. A particulate monitor capable of measuring particulate matter less than 10 micrometers (µm) in size and capable of integrating over a period of 15 minutes (or less) was used for comparison to the airborne particulate action levels.

The particulate monitor used during the RI was equipped with data logging capabilities. However, it appears that the datalog file from the previous day was overwritten either by an equipment malfunction or by accidental resetting the monitor. The only datalog file from the dust monitor was for the last day of work at the Site on November 6, 2009. The alarms for the dust monitor were set daily at the threshold values assigned in the CAMP. If the alarm sounded,

work would have immediately been stopped to allow for the air particulate to disperse. Periodic checks were made to make sure the alarms and particulate monitor were working properly. High dust levels were not observed during work performed at the site. The results of the daily monitoring conducted as part of the CAMP did not exceed applicable action levels established in Section 4-12. The results of the daily monitoring conducted as part of the CAMP are provided in Table 5-25.

Future intrusive activities at the Site will require daily datalog downloads to prevent the overwriting of the previous day's results or a comparable particulate monitor without a datalog overwrite feature will be used to ensure that daily records are maintained to provide the necessary records to conform with the CAMP requirements.

5.8 Data Usability Summary Report

To conform to NYSDEC requirements as specified in DER-10 (2002), data validation was performed on the analytical samples collected during the RI conducted in November 2009 at the Site. Data validation services were provided by Environmental Data Services (EDS), Inc. located at 1156 Jamestown Road, Suite A in Williamsburg, VA. The complete SDGs from the laboratory which were validated by EDS included:

- A5011
- A5023
- A5041
- A5237

The analytical data generated during the RI was subjected to validation and usability review to verify that the data satisfy project objectives. The data usability summary report (DUSR) for the December 2007 RI sampling program is presented in Appendix G, the DUSR and the data usability summary for the RI sampling program is presented in Appendix H and Appendix I, respectively.

5.8.1 Usability of Remedial Investigation Data

There are four (4) SDGs that were analyzed by Chemtech Laboratory. The media include soil, water, and air samples which were analyzed for volatiles, semi-volatiles, pesticides/PCBs and metals.

There were very few rejections of the data collected during the November 2009 sampling event. Greater than 99% of the data were acceptable for their intended use. In the cases where the data were rejected (1%), the laboratory re-analyzed the samples as required by the statement of work. The validation chemist was able to select between two sets of data in all cases were rejected data was an issue. The data were rejected due to deficiencies, such as, severely low surrogate recovery values, severely low internal standard area counts, and/or severely low matrix spike/matrix spike duplicate (MS/MSD) recoveries in a few of the volatile and semi-volatile samples. Two (2) pesticide compounds were rejected in two (2) samples due to severely low MS/MSD recoveries and/or laboratory control sample recoveries. None of the metals data were rejected. The remaining data are acceptable for the intended purposes within the constraints of the data validation qualifiers.

6.0 SOIL, SEDIMENT, SURFACE WATER, GROUNDWATER, AND SOIL GAS RESULTS ASSESSMENT

The soil, sediment, soil gas, surface water, and groundwater analytical results were compared to NYSDEC Restricted Use - Commercial SCOs and Restricted Use - Industrial SCOs, and TOGS standards. The English Kills is classified by NYSDEC as "saline waters" (SD), therefore, surface water samples were compared to the appropriate TOGS standard. All of the surface water analytical results were compared to NYSDEC Human Consumption of Fish - Saline Waters (HCF-SW), Fish Survival - Saline Waters (FS-SW), Wildlife Protection - Saline Waters (WP-SW), and Aesthetic Waters - Saline Waters (AW-SW) Guidance Values. The sediment samples were compared to the criteria provided in NYSDEC's Technical Guidance for Screening Contaminated Sediments. The analytical results of the RI are presented in Section 5.0. This section discusses the results of the sampling program and provides the conclusions and recommendations associated with soil, sediments, surface water, groundwater, and soil gas.

6.1 Soil Sample Results – Results Assessment

The results of the RI soil sampling program indicates that remedial actions will be required for several areas investigated during the December 2007 and November 2009 sampling programs conducted at the Site. The following section discusses the sample location, sample depth, compound, applicable NYSDEC SCOs, and sample results.

6.1.1 Volatile Organic Compounds

The results of the December 2007 and November 2009 soil sampling program indicated that VOC concentrations were detected in soil above the Unrestricted SCOs, but below the Restricted Use - Commercial SCOs and/or Restricted Use - Industrial SCOs.

The following table lists the reported acetone concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (7-9)	Acetone	BCO Unrestricted=50 µg/kg	130 J
SB-2 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	270
SB-2 (5-7)	Acetone	BCO Unrestricted=50 µg/kg	170
SB-2 (9-11)	Acetone	BCO Unrestricted=50 µg/kg	130 J
SB-3 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	190 J
SB-3 (11-11.5)	Acetone	BCO Unrestricted=50 µg/kg	630
SB-4 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	120 J
SB-4 (5-7)	Acetone	BCO Unrestricted=50 µg/kg	140
SB-4 (9-11)	Acetone	BCO Unrestricted=50 µg/kg	440
SB-5 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	560 J
SB-5 (5-7)	Acetone	BCO Unrestricted=50 µg/kg	270 J
SB-5 (11-11.5)	Acetone	BCO Unrestricted=50 µg/kg	270
SB-6 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	390 J
SB-6 (5-7)	Acetone	BCO Unrestricted=50 µg/kg	640 J
SB-7 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	170
SB-8 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	1,500 J
SB-8 (9-11)	Acetone	BCO Unrestricted=50 µg/kg	430
SB-9 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	1,100 J
SB-10 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	280 J
SB-11 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	180 J
SB-11 (5-7)	Acetone	BCO Unrestricted=50 µg/kg	1,900 J
SB-15 (0-5)	Acetone	BCO Unrestricted=50 µg/kg	190 J
SB-15 (7-9)	Acetone	BCO Unrestricted=50 µg/kg	130 J
SB-21 (0-2)	Acetone	BCO Unrestricted=50 µg/kg	81
SB-101 (4-6)	Acetone	BCO Unrestricted=50 µg/kg	54

The following table lists the reported 2-Butanone concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-6 (0-5)	2-Butanone	BCO Unrestricted=120 µg/kg	130 J
SB-6 (5-7)	2-Butanone	BCO Unrestricted=120 µg/kg	150 J
SB-8 (0-5)	2-Butanone	BCO Unrestricted=120 µg/kg	310 J
SB-8 (5-7)	2-Butanone	BCO Unrestricted=120 µg/kg	120 J
SB-11 (5-7)	2-Butanone	BCO Unrestricted=120 µg/kg	140 J

The following table lists the reported benzene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-9 (0-5)	Benzene	BCO Unrestricted=60 µg/kg	150 J

The following table lists the reported 1,2-Dichlorobenzene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-9 (0-5)	1,2-Dichlorobenzene	BCO Unrestricted=3,600 µg/kg	4,700 J

The following table lists the reported cis-1,2-Dichloroethene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-6 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	730 J
SB-6 (5-7)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	12,000 D
SB-6 (7-9)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	12,000 J
SB-7 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	440
SB-7 (9-11)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	14,000 J
SB-8 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	700 J
SB-8 (9-11)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	500
SB-9 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	810 J
SB-9 (7-8)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	960 J
SB-9 (11-12)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	540
SB-10 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	300 J
SB-10 (5-7)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	280
SB-10 (9-11)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	10,000 D
SB-11 (0-5)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	8,900 J
SB-11 (5-7)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	300 J
SB-11(9-11)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	15,000 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-14 (7-9)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	310 J
SB-15 (7-9)	cis-1,2-Dichloroethene	BCO Unrestricted=250 µg/kg	790

The following table lists the reported ethylbenzene concentration that is above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	Ethylbenzene	BCO Unrestricted=1,000 µg/kg	2,200 D

The following table lists the reported methylene chloride concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-5 (0-5)	Methylene Chloride	BCO Unrestricted=50 µg/kg	60 J
SB-7 (9-11)	Methylene Chloride	BCO Unrestricted=50 µg/kg	130 J
SB-10 (9-11)	Methylene Chloride	BCO Unrestricted=50 µg/kg	74 J
SB-14 (7-9)	Methylene Chloride	BCO Unrestricted=50 µg/kg	51 J
SB-15 (0-5)	Methylene Chloride	BCO Unrestricted=50 µg/kg	51

The following table lists the reported tetrachloroethene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-6 (5-7)	Tetrachloroethene	BCO Unrestricted=1,300 µg/kg	76,000 D
SB-6 (7-9)	Tetrachloroethene	BCO Unrestricted=1,300 µg/kg	6,400 J
SB-10 (9-11)	Tetrachloroethene	BCO Unrestricted=1,300 µg/kg	4,700 D
SB-11 (0-5)	Tetrachloroethene	BCO Unrestricted=1,300 µg/kg	140,000 D
SB-11 (9-11)	Tetrachloroethene	BCO Unrestricted=1,300 µg/kg	69,000 D

The following table lists the reported trichloroethene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-6 (5-7)	Trichloroethene	BCO Unrestricted=470 µg/kg	2,300 D
SB-11 (0-5)	Trichloroethene	BCO Unrestricted=470 µg/kg	1,100 J
SB-11 (9-11)	Trichloroethene	BCO Unrestricted=470 µg/kg	590 J

The following table lists the reported 1,2,4-Trimethylbenzene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	1,2,4-Trimethylbenzene	BCO Unrestricted=3,600 µg/kg	4,800 D
SB-9 (0-5)	1,2,4-Trimethylbenzene	BCO Unrestricted=3,600 µg/kg	3,700 J

The following table lists the reported vinyl chloride concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-5 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	130 J
SB-5 (5-7)	Vinyl chloride	BCO Unrestricted=20 µg/kg	190 J
SB-6 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	99 J
SB-6 (5-7)	Vinyl chloride	BCO Unrestricted=20 µg/kg	410 J
SB-6 (7-9)	Vinyl chloride	BCO Unrestricted=20 µg/kg	320
SB-7 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	49
SB-7 (9-11)	Vinyl chloride	BCO Unrestricted=20 µg/kg	330 J
SB-8 (5-7)	Vinyl chloride	BCO Unrestricted=20 µg/kg	49
SB-8 (9-11)	Vinyl chloride	BCO Unrestricted=20 µg/kg	160
SB-9 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	39 J
SB-9 (7-8)	Vinyl chloride	BCO Unrestricted=20 µg/kg	510 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-9 (11-12)	Vinyl chloride	BCO Unrestricted=20 µg/kg	150
SB-10 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	32 J
SB-10 (9-11)	Vinyl chloride	BCO Unrestricted=20 µg/kg	2,100 D
SB-11 (0-5)	Vinyl chloride	BCO Unrestricted=20 µg/kg	130 J
SB-11 (9-11)	Vinyl chloride	BCO Unrestricted=20 µg/kg	330 J
SB-15 (7-9)	Vinyl chloride	BCO Unrestricted=20 µg/kg	120

The following table lists the reported m+p xylene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	m+p xylene	BCO Unrestricted=260 µg/kg	1,700 J
SB-9 (0-5)	m+p xylene	BCO Unrestricted=260 µg/kg	990 J

The following table lists the reported o xylene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	o xylene	BCO Unrestricted=260 µg/kg	1,100 J
SB-9 (0-5)	o xylene	BCO Unrestricted=260 µg/kg	800 J

6.1.2 Semi-Volatile Organic Compounds

The results of the December 2007 and November 2009 soil sampling program indicated the presence of SVOC concentrations in soil above the Restricted Use - Commercial SCOs and Restricted Use - Industrial SCOs. The following table provides the sample location, sample depth, compound and corresponding analytical results which exceed the Restricted Use - Commercial SCO and/or the Restricted Use - Industrial SCO.

The following table lists the reported acenaphthene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-20 (4-6)	Acenaphthene	BCO Unrestricted=20,000 µg/kg	23,000
SB-22 (4-7.5)	Acenaphthene	BCO Unrestricted=20,000 µg/kg	22,000 J

The following table lists the reported benzo(a)anthracene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-2 (0-5)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	11,000
SB-7 (0-5)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	12,000
SB-8 (0-5) SB-8 (9-11)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	75,000 8,600 J
SB-9 (0-5)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	9,600
SB-10 (5-7) SB-10 (9-11)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	100,000 D 6,600
SB-11 (0-5) SB-11 (5-7)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	14,000 6,800 J
SB-12 (0-5) SB-12 (5-7)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	28,000 14,000
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	37,000 23,000 9,800
SB-15 (5-7)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	9,100
SB-16 (0-4) SB-16 (4-7)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	10,000 J 4,000 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-17 (0-4) SB-17 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	20,000 J 38,000 J
SB-18 (0-4)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	4,300
SB-19 (0-4) SB-19 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	8,500 J 11,000 J
SB-20 (0-4) SB-20 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	5,000 J 88,000
SB-21(0-2)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	45,000
SB-22 (0-4) SB-22 (4-7.5)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	15,000 J 45,000
SB-23 (0-4)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	20,000 J
SB-24 (0-2)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	3,700 J
SB-25 (0-4)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	23,000
SB-26 (0-4) SB-26 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	18,000 J 3,700 J
SB-27 (0-4)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	19,000 J
SB-28 (4-8)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg	2,800
SB-101 (0-4) SB-101 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	12,000 J 23,000
SB-102 (0-4) SB-102 (4-6)	Benzo(a)anthracene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	18,000 J 3,500 J

The following table lists the reported benzo(a)pyrene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (0-5) SB-1 (7-9)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	1,200 3,500
SB-2 (0-5) SB-2 (5-7)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	9,100 J 2,600
SB-3 (0-5)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	1,000 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	3,600 1,300 J 1,000
SB-6 (0-5)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	1,900 J
SB-7 (0-5) SB-7 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	10,000 3,700
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	47,000 2,100 6,900 J
SB-9 (0-5) SB-9 (7-8)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	7,000 1,900 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	2,400 J 75,000 5,200
SB-11 (0-5) SB-11 (5-7)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	10,000 7,100 J
SB-12 (0-5) SB-12 (5-7)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	21,000 9,700
SB-13 (0-5) SB-13 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	4,400 J 2,800 J
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	28,000 17,000 7,600
SB-15 (0-5)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	6,500
SB-16 (0-4) SB-16 (4-7)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	8,300 J 3,200 J
SB-17 (0-4) SB-17 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	17,000 J 30,000 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-18 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	3,400 J
SB-19 (0-4) SB-19 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	7,000 J 14,000 J
SB-20 (0-4) SB-20 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	3,900 J 69,000 J
SB-21 (0-2)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	37,000
SB-22 (0-4) SB-22 (4-7.5)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	12,000 J 31,000 J
SB-23 (0-4)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	17,000 J
SB-24 (0-2)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	3,600 J
SB-25 (0-4)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	17,000 J
SB-26 (0-4) SB-26 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	14,000 J 3,300 J
SB-27 (0-4)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	14,000 J
SB-28 (4-8)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	4,200
SB-101 (0-4) SB-101 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	9,900 J 18,000 J
SB-102 (0-4) SB-102 (4-6)	Benzo(a)pyrene	BCO Unrestricted=1,000 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=1,100 µg/kg	16,000 J 3,200 J

The following table lists the reported benzo(b)fluoranthene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (0-5) SB-1 (7-9)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	1,500 4,900
SB-2 (0-5) SB-2 (5-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	11,000 J 3,200 J
SB-3 (0-5) SB-3 (5-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	1,300 J 1,200 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,700 1,700 J 1,300
SB-5 (0-5) SB-5 (5-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	1,300 1,300
SB-6 (0-5)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	2,900 J
SB-7 (0-5) SB-7 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	12,000 5,000
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	57,000 J 2,800 J 9,600 J
SB-9 (0-5) SB-9 (7-8)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg	10,000 J 2,600
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	3,000 J 110,000 D 7,100 J
SB-11 (0-5) SB-11 (5-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	15,000 J 8,100 J
SB-12 (0-5) SB-12 (5-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	28,000 13,000
SB-13(0-5) SB-13 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg	6,200 J 3,900 J
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	39,000 27,000 10,000
SB-15 (0-5)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg	8,800
SB-16 (0-4) SB-16 (4-7)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	11,000 J 4,900 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-17 (0-4) SB-17 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	22,000 J 41,000 J
SB-18 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	4,600
SB-19 (0-4) SB-19 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	9,400 J 16,000 J
SB-20 (0-4) SB-20 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	5,200 J 84,000
SB-21 (0-2)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	43,000
SB-22 (0-4) SB-22 (4-7.5)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	15,000 J 40,000
SB-23 (0-4)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	22,000 J
SB-24 (0-2)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	5,000 J
SB-25 (0-4)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	22,000
SB-26 (0-4) SB-26 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	23,000 J 4,600 J
SB-27 (0-4)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	20,000 J
SB-28 (0-4) SB-28 (4-8)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg	1,500 J 4,300
SB-101 (0-4) SB-101 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	13,000 J 25,000
SB-102 (0-4) SB-102 (4-6)	Benzo(b)fluoranthene	BCO Unrestricted=1,000 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	20,000 J 4,600 J

The following table lists the reported benzo(k)fluoranthene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (7-9)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,300 J
SB-2 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=1,000 µg/kg	3,300 J
SB-2 (5-7)			970
SB-4 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,500 J
SB-7 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	4,000
SB-7 (9-11)			1,300 J
SB-8 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	21,000 J
SB-8 (5-7)			820 J
SB-8 (9-11)			2,900 J
SB-9 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	2,800 J
SB-9 (7-8)			830 J
SB-10 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,100 J
SB-10 (5-7)			33,000
SB-10 (9-11)			2,300 J
SB-11 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	4,100
SB-11 (5-7)			2,000 J
SB-12 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	8,000 J
SB-12 (5-7)			5,000 J
SB-13 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,900 J
SB-13 (9-11)			1,200 J
SB-14 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	12,000 J
SB-14 (7-9)			6,900 J
SB-14 (9-11)			3,800 J
SB-15 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,100
SB-16 (0-5)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,000 J
SB-17 (4-6)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	14,000 J
SB-18 (4-6)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,400 J
SB-19 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	3,200 J
SB-19 (4-6)			5,500 J
SB-20 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,700 J
SB-20 (4-6)			30,000
SB-21 (0-2)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	16,000 J
SB-22 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,400 J
SB-22 (4-7.5)			14,000 J
SB-23 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,700 J
SB-25 (0-40	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,800 J
SB-26 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,400 J
SB-27 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	6,700 J
SB-28 (4-8)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	1,100 J
SB-101 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	4,700 J
SB-101 (4-6)			9,100 J
SB-102 (0-4)	Benzo(k)fluoranthene	BCO Unrestricted=800 µg/kg	7,500 J
SB-102 (4-6)			1,500 J

The following table lists the reported chrysene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (0-5) SB-1 (7-9)	Chrysene	BCO Unrestricted=1,000 µg/kg	1,500 4,400
SB-2 (0-5) SB-2 (5-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	11,000 J 3,300 J
SB-3 (0-5) SB-3 (5-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	1,200 J 1,100 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg	4,500 1,500 J 1,300
SB-5 (0-5) SB-5 (5-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	1,300 1,100
SB-6 (0-5) SB-6 (5-7) SB-6 (7-9)	Chrysene	BCO Unrestricted=1,000 µg/kg	2,300 J 1,500 J 1,300 J
SB-7 (0-5) SB-7 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg	12,000 4,700
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg BCO Commercial=56,000 µg/kg BCO Industrial=110,000 µg/kg	75,000 J 3,000 J 9,300 J
SB-9 (0-5) SB-9 (7-8)	Chrysene	BCO Unrestricted=1,000 µg/kg	9,800 J 2,200
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg BCO Commercial=56,000 µg/kg BCO Industrial=110,000 µg/kg	3,100 J 97,000 D 6,700 J
SB-11 (0-5) SB-11 (5-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	13,000 J 8,700 J
SB-12 (0-5) SB-12 (5-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	26,000 13,000
SB-13 (0-5) SB-13 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg	5,400 J 3,200 J
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Chrysene	BCO Unrestricted=1,000 µg/kg	36,000 J 23,000 J 9,700
SB-15 (0-5)	Chrysene	BCO Unrestricted=1,000 µg/kg	8,400
SB-16 (0-4) SB-16 (4-7)	Chrysene	BCO Unrestricted=1,000 µg/kg	9,600 J 4,200 J
SB-17 (0-4) SB-17 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	19,000 J 38,000 J
SB-18 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	4,100
SB-19 0-4) SB-19 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	8,200 J 11,000 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-20 (0-4) SB-20 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg BCO Commercial=56,000 µg/kg BCO Industrial=110,000 µg/kg	4,400 J 82,000
SB-21 (0-2)	Chrysene	BCO Unrestricted=1,000 µg/kg	
SB-22 (0-4) SB-22 (4-7.5)	Chrysene	BCO Unrestricted=1,000 µg/kg	15,000 J 38,000 J
SB-23 (0-4)	Chrysene	BCO Unrestricted=1,000 µg/kg	21,000 J
SB-24 (0-2)	Chrysene	BCO Unrestricted=1,000 µg/kg	3,700 J
SB-25 (0-4)	Chrysene	BCO Unrestricted=1,000 µg/kg	24,000
SB-26 (0-4) SB-26 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	21,000 J 3,800 J
SB-27 (0-4)	Chrysene	BCO Unrestricted=1,000 µg/kg	20,000 J
SB-28 (4-8)	Chrysene	BCO Unrestricted=1,000 µg/kg	2,900
SB-101 (0-4) SB-101 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	12,000 J 23,000
SB-102 (0-4) SB-102 (4-6)	Chrysene	BCO Unrestricted=1,000 µg/kg	17,000 J 3,800 J

The following table lists the reported dibenzo(a,h)anthracene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-7 (0-5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg	520 J
SB-8 (0-5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	2,400 J
SB-9 (0-5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg	390 J
SB-10 (5-7)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	3,700 J
SB-11 (0-5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg	450 J
SB-12 (0-5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	1,400 J
SB-14 (0-5) SB-14 (7-9)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	1,100 J 960 J
SB-17 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	4,900 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-18 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg	690 J
SB-19 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg	2,100 J
SB-20 (0-4) SB-20 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	780 J 12,000 J
SB-21 (0-2)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	6,000 J
SB-22 (4-7.5)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/kg BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	4,600 J
SB-25 (0-4)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/ BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	3,000 J
SB-28 (4-8)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/ BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	670 J
SB-101 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/ BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	2,700 J
SB-102 (0-4) SB-102 (4-6)	Dibenzo(a,h)anthracene	BCO Unrestricted=330 µg/ BCO Commercial=560 µg/kg BCO Industrial=1,100 µg/kg	2,800 J 590 J

The following table lists the reported fluoranthene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	Fluoranthene	BCO Unrestricted=100,000 µg/kg	200,000 D
SB-10 (5-7)	Fluoranthene	BCO Unrestricted=100,000 µg/kg	240,000 D
SB-20 (4-6)	Fluoranthene	BCO Unrestricted=100,000 µg/kg	220,000

The following table lists the reported fluorene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	Fluorene	BCO Unrestricted=30,000 µg/kg	42,000 J
SB-10 (5-7)	Fluorene	BCO Unrestricted=30,000 µg/kg	38,000
SB-20 (4-6)	Fluorene	BCO Unrestricted=30,000 µg/kg	33,000
SB-22 (4-7.5)	Fluorene	BCO Unrestricted=30,000 µg/kg	38,000 J

The following table lists the reported indeno(1,2,3-cd)pyrene concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (0-5) SB-1 (7-9)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	640 1,500 J
SB-2 (0-5) SB-2 (5-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	4,700 J 1,300
SB-3 (0-5) SB-3 (5-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	620 J 710 J
SB-4 (0-5) SB-4 (5-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,000 700 J
SB-5 (0-5)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	520 J
SB-6 (0-5) SB-6 (7-9)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	1,000 J 660 J
SB-7 (0-5) SB-7 (9-11)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	4,900 J 1,900 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	22,000 J 1,200 J 3,900 J
SB-9 (0-5) SB-9 (7-8)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	3,300 J 1,200 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	1,400 J 37,000 2,600 J
SB-11 (0-5) SB-11 (5-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	4,700 J 3,000 J
SB-12 (0-5) SB-12 (5-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	10,000 J 3,900 J
SB-13 (0-5) SB-13 (9-11)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,400 J 1,700 J
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	15,000 J 7,900 J 3,800 J
SB-15 (0-5)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	3,000

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-16 (0-4) SB-16 (4-7)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	5,100 J 2,200 J
SB-17 (0-4) SB-17 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	10,000 J 17,000 J
SB-18 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	2,500 J
SB-19 (0-4) SB-19 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	5,500 J 9,400 J
SB-20 (0-4) SB-20 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	2,700 J 44,000
SB-21 (0-2)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	23,000
SB-22 (0-4) SB-22 (4-7.5)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	8,100 J 19,000 J
SB-23 (0-4)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	9,700 J
SB-24 (0-2)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	3,200 J
SB-25 (0-40	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	11,000 J
SB-26 (0-4) SB-26 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	9,500 J 2,200 J
SB-27 (0-4)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	8,400 J
SB-28 (0-4) SB-28 (4-8)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg	1,000 J 3,100 J
SB-101 (0-4) SB-101 (4-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	5,400 J 9,300 J
SB-102 (0-4) SB-102 94-6)	Indeno(1,2,3-cd)pyrene	BCO Unrestricted=500 µg/kg BCO Commercial=5,600 µg/kg BCO Industrial=11,000 µg/kg	10,000 J 1,900 J

The following table lists the reported phenanthrene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	Phenanthrene	BCO Unrestricted=100,000 µg/kg	240,000 D
SB-10 (5-7)	Phenanthrene	BCO Unrestricted=100,000 µg/kg	200,000 D
SB-20 (4-6)	Phenanthrene	BCO Unrestricted=100,000 µg/kg	210,000 D
SB-21 (0-2)	Phenanthrene	BCO Unrestricted=100,000 µg/kg	110,000
SB-22 (4-7.5)	Phenanthrene	BCO Unrestricted=100,000 µg/kg	170,000

The following table lists the reported phenol concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-11 (5-7)	Phenol	BCO Unrestricted=330 µg/kg	3,000 J
SB-13 (9-11)	Phenol	BCO Unrestricted=330 µg/kg	3,000 J
SB-21 (0-2)	Phenol	BCO Unrestricted=330 µg/kg	2,800 J
SB-21 (0-2)	Phenol	BCO Unrestricted=330 µg/kg	
SB-22 (4-7.5)	Phenol	BCO Unrestricted=330 µg/kg	

The following table lists the reported pyrene concentrations that are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-8 (0-5)	Pyrene	BCO Unrestricted=100,000 µg/kg	200,000 D
SB-10 (5-7)	Pyrene	BCO Unrestricted=100,000 µg/kg	180,000 D
SB-20 (4-6)	Pyrene	BCO Unrestricted=100,000 µg/kg	190,000 D
SB-21 (0-2)	Pyrene	BCO Unrestricted=100,000 µg/kg	110,000
SB-22 (4-7.5)	Pyrene	BCO Unrestricted=100,000 µg/kg	110,000

6.1.3 TAL Metals

The results of the December 2007 and November 2009 soil sampling program indicated the presence of TAL Metals concentrations in soil above the Restricted Use - Commercial SCOs and Restricted Use - Industrial SCOs.

The following table provides the sample location, sample depth, compound and corresponding analytical results which exceed the Restricted Use - Commercial SCO and/or the Restricted Use - Industrial SCO.

The following table lists the reported arsenic concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5) SB-1 (7-9)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	168 J 31.6 J
SB-3 (5-7) SB-3 (11-11.5)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	36.9 J 25.3 J
SB-4 (0-5) SB-4 (5-7)	Arsenic	BCO Unrestricted=13 mg/kg	14.8 J 13.1 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	42.8 J 20.5 J 13.9 J
SB-9 (0-5) SB-9 (7-8)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	14.6 J 18.6 J
SB-10 (0-5) SB-10 (9-11)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	19.2 J 29.1 J
SB-13 (9-11)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	32.3
SB-19 (4-6)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	27.7
SB-22 (4-7.5)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	28.1 J
SB-25 (0-4)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	44.8

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-28 (0-4)	Arsenic	BCO Unrestricted=13 mg/kg BCO Commercial=16 mg/kg BCO Industrial=16 mg/kg	104

The following table lists the reported barium concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	875 J
SB-2 (0-5)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	498 J
SB-3 (5-7)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	1,160 J
SB-6 (5-7)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	928
SB-7 (0-5) SB-7 (9-11)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	482 369
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	1,590 J 1,510 J 736 J
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	966 581 382
SB-10 (0-5) SB-10 (5-7)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	603 550
SB-11 (0-5)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	537
SB-12 (5-7)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	430
SB-16 (0-5) SB-16 (4-7)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	488 1,250
SB-17(0-4)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	706
SB-19 (0-4) SB-19 (4-6)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	784 1,430
SB-20 (0-4) SB-20 (4-6)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	651 602
SB-22 (0-4) SB-22 (4-7.5)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	1,050 1,980
SB-23 (0-4)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	1,080
SB-24 (0-2)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	871

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-25 (0-4)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	594
SB-27 (0-4)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	732
SB-28 (0-4)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	1,730
SB-101 (0-4) SB-101 (4-6)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg BCO Industrial=10,000 mg/kg	405 691
SB-102 (0-4) SB-102 (4-6)	Barium	BCO Unrestricted=350 mg/kg BCO Commercial=400 mg/kg	389 699

The following table lists the reported cadmium concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5)	Cadmium	BCO Unrestricted=2.5 mg/kg	5.66
SB-2 (0-5)	Cadmium	BCO Unrestricted=2.5 mg/kg	4.99
SB-5 (0-5) SB-5 (5-7)	Cadmium	BCO Unrestricted=2.5 mg/kg	3.0 3.41
SB-6 (0-5) SB-6 (5-7)	Cadmium	BCO Unrestricted=2.5 mg/kg	3.79 5.07
SB-7 (9-11)	Cadmium	BCO Unrestricted=2.5 mg/kg	5.29
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	45.2 37.3 10.8
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	22.1 10.1 7.36
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Cadmium	BCO Unrestricted=2.5 mg/kg	5.8 2.63 4.23
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	11.4 6.12 5.87
SB-12 (0-5) SB-12 (5-7)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	2.63 12.7
SB-13 (0-5) SB-13 (9-11)	Cadmium	BCO Unrestricted=2.5 mg/kg	5.4 7.83
SB-14 (7-9)	Cadmium	BCO Unrestricted=2.5 mg/kg	4.72
SB-15 (0-5)	Cadmium	BCO Unrestricted=2.5 mg/kg	4.22
SB-16 (0-4) SB-16 (4-7)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	11.1 41.3

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-17 (0-4) SB-17 (4-6)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	27.4 3.67
SB-18 (0-4)	Cadmium	BCO Unrestricted=2.5 mg/kg	2.91
SB-19 (0-4) SB-19 (4-6)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	20.9 48.2
SB-20 (0-4) SB-20 (4-60	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	22.7 14.1
SB-21 (0-2)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg BCO Industrial=60 mg/kg	17.1
SB-22 (0-4) SB-22 (4-7.5)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	32.5 44.5
SB-23 (0-4)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	40.9
SB-24 (0-2)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	19.2
SB-25 (0-4)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	15.3
SB-27 (0-4)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	22.3
SB-28 (0-4)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	23.2
SB-101 (4-6)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg	16.8
SB-102 (4-6)	Cadmium	BCO Unrestricted=2.5 mg/kg BCO Commercial=9 mg/kg BCO Industrial=60 mg/kg	60.8

The following table lists the reported chromium concentrations that are above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5) SB-1 (7-9)	Chromium	BCO Unrestricted=1/30 mg/kg	41.5 J 12 J
SB-2 (0-5) SB-2 (5-7) SB-2 (9-11)	Chromium	BCO Unrestricted=1/30 mg/kg	37.6 J 30.1 20.6 J
SB-3 (0-5) SB-3 (5-7) SB-3 (11-11.5)	Chromium	BCO Unrestricted=1/30 mg/kg	13 J 13.3 J 24.6 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Chromium	BCO Unrestricted=1/30 mg/kg	39.1 J 40.9 J 22.3 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-5 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	38 J
SB-5 (5-7)			38.9 J
SB-5 (11-11.5)			4.3 J
SB-6 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	69
SB-6 (5-7)			85.8
SB-6 (7-9)			20.6
SB-7 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	90.2
SB-7 (9-11)			84.5
SB-8 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	441 J
SB-8 (5-7)			347 J
SB-8 (9-11)			155 J
SB-9 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	454
SB-9 (7-8)			99.4
SB-9 (11-12)			147
SB-10 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	106
SB-10 (5-7)			243
SB-10 (9-11)			38.8
SB-11 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	175
SB-11 (5-7)			114
SB-11 (9-11)			103
SB-12 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	38.7
SB-12 (5-7)			104
SB-13 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	21.3
SB-13 (9-11)			29.8
SB-14 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	20.4
SB-14 (7-9)			56.9
SB-14 (9-11)			27.4
SB-15 (0-5)	Chromium	BCO Unrestricted=1/30 mg/kg	85
SB-15 (7-9)			6.90
SB-15 (9-11)			8.57
SB-16 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	54.3 J
SB-16 (4-7)			260 J
SB-17 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	104 J
SB-17 (4-6)			47.8 J
SB-18 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	30.4 J
SB-18 (4-6)			21.6
SB-19 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	133
SB-19 (4-6)			227
SB-20 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	174
SB-20 (4-6)			255
SB-21 (0-2)	Chromium	BCO Unrestricted=1/30 mg/kg	53.7
SB-22 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	411 J
SB-22 (4-7.5)			379 J
SB-23 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	484 J
SB-24 (0-2)	Chromium	BCO Unrestricted=1/30 mg/kg	140

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-25 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	163
SB-26 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	26 J
SB-26 (4-6)			19 J
SB-27 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	221 J
SB-27 (8-10)			8.13 J
SB-28 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	153
SB-28 (4-8)			20.9
SB-101 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	37 J
SB-101 (4-6)			155 J
SB-102 (0-4)	Chromium	BCO Unrestricted=1/30 mg/kg	56.4 J
SB-102 (4-6)		BCO Commercial=1,500 mg/kg	1,610 J

The following table lists the reported copper concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5)	Copper	BCO Unrestricted=50 mg/kg	1,580
SB-1 (7-9)		BCO Commercial=270 mg/kg	433
SB-2 (0-5)	Copper	BCO Unrestricted=50 mg/kg	639
SB-2 (5-7)		BCO Commercial=270 mg/kg	184
SB-2 (9-11)			58.8
SB-3 (0-5)	Copper	BCO Unrestricted=50 mg/kg	403
SB-3 (5-7)		BCO Commercial=270 mg/kg	617
SB-3 (11-11.5)			518
SB-4 (0-5)	Copper	BCO Unrestricted=50 mg/kg	822
SB-4 (5-7)		BCO Commercial=270 mg/kg	325
SB-4 (9-11)			148
SB5- (0-5)	Copper	BCO Unrestricted=50 mg/kg	93.7
SB-5 (5-7)		BCO Commercial=270 mg/kg	287
SB-6 (0-5)	Copper	BCO Unrestricted=50 mg/kg	581
SB-6 (5-7)		BCO Commercial=270 mg/kg	367
SB-6 (7-9)			68.5
SB-7 (0-5)	Copper	BCO Unrestricted=50 mg/kg	500
SB-7 (9-11)		BCO Commercial=270 mg/kg	346
SB-8 (0-5)	Copper	BCO Unrestricted=50 mg/kg	1,610
SB-8 (5-7)		BCO Commercial=270 mg/kg	1,090
SB-8 (9-11)			786
SB-9 (0-5)	Copper	BCO Unrestricted=50 mg/kg	2,330
SB-9 (7-8)		BCO Commercial=270 mg/kg	2,430
SB-9 (11-12)			595
SB-10 (0-5)	Copper	BCO Unrestricted=50 mg/kg	386
SB-10 (5-7)		BCO Commercial=270 mg/kg	198
SB-10 (9-11)			209

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	549 416 281
SB-12 (0-5) SB-12 (5-7)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	219 459
SB-13 (0-5)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	401
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	186 967 187
SB-15 (0-5)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	653
SB-16 (0-4) SB-16 (4-7)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	597 J 1,100 J
SB-17 (0-4) SB-17 4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	1,540 J 244 J
SB-18 (0-4) SB-18 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	899 J 866
SB-19 (0-4) SB-19 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	3,120 2,350
SB-20 (0-4) SB-20 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	789 721
SB-21 (0-2)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	290
SB-22 (0-4) SB-22 (4-7.5)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	755 J 1,260 J
SB-23 (0-4)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	1,060 J
SB-24 (0-2)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	2,230
SB-25 (0-4)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	2,430
SB-26 (0-4) SB-26 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	176 J 104 J
SB-27 (0-4) SB-27 (8-10)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	588 J 51.2 J
SB-28 (0-4) SB-28 (4-8)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg BCO Industrial=10,000 mg/kg	14,000 D 518
SB-101 (0-4) SB-101 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	278 J 2,600 J
SB-102 (0-4) SB-102 (4-6)	Copper	BCO Unrestricted=50 mg/kg BCO Commercial=270 mg/kg	355 J 1,910 J

The following table lists the reported lead concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5) SB-1 (7-9)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	3,020 6,670
SB-2 (0-5) SB-2 (5-7) SB-2 (9-11)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,300 J 570 224 J
SB-3 (0-5) SB-3 (5-7) SB-3 (11-11.5)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	98.2 J 2,800 J 4,330 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Lead	BCO Unrestricted=63 mg/kg	904 J 449 J 449 J
SB-5 (0-5) SB-5 (5-7)	Lead	BCO Unrestricted=63 mg/kg	651 J 810 J
SB-6 (0-5) SB-6 (5-7) SB-6 (7-9)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	1,190 J 4,630 J 1,720
SB-7 (0-5) SB-7 (9-11)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	2,070 J 1,740 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	7,760 J 9,020 J 3,100 J
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	3,660 J 1,530 J 1,300 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Lead	BCO Unrestricted=63 mg/kg	935 J 866 J 624 J
SB-11 (0-5) SB-11 95-7) SB-11 (9-11)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	2,880 J 929 J 1,680 J
SB-12 (0-5) SB-12 (5-7)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,520 2,980
SB-13 90-5)	Lead	BCO Unrestricted=63 mg/kg	281
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	2,960 269 503
SB-15 (0-5) SB-15 (7-9)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,180 J 71 J
SB-16 (0-4) SB-16 (4-7)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	1,220 6,130
SB-17 (0-4) SB-17 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,340 1,100
SB-18 (0-4) SB-18 (4-6)	Lead	BCO Unrestricted=63 mg/kg	397 421

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-19 (0-4) SB-19 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	4,190 10,100
SB-20 (0-4) SB-20 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,980 2,000
SB-21 (0-2)	Lead	BCO Unrestricted=63 mg/kg	668
SB-22 (0-4) SB-22 (4-7.5)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	110,000 8,940
SB-23 (0-4)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	10,900
SB-24 (0-2)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	2,160
SB-25 (0-4)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	3,390
SB-26 (0-4) SB-26 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	1,680 350
SB-27 (0-4) SB-27 (8-10)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg BCO Industrial=3,900 mg/kg	4,780 191
SB-28 (0-4) SB-28 (4-8)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	3,270 718
SB-101 (0-4) SB-101 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	475 2,770
SB-102 (0-4) SB-102 (4-6)	Lead	BCO Unrestricted=63 mg/kg BCO Commercial=1,000 mg/kg	968 17,200

The following table lists the reported mercury concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5) SB-1 (7-9)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	7.5 J 8.5 J
SB-2 (0-5) SB-2 (5-7) SB-2 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	3.6 J 1.8 J 0.537 J
SB-3 (0-5) SB-3 (5-7) SB-3 (11-11.5)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	0.262 J 5.1 J 5.3 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg	2.2 J 1.4 J 1.5 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-5 (0-5) SB-5 (5-7)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	11.2 J 3.5 J
SB-6 (0-5) SB-5 (5-7) SB-6 (7-9)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	2.9 J 1.9 J 2.4 J
SB-7 (0-5) SB-7 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	2.1 J 4.1 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	8.7 J 8.4 J 6.8 J
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	5.7 J 2 J 4.9 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg	2.4 J 2.6 J 1.5 J
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	7 J 4.3 J 2.7 J
SB-12 (0-5) SB-12 (5-7)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	2.4 J 9.9 J
SB-13 (0-5) SB-13 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	5 J 5 J
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	4.2 J 4.8 J 2.5 J
SB-15 (0-5) SB-15 (7-9)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	3.9 J 0.351 J
SB-16 (0-4) SB-16 (4-7)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	1.9 J 7.3 D
SB-17 (0-4) SB-17 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	7.6 J 2.1 J
SB-18 (0-4) SB-18 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	4.4 J 2.4
SB-19 (0-4) SB-19 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	12.7 6.1
SB-20 (0-4) SB-20 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	4.6 3.8
SB-22 (0-4) SB-22 (4-7.5)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	4.1 J 4.1 J
SB-23 (0-4)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	15.1 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-24 (0-2)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	3.6
SB-25 (0-4)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	3.8
SB-26 (0-4)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	7.3 D 5.6 J
SB-27 (0-4) SB-27 (8-10)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	17 J 1.1 J
SB-28 (0-4) SB-28 (4-8)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	4 8.7
SB-101 (0-4) SB-101 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg BCO Industrial=5.7 mg/kg	5.7 J 10.1 J
SB-102 (0-4) SB-102 (4-6)	Mercury	BCO Unrestricted=0.18 mg/kg BCO Commercial=2.8 mg/kg	3.4 J 3.3 J

The following table lists the reported nickel concentrations that are above the Unrestricted Use SCOs and the Restricted Use - Commercial SCOs, but below the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5)	Nickel	BCO Unrestricted=30 mg/kg	51.5 J
SB-2 (0-5)	Nickel	BCO Unrestricted=30 mg/kg	70.7 J
SB-4 (0-5)	Nickel	BCO Unrestricted=30 mg/kg	30.2 J
SB-6 (0-5) SB-6 (5-7)	Nickel	BCO Unrestricted=30 mg/kg	38.8 J 44.6 J
SB-7 (0-5) SB-7 (9-11)	Nickel	BCO Unrestricted=30 mg/kg	95.6 J 49.3 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Nickel	BCO Unrestricted=30 mg/kg	235 J 186 J 98.6 J
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Nickel	BCO Unrestricted=30 mg/kg BCO Commercial=310 mg/kg	565 J 3.7 J 214 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Nickel	BCO Unrestricted=30 mg/kg	77.6 J 198 J 37.7 J
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	Nickel	BCO Unrestricted=30 mg/kg	143 J 58.8 J 44.7 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-12 (0-5) SB-12 (5-7)	Nickel	BCO Unrestricted=30 mg/kg	32.2 130
SB-13 (0-5) SB-13 (9-11)	Nickel	BCO Unrestricted=30 mg/kg	21.5 J 38.2
SB-14 (0-5)	Nickel	BCO Unrestricted=30 mg/kg	19.5
SB-15 (0-5)	Nickel	BCO Unrestricted=30 mg/kg	86.6 J
SB-16 (0-4) SB-16 (4-7)	Nickel	BCO Unrestricted=30 mg/kg BCO Commercial=310 mg/kg	60.2 310
SB-17 (0-4)	Nickel	BCO Unrestricted=30 mg/kg	216
SB-19 (0-4) SB-19 (4-6)	Nickel	BCO Unrestricted=30 mg/kg	171 279
SB-20 (0-4) SB-20 (4-6)	Nickel	BCO Unrestricted=30 mg/kg	124 149
SB-21 (0-2)	Nickel	BCO Unrestricted=30 mg/kg	57.1
SB-22 (0-4) SB-22 (4-7.5)	Nickel	BCO Unrestricted=30 mg/kg BCO Commercial=310 mg/kg	370 334
SB-23 (0-4)	Nickel	BCO Unrestricted=30 mg/kg	297
SB-24 (0-2)	Nickel	BCO Unrestricted=30 mg/kg	164
SB-25 (0-4)	Nickel	BCO Unrestricted=30 mg/kg	94.5
SB-27 (0-4)	Nickel	BCO Unrestricted=30 mg/kg	161
SB-28 (0-4)	Nickel	BCO Unrestricted=30 mg/kg	229
SB-101 (0-4) SB-101 (4-6)	Nickel	BCO Unrestricted=30 mg/kg	35.3 151
SB-102 (0-4) SB-102 (4-6)	Nickel	BCO Unrestricted=30 mg/kg BCO Commercial=310 mg/kg	78.3 933

The following table lists the reported zinc concentrations that are above the Unrestricted Use SCOs, the Restricted Use - Commercial SCOs, and/or the Restricted Use - Industrial SCOs:

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-1 (0-5) SB-1 (7-9)	Zinc	BCO Unrestricted=109 mg/kg	1,710 J 336 J
SB-2 (0-5) SB-2 (5-7) SB-2 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	2,770 J 1,080 J 276 J
SB-3 (0-5) SB-3 (5-7) SB-3 (11-11.5)	Zinc	BCO Unrestricted=109 mg/kg	161 J 698 J 885 J
SB-4 (0-5) SB-4 (5-7) SB-4 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	1,000 J 691 J 305 J
SB-5 (0-5) SB-5 (5-7)	Zinc	BCO Unrestricted=109 mg/kg	639 J 675 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-6 (0-5) SB-6 (5-7) SB-6 (7-9)	Zinc	BCO Unrestricted=109 mg/kg	964 J 1,590 J 326 J
SB-7 (0-5) SB-7 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	3,500 J 1,300 J
SB-8 (0-5) SB-8 (5-7) SB-8 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	8,110 J 6,240 J 3,250 J
SB-9 (0-5) SB-9 (7-8) SB-9 (11-12)	Zinc	BCO Unrestricted=109 mg/kg	6,640 J 2,260 J 1,810 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	1,580 J 995 J 816 J
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	3,390 J 2,690 J 1,970 J
SB-12 (0-5) SB-12 (5-7)	Zinc	BCO Unrestricted=109 mg/kg	937 3,420
SB-13 (0-5)	Zinc	BCO Unrestricted=109 mg/kg	1,290
SB-14 (0-5) SB-14 (7-9) SB-14 (9-11)	Zinc	BCO Unrestricted=109 mg/kg	399 1,820 892
SB-15 (0-5) SB-15 (7-9)	Zinc	BCO Unrestricted=109 mg/kg	3,650 J 176 J
SB-16 (0-4) SB-16 (4-7)	Zinc	BCO Unrestricted=109 mg/kg BCO Commercial=10,000 mg/kg BCO Industrial=10,000 mg/kg	2,450 J 10,700 J
SB-17 (0-4) SB-17 (4-6)	Zinc	BCO Unrestricted=109 mg/kg BCO Commercial=10,000 mg/kg BCO Industrial=10,000 mg/kg	12,300 J 1,140 J
SB-18 (0-4) SB-18 (4-6)	Zinc	BCO Unrestricted=109 mg/kg	1,110 J 388
SB-19 (0-4) SB-19 (4-6)	Zinc	BCO Unrestricted=109 mg/kg BCO Commercial=10,000 mg/kg BCO Industrial=10,000 mg/kg	6,120 43,800 D
SB-20 (0-4) SB-20 (4-6)	Zinc	BCO Unrestricted=109 mg/kg	3,760 2,460
SB-21 (0-2)	Zinc	BCO Unrestricted=109 mg/kg	1,810
SB-22 (0-4) SB-22 (4-7.5)	Zinc	BCO Unrestricted=109 mg/kg	8,070 J 9,720 J
SB-23 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	6,190 J
SB-24 (0-2)	Zinc	BCO Unrestricted=109 mg/kg BCO Commercial=10,000 mg/kg BCO Industrial=10,000 mg/kg	17,600 D
SB-25 (0-4)	Zinc	BCO Unrestricted=109 mg/kg BCO Commercial=10,000 mg/kg BCO Industrial=10,000 mg/kg	15,900 D

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (mg/kg)
SB-26 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	289 J
SB-26 (4-6)			233 J
SB-27 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	3,830 J
SB-28 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	4,110
SB-28 (4-8)			583
SB-101 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	1,410 J
SB-101 (4-6)			2,190 J
SB-102 (0-4)	Zinc	BCO Unrestricted=109 mg/kg	3,030 J
SB-102 (4-6)			7,270 J

6.1.4 Polychlorinated Biphenyls

The results of the December 2007 and November 2009 soil sampling program indicated the presence of PCB concentrations in soil above the Unrestricted Use SCO, the Restricted Use - Commercial SCOs, and the Restricted Use - Industrial SCOs.

The following table provides the sample location, sample depth, compound and corresponding analytical results which exceed the Unrestricted Use SCOs, the Restricted Use - Commercial SCO, and/or the Restricted Use - Industrial SCO.

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-1 (0-5)	PCBs (Aroclor 1260)	BCO Unrestricted=100 µg/kg	170 J
SB-1 (7-9)			440 J
SB-2 (0-5)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg	13,000 J
	PCBs (Aroclor 1254)	BCO Commercial=1,000 µg/kg	9,700 J
SB-4 (0-5)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg	880 J
SB-4 (7-9)	PCBs (Aroclor 1254)		440 J
SB-5 (0-5)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg	1,500 J
	PCBs (Aroclor 1254)	BCO Commercial=1,000 µg/kg	1,300 J
SB-5 (5-7)	PCBs (Aroclor 1242)		1,100 D
	PCBs (Aroclor 1254)		1,200 D
SB-6 (0-5)	PCBs (Aroclor 1254)	BCO Unrestricted=100 µg/kg	7,600 D
SB-6 (5-7)		BCO Commercial=1,000 µg/kg	33,000 J
SB-6 (7-9)		BCO Industrial=25,000 µg/kg	2,700 D
SB-7 (0-5)	PCBs (Aroclor 1260)	BCO Unrestricted=100 µg/kg	1,600 D
SB-7 (9-11)	PCBs (Aroclor 1254)	BCO Commercial=1,000 µg/kg	11,000 J
SB-8 (0-5)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg	73,000 J
	PCBs (Aroclor 1254)	BCO Commercial=1,000 µg/kg	27,000 D
SB-8 (5-7)	PCBs (Aroclor 1242)	BCO Industrial=25,000 µg/kg	5,600 J
	PCBs (Aroclor 1254)		2,500 J
SB-8 (9-11)	PCBs (Aroclor 1242)		11,000 D
	PCBs (Aroclor 1254)		10,000 D

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-9 (0-5) SB-9 (0-5)	PCBs (Aroclor 1248) PCBs (Aroclor 1260)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	22,000 J 740 J
SB-10 (0-5) SB-10 (5-7) SB-10 (9-11)	PCBs (Aroclor 1248) PCBs (Aroclor 1254) PCBs (Aroclor 1248)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	2,900 J 760 D 5,900 D
SB-11 (0-5) SB-11 (5-7) SB-11 (9-11)	PCBs (Aroclor 1248) PCBs (Aroclor 1260) PCBs (Aroclor 1248)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	4,600 D 170 J 310 J
SB-12 (0-5) SB-12 (5-7)	PCBs (Aroclor 1260)	BCO Unrestricted=100 µg/kg	150 J 720 J
SB-13 (0-5) SB-13 (9-11)	PCBs (Aroclor 1260) PCBs (Aroclor 1248)	BCO Commercial=1,000 µg/kg BCO Commercial=1,000 µg/kg	410 J 22,000 D
SB-14 (0-5) SB-14 (7-9)	PCBs (Aroclor 1254)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	23,000 J 9,500 D
SB-15 (0-5) SB-15 (7-9) SB-15 (9-11)	PCBs (Aroclor 1248)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	140 J 8,800 D 11,000 D
SB-16 (0-4) SB-16 (4-7)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	26,000 D 33,000 D
SB-17 (0-4) SB-17 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	69,000 D 31,000 J
SB-18 (0-4) SB-18 (4-6)	PCBs (Aroclor 1254)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	4,800 D 6,500 D
SB-19 (0-4) SB-19 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	14,000 J 22,000 J
SB-20 (0-4) SB-20 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	56,000 J 19,000 J
SB-21 (0-2)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	9,900 J
SB-22 (0-4) SB-22 (4-7.5)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	27,000 D 78,000 D
SB-23 (0-4)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	28,000 D
SB-24 (0-2)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	74,000 D
SB-25 (0-4)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	2,300 J
SB-26 (0-4) SB-26 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	460 1,300
SB-27 (0-4) SB-27 (8-10)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	3,200,000 D 31,000 J
SB-28 (0-4)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg	4,800 J

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-28 (4-8)		BCO Commercial=1,000 µg/kg	210
SB-101 (0-4) SB-101 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg	11,000 D 2,500 J
SB-102 (0-4) SB-102 (4-6)	PCBs (Aroclor 1242)	BCO Unrestricted=100 µg/kg BCO Commercial=1,000 µg/kg BCO Industrial=25,000 µg/kg	37,000 J 14,000 D

6.1.5 Pesticides

The results of the RI soil sampling program indicated that pesticide concentrations are above the Unrestricted Use SCOs, but below the Restricted Use - Commercial SCOs and Restricted Use - Industrial SCOs.

The following table provides the sample location, sample depth, compound and corresponding analytical results which exceed the Unrestricted Use SCOs, the Restricted Use - Commercial SCO, and/or the Restricted Use - Industrial SCO.

SAMPLE LOCATION	COMPOUND	SOIL CLEANUP OBJECTIVES	ANALYTICAL RESULTS (µg/kg)
SB-19 (4-6)	Delta-BHC	BCO Unrestricted=40 µg/kg	94 J
SB-20 (0-5) SB-20 (4-6)	Delta-BHC	BCO Unrestricted=40 µg/kg	660 J 150 J
SB-21 (0-2)	Delta-BHC	BCO Unrestricted=40 µg/kg	140

6.2 Sediment Sample Results – Results Assessment

The results of the RI sampling program did not indicate the presence of VOCs, SVOCs, and pesticides at concentrations above the NYSDEC's Technical for Screening Contaminated Sediment criteria. The NYSDEC Human Health Bioaccumulation (HHB), Benthic Aquatic Life Toxicity (BALT), Benthic Aquatic Life Chronic Toxicity (BALCT), and Wildlife Bioaccumulation (WB) Guidance Values have been listed in tables within the report. TAL metal concentrations exceed the Severe Effect Level (SEL) criteria at all four (4) sediment sample locations. PCB concentrations were also detected above HHB and/or WB criteria at all four (4) sediment sample locations.

The following table lists the reported TAL Metal concentrations above the SEL criteria:

COMPOUND	SEVERE EFFECT LEVEL CRITERIA	SED-1	SED-2	SED-3	SED-4
		ANALYTICAL RESULTS (mg/kg)			
Antimony	25	BC	31.10	BC	BC
Arsenic	33	BC	34.2 J	BC	BC
Cadmium	9	22.5 J	57.5 J	33.4 J	76.5 J
Chromium	110	147 J	283 J	214 J	397 J
Copper	110	610 J	1,380 J	941 J	1,370 J
Iron	40,000	134,000	101,000	43,800	53,900
Lead	110	1,220 J	2,250 J	1,360 J	1,880 J
Mercury	1.3	BC	2.5 D	2.7	8.4
Nickel	50	124 J	245 J	171 J	250 J
Silver	2.2	BC	BC	13.2 J	9.79 J
Zinc	270	2,050 J	5,290 J	3,560 J	5,120 J

BC= Below Criteria

The following table lists the reported TAL Metal concentrations above the LEL criteria:

COMPOUND	LOWEST EFFECT LEVEL CRITERIA	SED-1	SED-2	SED-3	SED-4
		ANALYTICAL RESULTS (mg/kg)			
Antimony	2	18.10	31.10	17.7	24.9
Arsenic	6	21.4 J	34.2 J	23.1 J	26 J
Cadmium	0.6	22.5 J	57.5 J	33.4 J	76.5 J
Chromium	26	147 J	283 J	214 J	397 J
Copper	16	610 J	1,380 J	941 J	1,370 J
Iron	20,000	134,000	101,000	43,800	53,900
Lead	31	1,220 J	2,250 J	1,360 J	1,880 J
Manganese	460	811 J	BC	BC	BC
Mercury	0.15	1.2	2.5 D	2.7	8.4
Nickel	16	124 J	245 J	171 J	250 J
Silver	1	BC	BC	13.2 J	9.79 J
Zinc	120	2,050 J	5,290 J	3,560 J	5,120 J

BC= Below Criteria

6.3 Surface Water Sample Results – Results Assessment

The results of the RI sampling program indicated that several VOCs and SVOCs were detected, but all concentrations are below the applicable NYSDEC Human Consumption of Fish - Saline

Waters (HCF-SW), Fish Survival - Saline Waters (FS-SW), Wildlife Protection - Saline Waters (WP-SW), and Aesthetic Waters - Saline Waters (AW-SW) Water Quality Standards. PCBs were not detected in the surface water samples collected during the RI sampling program above applicable NYSDEC criteria. A copper concentration of 0.005 J mg/L which is above the FS-SW of 0.0048 mg/L was detected in SW-2. No other TAL Metal concentrations were detected above applicable NYSDEC criteria. Since there are no apparent impacts to the surface water adjacent to the Site, no further action will be proposed.

6.4 Groundwater Sample Results – Results Assessment

The results of the RI soil sampling program indicates that several of the on-site groundwater monitoring wells exhibit concentrations of VOCs and TAL Metals above the TOGS standards. The following section discusses the sample results from the December 2007 and November 2009 sampling event. A complete evaluation of the groundwater results collected in December 2007 and November 2009 is presented in Section 6.6.4.

6.4.1 Volatile Organic Compounds

The results of the December 2007 and November 2009 groundwater sampling program indicated the presence of VOC concentrations above the TOGS standards.

The following table provides the monitoring well location, sampling date, compound and corresponding analytical results which exceed the TOGS standards.

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (µg/L)
MW-1 (12/2007) MW-1 (11/2009)	Vinyl Chloride	2 µg/L	12 10
MW-2 (11/2009)	1,1-Dichloroethane	5 µg/L	6
MW-2 (11/2009)	1,2-Dichloroethane	0.6 µg/L	1 J
MW-2 (12/2007) MW-2 (11/2009)	Cis-1,2-Dichloroehtene	5 µg/L	12 46
MW-2 (12/2007) MW-2 (11/2009)	Vinyl Chloride	2 µg/L	13 42

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (µg/L)
MW-3 (11/2009)	Benzene	1 µg/L	1 J
MW-3 (11/2009)	MTBE	10 µg/L	10
MW-4 (12/2007) MW-4 (11/2009)	MTBE	10 µg/L	12 63
MW-5 (12/2007) MW-5 (11/2009)	MTBE	10 µg/L	28 30
MW-7 (11/2009)	Benzene	1 µg/L	12
MW-7 (11/2009)	Cis-1,2-Dichloroehtene	1 µg/L	6
MW-7 (11/2009)	Vinyl Chloride	2 µg/L	12

6.4.2 Semi-Volatile Organic Compounds

The results of the December 2007 and November 2009 groundwater sampling program indicated that SVOC concentrations above the TOGS standards are not present in the groundwater samples collected during this sampling program.

6.4.3 TAL Metals

The results of the December 2007 and November 2009 groundwater sampling program indicated the presence of TAL Metals (unfiltered and filtered) concentrations above the TOGS standards.

The following table provides the monitoring well location, sampling date, compound and corresponding analytical results which exceed the TOGS standards. The table lists the reported aluminum concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-1 (12/2007) MW-1 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	0.129 0.171
MW-2 (12/2007) MW-2 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	0.244 1.67
MW-3 (12/2007) MW-3 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	0.485 4.66
MW-4 (12/2007)	Aluminum	0.100 mg/L	0.251
MW-5 (12/2007) MW-5 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	0.239 0.830
MW-6 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	0.807
MW-7 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	45.3
MW-8 (11/2009) (Unfiltered)	Aluminum	0.100 mg/L	71.1

The following table lists the reported arsenic concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-3 (11/2009) (Filtered)	Arsenic	0.025 mg/L	0.0429
MW-3 (11/2009) (Unfiltered)	Arsenic	0.025 mg/L	0.0429
MW-4 (11/2009) (Filtered)	Arsenic	0.025 mg/L	0.0631
MW-4 (11/2009) (Unfiltered)	Arsenic	0.025 mg/L	0.0746

The following table lists the reported cadmium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-7 (11/2009) (Unfiltered)	Cadmium	0.005 mg/L	0.0641

The following table lists the reported cobalt concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-3 (11/2009) (Unfiltered)	Cobalt	0.005 mg/L	0.0845 J
MW-7 (11/2009) (Unfiltered)	Cobalt	0.005 mg/L	0.0514
MW-8 (11/2009) (Unfiltered)	Cobalt	0.005 mg/L	0.0269

The following table lists the reported copper concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-7 (11/2009) (Unfiltered)	Copper	0.20 mg/L	0.227

The following table lists the reported iron concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-1 (12/2007)	Iron	0.30 mg/L	0.723
MW-1 (11/2009) (Unfiltered)			6.81
MW-1 (11/2009) (Filtered)			2.41
MW-2 (12/2007)	Iron	0.30 mg/L	1.79
MW-2 (11/2009) (Unfiltered)			26.10
MW-3 (12/2007)	Iron	0.30 mg/L	1.02
MW-3 (11/2009) (Unfiltered)			19.40
MW-3 (11/2009) (Filtered)			0.454

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-4 (12/2007)	Iron	0.30 mg/L	0.528
MW-5 (12/2007)	Iron	0.30 mg/L	0.412
MW-5 (11/2009) (Unfiltered)			2.08
MW-6 (11/2009) (Unfiltered)	Iron	0.30 mg/L	2.17
MW-7 (11/2009)(Unfiltered)	Iron	0.30 mg/L	122.0
MW-8 (11/2009) (Unfiltered)	Iron	0.30 mg/L	98.3
MW-8 (11/2009) (Filtered)			1.88

The following table lists the reported lead concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-2 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.047
MW-3 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.594
MW-4 (12/2007) (Unfiltered)	Lead	0.025 mg/L	0.055
MW-5 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.049
MW-6 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.049
MW-7 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.743
MW-7 (11/2009) (Filtered)			0.054
MW-8 (11/2009) (Unfiltered)	Lead	0.025 mg/L	0.271

The following table lists the reported magnesium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-3 (11/2009) (Unfiltered)	Magnesium	35 mg/L	70.3
MW-3 (11/2009) (Filtered)\			57.5

The following table lists the reported manganese concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-1 (12/2007)	Manganese	0.30 mg/L	1.82
MW-1 (11/2009) (Unfiltered)			2.1
MW-1 (11/2009) (Filtered)			2.41
MW-2 (12/2007)	Manganese	0.30 mg/L	0.449
MW-2 (11/2009) (Unfiltered)			0.857
MW-2 (11/2009) (Filtered)			0.776
MW-3 (12/2007)	Manganese	0.30 mg/L	1.32
MW-3 (11/2009) (Unfiltered)			1.2
MW-3 (11/2009) (Filtered)			1.04

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-5 (12/2007)	Manganese	0.30 mg/L	0.36
MW-5 (11/2009) (Unfiltered)			0.427
MW-5 (11/2009) (Filtered)			0.364
MW-6 (11/2009) (Unfiltered)	Manganese	0.30 mg/L	1.69
MW-6 (11/2009) (Filtered)			1.70
MW-7 (11/2009) (Unfiltered)	Manganese	0.30 mg/L	2.14
MW-7 (11/2009) (Filtered)			1.14
MW-8 (11/2009) (Unfiltered)	Manganese	0.30 mg/L	2.44
MW-8 (11/2009) (Filtered)			1.15

The following table lists the reported mercury concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-2 (11/2009) (Unfiltered)	Mercury	0.0007 mg/L	0.00092
MW-3 (11/2009) (Unfiltered)	Mercury	0.0007 mg/L	0.0014

The following table lists the reported nickel concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-7 (11/2009) (Unfiltered)	Nickel	0.10 mg/L	5.28
MW-7 (11/2009) (Filtered)			0.325

The following table lists the reported selenium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-7 (11/2009) (Unfiltered)	Selenium	0.01 mg/L	0.0152
MW-8 (11/2009) (Unfiltered)	Selenium	0.01 mg/L	0.0096 J

The following table lists the reported sodium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-1 (12/2007)	Sodium	20 mg/L	171
MW-1 (11/2009) (Unfiltered)			183
MW-1 (11/2009) (Filtered)			190

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-2 (12/2007) MW-2 (11/2009) (Unfiltered) MW-2 (11/2009) (Filtered)	Sodium	20 mg/L	175 125 128
MW-3 (12/2007) MW-3 (11/2009) (Unfiltered) MW-3 (11/2009) (Filtered)	Sodium	20 mg/L	203 194 192
MW-4 (12/2007) MW-4 (11/2009) (Unfiltered) MW-4 (11/2009) (Filtered)	Sodium	20 mg/L	182 148 152
MW-5 (12/2007) MW-5 (11/2009) (Unfiltered) MW-5 (11/2009) (Filtered)	Sodium	20 mg/L	165 155 143
MW-6 (11/2009) (Unfiltered) MW-6 (11/2009) (Filtered)	Sodium	20 mg/L	168 171
MW-7 (11/2009) (Unfiltered) MW-7 (11/2009) (Filtered)	Sodium	20 mg/L	101 95
MW-8 (11/2009) (Unfiltered) MW-8 (11/2009) (Filtered)	Sodium	20 mg/L	478 487

The following table lists the reported thallium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-1 (12/2007)	Thallium	0.0005 mg/L	0.0097 J
MW-3 (12/2007)	Thallium	0.0005 mg/L	0.0117 J
MW-4 (11/2009) (Unfiltered)	Thallium	0.0005 mg/L	0.0236 J
MW-6 (11/2009) (Unfiltered)	Thallium	0.0005 mg/L	0.0288 J
MW-7 (11/2009) (Unfiltered)	Thallium	0.0005 mg/L	0.0314 J
MW-8 (11/2009) (Unfiltered)	Thallium	0.0005 mg/L	0.0491 J

The following table lists the reported vanadium concentrations above the TOGS standards:

SAMPLE LOCATION	COMPOUND	TOGS STANDARD	ANALYTICAL RESULTS (mg/L)
MW-3 (11/2009) (Unfiltered)	Vanadium	0.014 mg/L	0.0287
MW-7 (11/2009) (Unfiltered) MW-7 (11/2009) (Filtered)	Vanadium	0.014 mg/L	0.158 J 0.00766
MW-8 (11/2009) (Unfiltered)	Vanadium	0.014 mg/L	0.179

6.4.4 Polychlorinated Biphenyls

The results of the RI groundwater sampling program indicated that PCB concentrations above the TOGS standards are not present in the groundwater samples collected during this sampling

program. Groundwater samples were not collected at the Site during the December 2007 sampling program.

6.5 Soil Gas Sample – Results Assessment

The results of the RI soil gas sampling program indicate that all of the soil gas collection points exhibited concentrations of VOCs. The VOCs detected, the range of concentrations, and the associated soil gas collection locations are presented in the following table.

Comparison of Soil Vapor Results from the Soil Gas Probes

Parameter	Range of Soil Vapor Concentrations ($\mu g/m^3$)		Soil Gas Collection Location
	Low Concentration	High Concentration	
Acetone	605 D $\mu g/m^3$	629.2 D $\mu g/m^3$	SG-1/SG-2
Benzene	7.2 $\mu g/m^3$	11.4 J $\mu g/m^3$	SG-1/SG-2/SG-3
2-butanone	33 J $\mu g/m^3$	216.3 D $\mu g/m^3$	SG-1/SG-2/SG-3
Carbon disulfide	7.3 $\mu g/m^3$	10.8 J $\mu g/m^3$	SG-1/SG-2
Chloroform	1.4 J $\mu g/m^3$	7 J $\mu g/m^3$	SG-1/SG-2
Cyclohexane	2 J $\mu g/m^3$	27 J $\mu g/m^3$	SG-1/SG-3
Dichlorodifluoromethane	4.1 J $\mu g/m^3$	2,216.7 J $\mu g/m^3$	SG-1/SG-2/SG-3
Ethylbenzene	6.2 J $\mu g/m^3$	11.1 $\mu g/m^3$	SG-1/SG-2/SG-3
4-Ethyltoluene	0.79 $\mu g/m^3$	0.81 $\mu g/m^3$	SG-1/SG-2
Heptane	4.2 $\mu g/m^3$	5.8 J $\mu g/m^3$	SG-1/SG-2
Hexane	6.5 $\mu g/m^3$	39.7 $\mu g/m^3$	SG-1/SG-2/SG-3
4-Methyl-2-Pentanone	1.8 J $\mu g/m^3$	3 $\mu g/m^3$	SG-1/SG-2
Methylene Chloride	0.7 J $\mu g/m^3$	7.4 $\mu g/m^3$	SG-1/SG-2
Tert-Butyl Alcohol	14.5 $\mu g/m^3$	18.5 J $\mu g/m^3$	SG-1/SG-2
PCE	76 J $\mu g/m^3$	138.2 J $\mu g/m^3$	SG-1/SG-2/SG-3
TCE	3.6 $\mu g/m^3$	4.1 $\mu g/m^3$	SG-1/SG-2
1,1,1-Trichloroethane	4.8 $\mu g/m^3$	44.5 J $\mu g/m^3$	SG-1/SG-2
1,1,2-Trichlorodifluoromethane	1.2 J $\mu g/m^3$	3 J $\mu g/m^3$	SG-1/SG-2
Trichlorofluoromethane	2.8 J $\mu g/m^3$	2,804.6 J $\mu g/m^3$	SG-1/SG-2/SG-3
1,2,4-Trimethylbenzene	6.5 J $\mu g/m^3$	14.5 $\mu g/m^3$	SG-1/SG-2/SG-3
1,3,5-Trimethylbenzene	0.56 $\mu g/m^3$	0.97 $\mu g/m^3$	SG-1/SG-2
2,2,4-Trimethylpentane	2.8 $\mu g/m^3$	4.9 J $\mu g/m^3$	SG-1/SG-2/SG-3
Toluene	30.7 J $\mu g/m^3$	49.9 J $\mu g/m^3$	SG-1/SG-2/SG-3
m/p-Xylenes	27.9 J $\mu g/m^3$	42.5 $\mu g/m^3$	SG-1/SG-2/SG-3
o-Xylenes	11.1 $\mu g/m^3$	13.3 J $\mu g/m^3$	SG-1/SG-2/SG-3

Thirty (30) VOCs were detected at concentrations above the Method Detection Limit (MDL) from SG-1, 24 VOCs were detected at concentrations above the MDL at SG-2, and 13 VOCs were detected at concentrations above the MDL at SG-3. These results further indicate that VOCs are present at all three (3) soil gas collection points with 12 of the highest contaminant-specific concentrations detected at SG-1, six (6) of the highest contaminant-specific concentrations detected at SG-2, and seven (7) of the highest contaminant-specific concentrations detected at SG-3.

The soil gas sample results indicate the presence of VOC concentrations in the northwestern portion of the Site along the property boundary and along the western property boundary in the vicinity of Morgan Avenue.

6.6 Remedial Investigation Conclusions

The results of the RI sampling program have indicated that the on-site surface and subsurface soil concentrations are present at concentrations above Part 375 Restricted Use SCOs. The sediment samples have indicated the presence of TAL metal and PCB concentrations, below the Lowest Effect Level and above the Severe Effect Level, which appears to have been impacted by activities associated with the English Kills. The surface water samples do not indicate the presence of VOC, SVOC, TAL Metal, and PCB concentrations above applicable criteria. The groundwater sample results have indicated the presence of benzene, cis-1,2-dichloroethene, 1,1-dichloroethane, 1,2-dichloroethane, MTBE, and vinyl chloride concentrations above their TOGS standards in several on-site monitoring wells. The soil gas sample results indicate the presence of VOC soil gas vapors in the northwestern portion of the Site along the property boundary and along the western property boundary in the vicinity of Morgan Avenue.

6.6.1 Soil

The results of the RI, as well as the results of the previous investigations conducted since 2003 indicate the presence of arsenic, lead, mercury, PCB, and SVOC in soil with concentrations above Part 375 Restricted Use SCOs at the Site. Lead, mercury, PCB, and SVOC are present in

the surface and subsurface soil in a several areas of the Site and arsenic is present in the surface and subsurface soil in certain areas of the Site.

Arsenic concentrations above the Restricted Use - Commercial and/or Industrial SCOs are present from the ground surface to an approximate depth of 4 to 5 ft-bgs in several locations along the western portion of the Site, in the northeast portion of the Site, and in the south central portion of the Site, to a depth of 7 ft-bgs in the north and south central portion of the Site and in the central portion of the Site, and to a depth of 11.5 ft-bgs in the northeastern and southwestern portion of the Site. Figures 6-1 and 6-2 present the sampling locations which exceed the Restricted Use - Commercial SCOs for arsenic in the 0 to 5 ft-bgs and in the 4 to 12 ft-bgs sampling intervals. Figures 6-3 and 6-4 presented the sampling locations which exceed the Restricted Use - Industrial SCOs for arsenic in the 0 to 5 ft-bgs and in the 4 to 12 ft-bgs sampling intervals.

Lead concentrations above the Restricted Use - Commercial and/or Industrial SCOs are present from the ground surface to an approximate depth of 6 ft-bgs in one location in the north central portion of the Site, to a depth of 4 ft-bgs in the south central portion of the Site, to a depth of 7 ft-bgs in the south-southeastern portion of the Site, and to a depth of 11.5 ft-bgs in the southwestern portion of the Site. Figures 6-1 and 6-2 present the sampling locations which exceed the Restricted Use - Commercial SCOs for lead in the 0 to 5 ft-bgs and in the 4 to 12 ft-bgs sampling intervals. Figures 6-3 and 6-4 presented the sampling locations which exceed the Restricted Use - Industrial SCOs for lead in the 0 to 5 ft-bgs and in the 4 to 12 ft-bgs sampling intervals.

Mercury concentrations above the Restricted Use - Commercial and/or Industrial SCOs are present from the ground surface to an approximate depth of 7 ft-bgs in the northern portion of the Site, to a depth of 12 ft-bgs in the central portion of the Site, and to a depth of 11.5 ft-bgs in southern portion of the Site. Figures 6-1 and 6-2 present the sampling locations which exceed the Restricted Use - Commercial SCOs for mercury in the 0 to 4 ft-bgs and in the 4 to 12 ft-bgs sampling intervals. Figures 6-3 and 6-4 present the sampling locations which exceed the Restricted Use - Industrial SCOs for mercury in the 0 to 4 ft-bgs and in the 4 to 12 ft-bgs sampling intervals.

PCB concentrations above the Restricted Use - Commercial and/or Industrial SCOs are present from the ground surface to an approximate depth of 4 ft-bgs in the north central portion of the Site, to a depth of 4 ft-bgs in the western portion of the Site, and to a depth of 10 ft-bgs in southern portion of the Site. Several sample collected during the December 2007 and November 2009 RI sampling programs detected PCB concentrations in excess of the Restricted Use - Industrial SCO of 25 mg/kg and in excess of Toxic Substance Control Act (TSCA) criteria of 50 mg/kg. Soil with concentrations above 50 mg/kg must be disposed as 'hazardous' and must meet the requirements established by TSCA in accordance with 40 CFR 761.61 (PCB Remediation Waste) and Section 3006 of the Resource Conservation and Recovery Act (RCRA). Figures 6-4 and 6-5 presented the sampling locations which exceed the Restricted Use - Commercial and Industrial SCOs for PCBs.

SVOC concentrations above the Restricted Use - Commercial and/or Industrial SCOs are present from the ground surface to the approximate depth of groundwater (11 ft-bgs) throughout most of the Site.

The soil contaminant ranges for each parameter listed below is based on the number of samples and concentrations above each respective SCO. Samples above the Restricted Use - Commercial SCO evaluates only those sample locations with concentrations above the Restricted Use - Commercial SCOs and above the Restricted Use - Industrial SCOs. Whereas, samples above the Restricted Use - Industrial SCO only evaluates sample locations with concentrations above the Industrial SCOs and does not include sample locations and concentrations above the Restricted Use - Commercial SCOs.

Soil Contaminant Range

Parameter	Samples Collected	Sample above Commercial SCOs	High (mg/kg)	Low (mg/kg)	Median (mg/kg)	Average (mg/kg)
Lead	68	40	110,000	1,100	2,880	6,540
Mercury	68	39	17	3	5.70	7
PCBs	68	46	3,200	1.27	16.5	1.6

Parameter	Samples Collected	Sample above Commercial SCOs	High (mg/kg)	Low (mg/kg)	Median (mg/kg)	Average (mg/kg)
Benzo(a)anthracene	68	33	1,000	6.6	15	24.2
Benzo(b)fluoranthene	68	34	110	6.2	15.5	24
Chrysene	68	2	97	82	89	NA
Indeno(1,2,3-cd)pyrene	68	18	44	7.9	10	15.5

Parameter	Samples Collected	Sample above Industrial SCOs	High (mg/kg)	Low (mg/kg)	Median (mg/kg)	Average (mg/kg)
Lead	68	1	110,000	110,000	110,000	110,000
Mercury	68	18	17	6	8.45	9
PCBs	68	16	3,200	26	46.5	445
Benzo(a)anthracene	68	24	1,000	9.1	20	29.9
Benzo(b)fluoranthene	68	24	110	12	22	30.5
Indeno(1,2,3-cd)pyrene	68	7	44	15	22	25.2

6.6.1.1 Source Areas

The results of the RI, as well as the results of the previous investigations conducted since 2003 indicate the presence of several "source areas" with soil concentrations in excess of Part 375 Restricted Use - Industrial SCOs at the Site. "Source areas" were designated at the Site as areas where the investigations have identified a discrete area of soil containing contaminants in sufficient concentrations to migrate in that medium, or to release significant levels of contaminants to another medium, such as, groundwater, which could result in a threat to public health or the environment. "Source areas" for the Site, were identified as soil contaminants having concentrations exceeding the Restricted Use - Industrial SCOs that could, if not remediated, have the potential to migrate to and impact groundwater quality at the Site.

The soil contaminants that could have the potential to migrate and impact groundwater quality at the Site have been identified as arsenic, lead, mercury, and PCB concentrations exceeding the Restricted Use - Industrial SCOs. The site-specific "source areas" have been identified to include soil borings SB-1, SB-3, SB-5, SB-6, SB-8, SB-11, SB-12, SB-16, SB-17, SB-19, SB-20, SB-22, SB-24, SB-25, SB-26, SB-27, SB-28, and SB-101.

6.6.2 Sediments

The results of the RI did not indicate the presence of VOCs, SVOCs, and pesticides at concentrations above the applicable NYSDEC Human Health Bioaccumulation (HHB), Benthic Aquatic Life Toxicity (BALT), Benthic Aquatic Life Chronic Toxicity (BALCT), and Wildlife Bioaccumulation (WB) Guidance Values have been listed in tables within the report. TAL metal concentrations exceed the Severe Effect Level (SEL) criteria at all four (4) sediment sample locations. PCB concentrations were also detected above HHB and/or WB criteria at all four (4) sediment sample locations.

TAL Metals and PCBs detected in the sediments have been also detected at the Site, the source of the metal and PCB sediment contamination is likely attributable to impacts to the English Kills from a variety of sources rather than attributable to impacts to the Site. The data collected during the RI sampling program is inconclusive that the Site is responsible for, or attributable to the sediment contamination. A more extensive sediment sampling program would need to be implemented to make this determination.

6.6.3 Surface Water

The results of the RI did not indicate the presence of VOC, SVOC, PCBs, or pesticides at concentrations above the applicable NYSDEC Human Consumption of Fish - Saline Waters (HCF-SW), Fish Survival - Saline Waters (FS-SW), Wildlife Protection - Saline Waters (WP-SW), and Aesthetic Waters - Saline Waters (AW-SW) Guidance Values. A copper concentration of 0.005 J mg/L which is above the FS-SW of 0.0048 mg/L was detected in SW-2. Based on the surface results collected during the November 2009 sampling event, there do not appear to be surface water impacts from Site, therefore, no further action is proposed.

6.6.4 Groundwater

The results of the RI, as well as the results of the previous investigations conducted since 2003 indicate the presence of benzene, cis-1,2-dichloroethene (DCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), MTBE, and vinyl chloride concentrations above their respective TOGS standards in several on- and off-site monitoring wells, as well as concentrations of several metals (i.e., aluminum, arsenic, iron, magnesium, manganese, nickel, and sodium). SVOCs and

PCBs were not detected at concentrations above the TOGS standards collected from either the on- or off-site monitoring wells. Only TAL Metals were collected as filtered and unfiltered samples, all other analytes were collected as unfiltered samples.

The presence of chlorinated VOCs (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) in groundwater is most likely due to anaerobic dechlorination of PCE from an off-site location. Chlorinated VOCs soil concentrations were reported at 150 mg/kg at soil boring SB-11 (0-5'); all other chlorinated VOCs soil concentrations were below this reported concentration. In groundwater, concentrations of DCE and DCA are increasing which is most likely anaerobic dechlorination.

In MW-1, the presence of chlorinated VOC (1,1-DCA at 3.3 µg/L, DCA at 1.2 µg/L, and vinyl chloride at 10 µg/L) concentrations in groundwater are most likely the anaerobic dechlorination by-products from an off-site PCE/TCE source, as the closest soil boring SB-2 indicates the minimal presence of chlorinated VOCs (19 µg/kg to 134 µg/kg). The off-site and upgradient monitoring well (MW-7) also exhibited chlorinated VOCs (1,1-DCA at 3.3 µg/L, DCA at 6.3 µg/L, and vinyl chloride at 12 µg/L) at higher concentrations than MW-1 (DCE at 1.2 µg/L and vinyl chloride at 10 µg/L). The concentrations from the off-site monitoring MW-7 appear to be impacting the groundwater quality at MW-1 as some PCE daughter products (1,1-DCA [2.8 to 3.3 µg/L], 1,2-DCA [not detect to 1.4 µg/L], DCE [not detect to 1.2 µg/L]) showed a slight increase in concentrations from December 2007 to November 2009. Vinyl chloride concentrations decreased in MW-1 from December 2007 (12 µg/L) to November 2009 (10 µg/L). Vinyl chloride can be dechlorinated by soil bacteria to produce ethane which further degrades to water and carbon dioxide.

The presence of PCE daughter products (1,1-DCA, 1,2-DCA, and DCE) in the groundwater sample collected at MW-2 is most likely due to the degradation of chlorinated VOCs from an off-site location, as the closest soil boring SB-3 indicates the minimal presence of DCE (38 µg/kg to 54 µg/kg) and PCE (33 µg/kg). PCE daughter product (1,1-DCA [3.2 to 6.4 µg/L], 1,2-DCA [not detect to 1.4 µg/L], and DCE [3.2 to 6.4 µg/L]) concentrations at MW-2 have increased from the December 2007 to the November 2009 sampling events indicating that

anaerobic dechlorination is likely occurring in this portion of the Site. Vinyl chloride concentrations increased in MW-2 from December 2007 (13 µg/L) to the November 2009 (42 µg/L) sampling events.

Chlorinated VOCs (1,1-DCA, 1,2-DCA, DCE, PCE, TCE, and vinyl chloride) were detected in soil samples SB-6 (5-7) (90.3 mg/kg), SB-10 (16.8 mg/kg), and SB-11 (85 mg/kg to 150 mg/kg) during the December 2007 sampling event with concentrations above the Unrestricted Use SCOs. MW-3 is located approximately 50 feet downgradient of SB-6 and the DCE concentration was reported at 0.6 µg/L. MW-4 is located approximately 100 feet downgradient of SB-10, DCE was not detected and DCA was reported at 1 µg/L. MW-6 is located approximately 10 feet upgradient of SB-11 and the chlorinated VOC (1,1-DCA, 1,2-DCA, and DCE) were not detected. Vinyl chloride increased slightly at MW-3 (not detected to 1 µg/L) but no chlorinated VOCs were not detected in MW-4 and MW-6. This review of the groundwater results from the monitoring wells downgradient to these soil sample locations indicate that minimal chlorinated VOCs impacts have occurred but these impacts are well below the applicable TOGS standards.

Chlorinated VOCs were not detected in soil samples above the Unrestricted Use SCOs during the November 2009 sampling event. Additional groundwater sampling is proposed to continue monitoring of benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride.

The unfiltered TAL Metal groundwater samples are significantly higher for most metals than the filtered samples indicating metals are adsorbed to total suspended suspended/total dissolved solids (TSS/TDS). Aluminum, arsenic, iron, magnesium, manganese, and sodium are present in several on-site monitoring well at concentrations in excess of the TOGS standards. Aluminum, chromium, iron, lead, manganese, nickel, and sodium were detected in filtered samples from MW-7 and MW-8 (off-site monitoring wells) and may be indicative of a regional or localized groundwater conditions. Arsenic was detected in both the unfiltered and filtered samples with similar concentrations above the TOGS standards which could indicate a localized elevated arsenic groundwater condition at MW-3 and MW-4.

Figure 6-8 depicts the groundwater flow direction that was generated using the groundwater elevations collected during the RI sampling program. The groundwater flow direction appears to be generally flowing eastward towards the English Kills.

6.6.5 Soil Gas

The results of the RI indicate the presence of VOC soil gas vapors on the Site in all three (3) soil gas collection points installed and sampled at the Site. The soil gas results for SG-1 and SG-2 are generally higher in overall number of detections and concentrations than SG-3. However, seven (7) VOC concentrations at SG-3 are present in higher concentrations than SG-1 and SG-2

Since there are not impacted receptors and no planned structures on the Site, no additional investigations are proposed to address the elevated VOC concentrations detected in the soil gas samples. However, the proper mitigation system will be designed and installed for any future structures constructed on the Site.

7.0 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

As a result of previously completed environmental investigations and the RI sampling program, a qualitative Human Health Exposure Assessment (HHEA) was completed in accordance with NYSDEC DER-10. The HHEA objectives are (1) the development of a site-specific conceptual site model (CSM); (2) to outline the exposure scenarios; (3) to identify potentially exposed receptors; and (4) to evaluate contaminant fate and transport. Pathways and receptors that will not be considered in the HHEA are also included in the HHEA with a rationale for their exclusion.

Overall, five (5) factors are considered in defining exposure pathways. Each factor must be present in order for an exposure pathway to be considered complete and; therefore, the following must be present for a contaminated site to pose a risk to human health:

1. A contaminant source;
2. Contaminant release and transport mechanisms from the source, through any environmental medium;
3. A point of exposure;
4. A route or pathway for contaminant exposure to the receptor (dermal contact, ingestion, and/or inhalation); and,
5. Receptors populations may be exposed to contamination.

7.1 Conceptual Site Model

The CSM provides a technical overview of the exposure assessment in a site-specific format that indicates contaminant sources, transport mechanisms, exposure pathways, and receptors. The CSM has been developed to identify the mechanisms by which regulated compounds could potentially move from affected source media to the point of exposure where contact with the receptor may occur. Potential sources, exposure pathways and receptors are illustrated on the

CSM for human exposure. Potential exposure pathways are designated by dark circles and incomplete exposure pathways are designated as open circles (See Figure 7-1).

An overview of the CSM is summarized below:

- Over a period of years, the historic scrap/junk yard operations at the Site have impacted the environmental quality of the soil and groundwater.
- Chemicals leached from the overburden soil to the underlying groundwater and traveled hydraulically downgradient from the source area, creating a contaminated groundwater plume. Additionally, as groundwater has migrated through soil, the chemicals have volatilized into the vadose zone, and diffused in soil pore spaces underlying the Site.

7.2 Potential Receptors

Potentially exposed receptors include:

- employees of adjacent businesses to the Site;
- Individuals or future occupants if future construction takes place on the Site;
- construction/utility/environmental workers who may excavate in areas of contaminated soil or groundwater; and,
- trespassers who enter the Site.

7.3 Potential Exposure Pathways

An exposure pathway describes the route a chemical or physical agent takes from its source to an exposed individual. The fate and transport analysis identifies complete exposure pathways, and considers the site-specific land use, and any institutional or engineering controls (ICs/ECs) to be employed to eliminate pathways.

A complete exposure pathway generally consists of these elements:

1. A source or chemical release from a source;
2. An exposure point where contact can occur; and,
3. An exposure route (e.g., ingestion) at the contact point.

If any component is missing, the pathway is deemed incomplete, and is not quantitatively evaluated in the risk assessment (USEPA, 1989). Elimination of exposure pathways may occur based on professional judgment and evaluation of site-specific conditions. For example, if the probability of exposure occurring is low or if the impact of the exposure pathway is expected to be minor in comparison to other exposure pathways, the exposure pathway may be eliminated (USEPA, 1989).

Given the current understanding of the identified and potential source areas, as well as fate and transport mechanisms, the most appropriate current and future *potentially complete* exposure pathways are represented by:

7.3.1 Inhalation of Vapors in Indoor Air from Groundwater and Soil

Inhalation of vapors in indoor air may occur for the following receptors and exposure settings.

- Currently, employees of adjacent businesses, if working above impacted groundwater outside the Site boundaries.
- Individuals or future occupants if future construction takes place on the Site.

7.3.2 Inhalation of Ambient Vapors from Groundwater and Soil

Inhalation of vapors from soil gas in ambient air is not considered a complete exposure pathway for any receptor, because chemical residuals were not detected in ambient air samples collected during the RI sampling program.

7.3.3 Inhalation of Vapors in Excavations

Construction and utility workers may be exposed to concentrations of volatilized chemicals residuals during excavation activities in impacted soils.

7.3.4 Incidental Ingestion of Chemical Residuals in Soil

Incidental ingestion of site-related chemicals in surface and subsurface soils may occur for construction or utility workers during excavation activities within Site boundaries. Trespassers may have incidental ingestion of chemical residuals in soils while on-site.

7.3.5 Dermal Contact of Chemical Residuals in Soil

Dermal contact of site-related chemicals in surface and subsurface soils may occur for construction and utility workers soil during work activities within Site boundaries. Trespassers may have dermal contact with chemical residuals in soils while on-site.

7.3.6 Inhalation of Chemical Residuals in Airborne Particulates

Construction or utility workers may be exposed to chemical residuals on airborne particles during excavation activities. Trespassers may be exposed to airborne particulates while on-site.

7.3.7 Ingestion of Groundwater

Construction or utility workers could incidentally ingest contaminated groundwater during ground intrusive activities.

7.3.8 Dermal Contact of Groundwater

Construction or utility workers could come into direct contact with contaminated groundwater during ground intrusive activities.

7.3.9 Potential Incomplete Exposure Pathways

Given the current understanding of the identified and potential source areas and fate and transport mechanisms, the most appropriate current and future *potentially incomplete* exposure pathways, and the rationale for their exclusion, are represented by:

- Ingestion, inhalation and dermal contact of contaminated groundwater under a current use scenario.
- Inhalation of chemical residual vapors in ambient air within the Site boundaries under all exposure scenarios.

7.4 Nature and Extent of Contaminants

The results of previous and recently completed environmental investigations conducted at the Site indicate that certain metals and petroleum-related VOCs, SVOCs, and PCBs were found in soil at concentrations that exceeded regulatory threshold values. Most notably, arsenic, mercury, PCBs, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are present in the surface and subsurface soil at concentrations in excess of the NYSDEC's TAGM and Part 375 Unrestricted and Restricted Use SCOs. Benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride concentrations above their TOGS standards in several on-site monitoring wells. Benzene, DCE, and vinyl chloride is present in the groundwater in one (1) off-site monitoring well. The results from the groundwater sample collected from MW-2 indicates the presence of chlorinated VOCs daughter products (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) with concentrations above their TOGS standards. Aluminum, arsenic, iron, magnesium, manganese, and sodium are present in several on-site monitoring well at concentrations in excess of the TOGS standards. Aluminum, chromium, iron, lead, manganese, nickel, and sodium were detected from the off-site monitoring wells MW-7 and MW-8 at concentrations above the TOGS standards and may be indicative of a regional or localized groundwater conditions.

Therefore, these constituents were determined to be chemicals of potential concern (COPCs) for the purposes of the HHEA.

7.5 Contaminant Fate and Transport

Chemicals released into the environment pass through environmental media (e.g., air, soil, water, and groundwater) or experience chemical alterations. The fate and transport of chemical species is evaluated to understand and to identify potential release mechanisms and anticipated media of concern. The results of qualitative fate and transport analysis are used to identify potential exposure pathways and receptors that may come into contacted with the contaminated media.

The following analysis of contaminant fate and transport takes into accounts the physical characteristics and surroundings of the Site, the groundwater hydrology, and the documented nature, extent, and chemical properties of the COPCs. The environmental media on the Site that currently may serve as pathways for contaminant migration are soil, soil gas, and groundwater.

7.5.1 Soil

Arsenic, lead, mercury, PCBs, and PAHs are present in soils at the Site at levels above the Restricted Use - Commercial and/or Industrial SCOs. The reported soil contamination is present in both the surface and the subsurface soil. In some portions of the Site, the soil contamination is higher in concentration in the 0 to 4-foot depth interval and in other portions of the Site; the soil contamination is higher below 4 ft-bgs. The data suggests that there is no consistent pattern contaminant distribution across the Site or within specific areas of the Site. For the protection of groundwater, potential for soil contaminant migration into the groundwater pathway is further assessed.

Comparison of maximum detected concentrations of chemicals in soil to the Restricted Use - Commercial and/or Industrial SCOs indicates that arsenic, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3)pyrene, mercury, and PCBs concentrations in surface and subsurface soil.

Arsenic - Arsenic released to soil at the Site is predominately inorganic and relatively immobile because it binds to soil particles. It is often associated with iron and manganese oxides in soil under oxidizing conditions, leaching usually does not transport arsenic to any great depth. The immobility of arsenic in soil at the Site is generally consistent with the vertical distribution of arsenic in the soil column. Much of the arsenic contamination is limited to within four (4) feet of the surface. Arsenic is an oxidation/reduction potential (Eh) active element that generally exists in either the +3 or the +5 oxidation states. Arsenate (As^{+5}) dominates in aerobic systems whereas arsenite (As^{+3}) persists in anaerobic systems. As much of the arsenic contamination at the Site is limited to subsurface soil, these soils are more likely to be in an aerobic condition. Therefore, arsenate is probably the predominate form in soils. Arsenate generally binds tenaciously to soils, particularly iron oxides.

However, a review of groundwater data indicates that groundwater is generally not impacted by arsenic, with the exception of MW-3 and MW-4 where arsenic was detected at a concentration of 42.9 µg/L and 63.1 µg/L, which exceeds the TOGS standard of 25 µg/L. These elevated concentrations may be the result of high turbidity in the samples collected in MW-3 (38.19 NTUs) and MW-4 (81 NTUs). Arsenic was not detected during the 2007 RI sampling program. No other on-site monitoring well detected arsenic concentrations above TOGS standard of 25 µg/L.

Lead - Lead concentrations in soil tend to be relatively constant because lead does not degrade or volatilize, and because lead usually does not migrate extensively through soil. A review of groundwater data indicates that groundwater is generally not impacted by lead, with the exception of MW-4 where lead was detected at a concentration of 25.2 µg/L (2004), which slightly exceeding the TOGS standard of 25 µg/L. Lead was not detected during the 2009 RI sampling program, with the exception of MW-7 which is located off-site and recorded a lead concentration of 54 µg/L. No other on-site monitoring well detected lead concentrations above TOGS standard of 25 µg/L.

Due to the insoluble nature of inorganic arsenic and lead in water, concentrations of these metals are expected to be significantly reduced in groundwater along the flow path as a result of natural filtering (adsorption) in groundwater aquifer. The low level of arsenic concentrations in groundwater at the Site indicates that arsenic in soils is predominantly in insoluble forms and not available.

Mercury - Mercury is regarded as strongly retained and highly "immobile" in contaminated soils. This is most likely due to highly stable complex formation (irreversible forms) and strong binding to high-affinity sites. Though it is acknowledged that no documentation of chemical use at this Site exists, it is possible that mercury-containing equipment or devices may have been used on-site and the documented contamination at the Site is the results of spills and/or releases from these devices or equipment. When elemental mercury is spilled or a device containing mercury breaks, the exposed elemental mercury can evaporate and become an invisible, odorless toxic vapor. Elemental or metallic mercury is the liquid metal used in thermometers, barometers,

and thermostats and other electrical switches. Inorganic mercury compounds take the form of mercury salts. Inorganic compounds and organic compounds (such as phenylmercury acetate and ethylmercury), have been commonly used as fungicides, antiseptics or disinfectants. Exposure to mercury compounds is primarily through ingestion, but can occur through other pathways. Ingested organic mercury compounds are more readily absorbed through the gastrointestinal tract than are inorganic compounds.

PCBs - PCBs do not readily break down and therefore may remain for very long periods of time in soil. PCBs can enter the air by evaporation from both soil and water. In air, PCBs can be carried long distances and have been found in snow and sea water in areas far away from where they were released into the environment, such as in the arctic. In general, the lighter the type of PCBs, the further they may be transported from the source of contamination. PCBs are present as solid particles or as a vapor in the atmosphere. They will eventually return to land and water by settling as dust or in rain and snow. In water, PCBs may be transported by currents, attach to bottom sediment or particles in the water, and evaporate into air. Heavy kinds of PCBs are more likely to settle into sediments while lighter PCBs are more likely to evaporate to air. Sediments that contain PCBs can also release the PCBs into the surrounding water. PCBs stick strongly to soil and will not usually be carried deep into the soil with rainwater. They do not readily break down in soil and may stay in the soil for months or years; generally, the more chlorine atoms that the PCBs contain, the more slowly they break down. Evaporation appears to be an important way by which the lighter PCBs leave soil.

PAHs - The residual contamination through a majority of the Site is characterized by high molecular weight PAHs containing three fused benzene rings, *e.g.*, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and dibenzo(a,h)anthracene. These PAHs are virtually insoluble in water (water solubility ranges from 0.002 mg/L to 0.00019 mg/L) and tend to remain preferentially associated with the organic carbon fraction in soil, which greatly reduces their potential for transport through percolating rainwater or groundwater pathways. The immobility of PAHs is confirmed by groundwater data as none of the site-specific PAHs are reported in any of the groundwater samples collected at the Site.

Given no documentation of chemical use at this Site exists, PAHs and PCBs have not been detected in groundwater, and lead has exceeded regulatory thresholds, it is concluded that site-specific COPCs (PAHs and PCBs) may be adsorbed to soil and are not migrating to groundwater. Therefore, soil migration into groundwater pathway is incomplete for PAHs and PCBs and further evaluation of this migration pathway is not warranted.

7.5.2 Groundwater

The results of the RI, as well as the results of the previous investigations conducted since 2003 indicate the presence of benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride at concentrations above their respective TOGS standards in several on- and off-site monitoring wells along with concentrations of several metals (aluminum, arsenic, iron, magnesium, manganese, nickel, and sodium). SVOCs and PCBs were not detected at concentrations above the TOGS standards in the groundwater sample results collected from either the on- or off-site monitoring wells.

The presence of chlorinated VOCs (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) in groundwater is most likely due to anaerobic dechlorination of PCE from an off-site location. In MW-1, the closest soil boring, SB-2 indicated the presence of chlorinated VOCs at concentrations above the Unrestricted Use and Protection of Groundwater SCOs. However, the off-site and upgradient monitoring well also exhibited chlorinated VOCs at higher concentrations than MW-1 which may indicate that MW-7 is impacting the groundwater quality at MW-1.

In MW-2 the degradation of chlorinated VOCs is likely from an off-site location, as the closest soil boring SB-3 indicates the presence of DCE and PCE at concentrations well below the Unrestricted Use and Protection of Groundwater SCOs. PCE daughter product (1,1-DCA, 1,2-DCA, DCE, and vinyl chloride) concentrations at MW-2 have increased from the December 2007 to the November 2009 sampling events indicating that anaerobic dechlorination is most likely occurring in this portion of the Site. In MW-3, downgradient of SB-6, the DCE concentration was reported at 0.6 µg/L. In MW-4, downgradient of SB-10, DCE was not detected and 1,1-DCA was reported at 1 µg/L. In MW-6, upgradient of SB-11, the chlorinated VOCs were not detected in groundwater. Vinyl chloride increased slightly at MW-3 (not

detected to 1 µg/L), but were not detected in MW-4 and MW-6 concentrations. This review of the groundwater results from the monitoring wells downgradient to these soil sample locations indicate minor chlorinated VOCs impacts have occurred but these impacts are below the applicable TOGS standards.

The unfiltered TAL Metal groundwater samples are significantly higher for most metals than the filtered samples indicating metals ate adsorbed to total suspended suspended/total dissolved solids (TSS/TDS). Aluminum, arsenic, iron, magnesium, manganese, and sodium are present in several on-site monitoring well at concentrations in excess of the TOGS standards. The filtered samples for aluminum, chromium, iron, lead, manganese, nickel, and sodium were detected in MW-7 and MW-8 (upgradient off-site monitoring wells) and may be indicative of a regional or localized groundwater conditions. Arsenic was detected in both the unfiltered and filtered samples with similar concentrations above the TOGS standards which could indicate a localized elevated arsenic groundwater condition at MW-3 and MW-4. Several soil sampling locations containing arsenic concentrations exceeding the Restricted Use - Industrial SCO and/or Protection of Groundwater SCO have been identified as "source areas." It is anticipated that by removing these arsenic "source areas" upgradient of MW-3 and MW-4 will significantly reduce the arsenic groundwater concentrations identified in these monitoring wells. In addition, the placement of the asphalt cap will reduce water infiltration through the soil column, thus, eliminating vertical migration of arsenic contaminants into groundwater.

The presence of PCE daughter products (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) in groundwater is most likely due to the degradation of PCE from an off-site source. Therefore, it is expected that as long as PCE are naturally degrading, the concentrations of DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride will likely continue to increase at the Site. Additional groundwater sampling is proposed to continue monitoring of arsenic, benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride groundwater concentrations at both on- and off-site locations.

7.5.3 Soil Gas

The results of the RI soil gas sampling program indicate that all of the soil gas collection points exhibited concentrations of VOCs. Thirty (30) VOCs were detected at concentrations above the

MDL from SG-1, 24 VOCs were detected at concentrations above the MDL at SG-2, and 13 VOCs were detected at concentrations above the MDL at SG-3. These results further indicate that VOCs are present at all three (3) soil gas collection points with 12 of the highest contaminant-specific concentrations detected at SG-1, six (6) of the highest contaminant-specific concentrations detected at SG-2, and seven (7) of the highest contaminant-specific concentrations detected at SG-3.

The soil gas sample results indicate the presence of VOC concentrations in the northwestern portion of the Site along the property boundary and along the western property boundary in the vicinity of Morgan Avenue.

VOC vapors derived from impacted soil and groundwater can migrate to the surface or laterally beyond the Site boundaries. Soil vapor can migrate into structures that exhibit negative pressure compared to the pressure conditions in the subsurface. Therefore, proper mitigative system will be designed and installed for any future structures constructed at the Site.

7.6 Site and Surrounding Conditions

The Site is located in a Heavy Manufacturing District (M3-1) in Brooklyn, New York that has been used for the same purposes for over 150 years. The New York City Planning Commission the Site as Heavy Manufacturing District (M3-1) and restricts its use to industrial and commercial activities.

Surrounding areas of the Site are developed with a mixture of industrial, commercial, and residential properties. A chain link fence exists along the property boundaries which restricts unauthorized access to the Site.

7.6.1 Current Uses

Under current site conditions, trespassers and on-site (utility) workers may come in contact with COPCs in soil or groundwater with soil disturbance. Access to the Site is controlled by a locked fence. Potential risks to workers at the Site are controlled by OSHA regulations which would

require a site-specific Health and Safety Plan, engineering controls (ECs), and personal protective equipment (PPE) to mitigate exposure to impacted soil, groundwater, and fugitive dust.

The soil vapor exposure pathway was also determined to be incomplete. As a result, soil vapor is not expected to pose an unacceptable risk to trespassers, on-site workers, and/or adjacent property owners/users.

7.6.2 Future Use identified in BCP Applications

At the time the BCP application was submitted, the contemplated future use of the property was anticipated to be industrial and/or commercial. The current zoning for the Site and its environs is identified as Heavy Manufacturing (M3-1). Therefore, it is unlikely that the Site will be zoned for residential property.

Institutional and Engineering controls (ICs/ECs) and a soil management plan would be required to eliminate the exposure pathways for construction workers and employees working on the Site to the extent residual contamination remained after implementing remedial actions e.g., a demarcation barrier could be placed at the base of the excavation once end-point sampling indicates concentrations at or below Industrial SCOs, prior to the placement of clean imported fill material to mark the area where contaminated soil may be encountered.

7.6.3 Residential Use

Under a residential land future-use scenario which is not anticipated for this Site, complete exposure pathways exist for construction workers who may come in contact with impacted soil, groundwater, and fugitive dust at the Site as part of their routine work activities. The Site will require ECs to eliminate the exposure risk to future residents. Potential risks to construction workers would be controlled through the use of a site-specific Health and Safety Plan, and ECs to mitigate exposure to and direct contact with residually impacted soil and groundwater that may remain after implementing remedial actions. If the Site is remediated to Unrestricted Use SCOs, there will be no remaining risk. However, if the Site is not remediated to Unrestricted Use SCOs, then ECs will be required to mitigate exposure to and direct contact with residually

impacted soil and groundwater. Also, groundwater quality will likely improve over time through natural attenuation. However, if residual groundwater contamination remains, it could require mitigation. Other than the construction worker scenario, the groundwater exposure pathway under current and future-use scenarios was deemed incomplete because local shallow groundwater is not used as a potable water source.

7.7 Actual and/or Potential Human Health and Environmental Exposures

The actual and/or potential human health exposures have been identified for the Site and include the following:

- Dermal contact of site-related chemicals in surface and subsurface soil may occur for construction and utility workers during work activities within Site boundaries. Trespassers may have dermal contact with chemical residuals in soils while on-site.
- Incidental ingestion of site-related chemicals in surface and subsurface soils may occur for construction or utility workers during excavation activities within Site boundaries. Trespassers may have incidental ingestion of chemical residuals in soils while on-site.
- Exposure to concentrations of volatilized chemicals residuals during excavation activities in impacted soils to construction and utility workers.
- Exposure to chemical residuals on airborne particles during excavation activities to construction or utility workers. Trespassers may be exposed to airborne particulates while on-site, as well as, potential exposures to construction workers, future workers, and visitors.
- Inhalation of vapors in indoor air may occur to Employees of local businesses outside the Site boundaries and individuals or future occupants if future construction occurs at the Site.
- Ingestion, inhalation, and contact to chemical residues in groundwater may occur to construction workers and utility workers.

The Site is located in a section of Brooklyn that has experienced heavy industrial and manufacturing activities for the past 100 to 200 years which have significantly degraded the

environmental quality of the soil, sediments, groundwater, and surface water. Therefore, environmental exposure receptors, such as terrestrial plants and animals, and aquatic biota in the adjacent English Kills are highly unlikely.

The Site consists of contaminated fill and debris with soils having little organic content precluding the growth of any substantial vegetation to support wildlife. Vermin (i.e., rats) are the only animals that may exist at the Site.

The English Kills have likely been significantly impacted by the heavy industrial and manufacturing activities in this section of Brooklyn. Given the presence of contaminated sediments and the likely low dissolved oxygen levels, there would be a lack of even the most pollution tolerant aquatic species.

7.8 Summary

Potentially complete exposure pathways for human receptors were identified under current use, construction/remediation phase, and future-use scenarios. All exposure pathways can either be managed or effectively eliminated. Under the contemplated future-use scenario (industrial and/or commercial), remedial actions would be necessary to satisfy Part 375 SCOs, and complete exposure pathways to metal- and petroleum-impacted soil and groundwater would be eliminated through OSHA regulations (i.e., implementation of a Health and Safety Plan, an EC and PPE) and a soil management plan. A potential residential future-use scenario is unlikely due to zoning; however, the removal of contaminants in soil and groundwater to the Unrestricted Use SCOs would allow unrestricted use of the property.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Gannett Fleming, Inc. (GF) was retained by Frito-Lay, Inc. to prepare a Remedial Investigation (RI) Work Plan (WP) to further assess environmental conditions at the 202-218 Morgan Avenue site (Site) located in Brooklyn, New York. A Phase II ESA was conducted on the Site in December 2007 and January 2008 and the RI was conducted in response to NYSDEC's May 5, 2009 comment letter requesting the collection of additional Site data.

The RIWP was prepared and submitted to NYSDEC Division of Environmental Remediation DER for review and approval. On October 9, 2009, NYSDEC approved the RI Work Plan for the 202-218 Morgan Avenue site and field sampling activities were performed on November 4 through 6, 2009 and completed on November 20, 2009. All work conducted as part of the RI was performed in accordance with NYSDEC BCP and DER-10 Technical Guidance for Site Investigation and Remediation. NYSDEC has assigned site number C224133 to the Site.

8.1 Results of Previous Environmental Investigation

The results of previous site investigations indicate that VOCs, SVOCs, metals, and PCBs are present in the soil at concentrations above the 6 NYCRR Part 375-6 Restricted Use – Commercial and/or Industrial SCOs. The groundwater analytical results indicate the presence of aluminum, iron, manganese, MTBE, sodium, thallium, and vinyl chloride at concentrations above the TOGS standards.

8.2 Purpose of Remedial Investigation

The purpose of this RI is to quantify and delineate subsurface impacted soil, sediments, surface water, and groundwater, identify potential contaminant sources, migration paths and receptors, assess the actual and potential threat to human health, fish and wildlife and the environment, and assess remedial alternatives based upon the findings.

The scope of work as presented in the RIWP included the following:

- Two (2) soil borings would be advanced on site along English Kills;
- Thirteen (13) soil borings would be advanced at various on site locations to complete the 50' x 50' sampling grid;
- Two (2) surface water samples would be collected from the English Kills;
- Four (4) sediment samples would be collected from the English Kills;
- Three (3) soil gas vapor samples would be collected from soil vapor collection points advanced to an approximate depth of groundwater;
- One (1) on-site and two (2) off-site upgradient groundwater monitoring wells would be installed and sampled; and,
- Eight (8) groundwater monitoring wells would be sampled.

The objectives of the RI sampling program were to:

- characterize and delineate subsurface soil impacts;
- evaluate the potential presence of soil gas vapors along the northern and western property boundaries of the Site;
- evaluate current groundwater concentrations/conditions of the 6 on-site and 2 off-site groundwater monitoring wells;
- evaluate surface water and sediment conditions in the English Kills which is immediately adjacent to the Site;
- provide data for development of the Final RI Report, Qualitative Human Health Exposure Assessment;
- identify potential exposure pathway (ingestion, inhalation and dermal contact) for soil. soil gas, and groundwater; and,
- provide site-specific information for the development and selection of remedial alternative to reduce and/or eliminate the toxicity, volume, or mobility of site-specific contaminants.

8.3 Remedial Investigation Work Plan

The RI sampling program included the collection of: two (2) soil borings along English Kills; thirteen (13) soil borings at various on site locations to complete the 50' x 50' sampling grid; two (2) surface water samples and four (4) sediment samples from the English Kills; one (1) on-site and two (2) off-site upgradient groundwater monitoring wells, and eight (8) groundwater monitoring wells samples.

8.3.1 Soil Sample Results

The soil sample results indicate that arsenic, lead, mercury, PCBs, and SVOCs are present in surface and subsurface soils at concentrations exceeding Restricted Use - Commercial and/or Industrial SCOs. SVOCs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene have been previously detected at concentrations exceeding Part 375 Restricted Use SCOs. The detected soil contamination is located throughout the Site to depths greater than 11 ft-bgs, which is the approximate depth of groundwater beneath the Site. Potentially hazardous levels of PCBs and lead are present in several locations within the Site boundary.

8.3.2 Sediment Sample Results

The results of the RI did not indicate the presence of VOCs, SVOCs, and pesticides at concentrations above the applicable NYSDEC HHB, BALT, BALCT, and WB Guidance Values have been listed in tables within the report. TAL metal concentrations exceed the SEL criteria at all four (4) sediment sample locations. PCB concentrations were also detected above HHB and/or WB criteria at all four (4) sediment sample locations.

TAL Metals and PCBs detected in the sediments have been also detected at the Site, the source of the metal and PCB sediment contamination is likely attributable to impacts to the English Kills from a variety of sources rather than attributable to impacts to the Site. The data collected during the RI sampling program is inconclusive that the Site is responsible for, or attributable to the sediment contamination. A more extensive sediment sampling program would need to be implemented to make this determination.

8.3.3 Surface Water Sample Results

The results of the RI did not indicate the presence of VOC, SVOC, PCBs, or pesticides at concentrations above the applicable NYSDEC HCF-SW, FS-SW, WP-SW, and AW-SW Guidance Values. A copper concentration of 0.005 J mg/L which is above the FS-SW of 0.0048 mg/L was detected in SW-2. Based on the surface results collected during the November 2009 sampling event, there do not appear to be surface water impacts from Site, therefore, no further action is proposed.

8.3.4 Groundwater Sample Results

The results of the RI, as well as the results of the previous investigations conducted since 2003 indicate the presence of benzene, DCE, 1,1-DCA, 1,2-DCA, MTBE, and vinyl chloride at concentrations above their respective TOGS standards in several on- and off-site monitoring wells. Concentrations of aluminum, arsenic, iron, magnesium, manganese, nickel, and sodium are also present at concentrations above their TOGS standards in several on- and off-site monitoring wells.

The presence of chlorinated VOCs (DCE, 1,1-DCA, 1,2-DCA, and vinyl chloride) in groundwater is most likely due to anaerobic dechlorination of PCE from an off-site location. In MW-1, chlorinated VOCs were detected at concentrations above the TOGS standards. However, the off-site and upgradient monitoring well also exhibited chlorinated VOCs at higher concentrations than MW-1 which may indicate that MW-7 is impacting the groundwater quality at MW-1. In MW-2, the PCE daughter product (1,1-DCA, 1,2-DCA, DCE, and vinyl chloride) concentrations have increased from the December 2007 to the November 2009 sampling events indicating that anaerobic dechlorination is occurring in this portion of the Site. MW-2 is proposed to be decommissioned to allow for the soil surrounding MW-2 to be excavated as part of remedial excavation of SB-3 and a depth of 13 feet which will remove any residual VOC concentrations in soil and MW-2 will be reinstalled at this location. MW-3 and MW-6 will also be decommissioned to allow for the remedial excavations at SB-8 and SB-11 which will also remove any residual VOC concentrations in soil at these locations.

The unfiltered TAL Metal groundwater samples are significantly higher for most metals than the filtered samples. Aluminum, arsenic, iron, magnesium, manganese, and sodium are present in several on-site monitoring well at concentrations in excess of the TOGS standards. The filtered samples for aluminum, chromium, iron, lead, manganese, nickel, and sodium were detected in MW-7 and MW-8 (off-site monitoring wells) and may be indicative of a regional or localized groundwater conditions. Arsenic was detected in both the unfiltered and filtered samples with similar concentrations above the TOGS standards which could indicate a localized elevated arsenic groundwater condition at MW-3 and MW-4. Several soil sampling locations containing arsenic concentrations exceeding the Restricted Use - Industrial SCO and/or Protection of Groundwater SCO have been identified as "source areas" and will require remediation. It is anticipated that by removing these arsenic "source areas" upgradient of MW-3 and MW-4 will significantly reduce the arsenic groundwater concentrations identified in these monitoring wells.

The presence of DCE, 1,1-DCE, 1,2-DCE, and vinyl chloride in groundwater is most likely due to the degradation of PCE from an off-site source. Given that these daughter by-products are present, it is likely anaerobic dechlorination will continue to occur at the Site.

8.3.5 Soil Gas Sample Results

The soil gas results indicate the presence of VOCs collected from three (3) soil gas sampling points installed at the Site. The most notable soil gas concentrations include acetone, benzene, 2-butanone, carbon disulfide, chloroform, cyclohexane, ethylbenzene, heptane, hexane, toluene, tert-butyl alcohol, tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethene, trichlorofluoromethane, 1,2,4-trimethylbenzene, 2,2,4-trimethylpentane cyclohexane, o-xylene, and m/p-xylene.

8.4 Qualitative Human Health Exposure Assessment

A Qualitative HHEA was prepared and the actual and/or potential human health and environmental exposures have been identified and include the following:

- Dermal contact of site-related chemicals in surface and subsurface soil may occur for construction and utility workers during work activities within Site boundaries. Trespassers may have dermal contact with chemical residuals in soils while on-site.
- Incidental ingestion of site-related chemicals in surface and subsurface soils may occur for construction or utility workers during excavation activities within Site boundaries. Trespassers may have incidental ingestion of chemical residuals in soils while on-site.
- Exposure to concentrations of volatilized chemicals residuals during excavation activities in impacted soils to construction and utility workers.
- Exposure to chemical residuals on airborne particles during excavation activities to construction or utility workers. Trespassers may be exposed to airborne particulates while on-site, as well as, potential exposures to construction workers, future workers, and visitors.
- Inhalation of vapors in indoor air may occur to Employees of local businesses outside the Site boundaries and individuals or future occupants if future construction occurs at the Site.
- Ingestion, inhalation, and contact to chemical residues in groundwater to construction workers and utility workers.

The Site is located in a section of Brooklyn that has experienced heavy industrial and manufacturing activities for the past 100 to 200 years which have significantly degraded the environmental quality of the soil, sediments, groundwater, and surface water. Therefore, environmental exposure receptors, such as terrestrial plants and animals, and aquatic biota in the adjacent English Kills are highly unlikely.

The Site consists of contaminated fill and debris with soils having little organic content precluding the growth of any substantial vegetation to support wildlife. Vermin (i.e., rats) are the only animals that may exist at the Site.

The English Kills have likely been significantly impacted by the heavy industrial and manufacturing activities in this section of Brooklyn. Given the presence of contaminated

sediments and the likely low dissolved oxygen levels, there would be a lack of even the most pollution tolerant aquatic species.

8.5 Remedial Action Recommendations

Remedial activities will be required where there is soil contamination that exceeds Part 375 concentrations and a remedial work plan will be prepared to evaluate and recommend remedial alternatives that will address the soil contamination. Upon completion of soil remedial activities, the Site covered with a 6-inch asphalt pavement for use as a parking lot for Frito-Lay operations.

Implementation of continued groundwater monitoring upon completion of remedial activities is proposed to monitor the VOC concentrations above the TOGC standards. Additional soil gas sampling is not proposed for the Site, as the end use upon completion of remedial activities is a parking lot. No permanent structures are proposed and an environmental easement will contain specific requirements for the design of a mitigative system to be installed for any future structures constructed on the Site. Additional surface water sampling is also not proposed, as these conditions are reflective of regional rather than site-specific impacts. In addition, the data collected during the RI sampling program is inconclusive that the Site is responsible for or attributable to the sediment contamination. A more extensive sediment sampling program would need to be implemented to make this determination.

APPENDIX A

SOIL BORING LOGS

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-16	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 7 ft Depth to Water: NA		Location of boring (not to scale) Located between monitoring wells MW-6 and MW-5. along the southern property boundary and the English	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	4.4	SB-16 (0-4)	0-4 ft	Moist	NA	Black PEAT and WOOD CHIPS, some F Sand and C Sand	Strong Petroleum Odor
1							
2							
3							
4							
	13.8	SB-16 (4-7)	4-6 ft	Slightly Moist	10/24"	Black F SAND and WOOD CHIPS, trace Brick, trace Glass	Strong Petroleum Odor
5							
6							Sample composite of 4-6ft and 6-7ft intervals
	14.2		6-7 ft	Dry	4/24in	Black F SAND, some Concrete, trace Brick	
7						End of Boring at 7 feet bgs	Refusal
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-17	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 7 ft Depth to Water: NA		Location of boring (not to scale) 70 feet North of fence line of English Kills, and 60 feet West of fence line of Newtown Creek	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	0.9	SB-17 (0-4)	0-4 ft	Moist	NA	Brown F SAND, some Black F Sand, little Silt, trace C Gravel, trace Rubbish, trace Wood Pieces, trace Metal	
1							
2							
3							
4	6.3	SB-17 (4-6)	4-6 ft	Moist	18/24in	Black F SAND and SILT, trace Wood, trace Organic Matter, trace C Gravel	
5							
6	1.1		6-7 ft	Slightly Moist	2/24in	Black F SAND and BRICK	
7						End of Boring at 7 feet bgs	Refusal
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-18	Gannett Fleming, Inc. 480 Forest Avenue
Project # : 47743.022		Sheet 1 of 1	Locust Valley, NY 11560
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	(516) 671-8440
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 8 ft Depth to Water: NA		Location of boring (not to scale) 70 feet South of the Northern property line and 60 feet West of the fence line bordering Newtown Creek	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
1	2.0	SB-18 (0-4) MS / MSD	0-4 ft	Slightly Moist	NA	Black F SAND and SILT, trace Organic Peat, trace F Gravel, trace Wood	
2							
3							
4							
5	28.0	SB-18 (4-6)	4-6 ft	Moist	20/24in	Black F SAND and SILT, trace Organic Matter, trace F Gravel, trace Brick, trace Wood Pieces	
6							
7	1.2		6-8 ft	Slightly Moist	12/24in	Black F SAND and BRICK, trace Wood, trace Organic Matter	
8							
9						End of boring at 8 feet bgs	Refusal
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-19	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 12 ft Depth to Water: 12 ft		Location of boring (not to scale) Midway between the front gate and Newtown Creek along the Northern property line	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	9.7	SB-19 (0-4)	0-4 ft	Slightly Moist	NA	Black to Dark Brown F SAND, trace Brick, trace Ceramic, trace C Gravel	Organic Odor
1							
2							
3							
4	5.4	SB-19 (4-6)	4-6 ft	Dry	20/24in	Black F SAND, some Glass, trace Brick, trace F Gravel, trace Rubber	Petroleum Odor
5							
6	1.9		6-8 ft	Moist	6/24in	Black to Brown F SAND, trace Brick, trace C Gravel, trace Cement	
7							
8	1.2		8-10 ft	Moist	20/24in	Black F SAND, little Brick, little F Gravel, trace Wire	Slight Petroleum Odor
9							
10	0.0		10-12 ft	Saturated	8/24 in	Black F SAND, trace F Gravel	
11							
12						End of Boring at 12 feet	
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-20	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/4/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 6 ft Depth to Water: NA		Location of boring (not to scale) West-central part of the site, 70 feet from the Northern property boundary	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	18.7	SB-20 (0-4)	0-4 ft	Slightly Moist	NA	Black F SAND, trace F Gravel, trace Brick	Strong Petroleum Odor
1							
2							
3							
4	81.5	SB-20 (4-6)	4-6 ft	Slightly Moist	4-6 ft	Black to Dark Brown F SAND, some Concrete, little Wood, trace Brick	Strong Petroleum Odor
5							
6						End of boring at 6 feet bgs	Refusal
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay	Boring No.: SB-21	Gannett Fleming, Inc. 480 Forest Avenue
Project # : 47743.022	Sheet 1 of 1	Locust Valley, NY 11560
Site Location: 202-218 Morgan Avenue, Brooklyn, NY	Date: 11/4/2009	(516) 671-8440
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 2 ft Depth to Water: NA	Location of boring (not to scale) Central portion of site, east of MW-3; This location was approximately 5 feet north of location on sampling plan. Five attempts were made to drill past refusal.	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	12.8	SB-21 (0-2)	0-2 ft	Dry	NA	Black F SAND	Strong Petroleum Odor
1							
2						End of Boring at 2 ft bgs	Refusal
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-22	Gannett Fleming, Inc. 480 Forest Avenue
Project # : 47743.022		Sheet 1 of 1	Locust Valley, NY 11560
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	(516) 671-8440
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 7.5 ft Depth to Water: NA		Location of boring (not to scale) Approximately midway along the fence bordering English Kills	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	6.4	SB-22 (0-4)	0-4 ft	Slightly Moist	NA	Black F SAND, some Wood, some Metal Pieces, little F Gravel, trace Glass	Strong Petroleum Odor
1							
2							
3							
4							
	5.0		4-6 ft	Slightly Moist	20/24in	Black F-M SAND, trace Metal Pieces, trace Rubbish, trace Wood	
5							
6							
	13.1	SB-22 (4-7.5)	4-7.5 ft	Moist	8/24in	Black F SAND, trace Brick, trace Wood Pieces	Strong Petroleum Odor
7							
						End of Boring at 7.5 feet bgs	Refusal
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-23	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 4 ft Depth to Water: NA		Location of boring (not to scale) Near the western terminus of English Kills	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	12.9	SB-23 (0-4) MS / MSD	0-4 ft	Slightly Moist	NA	Black F SAND, some Rubbish, some Wood, little Peat, little Silt	Petroleum Odor
1							
2							
3							
4						End of Boring at 4 ft bgs	Refusal
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay	Boring No.: SB-24	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022	Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY	Date: 11/4/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 2.5 Depth to Water: NA	Location of boring (not to scale) Approximately 100 feet East of MW-1	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
1	0.0	SB-24 (0-2)	0-2 ft	Moist	10/24in	Brown to Black F SAND, some Wood, little Glass, trace Garbage Bags, trace Bricks	
2	NA		2-2.5 ft	NA	0/24in	No Recovery End of Boring at 2.5 ft bgs	Refusal
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-25	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/4/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 4.5 ft Depth to Water: NA		Location of boring (not to scale) West-Central portion of the site, approximately 125 feet East of the Morgan Avenue sidewalk, and 125 feet South of the Frito-Lay driveway	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	8.1	SB-25 (0-4 ft)	0-2 ft	Slightly Moist	12/24in	Black F SAND, some Wood, little Brick, little Cement	Strong Petroleum Odor
1							
2	3.6		2-4 ft	Dry	10/24in	Black F SAND, trace Brick, trace Rubbish	Slight Petroleum Odor
3							
4	NA		4-4.5 ft	NA	0/24in	No Recovery	
5						End of Boring at 4.5 ft bgs	Refusal
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-26	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 10 ft Depth to Water: 9 ft		Location of boring (not to scale) 25 feet East of Morgan Avenue sidewalk and approximately 40 feet from MW-2	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	38.8	SB-26 (0-4)	0-4 ft	Slightly Moist	NA	Black to Dark Brown F SAND, some F Gravel, trace Metal, trace Wood	Strong Solvent/ Degreaser Odor
1							
2							
3							
4	100	SB-26 (4-6)	4-6 ft	Slightly Moist	16/24in	Black F SAND, some Ash and Cinders, trace F Gravel	Strong Solvent/ Degreaser Odor
5							
6	NA		6-8 ft	NA	0/24in	No Recovery	
7							
8	NA		8-10 ft	NA	0/24in	No Recovery	
9							Groundwater at 9 ft bgs
10						End of Boring at 10 ft bgs	
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay	Boring No.: SB-27	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022	Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY	Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 10 ft Depth to Water: 10 ft	Location of boring (not to scale) Approximately 75 feet West of Morgan Avenue sidewalk and 125 feet North of Southern property line	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
1	3.9	SB-27 (0-4) DUP	0-4 ft	Dry	NA	Black to Dark Brown F SAND, some Silt, trace Metal, trace Wood, trace Peat	
2							
3							
4							
5	0.5		4-6 ft	Dry	24/24in	Black F SAND, some C Sand, some Coal Ash and Cinders, trace Wood, trace Brick	
6							
7	0.2		6-8 ft	Slightly Moist	12/24in	Black F SAND, some Silt, some Ash and Cinders, trace Wood	
8							
9	1.3		8-10 ft	Moist	10/24in	Black and Light Brown F-C SAND, little Ash and Cinders	
10							
11						End of Boring at 10 ft bgs	Groundwater at 10 ft bgs
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-28	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/4/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 12 ft Depth to Water: 12 ft		Location of boring (not to scale) Near the former Morgan Avenue entrance to the site	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
1	0.8	SB-28 (0-4)	0-2 ft	Dry	20/24in	Brown to Black F SAND, some Brick, little Cement, little M Sand, trace Coal	Split spoons from 0-2 ft and 2-4 ft were composited for the 0-4 ft sample
2							
3	1.1		2-4 ft	Dry	6/24in	Brown to Black F SAND, some Brick, little Cement, little M Sand, trace Coal	
4							
5	0.0	SB-28 (4-8 ft)	4-5 ft	Slightly Moist	12/24in	Brown F SAND, trace Brick	Split spoons from 4-6 ft and 6-8 ft were composited for the 4-8 ft sample
6	0.0		5-6 ft	Moist		White PUDDY-LIKE MIXTURE	
7	2.7		6-8 ft	Dry	6/24in	Brown F-M SAND, some White Puddy, little Black Coal Pieces	
8							
9	0.5		8-10 ft	Slightly Moist	10/24in	COAL and COAL ASH, some Light Brown to Black F Sand, trace Brick	
10							
11	0.0		10-12 ft	Wet	24/24in	Saturated Black M SAND and F GRAVEL	
12							
13						End of Boring at 12 ft bgs	Groundwater at 12 ft bgs
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-101	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 8 ft Depth to Water: NA		Location of boring (not to scale) Midway along the eastern fenceline along Newtown Creek	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
	2.1	SB-101 (0-4)	0-4 ft	Slightly Moist	NA	Black F SAND and SILT, some Wood, little C Gravel, trace Brick	Strong Petroleum Odor
1							
2							
3							
4	3.0	SB-101 (4-6)	4-6 ft	Moist	18/24in	Black to light brown F SAND and SILT, some Wood, little Peat	
5							
6	2.8		6-8 ft	Dry	18/24in	Black F SAND and SILT, little Brick, trace Rubbish, trace Wood, trace C Gravel, trace Metal	
7							
8						End of Boring at 8 ft bgs	Refusal
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

SOIL BORING LOG

Client: Frito-Lay		Boring No.: SB-102	Gannett Fleming, Inc. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440
Project # : 47743.022		Sheet 1 of 1	
Site Location: 202-218 Morgan Avenue, Brooklyn, NY		Date: 11/5/2009	
Drilling Co: Aquifer Drilling and Testing (ADT) Method: Hollow Stem Auger Personnel: Michael Nahmias, Michael O'Brien Total Depth: 6 ft Depth to Water: NA		Location of boring (not to scale) Near corner of fences that border English Kills and Newtown Creek	

depth (feet)	PID (ppm)	Sample ID	Depth (From-To)	Moisture Content	Recovery	Soil Classification	Remarks
1	3.4	SB-102 (0-4)	0-4 ft	Slightly Moist	NA	Black PEAT and WOOD CHIPS, some F-C SAND, trace Bricks, trace Metal	Petroleum Odor
2							
3							
4							
5	4.2	SB-102 (4-6)	4-6 ft	Moist	10/24in	Dark Brown to Black F SAND and SILT, trace Wood Chips, trace Peat, trace Metal	
6						End of Boring at 6 ft bgs	Refusal
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

APPENDIX B

AIR (SOIL GAS) SAMPLING LOGS

AIR SAMPLING LOG	Gannett Fleming Engineers, P.C. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440 (516) 671-3349 Fax

I. General Information:

Client Name: Frito-Lay

Project No.: 47743

Project Name: 202-218 Morgan Avenue

Sampled By: Michael Nahmias

Sample ID: SG-01 **Sample Date**: November 6, 2009

Sample Location: Near the entrance gate by the corner of Morgan Ave. and the entrance to Frito-Lay

II. Sample Information:

Sample Type:	**Helium Testing:**
☐ Indoor Air	(for sub-slab vapor and soil vapor only)
☐ Outdoor Air	Purging Method: PID Internal Pump
☐ Sub-Slab Vapor	Purge rate: 450-550 cc/min
Depth of slab:_____	Purge start time: 0954
Depth of sample port:_____	Purge end time: 0956
☒ Soil Vapor	Helium introduction start time: 0949
Type of sampling device:	Helium introduction end time: 0952
☒ Temporary point	PID Reading: 42.0 ppm
☐ Permanent vapor point	Helium reading: 1,600 ppm
Groundwater depth: 11-12 feet below ground surface	Test passed? Yes
Sample point depth: 10 feet below ground surface	**Comments:**_____
Type of Canister: 6-Liter Summa Canister	_____
Canister ID: 10406	_____
Type of Regulator: 2-hour	
Regulator ID: 10627	

SAMPLE START TIME	INCHES OF MERCURY AT START	SAMPLE END TIME	INCHES OF MERCURY AT END
1001	29	1155	4

III. Sample Analyses:

Sample Parameters: TO-15

Laboratory: Chemtech Laboratory

Date Shipped: November 6, 2009

AIR SAMPLING LOG	Gannett Fleming Engineers, P.C. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440 (516) 671-3349 Fax

I. General Information:

Client Name: Frito-Lay

Project No.: 47743

Project Name: 202-218 Morgan Avenue

Sampled By: Michael Nahmias

Sample ID: SG-02 **Sample Date**: November 6, 2009

Sample Location: Near the Morgan Ave. entrance to the site near the intersection of Morgan Ave. & Meadow St.

II. Sample Information:

Sample Type:	**Helium Testing:**
☐ Indoor Air	(for sub-slab vapor and soil vapor only)
☐ Outdoor Air	Purging Method: PID Internal Pump
☐ Sub-Slab Vapor	Purge rate: 450-550 cc/min
Depth of slab:_____	Purge start time: 0939
Depth of sample port:_____	Purge end time: 0941
☒ Soil Vapor	Helium introduction start time: 0933
Type of sampling device:	Helium introduction end time: 0935
☒ Temporary point	PID Reading: 0.0 ppm
☐ Permanent vapor point	Helium reading: 2,300 ppm
Groundwater depth: 11-12 feet below ground surface	Test passed? Yes
Sample point depth: 10 feet below ground surface	**Comments:**_____
Type of Canister: 6-Liter Summa Canister	_____
Canister ID: 10153	_____
Type of Regulator: 2-hour	
Regulator ID: 10574	

SAMPLE START TIME	INCHES OF MERCURY AT START	SAMPLE END TIME	INCHES OF MERCURY AT END
0943	27	1139	4

III. Sample Analyses:

Sample Parameters: TO-15

Laboratory: Chemtech Laboratory

Date Shipped: November 6, 2009

AIR SAMPLING LOG	Gannett Fleming Engineers, P.C. 480 Forest Avenue Locust Valley, NY 11560 (516) 671-8440 (516) 671-3349 Fax

I. General Information:

Client Name: Frito-Lay

Project No.: 47743

Project Name: 202-218 Morgan Avenue

Sampled By: Michael Nahmias

Sample ID: SG-03 **Sample Date**: November 6, 2009

Sample Location: Northern property boundary of the site next to the driveway of the current Frito-Lay warehouse

II. Sample Information:

Sample Type: ☐ Indoor Air ☐ Outdoor Air ☐ Sub-Slab Vapor Depth of slab:_____ Depth of sample port:_____ ☒ Soil Vapor Type of sampling device: ☒ Temporary point ☐ Permanent vapor point Groundwater depth: 10 feet below ground surface Sample point depth: 9 feet below ground surface Type of Canister: 6-Liter Summa Canister Canister ID: 10008 Type of Regulator: 2-hour Regulator ID: 10576	**Helium Testing:** (for sub-slab vapor and soil vapor only) Purging Method: PID Internal Pump Purge rate: 450-550 cc/min Purge start time: 1034 Purge end time: 1036 Helium introduction start time: 1023 Helium introduction end time: 1030 PID Reading: 26.0 ppm Helium reading: 13,800 ppm Test passed? Yes **Comments:** Failed initial helium test, sampling point resealed and retested. Helium test passed on second attempt.

SAMPLE START TIME	INCHES OF MERCURY AT START	SAMPLE END TIME	INCHES OF MERCURY AT END
1037	30	1220	4

III. Sample Analyses:

Sample Parameters: TO-15

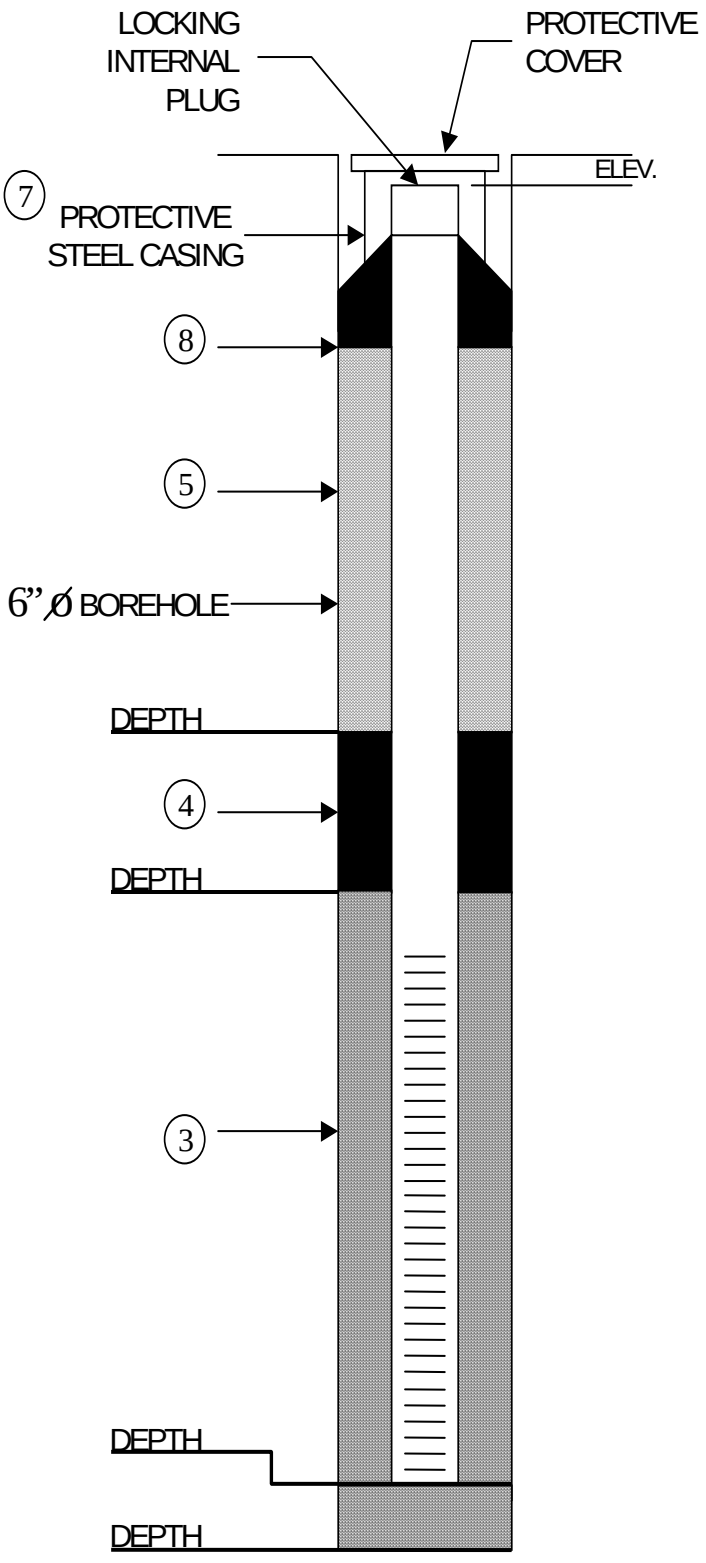
Laboratory: Chemtech Laboratory

Date Shipped: November 6, 2009

APPENDIX C

GROUNDWATER MONITORING WELL CONSTRUCTION LOGS

Gannett Fleming



MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.007 CLIENT : Frito Lay

LOCATION : 202-218 Morgan Avenue

DATE : 2/10/20074 WELL No.: MW-1

HYDROGEOLOGIST : Helen Pappas

DRILLING CONTRACTOR : ADT

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 7 feet

PIPE & SCREEN DIA. : 2 inches

JOINT TYPE-SLIP / GLUED : ____ THREADED √

3). TYPE OF BACKFILL AROUND SCREEN :

#2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) :

Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED:

6). TYPE OF SURFACE SEAL (IF INSTALLED):

Cement

7). PROTECTIVE CASING: YES √ NO

LOCKING CAP: YES √ NO

8). CONCRETE SEAL: YES √ NO

9). DRILLING METHOD:

Hollow Stem Auger

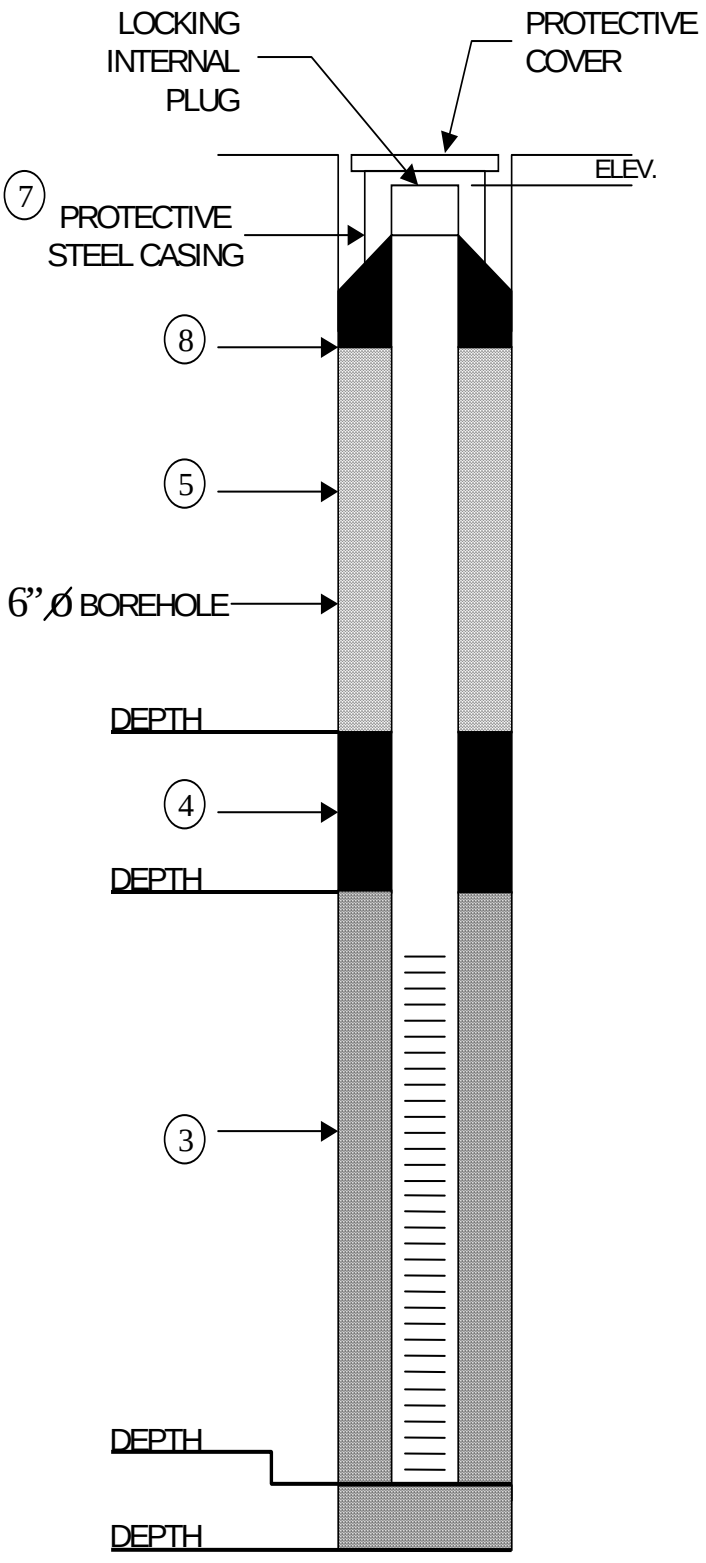
10). ADDITIVES USED (IF ANY):

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
12/10/2007	14:20	11.9	

* FROM TOP OF WELL

Gannett Fleming



MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.007 CLIENT : Frito Lay

LOCATION : 202-218 Morgan Avenue

DATE : 2/10/20074 WELL No.: MW-2

HYDROGEOLOGIST : Helen Pappas

DRILLING CONTRACTOR : ADT

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 7 feet

PIPE & SCREEN DIA. : 2 inches

JOINT TYPE-SLIP / GLUED : ____ THREADED √

3). TYPE OF BACKFILL AROUND SCREEN :

#2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) :

Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED:

6). TYPE OF SURFACE SEAL (IF INSTALLED):

Cement

7). PROTECTIVE CASING: YES √ NO

LOCKING CAP: YES √ NO

8). CONCRETE SEAL: YES √ NO

9). DRILLING METHOD:

Hollow Stem Auger

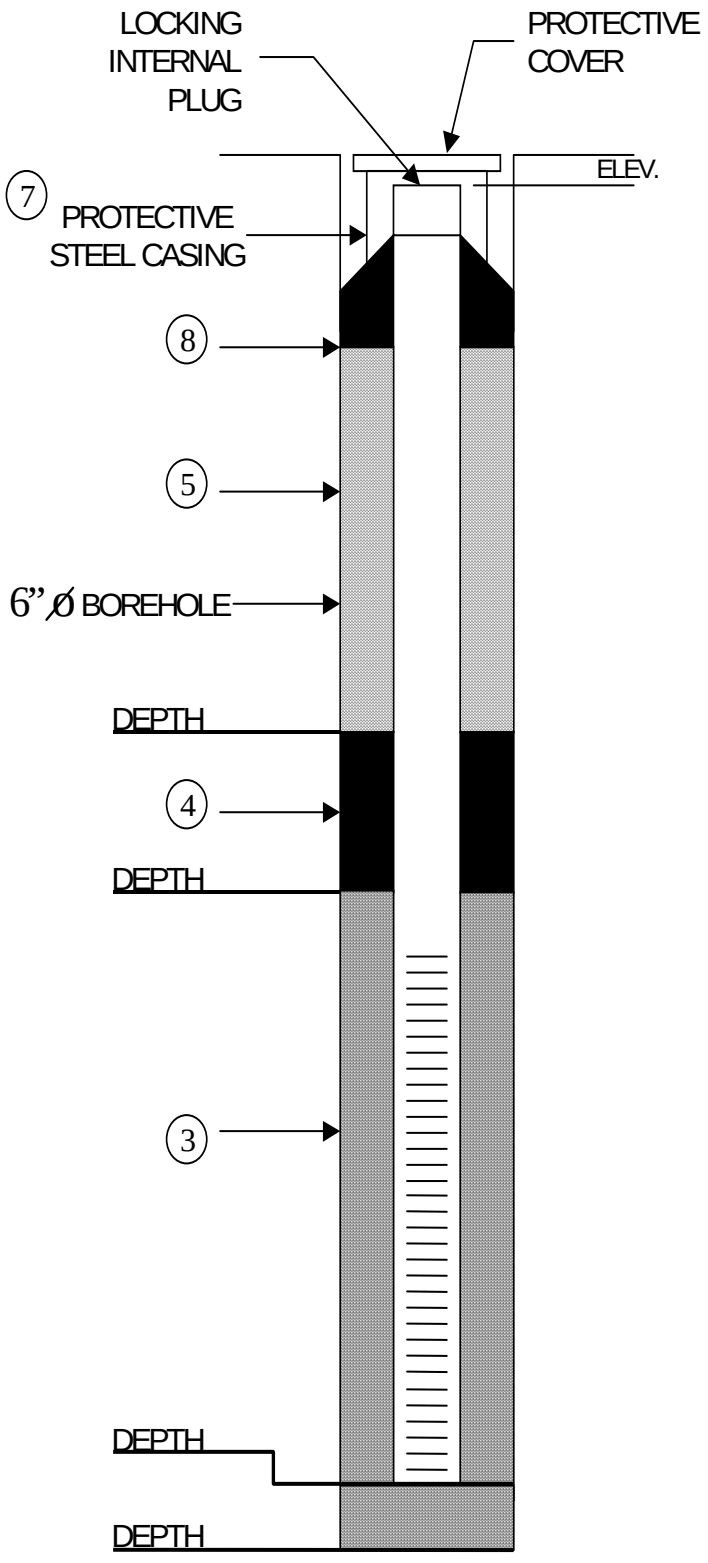
10). ADDITIVES USED (IF ANY):

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
12/10/2007	11:30	13.18	

* FROM TOP OF WELL

Gannett Fleming



MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.007 CLIENT : Frito Lay

LOCATION : 202-218 Morgan Avenue

DATE : 2/10/20074 WELL No.: MW-3

HYDROGEOLOGIST : Helen Pappas

DRILLING CONTRACTOR : ADT

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 7 feet

PIPE & SCREEN DIA. : 2 inches

JOINT TYPE-SLIP / GLUED : ____ THREADED √

3). TYPE OF BACKFILL AROUND SCREEN :

#2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) :

Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED:

6). TYPE OF SURFACE SEAL (IF INSTALLED):

Cement

7). PROTECTIVE CASING: YES √ NO

LOCKING CAP: YES √ NO

8). CONCRETE SEAL: YES √ NO

9). DRILLING METHOD:

Hollow Stem Auger

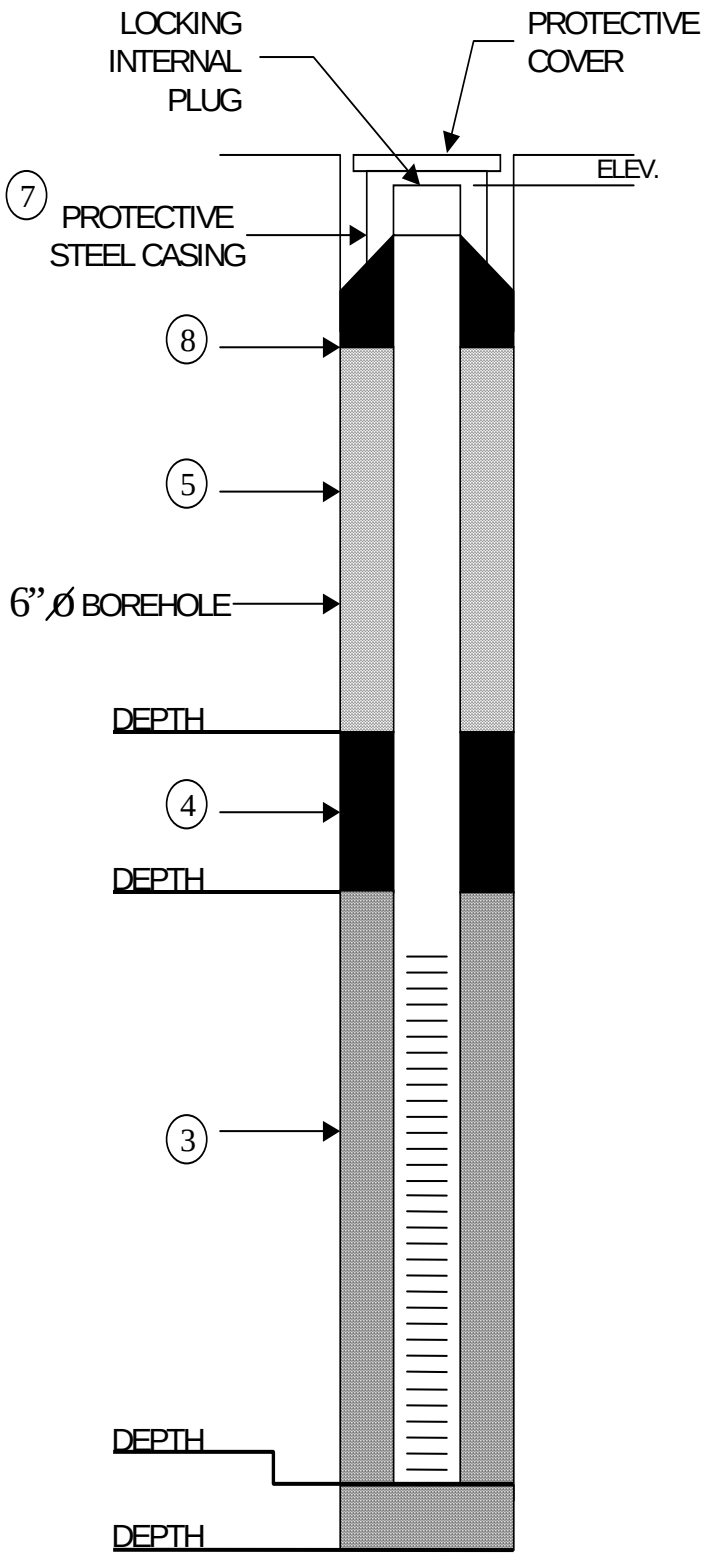
10). ADDITIVES USED (IF ANY):

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
12/11/2007	10:05	13.88	

* FROM TOP OF WELL

Gannett Fleming



MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.007 CLIENT : Frito Lay

LOCATION : 202-218 Morgan Avenue

DATE : 2/10/20074 WELL No.: MW-4

HYDROGEOLOGIST : Helen Pappas

DRILLING CONTRACTOR : ADT

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 7 feet

PIPE & SCREEN DIA. : 2 inches

JOINT TYPE-SLIP / GLUED : ____ THREADED √

3). TYPE OF BACKFILL AROUND SCREEN :

#2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) :

Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED:

6). TYPE OF SURFACE SEAL (IF INSTALLED):

Cement

7). PROTECTIVE CASING: YES √ NO

LOCKING CAP: YES √ NO

8). CONCRETE SEAL: YES √ NO

9). DRILLING METHOD:

Hollow Stem Auger

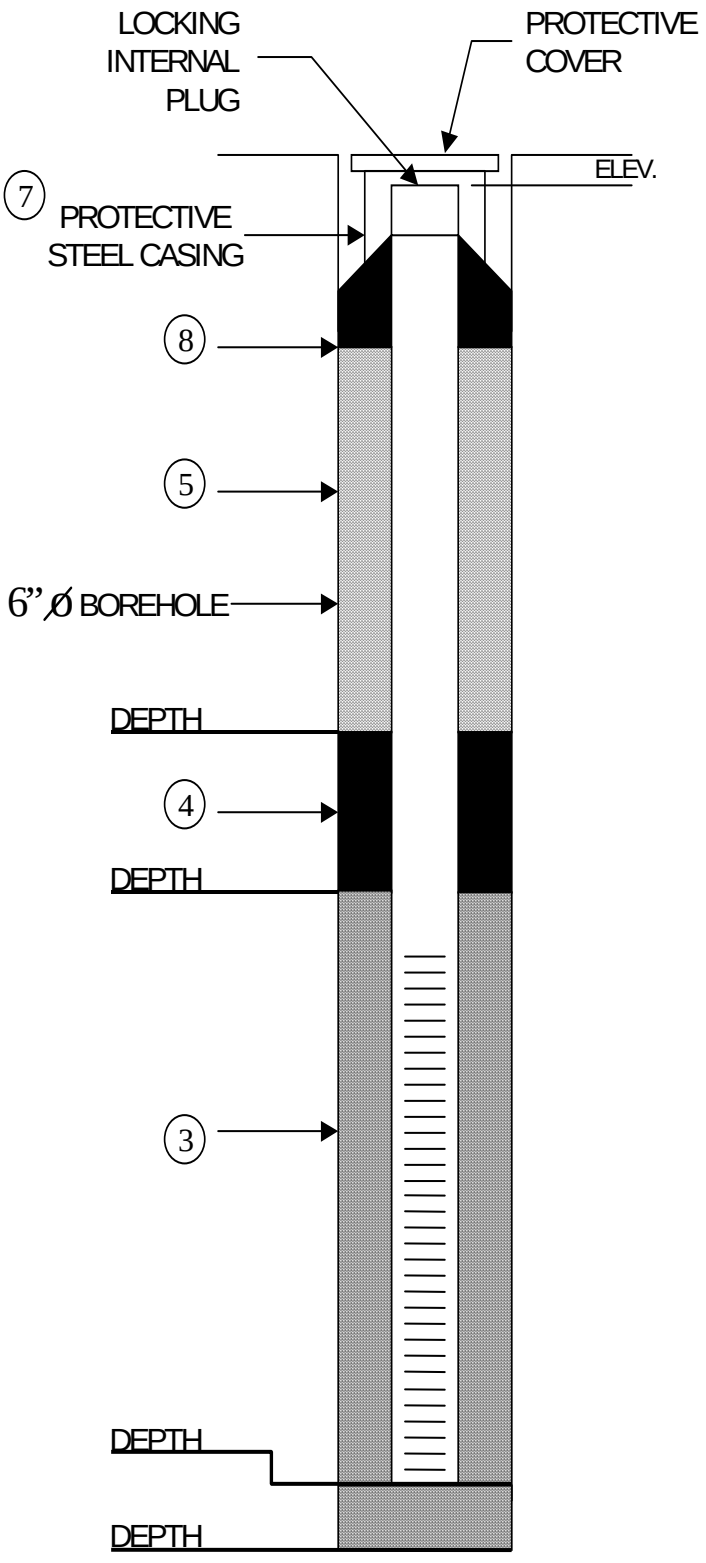
10). ADDITIVES USED (IF ANY):

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
12/11/2007	15:00	15.08	

* FROM TOP OF WELL

Gannett Fleming



MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.007 CLIENT : Frito Lay

LOCATION : 202-218 Morgan Avenue

DATE : 2/10/20074 WELL No.: MW-5

HYDROGEOLOGIST : Helen Pappas

DRILLING CONTRACTOR : ADT

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 7 feet

PIPE & SCREEN DIA. : 2 inches

JOINT TYPE-SLIP / GLUED : ____ THREADED √

3). TYPE OF BACKFILL AROUND SCREEN :

#2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) :

Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED:

6). TYPE OF SURFACE SEAL (IF INSTALLED):

Cement

7). PROTECTIVE CASING: YES √ NO

LOCKING CAP: YES √ NO

8). CONCRETE SEAL: YES √ NO

9). DRILLING METHOD:

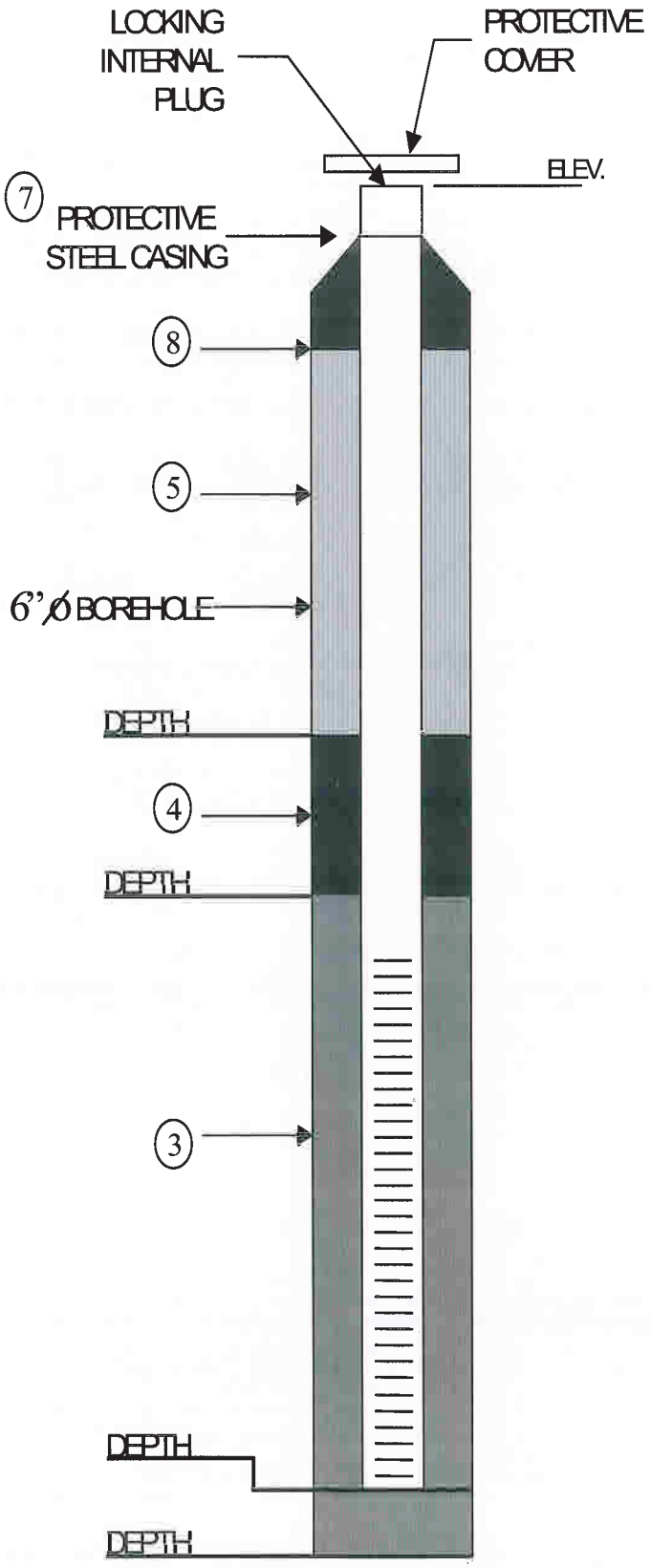
Hollow Stem Auger

10). ADDITIVES USED (IF ANY):

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
12/11/2007	14:00	13.38	

* FROM TOP OF WELL



Gannett Fleming

MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.022 CLIENT : Frito-Lay

LOCATION : 202-218 Morgan Avenue, Brooklyn, New York

DATE : 11/05/09 WELL No.: MW-6

HYDROGEOLOGIST : Michael Nahmias / Michael O'Brien

DRILLING CONTRACTOR : Aquifer Drilling & Testing (ADT)

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : Schedule 40

2). SOLID PIPE TYPE : PVC

SOLID PIPE LENGTH : 6 feet

PIPE & SCREEN DIA. : 2-inch

JOINT TYPE-SLIP / GLUED : ☐ THREADED ☑

3). TYPE OF BACKFILL AROUND SCREEN : Quartz Sand Pack

4). TYPE OF SEAL (IF INSTALLED) : Bentonite

5). TYPE OF BACKFILL: Sand Pack

HOW INSTALLED: Hand Poured

6). TYPE OF SURFACE SEAL (IF INSTALLED): Concrete Seal with Steel Riser Pipe

7). PROTECTIVE CASING: YES ☑ NO ☐

LOCKING CAP: YES ☑ NO ☐

8). CONCRETE SEAL: YES ☑ NO ☐

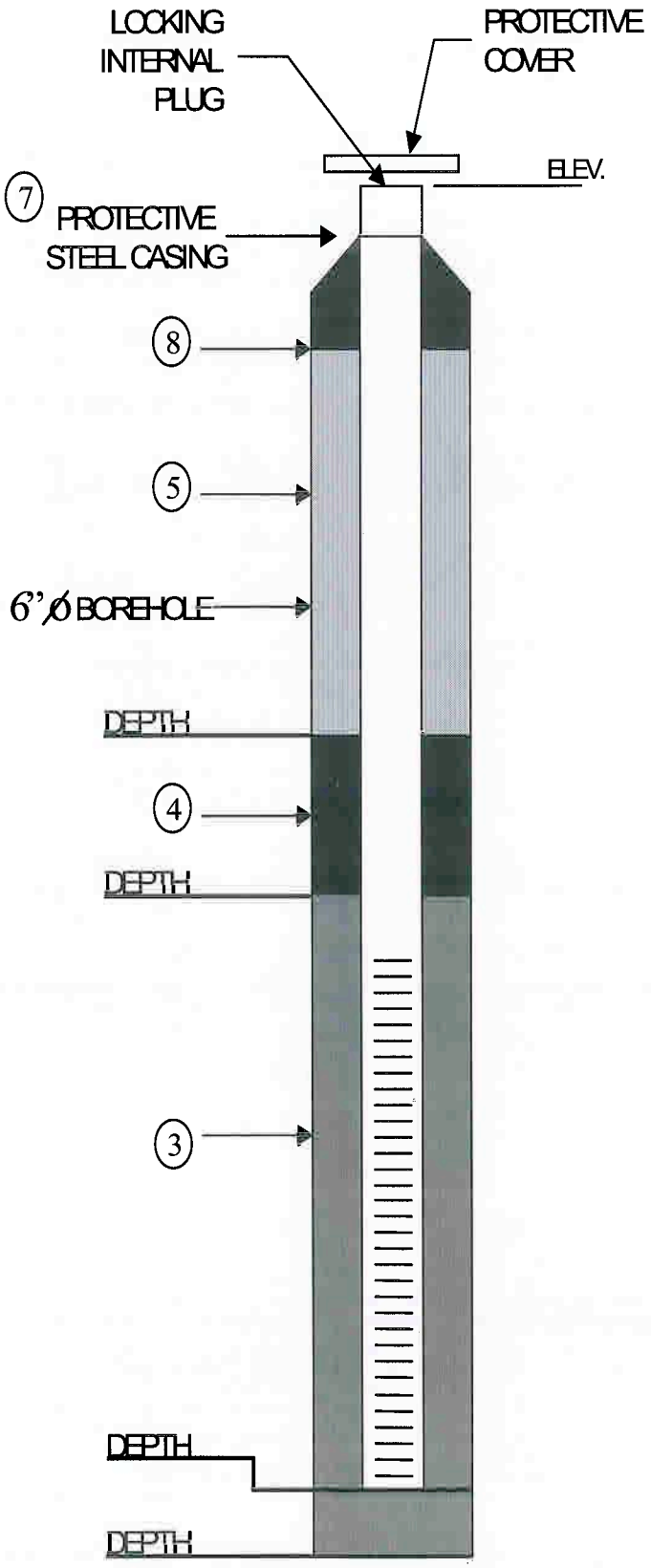
9). DRILLING METHOD: Hollow Stem Auger

10). ADDITIVES USED (IF ANY): None

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
11/05/09	09:30	11.50 ft	
11/06/09	08:00	9.96 ft	

* FROM TOP OF WELL



Gannett Fleming

MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.021 CLIENT : Frito-Lay

LOCATION : 202-218 Morgan Avenue, Brooklyn, New York --- Offsite Well

Located on the sidewalk between Meadow Street & Ten Eyck Street

DATE : 04/22/09 WELL No.: MW-7

HYDROGEOLOGIST : Michael Nahmias

DRILLING CONTRACTOR : Aquifer Drilling & Testing, Inc. (ADT)

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020" Slotted Screen

2). SOLID PIPE TYPE : Schedule 40 PVC

SOLID PIPE LENGTH : 5 feet

PIPE & SCREEN DIA. : 2" ID

JOINT TYPE-SLIP / GLUED : ☐ THREADED ☑

3). TYPE OF BACKFILL AROUND SCREEN : #2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) : Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED: Hand Poured

6). TYPE OF SURFACE SEAL (IF INSTALLED): Cement

7). PROTECTIVE CASING: YES ☑ NO ☐

LOCKING CAP: YES ☑ NO ☐

8). CONCRETE SEAL: YES ☑ NO ☐

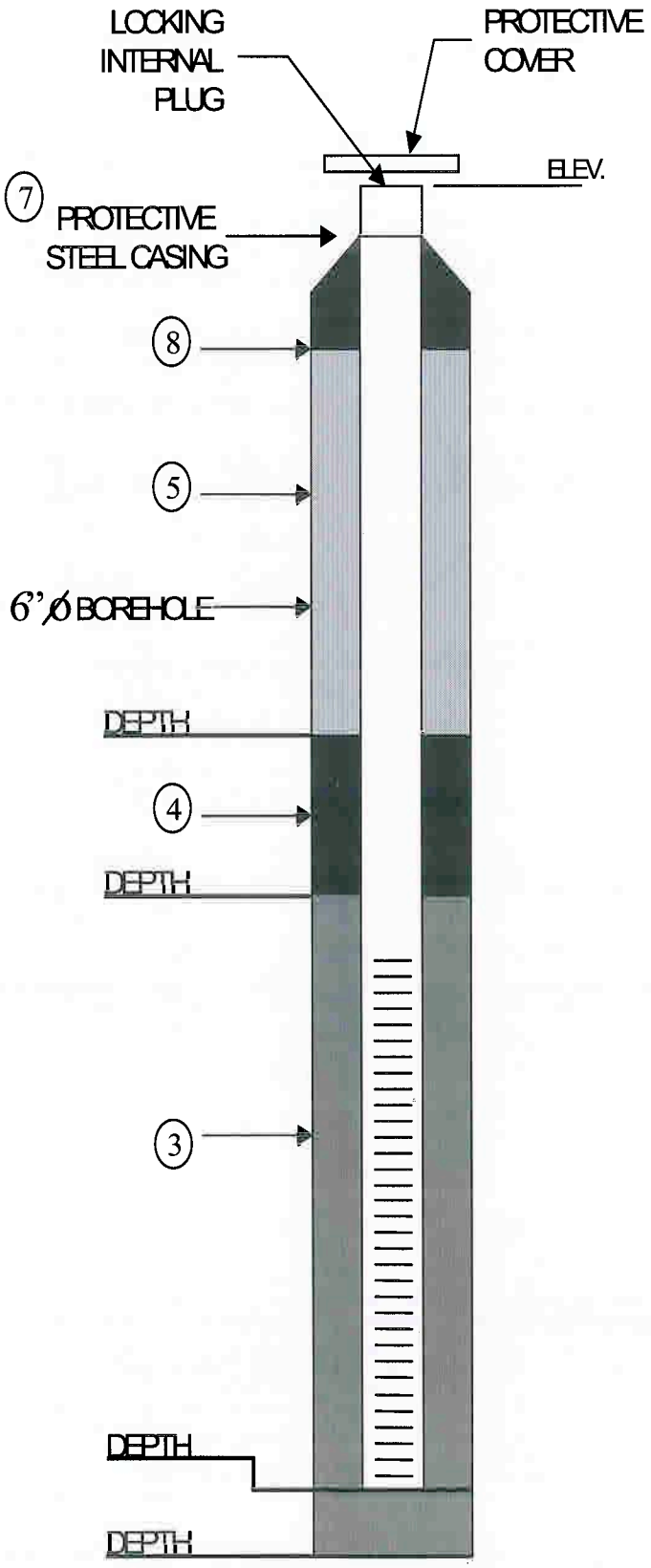
9). DRILLING METHOD: Hollow Stem Auger

10). ADDITIVES USED (IF ANY): None

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
04/22/09		11.30 feet	DTB=15.00 feet

* FROM TOP OF WELL



Gannett Fleming

MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : 47743.021 CLIENT : Frito-Lay

LOCATION : 202-218 Morgan Avenue, Brooklyn, New York --- Offsite Well

Located on the sidewalk between Meadow Street & Stagg Street

DATE : 04/22/09 WELL No.: MW-8

HYDROGEOLOGIST : Michael Nahmias

DRILLING CONTRACTOR : Aquifer Drilling & Testing, Inc. (ADT)

1). SCREEN TYPE : PVC

SLOTTED LENGTH : 10 feet

SLOT SIZE : 0.020" Slotted Screen

2). SOLID PIPE TYPE : Schedule 40 PVC

SOLID PIPE LENGTH : 4.60 feet

PIPE & SCREEN DIA. : 2" ID

JOINT TYPE-SLIP / GLUED : ☐ THREADED ☑

3). TYPE OF BACKFILL AROUND SCREEN : #2 Morie Sand

4). TYPE OF SEAL (IF INSTALLED) : Bentonite

5). TYPE OF BACKFILL: #2 Morie Sand

HOW INSTALLED: Hand Poured

6). TYPE OF SURFACE SEAL (IF INSTALLED): Cement

7). PROTECTIVE CASING: YES ☑ NO ☐

LOCKING CAP: YES ☑ NO ☐

8). CONCRETE SEAL: YES ☑ NO ☐

9). DRILLING METHOD: Hollow Stem Auger

10). ADDITIVES USED (IF ANY): None

WATER LEVELCHECKS*

DATE	TIME	DEPTH TO WATER	REMARKS
04/22/09		11.30 feet	DTB=14.60 feet

* FROM TOP OF WELL

APPENDIX D

GROUNDWATER MONITORING WELL DEVELOPMENT LOGS

Well Development Logs
Frito Lay
202-218 Morgan Avenue
Brooklyn, New York

Well ID	Date	Depth to Product (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Screened Interval (feet)	One Well Volume (gallons)	Ten Well Volumes (gallons)	Amount Purged (gallons)	Turbidity at End of purge (ntu)	Comments
MW-1	12/12/2007	NA	13.18	19.01	10	0.93	9.3	8	34.2	sheen observed petroleum odor
MW-2	12/12/2007	NA	11.90	17.20	10	0.85	8.5	10	28.0	sheen observed petroleum odor
MW-3	12/12/2007	NA	13.88	18.55	10	0.75	7.5	7	31.3	sheen observed petroleum odor
MW-4	12/12/2007	NA	15.08	19.10	10	0.64	6.4	20	15.0	
MW-5	12/12/2007	NA	13.38	18.96	10	0.89	8.9	10	28.0	sulfur odor
MW-6	11/6/2009	NA	9.96	17.50	10	1.21	12.1	15	38.2	strong petroleum odor
MW-7	4/22/2009	NA	11	15.00	10	0.64	6.4	13	NM*	Purged an additional 10 well volumes due to a collapse in the annular space that required an additional bag of sand pack following the first purge
MW-8	4/22/2009	NA	11.30	14.60	10	0.53	5.3	6	NM*	

* - Turbidity meter would not calibrate in the field; measurements were not taken

APPENDIX E

GROUNDWATER SAMPLING LOGS

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-1 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-1		
SAMPLE I.D. NO.	MW-1 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1043
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	12.71 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	19.63 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	3.3	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Clear				
ODORS OBSERVED	Slight Petroleum Odor				
CONDUCTIVITY (*u*S)	1,698	pH	7.85	ORP (mV)	---
TEMPERATURE (°C)	19.1	TURBIDITY (NTU)	8.78	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.36	8.11	8.78
CONDUCTIVITY (*u*S)	1,705	1,711	1,698
TEMPERATURE (°C)	20.3	19.4	19.1
ORP	---	---	---
TURBIDITY (NTU)	146	47.79	8.78
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-2 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-2		
SAMPLE I.D. NO.	MW-2 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1115
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	11.06 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	18.09 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	3.4	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Slightly Turbid				
ODORS OBSERVED	Slight Petroleum Odor				
CONDUCTIVITY (*u*S)	1,497	pH	7.92	ORP (mV)	---
TEMPERATURE (°C)	16.9	TURBIDITY (NTU)	56	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.08	7.97	7.92
CONDUCTIVITY (*u*S)	1,420	1,460	1,497
TEMPERATURE (°C)	17.3	17.4	16.9
ORP	---	---	---
TURBIDITY (NTU)	332	310	56
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-3 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-3		
SAMPLE I.D. NO.	MW-3 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1145
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	13.47 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	20.19 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	3.2	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Slightly Turbid				
ODORS OBSERVED	Slight Petroleum Odor				
CONDUCTIVITY (*u*S)	1,737	pH	7.99	ORP (mV)	---
TEMPERATURE (°C)	16.7	TURBIDITY (NTU)	38.16	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.01	8.08	7.99
CONDUCTIVITY (*u*S)	1,745	1,747	1,737
TEMPERATURE (°C)	16.4	16.5	16.7
ORP	---	---	---
TURBIDITY (NTU)	94	52	38.16
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-4 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-4		
SAMPLE I.D. NO.	MW-4 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1245
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	14.35 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	20.19 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	2.8	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Turbid				
ODORS OBSERVED	None				
CONDUCTIVITY (*u*S)	> 2,000	pH	8.20	ORP (mV)	---
TEMPERATURE (°C)	16.0	TURBIDITY (NTU)	81	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.23	8.22	8.20
CONDUCTIVITY (*u*S)	> 2,000	> 2,000	> 2,000
TEMPERATURE (°C)	16.2	16.2	16.0
ORP	---	---	---
TURBIDITY (NTU)	700	122	81
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-5 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-5		
SAMPLE I.D. NO.	MW-5 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1325
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	12.02 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	20.22 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	--- GAL/ MIN		PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	3.9	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Clear				
ODORS OBSERVED	Sulfur Odor				
CONDUCTIVITY (*u*S)	1,656	pH	8.33	ORP (mV)	---
TEMPERATURE (°C)	15.5	TURBIDITY (NTU)	23.26	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.40	8.36	8.33
CONDUCTIVITY (*u*S)	1,630	1,646	1,656
TEMPERATURE (°C)	15.2	15.4	15.5
ORP	---	---	---
TURBIDITY (NTU)	115	89	23.26
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-6 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-6		
SAMPLE I.D. NO.	MW-6 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1215
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	14.40 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	17.70 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	1.6	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Silty & Turbid				
ODORS OBSERVED	Petroleum Odor				
CONDUCTIVITY (*u*S)	> 2,000	pH	8.25	ORP (mV)	---
TEMPERATURE (°C)	15.1	TURBIDITY (NTU)	97	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	8.27	8.20	8.25
CONDUCTIVITY (*u*S)	> 2,000	> 2,000	> 2,000
TEMPERATURE (°C)	15.7	15.0	15.1
ORP	---	---	---
TURBIDITY (NTU)	222	184	97
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-7 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-7		
SAMPLE I.D. NO.	MW-7 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1410
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	8.19 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	15.35 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	--- GAL/ MIN		PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	3.4	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Turbid				
ODORS OBSERVED	None				
CONDUCTIVITY (*u*S)	1,784	pH	7.93	ORP (mV)	---
TEMPERATURE (°C)	14.8	TURBIDITY (NTU)	151	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	7.79	7.81	7.93
CONDUCTIVITY (*u*S)	1,722	1,773	1,784
TEMPERATURE (°C)	14.9	15.1	14.8
ORP	---	---	---
TURBIDITY (NTU)	101	79	151
DO (mg/l)	---	---	---

GANNETT FLEMING ENGINEERS, P.C.

480 Forest Avenue

Locust Valley, New York 11560

CLIENT/ PROJECT NO.	Frito-Lay / 47743.022		
WELL NO./ OWNER	MW-8 / Frito-Lay		
SAMPLING POINT	Monitoring Well MW-8		
SAMPLE I.D. NO.	MW-8 112009	SAMPLED BY	MN/MO
DATE SAMPLED	11/20/2009	TIME	1450
WELL USE	Groundwater Monitoring		
STATIC WATER ELEV.	8.93 feet	FT. BELOW MEASURING POINT	TOC
WELL DIAMETER	2 INCHES		
TOTAL WELL DEPTH	13.45 feet	FT. BELOW MEASURING POINT	TOC

SAMPLING INFORMATION

PURGING METHOD	Submersible Pump				
PURGING RATE	---	GAL/ MIN	PURGING TIME	---	MIN
NO. CASING VOLUMES REMOVED	3		GALLONS	2.2	
WELL DRAWDOWN/ RECOVERY	Good				
SAMPLE APPEARANCE	Slightly Turbid				
ODORS OBSERVED	None				
CONDUCTIVITY (*u*S)	> 2,000	pH	7.21	ORP (mV)	---
TEMPERATURE (°C)	14.7	TURBIDITY (NTU)	79	DO (mg/l)	---
SAMPLES ANALYZED FOR	VOCs / SVOCs / PCBs / Metals (Filtered & Unfiltered) / Pesticides				
LABORATORY/ DATE SHIPPED	Chemtech / 11/20/2009				

COMMENTS, LOCATION SKETCH, WELL-HEAD SKETCH, ETC.

	1st VOLUME	2nd VOLUME	3rd VOLUME
pH	7.01	7.15	7.21
CONDUCTIVITY (*u*S)	1,891	1,890	> 2,000
TEMPERATURE (°C)	14.9	15.0	14.7
ORP	---	---	---
TURBIDITY (NTU)	158	200	79
DO (mg/l)	---	---	---

APPENDIX F

LABORATORY DATA REPORTS (2009) (PROVIDED ON CD)

APPENDIX G

DATA USABILITY SUMMARY REPORT (2007) (PROVIDED ON CD)

APPENDIX H

DATA USABILITY SUMMARY REPORT (2009) (PROVIDED ON CD)

APPENDIX I

DATA USABILITY SUMMARY (2009)

Data Usability Summary – Frito-Lay

November 2009 Remedial Investigation Sampling Program

The analytical data generated during the November 2009 RI sampling program for the 202-218 Morgan Avenue site located in Brooklyn, New York (Frito Lay) was subjected to validation and usability review to verify that the data satisfy project objectives. The validation and usability review procedure was based upon USEPA Region II Resource, Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Data Validation Standard Operating Procedures (SOPs) that consisted of:

- Comparison of the lab sample description and case narrative in the laboratory data report to the COC form to identify potential issues related to sample handling, preservation, and technical holding times;
- Evaluation of the results of field/equipment blank, trip blank, and method blank analyses to provide information concerning contaminants that may have been introduced during sampling, shipping, or analysis;
- Comparison of method specific instrument calibration, precision, and accuracy data with required quality control (QC) limits;
- Evaluation of matrix effects on method performance to determine whether results have been biased high or low due to sample matrix interference; and,
- Comparison of data to relevant comparative criteria governing the management of contaminated environmental media (i.e., NYSDEC) to verify that appropriate method reporting limits were achieved.

The criteria used for the validation and usability review procedure are: 1) the specific performance requirements and QC protocol for each analytical method; and, 2) the relevant NYSDEC guidelines. The findings of the validation and usability review for each sample delivery group (SDG) were summarized on a checklist/summary form derived from a collection of SOPs for organic and inorganic data validation, which have been modified and adapted to incorporate method specific laboratory QC criteria established by the analytical laboratory.

The data package provided by the laboratory meets the specifications of a full ASP Category B deliverable package, as required by NYSDEC. The methods and data packages provided by the laboratory are consistent with the specifications of the most current version of the ASP.

Data Validation

To conform to NYSDEC requirements as specified in DER-10 (November-2009), data validation was performed on the analytical samples collected during the Second Supplemental RI conducted in November 2009 at the Site. Data validation services were provided by Environmental Data Services (EDS), Inc. located at 1156 Jamestown Road, Suite A in Williamsburg, VA. The complete SDGs from the laboratory which were validated by EDS included:

- A5011
- A5023
- A5041
- A5237

The SDGs were provided by Chemtech of Mountainside, New Jersey (Chemtech) and copies were forwarded to EDS for validation. The data validation procedure included the examination and comparison of laboratory SDG data reports to predefined criteria using the laboratory data review checklist/validation summary (checklist) to document and to summarize the findings.

The matrix specific checklist contains a sample COC section, sections for each analysis, and a data quality summary table. Each section contains questions, method specific performance criteria, and blanks to record QC sample data information, where necessary. The validation procedure consisted of reviewing the SDG to complete all of the questions, recording QC sample data where required, and completing the data quality summary table with data qualifiers for the analysis performed on each sample.

Instances of non-conformance with specified criteria identified on the checklist were reviewed to determine if the data are suitable for the intended project objectives. Depending on the severity

of nonconformance with the specified criteria, resolution of identified issues, and effect on data usability, data will be validated as *accept, qualify, or reject*, as follows:

A = Accept data with no issues or minor considerations that have no effect on data usability

Q = Accept data but qualify results as estimated values due to issues which have only a minor effect on data usability (e.g., blank contamination, poor MS/MSD recoveries, and RPDs)

R = Reject data as unusable for project objectives based on issues that have a major impact on data usability (e.g., severely missed holding times, high reporting limits, very low surrogate or spike compound or laboratory control sample analyte recovery, or a combination of several issues)

Completed laboratory data review checklist/validation summary forms for each SDG were returned to GF for use in the qualifying data. Validated data that are acceptable for use were documented as conforming to the project objectives. Samples for which data are not acceptable (i.e., rejected) were not used during final decision making process for a proposed remedial alternative for a selected Site area.

Data Summary Review

A Data Usability Summary Review was performed on the analytical data collected at the Site. Analyses were performed on soil and aqueous data according to United Stated Environmental Protection Agency (USEPA), *"Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions"*. Analyses were performed on air sampling data under *"Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition January 1999, EPA/625/R-96/010B"*, Compendium Method TO-15, "*Determination of Volatile Organic Compounds (VOCs) In Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/ Mass Spectrometry (GC/MS).* The Specific methods references are as follows:

Analyte	Method Referenced	Sampling Media
VOCs	USEPA SW-846, Method 8260B	Soil
SVOCs	USEPA SW-846, Method 8270C	Soil
PCBs	USEPA SW-846, Method 8082A	Soil
Pesticides	USEPA SW-846, Method 8081	Soil
PCB	USEPA SW-846, Method 8082	Soil
Metals	USEPA SW-846, Method 6010B	Soil
Mercury	USEPA Method 245.1, Method 7471A	Soil
VOCS	USEPA SW-846, Method 8260B and EPA Method 624	Aqueous
SVOCS	USEPA SW-846, Method 8270C and EPA Method 625	Aqueous
Pesticides	USEPA SW-846, Method 8081A and EPA Method 608	Aqueous
PCBs	USEPA SW-846, Method 8082 and EPA Method 608	Aqueous
Metals	USEPA SW-846, Method 6010B and EPA Method 200.7	Aqueous
Mercury	USEPA SW-846, Method 7471A and EPA Method 245.1	Aqueous
VOCs	EPA/625/R-96/010B and EPA Method TO-15	Air

The data have been validated in according to the protocols and QC requirements of the analytical methods and the USEPA Region II Data Review SOPs as follows:

- SOP Number HW-24, Revision 2, October 2006: Validating Volatile Organic Compounds by SW-846, Method 8260B;
- SOP Number HW-22, Revision 3, October 2006: Validating Semivolatile Organic Compounds by SW-846, Method 8270D;
- SOP Number HW-44, Revision 1, October 2006: Validating Pesticide Compounds by SW-846, Method 8081B;
- SOP Number HW-45, Revision 1, October 2006: Validating PCB Compounds by SW-846, Method 8082A
- SOP Number HW-2, Revision 13, September 2006: Evaluation of Metals Data for the CLP Program based on ILMO5.3
- SOP Number HW-31, Revision 4, October 2006: Validating Air Samples-Volatile Organic Analysis of Ambient Air in Canister and the reviewer's professional judgment.

Organics

The following items/criteria were reviewed:

- Data Completeness
- Holding times and sample preservation
- Surrogate Spike Recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Duplicate (LCS/LCSD) recoveries
- Method blank and field blank contamination
- Gas Chromatography (GC)/Mass Spectroscopy (MS) tuning
- Initial and continuing calibration summaries
- Compound Quantitation
- Internal standard area and retention time summary forms
- Field Duplicate sample precision

Inorganics

The following items/criteria were reviewed:

- Data Completeness
- Holding times and sample preservation
- MS/MSD recoveries
- LCS/LCSD recoveries
- Method blank and field blank contamination
- Initial and continuing calibration summaries
- Compound Quantitation
- ICP Serial Dilution
- Field Duplicate sample precision

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or

modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = The analyte was not detected above the sample reporting limit and the reporting limits is appropriate.
U = The analyte was analyzed for, but was not detected above the sample reporting limit.
R = The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

Data Completeness and Holding Times

All criteria were met for all SDGs.

Surrogate Spike Recoveries

A low percent recovery (%R) may indicate a potential low bias while a high %R may indicate a potential high bias. For a low %R, positive results are considered estimated and qualified (J) while non-detects are estimated and qualified (UJ). For a high %R, positive results are considered estimates and qualified (J). For a %R below 10%, non detected results are rejected and qualified (R). Rejected results are not usable for project objectives.

VOCs

Samples collected and presented in SDG A5023 and A5041 exhibited acceptable surrogate %R values within QC limits. Samples collected and presented in SDGs A5011 and A5237 exhibited surrogate %R values outside QC limits.

The Surrogate Spike Recoveries summary is presented below for SDG A5011:

Sample ID	Surrogate	%R	Qualifier
(1) SB-23 (0-4)	Toluene-d8	44%	None-see IS
(1RE) SB-23 (0-4) RE	Toluene-d8	64%	None-see IS
(6) SB-26 (4-6)	Toluene-d8	31%	J/UJ
(6RE) SB-26 (4-6) RE	Toluene-d8	1%	J/R
(7)SB-26 (0-4)	Toluene-d8	54%	J/UJ
(7RE) SB-26 (0-4) RE	Toluene-d8	13%	None-see IS
(13RE) SB-16 (4-7) RE	Toluene-d8	62%	None-see IS
(18RE) SB-17 (0-4) RE	Toluene-d8	66%	None-see IS
(20 RE) SB-16 (0-4) RE	Toluene-d8	65%	J/UJ-Unless R due to IS
(21) SB-22 (4-7.5)	Toluene-d8	59%	None-See IS
(21RE) SB-22 (4-7.5) RE	Toluene-d8	66%	J/UJ-Unless R due to IS
(22RE) SB-22 (0-4) RE	Toluene-d8	65%	J/UJ-Unless R due to IS

The Surrogate Spike Recovery summary is presented below for SDG A5237:

Sample ID	Surrogate	%R	Qualifier
(4) SED-4-112009	Toluene-d8	65%	J/UJ

SVOCs

Samples collected and presented in SDGs A5011 and A5237 exhibited acceptable surrogate percent recoveries (%R) within QC limits. Samples collected and presented in SDG A5023 exhibited surrogate %R values outside the QC limits.

The Surrogate Spike Recoveries summary is presented below for SDG A5023:

Sample ID	Surrogate	%R	Qualifier
(9) SB-28 (4-8)	2-Fluorophenol	15%	J/R-acid compounds
	2,4,6-Tribromophenol	7%	
(9) SB-28 (4-8)RE	2-Fluorophenol	17%	J/UJ-acid compounds
	2,4,6-Tribromophenol	10%	

Polychlorinated Biphenyls (Pest/PCBs)

Samples collected and presented in SDG A5011, A5023 and A5237 exhibited surrogate percent recoveries (%R) outside QC limits.

The Surrogate Spike Recoveries summary is presented below for SDG A5011:

Sample ID	Surrogate	%R	Qualifier
(1 PCB)SB-23 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/188%	None-Dilution reported
(1DL PCB) SB-23 (0-4)DL	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/299%	None-all diluted
(4 PCB) DUP-2	TCX1/TCX2/DCB1/DCB2	921%/Ok/Ok/Ok	None-Dilution reported
(4DL PCB)DUP-2 DL	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Diluted out
(5 PCB) SB-27 (0-4)	TCX1/TCX2/DCB1/DCB2	800%/Ok/Ok/Ok	None-Dilution reported
(5DL PCB) SB-27 (0-4)DL	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Diluted out
(7 Pest) SB-26 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/305%/Ok/Ok	None-All ND
(8 PCB) SB-17 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/188%	None-Dilution reported
(8 Pest) SB-17 (4-6))	TCX1/TCX2/DCB1/DCB2	Ok/446%/Ok/Ok	None-All ND
(8DL PCB) SB-17 (4-6)DL	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/330%	J
(9 PCB) SB-101 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/185%	J
(9 Pest) SB-101 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/221%/Ok/Ok	None-All ND
(10 Pest) SB-101 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/198%/Ok/Ok	None-All ND
(11DL PCB) SB-23 (8-10)	TCX1/TCX2/DCB1/DCB2	199%/Ok/166%/Ok	J
(12 Pest) SB-102 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/217%/Ok/Ok	None-All ND
(12DL) PCB SB-102 (4-6)DL	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/184%	None-Diluted out
(13 Pest) SB-16 (4-7)	TCX1/TCX2/DCB1/DCB2	Ok/199%/Ok/Ok	None-All ND
(17 Pest) SB-102 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/455%/Ok/Ok	None-All ND
(17DL PCB) SB-102 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/312%	J
(18DL PCB) SB-17 (0-4)	TCX1/TCX2/DCB1/DCB2	0%/105%/0%/128%	None-Diluted out
(19DL PCB) DUP-1	TCX1/TCX2/DCB1/DCB2	0%/110%/0%/250%	None-Diluted out
(20DL PCB) SB-16 (0-4)	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Diluted out
(21 Pest) SB-22 (4-7.5)	TCX1/TCX2/DCB1/DCB2	Ok/710%/Ok/Ok	None-All ND
(21DL PCB) SB-22 (4-7.5)DL	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Diluted out
(22DL PCB) SB-22 (0-4) DL	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Diluted out

The Surrogate Spike Recoveries summary is presented below for SDG A5023:

Sample ID	Surrogate	%R	Qualifier
(2 Pest) SB-20 (4-6)	TCX1/TCX2/DCB1/DCB2	210%/Ok/Ok/Ok	J-Positive results
(2 PCB) SB-20 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/389%	None-Dilution used
(2Dl PCB) SB-20 (4-6) DL	TCX1/TCX2/DCB1/DCB2	202%/183%/129%/704%	J
(3 Pest) SB-28 (0-4)	TCX1/TCX2/DCB1/DCB2	348%/278%/Ok/Ok	None-All ND
(3 PCB) SB-28 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/201%	None-Dilution used
(3DL) PCB SB-28 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/221%/322%	J
(3RE) Pest SB-28 (0-4)	TCX1/TCX2/DCB1/DCB2	343%/317%/Ok/Ok	None-All ND
(4 PCB) SB-21 (0-2)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/396%	None-Dilution used
(4DL PCB) SB-21 (0-2)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/350%	J
(5 Pest) SB-24 (0-2)	TCX1/TCX2/DCB1/DCB2	825%/Ok/Ok/Ok	None-All ND
(5DL PCB) SB-24 (0-2)	TCX1/TCX2/DCB1/DCB2	0%/0%/0%/0%	None-Dilution used
(6 Pest) SB-19 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/183%/Ok/Ok	None-All ND
(6DL PCB) SB-19 (0-4) DL	TCX1/TCX2/DCB1/DCB2	Ok/Ok/468%/Ok	J
(7 PCB) SB-19 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/202%	None-Dilution used
(7DL PCB) SB-19 (4-6)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/185%	J
(8DL PCB) SB-20 (0-4)	TCX1/TCX2/DCB1/DCB2	Ok/Ok/Ok/195%	

The Surrogate Spike Recoveries summary is presented below for SDG A5237:

Sample ID	Surrogate	%R	Qualifier
(11 PCB) MW-5	TCX1/TCX2/DCB1/DCB2	189%/Ok/Ok/Ok	None-All ND
(12 PCB) DUP 11-20-09	TCX1/TCX2/DCB1/DCB2	166%/Ok/Ok/Ok	None-All ND
(13 PCB) MW-3	TCX1/TCX2/DCB1/DCB2	441%/Ok/Ok/Ok	None-All ND
(14 PCB) MW-4	TCX1/TCX2/DCB1/DCB2	256%/Ok/Ok/Ok	None-All ND
(19 PCB) SW-1	TCX1/TCX2/DCB1/DCB2	Ok/199%/Ok/Ok	None-All ND

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

A low percent recovery value (%R) may indicate a potential low bias while a high %R value may indicate a potential high bias. For a low %R value, positive results are considered estimated and qualified (J) while non-detects are estimated and qualified (UJ). For a high %R value, positive results are considered estimates and qualified (J). Results are valid and usable, however, possibly biased. For a %R value below 10%, non-detected results are rejected and qualified (R). Rejected results are not usable for project objectives.

VOCs

MS/MSD samples were not analyzed for analysis in SDG A5023 and A5041. Samples collected and presented in SDG A5011 and A5237 exhibited %R values outside of QC limits and/or relative percent differences (RPD) above QC limits.

The MS/MSD Recoveries summary is presented below for SDG A5011:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(1) SB-23 (0-4)	Methyl Acetate	306%/323&/Ok	None-already qualified due to IS
	Cyclohexane	40%/42%/Ok	
	Methylcyclohexane	24%/25%/Ok	
	Toluene	55%/58%/Ok	
	Ethyl benzene	6%/15%/86	J/R
	o-Xylene	37%/40%/Ok	None-already qualified due to IS
	m/p-Xylene	58%/50%/OK	
	1,1,2,2-Tetrachloroethane	194%/194%/Ok	
	1,2,4-Trichlorbenzene	45%/44%/Ok	
(14) SB-18 (0-4)	Methyl Acetate	457%/441/Ok	J
	Methylcyclohexane	42%/42%/Ok	J/UJ
	cis-1,4-Dichloropropene	63%/63%/Ok	
	2-Hexanone	Ok/Ok/21	None for PRD alone
	1,2,4-Trichlorbenzene	49%/46%/Ok	None-already qualified due to IS

The MS/MSD Recoveries summary is presented below for SDG A5237:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(4) SED-4-11-20-09	Bromomethane	Ok/Ok/23	None-already qualified due to surrogates and/or IS
	1,1,2-Trichlorotrifluoroethane	Ok/50%/23	
	Carbon Disulfide	0%/-34%/200	
	Methyl Acetate	218%/Ok/Ok	
	MTBE	Ok/Ok/21	
	Cyclohexane	Ok/46%/37	
	2-Butanone	Ok/Ok/25	
	Carbon Tetrachloride	50%/41%/Ok	

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
	Methylcyclohexane	21%/14%/40	
	Bromodichloromethane	67%/46%/37	
	4-Methyl-2-pentanone	Ok/Ok/27	
	t-1,3-Dichloropropene	41%/34%/Ok	
	cis-1,3-Dichloropropene	35%/32%/Ok	
	Dibromochloromethane	55%/37%/39	
	Chlorobenzene	55%/38%37	
	Bromoform	46%/34%/30	
	Isopropylbenzene	202%/Ok/49	
	1,1,2,2-Tetrachloroethane	672%/420%/46	
	1,3-Trichlorobenzene	Ok/60%/34	
	1,4-Dichlorobenzene	29%/-13%/525	
	1,2-Dichlorobenzene	42%/8%/136	
	1,2,4-Trichlorbenzene	38%/27%/34	

The MS/MSD Recoveries summary is presented below for SDG A5011:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(1) SB-23 (0-4)	Hexachlorocyclopentadiene	0%/Ok/200	J/R
	4.6-Dinitro-2-Methyphenol	157%/Ok/200	None-All JD
	Fluoranthene	219%/-10%/219	J/UJ
	Pyrene	200%/5%/190	J/R
	bis(2-Ethylhexyl)phthalate	495%/162%/101	J
	4-Nitrophenol	Ok/Ok/60	None for RPD alone
	Pentachlorophenol	Ok/Ok/96	
	Phenanthrene	Ok/-10%/23	J/R
	Anthracene	Ok/Ok/63	None for RPD alone
	Benzo(a)anthracene	Ok/Ok/108	
	Chrysene	Ok/Ok/110	
	Benzo(b)fluoranthene	Ok/Ok/113	
	Benzo(a)anthracene	Ok/Ok/84	
(14) SB-18 (0-4)	Benzaldehyde	Ok/Ok/131	None for RPD alone
	Butylbenzylphthalate	(-)681%/-733%/Ok	None -4X rule applies
	bis(2-Ethylhexyl)phthalate	(-)52%/-29%/57	

The MS/MSD Recoveries summary is presented below for SDG A5023:

SVOCs

Samples collected and presented in SDGs A5011 and A5023 exhibited %R values outside of QC limits and/or relative percent differences (RPD) above QC limits. Samples collected and presented in SDG A5237 exhibited acceptable %R values and RPD criteria within QC limits.

The MS/MSD Recoveries summary is presented below for SDG A5011:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(1) SB-23 (0-4)	Hexachlorocyclopentadiene	0%/Ok/200	J/R
	4.6-Dinitro-2-Methyphenol	157%/Ok/200	None-All JD
	Fluoranthene	219%/-10%/219	J/UJ
	Pyrene	200%/5%/190	J/R
	bis(2-Ethylhexyl)phthalate	495%/162%/101	J
	4-Nitrophenol	Ok/Ok/60	None for RPD alone
	Pentachlorophenol	Ok/Ok/96	
	Phenanthrene	Ok/-10%/23	J/R
	Anthracene	Ok/Ok/63	None for RPD alone
	Benzo(a)anthracene	Ok/Ok/108	
	Chrysene	Ok/Ok/110	
	Benzo(b)fluoranthene	Ok/Ok/113	
	Benzo(a)anthracene	Ok/Ok/84	
(14) SB-18 (0-4)	Benzaldehyde	Ok/Ok/131	None for RPD alone
	Butylbenzylphthalate	(-)681%/-733%/Ok	None -4X rule applies
	bis(2-Ethylhexyl)phthalate	(-)52%/-29%/57	

The MS/MSD Recoveries summary is presented below for SDG A5023:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(9) SB-28 (4-8))	2- Chlorophenol	31%/Ok/Ok	J
	2-Nitrophenol	10%/17%/52	
	2,4-Dichlorophenol	25%/Ok/Ok	
	Hexachlorocyclopentadiene	0%/0%/Ok	
	2,4,6-Trichlorophenol	8%/16%/67	
	2,4,5-Trichlorophenol	11%/20%/58	
	4-Nitrophenol	5%/9%/57	
	Pentachlorophenol	3%/8%/91	

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
	Phenanthrene	Ok/183%/144	
	Anthracene	Ok/Ok/53	
	Fluoranthene	22%/204%/161	
	Pyrene	(-)4%/209%/208	
	Benzo(a)anthracene	Ok/165%/97	
	Chrysene	Ok/170%/89	
	Benzo(b)fluoranthene	Ok/196%/121	
	Benzo(a)pyrene	Ok/170%/112	
	Benzo(g,h,i)perylene	Ok/183%/89	

Polychlorinated Biphenyls (Pest/PCBs)

Samples collected and presented in SDGs A5011, A5023 and A5237 exhibited %R values outside of QC limits and/or relative percent differences (RPD) above QC limits.

The MS/MSD Recoveries summary is presented below for SDG A5011:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(1 PCB) SB-23 (0-4)	Aroclor 1260	615%/864%/34	None- All ND
	Aroclor 1016	1680%/2016%/Ok	
(1 Pest) SB-23 (0-4)	23 out of 40	All high	None- All ND
(14 PCB) SB-18 (0-4)	Aroclor 1260	Ok/206%/25	None- All ND
	Aroclor 1016	520%/685%/27	
(14 Pest) SB-18 (0-4)	Heptachlor epoxide	Ok/Ok/50	None for RPD alone
	Endosulfan sulfate	Ok/Ok/65	
	beta-BHC	Ok/Ok/27	
	delta-BHC	242%/159%/41	None-All ND
	Endosulfan II	Ok/Ok/39	None for RPD alone
	4,4-DDT	258%/Ok/57	None- All ND
	Endrin Ketone	Ok/Ok/38	None for RPD alone
	Dieldrin	Ok/Ok/48	
	Endrin	Ok/7%/53	J/R
	Methoxychlor	Ok/Ok/108	None for RPD alone
	4,4-DDD	Ok/Ok/26	
	4,4-DDE	411%/310%/28	None- All ND
	Endrin aldehyde	Ok/Ok/45	None for RPD alone
	Endosulfan I	306%/238%/25	None- All ND

The MS/MSD Recoveries summary is presented below for SDG A5023:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(5 Pest) SB-24 (0-2)	30 out of 40 Spike Recovery	High	None- All ND
(5 PCB) SB-24 (0-2)	Aroclor 1260	1616%/2624%/48	None- All ND
	Aroclor 1016	7576%/9788%/25	

The MS/MSD Recoveries summary is presented below for SDG A5237:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(4 Pest) SED-4	gamma-Chlordane	234%/235%/Ok	None-All ND
	Endrin aldehyde	531%/490%/Ok	
(4 PCB) SED-4	Aroclor-1016	303%/288%/Ok	None-All ND

Metals and Mercury

Samples collected and presented in SDG A5011 exhibited %R values and RPD criteria that met QC limits. Samples collected and presented in SDGs A5023 and A5237 exhibited %R values outside of QC limits and/or relative percent differences (RPD) above QC limits.

The MS/MSD Recovery summary is presented below for SDG A5023:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(1) SB-25 (0-4)	Mercury	45.2%/Ok/Ok	J/UJ

The MS/MSD Recoveries summary is presented below for SDG A5237:

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
(4) SED-4	Arsenic	Ok/Ok/43.6	J
	Barium	Ok/Ok/39.0	J
	Cadmium	384.8%/369.1%/43.5	J
	Calcium	Ok/Ok/43.8	J
	Chromium	651.8%/601.2%/40.5	J
	Cobalt	119.4%/Ok/51.2	J
	Copper	Ok/Ok/41.6	J

MS/MSD Sample ID	Compound	MS/MSD %R/RPD	Qualifier
	Lead	384.2%/386.7%/42.1	J
	Manganese	298.7%/292%/38.2	J
	Mercury	141.2%/128.5%/Ok	J
	Nickel	416.9%/394%/47.3	J
	Silver	168.1%/153.9%/Ok	J
	Vanadium	180.9%/172.3%/37.1	J
	Zinc	Ok/Ok/40.6	J

Laboratory Control Samples

A low %R may indicate a potential low bias while a high %R value may indicate a potential high bias. For a low %R value, positive results are considered estimated and qualified (J) while non-detects are estimated and qualified (UJ). For a high %R value positive results are considered estimated and qualified (J). Results are valid and usable, however possibly biased.

VOCs

The Laboratory Control Samples (LCS) collected and presented in SDGs A5237 exhibited acceptable %R values and/or acceptable recoveries. The LCS samples for SDG A5011, A5023 and A5041 exhibited percent recovery values (%R) outside QC limits.

The LCS summary for SDG A5011 is presented in the table below:

LCS ID	Compound	%R	Qualifier	Affected Samples
BSI1117S1	Styrene	120%	None	All ND or already qualified

The LCS summary for SDG A5023 is presented in the table below:

LCS ID	Compound	%R	Qualifier	Affected Samples
BSGI1112W3	Chloroethane	150%	None	All ND
	Trichlorofluoromethane	200%		

The LCS summary for SDG A5041 is presented in the table below:

LCS ID	Compound	%R	Qualifier	Affected Samples
BSL1112A1	t-1,3- Dichloropropene	60%	J/UJ	(1DL) SG-1 DL, (1DL2) SG-1 DL2,(2) SG-02, (2DL) SG-02 DL, (3) SG-03, (3DL) SG-03 DL

SVOCs

The Laboratory Control Samples (LCS) collected and presented in SDGs A5011, A5023 and A5237 exhibited acceptable %R values meeting QC criteria.

Polychlorinated Biphenyls (Pest/PCBs)

The Laboratory Control Samples (LCS) collected and presented in SDGs A5011 and A5023 exhibited acceptable %R values. The LCS samples for SDG A5237 exhibited %R values outside QC criteria.

The LCS summary for SDG A5237 is presented in the table below:

LCS ID	Compound	%R	Qualifier	Affected Samples
PB4643BS	Toxaphene	0%	J/R	(20) FB

Metals and Mercury

The Laboratory Control Samples (LCS) collected and presented in SDGs A5011, A5023 and A5237 exhibited acceptable %R values within QC criteria.

Method Blank

Detected sample concentrations of common laboratory contaminants less than ten times (10X) the highest associated blank (after taking sample dilution levels, percent moisture and sample volume into account) are negated and qualified with a (U). For all other compounds, an action level of five times (5X) the highest associated blank concentration is used.

VOCs

The method blanks associated with SDGs A5011, A5023 and A5041 were free of contamination. Method blanks and samples associated with SDG A5237 exhibited contamination and the results were qualified.

The Method blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
VBG1130W2	1,2,4-Trichlorobenzene	4.7	23.5	U	(1) SW-2, (2) MW-7, (3) MW-8, (11) MW-5, (12) DUP, (17) MW-1, (18) MW-6, (19) SW-1, (20) FB
VBI112551	Methylene chloride	2.6	26	None	All ND

SVOCs

The method blanks were free of contamination for SDG A5041. Method blanks and samples associated with the blanks for SDG A5011, A5023 and A5237 exhibited contamination and were therefore qualified.

The Method blank summary is presented below for SDG A5011:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
PB45936B	Dimethylphthalate	920.0	9200	U	(4) DUP-2, (9) SB-101 (4-6), (11) SB-23 (8-10), (12) SB-102 (4-6), (13) SB-16(4-7),(14) SB-18 (0-4), (12DL) SB-102 (4-6)DL, (14DL) SB-18 (0-4), (17) SB-102 (0-4)

The Method blank summary is presented below for SDG A5023:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
PB45935B	Dimethylphthalate	79	790	U	(4) SB-21 (0-2), (8DL) SB-20 (0-4)DL, (9)SB-28 (4-8), (9RE) SB-28 (4-8)RE

The Method blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
PB46418B	Dimethylphthalate	100	1,000	None	All ND

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
PB46432B	Acetophenone	0.38	1.9	None	(13) MW-3, (20) FB

Polychlorinated Biphenyls (Pest/PCBs)

The method blanks were free of contamination for SDGs A5011, A5023 and A5237.

Metals and Mercury

Method blanks and samples associated with the blanks for SDG A5011, A5023 and A5237 exhibited contamination and results were qualified.

The Method blank summary is presented below for SDG A5011:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
PBS	Aluminum	1.364	13.64	None	All > 10X
	Arsenic	0.377	3.77	U	(8) SB-17 (4-6), (9) SB-101 (4-6), (10) SB-101(0-4), (11) SB-23 (8-10), (11) SB-23 (8-10), (12) SB-102 (4-6), (14) SB-18 (0-4), (17) SB-102 (0-4), (19) DUP-1, (20) SB-16 (0-4)
	Calcium	1.892	18.92	None	All > 10X
	Mercury	0.006	0.06		

The Method blank summary is presented below for SDG A5023:

Blank ID	Compound	Concentration mg/kg	Action Level mg/kg	Qualifier	Affected Samples
Metals Blank	Aluminum	18.520	185.2	None	All > 5X
	Mercury	0.03	0.03		

The Method blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration mg/kg	Action Level mg/kg	Qualifier	Affected Samples
MB (Total)	Aluminum	2.556	25.6	None	All > 10X
	Calcium	1.77	17.7		

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
MB (Dissolved)	Barium	4.550	45.5	None	All > 10X
	Calcium	26.45	264.5		
	Iron	20.39	203.9		
	Sodium	27.16	271.6		
	Mercury	0.082	0.82	U	(22) MW-7D, (23) MW-8 D, (24) MW-5D, (25) DUP D, (26) MW-3 D, (27) MW-4 D, (29) MW-2 D, (30) MW-1 D, (31) MW-6 D, (32) SW-2 D, (33) SW-1 D
	Thallium	2.34	23.4	U	(26) MW-3, (27) MW-4

Field Blank

Detected sample concentrations less than ten times (10X) the highest associated blank (after taking sample dilution levels, percent moisture and sample volume into account) are negated and qualified with a (U).

VOCs

For SDGs A5011 and A5041, field QC samples were not included in the data package. Samples collected and presented in SDGs A5023 and A5237 did not exhibit any compound detections in the field blank.

The Field blank summary is presented below for SDG A5023.

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
FB-11-04-09	None-ND	~	~	~	~
Trip Blank	None-ND	~	~	~	~
FB-11-05-09	Methylene chloride	3.7	37	None	All ND

The Field blank summary is presented below for SDG A5237.

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
Field Blank	Methylene chloride	1.2	12	None	See TB
Trip Blank	Methylene chloride	1.3	13	None	All ND or > 10X

SVOCs

For SDG A5041, field blank samples were not included in the data package. Samples collected and presented in SDGs A5011, A5023 and A5237 did not exhibit compound detections in the field blank.

The Field blank summary is presented below for SDG A5011:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
Field Blank	None-ND	~	~	None	~

The Field blank summary is presented below for SDG A5023:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
FB-11-04-09	None-ND	~	~	None	~
FB-11-05-09	None-ND	~	~	None	~

The Field blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
Field Blank	None-ND	~	~	None	~

Polychlorinated Biphenyls (Pest/PCBs)

For SDG A5011 and A 5041, field QC samples were not included in the data package. Samples collected and presented in SDGs A5023 and A5237 did not exhibit compound detections in the field blank.

The Field blank summary is presented below for SDG A5023:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
FB-11-04-09	None-ND	~	~	None	~
FB-11-05-09	None-ND	~	~	None	~

The Field blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
Field Blank	None-ND	~	~	None	~

Metals and Mercury

For SDG A5011 and A 5041, field QC samples were not included in the data package. Samples collected and presented in SDGs A5023 and A5237 exhibited compound detections in the field blank.

The Field blank summary is presented below for SDG A5023:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
FB-11-04-09	Aluminum	48.2	48.2	None	All > 10X
	Calcium	2740	2740		
	Iron	48.8	48.8		
	Magnesium	600	600		
	Manganese	2.78	2.78	U	(1) SB-25 (0-4), (2) SB-20 (4-6), (3) SB-28 (0-4), (4) SB-21 (0-2), (5) SB-24 (0-2), (6) SB-19 (0-4), (7) SB-19

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
					(4-6), (8) -20 (0-4), (9) SB SB-28 (4-8), (3DL) SB-28 (0-4) DL, (5DL) SB-24 (0-2)DL, (7DL) SB-19 (4-6)
	Potassium	72.5	72.5	None	All > 10X
	Sodium	340	340	U	(1) SB-25 (0-4), (1DL) SB-25 (0-4)DL, (7) SB-19 (4-6), (7DL) SB-19 (4-6)DL, (9) SB-28 (4-8)
FB-11-05-09	Aluminum	16.9	16.9	None	All > 10X
	Calcium	3200	3200		
	Copper	6.68	6.68		
	Iron	64.1	64.1		
	Magnesium	683	683		
	Manganese	1760	1760		
	Potassium	82.4	82.4		
	Sodium	415	415		
	Zinc	6.96	6.96		

The Field blank summary is presented below for SDG A5237:

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
FB (Total)	Calcium	139	1390	None	All > 10X
	Copper	2.98	29.8		
	Iron	16.4	164		
	Mercury	0.08	0.8	U	(11) MW-5, (12) DUP, (17) MW-1, (18) MW-6
	Potassium	31.5	315	None	All > 10X
	Zinc	35.5	355	U	(3) MW-8, (11) MW-5, (12) DUP, (14) MW-4, (16) MW-2, (17) MW-1, (18) MW-6
FB (Dissolved)	Calcium	47.4	474	None	All > 10X
	Zinc	67.2	672	U	(22) MW-7 D, (23) MW-8 D, (24) MW-5 D, (25) DUP D, (26) MW-3 D, (27) MW-4 D, (29) MW-2 D, (30)

Blank ID	Compound	Concentration µg/L	Action Level µg/L	Qualifier	Affected Samples
					MW-1 D, (31) MW-6 D, (32) SW-2 D, (33) SW-1 D

GC/MS Tuning

VOCs

All GC/MS Tuning criteria were met for SDGs A5011, A5023, A5041 and A5237.

SVOCs

All GC/MS Tuning criteria were met for SDGs A5011, A5023, A5041 and A5237.

Initial Calibration Verification

A low RRF indicates poor instrument sensitivity for the associated compounds. Positive results for the associated compounds in affected samples are considered estimated and qualified (J). Non-detect results for associated compounds in the affected samples are rejected (R) and are unusable for project objectives.

VOCs

All %RSD and/or correlation coefficients, exhibited acceptable %RSD values, or all initial calibration criteria were met for SDGs A5011, A5023 and A5041 Samples collected and presented in A5237 exhibited initial calibration results outside QC limits.

The Initial calibration summary is presented below for SDG A5237:

ICAL Date	Compound	%RSD/RRF	Qualifier	Affected Samples
11/30/2009	Methyl Acetate	23.44%	J/UJ	(7) DUP-SED, (8) SED-1

SVOCs

All %RSD and/or correlation coefficients, exhibited acceptable %RSD values, or all initial calibration criteria were met for SDGs A5011 and A5023. Samples collected and presented in A5237 exhibited initial calibration results outside QC criteria.

The Initial calibration summary is presented below for SDG A5237:

ICAL Date	Compound	%RSD/RRF	Qualifier	Affected Samples
12/4/2009	2,4-Dinitrophenol	31.12%	J/UJ	(1) SW-2, (2) MW-7, (3) MW-8, (11) MW-5, (12) DUP, (13) MW-3, (14) MW-4
	4,6- Dinitro-2-methylphenol	33.46%		
	Pentachlorophenol	30.94%		
12/6/2009	Pentachlorophenol	32.10%	J/UJ	(2RE) MW-7RE, (16) MW-2, (17) MW-1, (18) MW-6, (19) SW-1, (20) FB

Polychlorinated Biphenyls (Pest/PCBs)

All %RSD and/or correlation coefficients, exhibited acceptable %RSD values, or all initial calibration criteria were met for SDGs A5011, A5023and A5237.

Metals and Mercury

All %RSD and/or correlation coefficients, exhibited acceptable %RSD values, or all initial calibration criteria were met for SDGs A5011, A5023and A5237.

Continuing Calibration (CCAL) Verification

A low RRF indicates poor instrument sensitivity for these compounds. Positive results for these compounds in the affected samples are considered estimated and qualified (J). Non-detect results for these compounds in the affected samples are rejected (R) and are unusable for project objectives. A high %D may indicate a potential high or low bias. All results for these compounds in affected samples are considered estimated and qualified (J/UJ).

VOCs

All continuing calibration criteria were met for SDG A5041. Samples collected and presented in SDGs A5011, A5023 and A5237 exhibited continuing calibration results outside QC limits.

Compounds that exceeded 20 percent deviation (%D) and/or average RRF values <0.05 in the continuing calibration (CCAL) are presented n the following tables.

The Continuing calibration summary is presented below for SDG A5011:

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/16/2009 (1009)	Bromoform	28.2%	None	See IS/Surrogates
11/16/2009 (2021)	Trichlorofluoromethane	20.2%	J/UJ	(4) DUP-2, (5,) SB-27 (0-4), (8RE) SB-17 (4-6)RE, (9RE) SB-101 (4-6)RE, (11RE) SB-23 (8-10)RE, (14RE) SB-18 (0-4)RE
	Methyl Acetate	21.80%		
	Bromoform	20.70%		
11/18/2009	Dichlorodifluoromethane	24.20%	None	See IS/Surrogates
	Chloroethane	27.60%		

The continuing calibration summary is presented below for SDG A5023:

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/12/2009	Chloroethane	25.2%	J/UJ	(10)FB-11-04-09, (11)Trip Blank, (12)FB-11-05-09
	Carbon disulfide	20.3%		
	Methyl Acetate	21.80%		
	Methyl tert-butyl ether	22.70%		
	1,2-Dichlorethane	25.40%		
	t-1,3-Dichlorpropene	21.40%		
	Tetrachloroethene	22.40%		
	Trichlorofluoromethane	75.30%		
	Acetone	43.70%		

The continuing calibration summary is presented below for SDG A5237

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/30/2009	Methyl Acetate	26.40%	J/UJ	(1)SW-2, (2)MW-7, (3)MW-8, (11)MW-5, (12)DUP, (17)MW-1, (18)MW-6, (19)SW-1, (20)FB
	1,2,4-Trichlorobenzene	38.80%		
12/1/2009	Chloromethane	30.80%	J/UJ	(13)MW-3, (14)MW-4, (16)MW-2, (21)Trip
	Acetone	36.40%		
	Carbon disulfide	39.00%		
	2-Hexanone	40.90%		
	1,2-Dibromo-3-chloropropane	34.50%		
	1,2,4-Trichlorobenzene	25.60%		

SVOCs

Samples collected and presented in SDGs A5011, A5023 and A5237 exhibited continuing calibration results outside the QC limits Compounds that exceeded 20 percent deviation (%D) and/or average RRF values <0.05 in the continuing calibration (CCAL) are presented n the following tables.

The Continuing calibration summary is presented below for SDG A5011:

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/15/2009	4-Nitrophenol	27.4%	J/UJ	(12DL) SB-102 (4-6)DL, (13) SB-16 (4-7)
11/17/2009	Hexachlorocyclopentadiene	42.8%	J/UJ	(14DL2) SB-18 (0-4) DL2

The continuing calibration summary is presented below for SDG A5023:

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/10/2009	Benzaldehyde	29.9%	J/UJ	(10) FB 11-04-09, (12) FB 11-05-09
11/12/2009	Benzaldehyde	22.6%	J/UJ	(1) SB-25 (0-4), (2) SB-20 (4-6), (3) SB-28 (0-4), (4) SB-21 (0-2). (5) SB-24 (0-2), (6) SB-19 (0-4), (7) SB-19 (4-6), (8) SB-20 (0-4), (9) SB-28 (4-8), (13) SB-18 (4-6)
11/13/2009	Hexachlorocyclopentadiene	49.00%	J/UJ	(2DL) SB-20 (4-6)DL, (8Dl) SB-20 (0-4)DL, (9RE) SB-28 (4-8) RE
	2,4-Dinitrophenol	56.70%		
	4,6,-Dinitro-2-methyphenol	50.40%		

The continuing calibration summary is presented below for SDG A5237:

CCAL Date	Compound	%D/RRF	Qualifier	Affected Samples
11/28/2009	Benzaldehyde	21.0%	J/UJ	(4) SED-4

Polychlorinated Biphenyls (Pest/PCBs)

All continuing calibration criteria were met for SDGs A5011, A5023 and A 5237.

Metals and Mercury

All continuing calibration criteria were met for SDGs A5011, A5023 and A 5237.

Compound Quantitation

VOCs

SDG A5041 contained several samples that exhibited high concentrations of target compounds and were flagged (E) by the laboratory in. The laboratory diluted and reanalyzed these samples. The reviewer replaced the original results with the dilution results. SDG A5011 contained several samples that exhibited internal standard and surrogate deficiencies. These samples were reanalyzed by the laboratory. For SDG A5023, one sample exhibited internal standard deficiencies. The sample was reanalyzed with similar results. One sample collected and presented in SDG A5237 exhibited internal standard and surrogate deficiencies. The sample was reanalyzed with similar results.

SVOCs

SDG A5011 contained two collected samples that exhibited several compounds that exceeded the linear range of the instrument and were flagged (E) by the laboratory. The samples were diluted and reanalyzed and the dilution results for these compounds were used for reporting. SDG A5023 contained one sample that exhibited surrogate deficiencies. The sample was reanalyzed with slightly better recoveries and the reanalysis results are used for reporting purposes. Furthermore, two samples exhibited compounds over the linear range of the instrument and were flagged (E) by the laboratory. The samples were diluted and reanalyzed and the dilution results for these compounds were used for reporting. SDG A5237 exhibited one sample with internal standard deficiencies and was reanalyzed with slightly worse results. The original analysis was used for reporting.

Polychlorinated Biphenyls (Pest/PCBs)

One sample from SDG A5011 exhibited a result with a greater than 25 %D value between columns and was flagged (P) by the laboratory. The sample was diluted and reanalyzed and the dilution result for this compound was used for reporting. SDG A5023 contained several samples that exhibited pesticide/PCB results with greater than 25 %D values between columns and were

flagged (P) by the laboratory and further qualified (J) by the reviewer. SDG A5023 contained one sample that was reanalyzed due to surrogate recovery deficiencies. The reanalysis exhibited similar results and the original analysis was used for reporting.

Additionally, SDG A5023 exhibited several samples with compounds over the linear range of the instrument and the dilution results for these compounds were used for reporting. All compound quantitation criteria were met for SDG A5237.

ICP Serial Dilution/Internal Standard (IS) Area Performance

Non-detected results for the associated compounds are considered estimated and qualified (UJ). Positive results for the associated compounds are considered estimated and qualified (J). Non-detected compounds that exceeded the lower limit by -25% area criteria are considered rejected (R) and unusable for project objectives. Samples with ICP serial dilution percent differences (%D) above QC limits are qualified. For a high %D, positive results are considered estimated and qualified (J). Results are valid and usable, however possibly biased.

VOCs

Samples collected and presented in SDGs A5011, A5023 and A5237 exhibited results that exceeded the -50%/+100% area criteria for internal standard areas.

The Internal Standard (IS) summary is presented below for SDG 5011:

Sample ID	Internal Standard	Area Count	Qualifier
(1) SB-23 (0-4)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(1RE) SB-23(0-4)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(4)DUP-2	IS2=1,4-Difluorobenzene	Low	J/UJ
	IS3=Chlorobenzene-d5	Low	J/UJ

Sample ID	Internal Standard	Area Count	Qualifier
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(4RE) DUP-2RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(5) SB-27 (0-4)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(5RE) SB-27 (0-4)	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(6) SB-26 (4-6)	IS3=Chlorobenzene-d5	Low	None - See surrogates
	IS4=1,4-Dichlorobenzene-d4		
(6RE) SB-26 (4-6)RE	IS3=Chlorobenzene-d5	Low	None - See surrogates
	IS4=1,4-Dichlorobenzene-d4		
(7) SB-26(0-4)	IS3=Chlorobenzene-d5	Low	None - See surrogates
	IS4=1,4-Dichlorobenzene-d4		
(7RE) SB-26 (0-4)RE	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(8) SB-17 (4-6)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(8RE) SB-17 (4-6)RE	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(9) SB-101(4-6)	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4		
(9RE) SB-101 (4-6)RE	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4		
(10) SB-101 (4-6)	IS1=Pentafluorobenzene	Severely Low	J/R
	IS2=1,4-Difluorobenzene	Severely Low	J/R
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(10RE) SB-101 (4-6)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(11) SB-23 (8-10)	IS2=1,4-Difluorobenzene	Low	J/UJ
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R

Sample ID	Internal Standard	Area Count	Qualifier
(11RE) SB-23 (8-10) RE	IS2=1,4-Difluorobenzene	Low	J/UJ
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(12) SB-102 (4-6)	IS1=Pentafluorobenzene	Severely Low	J/R
	IS2=1,4-Difluorobenzene	Low	J/UJ
	IS3=Chlorobenzene-d5	Severely Low	J/R
	IS4=1,4-Dichlorobenzene-d4		
(12RE) SB-102 (4-6)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(13) SB-16 (4-7)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5	Severely Low	J/R
	IS4=1,4-Dichlorobenzene-d4		
(13RE) SB-16 (4-7)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5	Severely Low	J/R
	IS4=1,4-Dichlorobenzene-d4	Low	J/UJ
(14) SB-18 (0-4)	IS4=1,4-Dichlorobenzene-d4	Low	J/UJ
(14RE) SB-18 (0-4) RE	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(17) SB-102 (0-4)	IS3=Chlorobenzene-d5	Low	J/UJ
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(17RE) SB-17-102 (0-4)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5	Severely Low	J/R
	IS4=1,4-Dichlorobenzene-d4		
(18) SB-17 (0-4)	IS1=Pentafluorobenzene	Severely Low	J/R
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4		
(18RE) SB-17 (0-4)RE	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(19) DUP-1	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(19RE) DUP-1 RE	IS1=Pentafluorobenzene	Low	J/UJ

Sample ID	Internal Standard	Area Count	Qualifier
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(20) SB-16 (0-4)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(20RE) SB-16 (0-4)RE	IS3=Chlorobenzene-d5	Low	None - See surrogates
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(21) SB-22 (4-7.5)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5	Severely Low	J/R
	IS4=1,4-Dichlorobenzene-d4		
(21RE) SB-22 (4-7.5)RE	IS1=Pentafluorobenzene	Low	None - See surrogates
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(22) SB-22 (0-4)	IS1=Pentafluorobenzene	Low	J/UJ
	IS2=1,4-Difluorobenzene		
	IS3=Chlorobenzene-d5		
	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R
(22RE) SB-22 (0-4)RE	IS4=1,4-Dichlorobenzene-d4	Severely Low	J/R

The Internal Standard (IS) summary is presented below for SDG 5023:

Sample ID	Internal Standard	Area Count	Qualifier
(8) SB-20 (0-4)	IS4=1,4-Dichlorobenzene-d4	Low	J/UJ
(8RE) SB-20 (0-4)RE	IS4=1,4-Dichlorobenzene-d4	Low	J/UJ

The Internal Standard (IS) summary is presented below for SDG 5023:

Sample ID	Internal Standard	Area Count	Qualifier
(2) MW-7	IS6=Perylene-d12	Low	J/UJ - associated compounds
(2RE) MW-7 RE	IS6=Perylene-d12	Severely Low	J/R - associated compounds

SVOCs

Samples collected and presented in SDGs A5011 and A5023 fulfilled internal standards criteria and met response time (RT) criteria. Samples collected and presented in SDGs A5041 and A5237 exceeded the -50%/+100% area criteria for internal standard areas.

The following table presents samples that exceeded the -50% / + 100% area criteria for internal standard areas for SDG A5041:

Sample ID	Internal Standard	Area Count	Qualifier
(1) SG-01	IS1-Bromochloromethane	High	J-Positive Associated compounds
(1 DL) SG-01 DL	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
	IS3-Chlorobenzene-d5	High	J-Positive Associated compounds
(1 DL2) SG-01 DL2	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
(2 DL) SG-02 DL	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
	IS3-Chlorobenzene-d5	High	J-Positive Associated compounds
(3) SG-03	IS1-Bromochloromethane	High	J-Positive Associated compounds
	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
(3 DL) SG-03 DL	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
(3 DL2) SG-03 DL2	IS1-Bromochloromethane	High	J-Positive Associated compounds
	IS2-1,4-Difluorobenzene	High	J-Positive Associated compounds
	IS3-Chlorobenzene-d5	High	J-Positive Associated compounds

The following table presents samples that exceeded the -50% / + 100% area criteria for internal standard areas for SDG A5237:

Sample ID	Internal Standard	Area Count	Qualifier
(2) MW-7	IS6=Perylene-d12	Low	J/UJ-associated compounds
(2 RE) MW-7 RE	IS6=Perylene-d12	Severely Low	J/UJ-associated compounds

Metals and Mercury

Samples collected and presented in SDGs A5023 and A5237 exhibited ICP serial dilution percent differences (%D) within QC limits. Samples collected and presented in SDG A5011 exhibited ICP serial dilution %D outside QC limits

The following table presents samples that exceeded the serial dilution %D within SDG 5011:

ICP Sample ID	Compound	%D	Qualifier	Affected Samples
(1) SB-23 (0-4)	Arsenic	63.30%	J	All Samples
	Chromium	10.80%		
	Iron	13.00%		
	Mercury	105.50%		
	Zinc	20.00%		
(14) SB-18 (0-4)	Calcium	11.00%	J	All Samples
	Chromium	12.60%		
	Copper	11.00%		
	Iron	12.70%		
	Mercury	71.90%		
	Zinc	16.20%		

Field Blank Duplicate Sample Precision

Field duplicate results are summarized below. For a high relative percent difference (RPD) >100% for samples, results are considered estimated and qualified (J). The results are valid and usable, however possibly biased.

VOCs

Field duplicate results were not analyzed for SDGs A5023 and A5041.

Field duplicate results summaries are presented below for SDG A5011:

Compound	SB-17(0-4) µg/kg	DUP-1 µg/kg	RPD	Qualifier
Trichlorofluoromethane	41	8.9	129%	J
Carbon disulfide	7.4 U	5	NC	None
Methyl acetate	7.4 U	11	NC	None
Toluene	7.4 U	4.9	NC	None
Tetrachloroethene	7.4 U	3.5	NC	None
1,4-Dichlorobenzene	7.4 U	4.8	NC	None

Compound	SB-27(0-4)	DUP-2	RPD	Qualifier
Carbon disulfide	10	6	50%	None
Methyl tert-butyl ether	4.2	27	146%	J

Field duplicate result summaries are presented below for SDG A5237:

Compound	SED-2-11-20-09 µg.kg	DUP-SED-11-20-09 µg/kg	RPD	Qualifier
Acetone	150	48	103%	J
Carbon disulfide	15	20	29%	None
2-Butanone	40	86 U	NC	None

Compound	MW-5-112009	DUP-112009	RPD	Qualifier
Methylene Chloride	5 U	0.8	NC	None
Methyl tert-butyl ether	30	27	11%	None
Toluene	1.2	5 U	NC	None
m/p-Xylenes	1.1	10 U	NC	None

SVOCs

Field duplicate results were not analyzed for SDG A5023.

Field duplicate results summaries is presented below for SDG A5011:

Compound	SB-17(0-4) µg/kg	DUP-1 µg/kg	RPD	Qualifier
Phenanthrene	27000	10000	92%	None
Fluoranthene	41000	27000	41%	None
Pyrene	36000	24000	40%	None
Butylbenzylphthalate	95000 U	430000	NC	None
Benzo(a)anthracene	20000	13000	42%	None
Chrysene	19000	12000	45%	None
bis(2-Ethylhexyl)phthalate	310000	49000	145%	J
Benzo(b)fluoranthene	22000	14000	44%	None
Benzo(a)pyrene	17000	11000	43%	None
Indeno(1,2,3-cd)pyrene	10000	92000 U	NC	None
Benzo(g,h,i)perylene	12000	92000 U	NC	None

Compound	SB-27(0-4) µg/kg	DUP-2 µg/kg	RPD	Qualifier
Fluorene	40000 U	2000	NC	None
Phenanthrene	23000	11000	71%	None
Anthracene	6900	3700	60%	None
Fluoranthene	39000	19000	69%	None
Pyrene	36000	19000	62%	None
Butylbenzylphthalate	40000 U	8700	NC	None
Benzo(a)anthracene	19000	9600	66%	None
Chrysene	20000	11000	58%	None
bis(2-Ethylhexyl)phthalate	9100	15000	49%	None
Benzo(b)fluoranthene	20000	12000	50%	None
Benzo(k)fluoranthene	6700	3300	68%	None
Benzo(a)pyrene	14000	8800	46%	None
Indeno(1,2,3-cd)pyrene	8400	5400	43%	None
Benzo(g,h,i)perylene	7800	5900	28%	None

Field duplicate results summaries are presented below for SDG A5237:

Compound	SED-2-11-20-09 µg/kg g.kg	DUP-SED-112009 µg/kg	RPD	Qualifier
Dimethylphthalate	5300	4000	28%	None
Fluoranthene	2400	4900	68%	None
Pyrene	2600	5100	65%	None
Benzo(a)anthracene	12000 U	1800	NC	None
Chrysene	12000 U	2300	NC	None
bis(2-Ethylhexyl)phthalate	19000	67000	112%	J
Di-n-octyl phthalate	12000 U	1200	NC	None
Benzo(b)fluoranthene	1400	1600	13%	None
Benzo(a)pyrene	12000 U	1200	NC	None
Benzo(g,h,i)perylene	12000 U	1100	NC	None

Compound	MW-5-11-20-09 µg/L	DUP-11-20-09 µg/L	RPD	Qualifier
bis(2-Ethylhexyl)phthalate	0.33	11 U	NC	None

Polychlorinated Biphenyls (Pest/PCBs)

Field duplicate results were not analyzed for SDG A5023.

Field duplicate result summaries are presented below for SDG A5011:

Compound	SB-17(0-4) µg.kg	DUP-1 µg/kg	RPD	Qualifier
Aroclor 1242	69000	110000	46%	None

Compound	SB-27(0-4) µg.kg	DUP-2 µg/kg	RPD	Qualifier
Aroclor 1248	3200000	3200000	0%	None

Field duplicate results summaries are presented below for SDG A5237:

Compound	SED-2-11-20-09 µg/kg	DUP-SED-11-20-09 µg/kg	RPD	Qualifier
Aroclor 1248	790	2800	112%	J

Compound	MW-5-11-20-09 µg/L	DUP-11-20-09 µg/L	RPD	Qualifier
None	ND	ND	-	-

Metals

Field duplicate results were not analyzed for SDG A5023.

Field duplicate results summaries are presented below for SDG A5011:

Compound	SB-17(0-4) mg/kg	DUP-1 mg/kg	RPD	Qualifier
Aluminum	11300	6890	48%	None
Antimony	16.1	11.7	32%	None
Arsenic	4.79	2.220 U	NC	None
Barium	706	469	40%	None
Beryllium	1.1	0.64	53%	None
Cadmium	27.4	27.1	1%	None
Calcium	87400	86800	1%	None
Chromium	104	51.8	67%	None
Cobalt	22.9	12.2	61%	None
Copper	1540	717	73%	None
Iron	48500	31700	42%	None
Lead	1340	834	47%	None
Magnesium	6160	5150	18%	None
Manganese	526	514	2%	None
Mercury	7.3	7.2	1%	None
Mercury	7.6	ND	NC	None
Nickel	216	108	67%	None

Compound	SB-17(0-4) mg/kg	DUP-1 mg/kg	RPD	Qualifier
Potassium	837	1200	36%	None
Selenium	3.22	2.46	27%	None
Sodium	622	498	22%	None
Thallium	0.6	2.810 U	NC	None
Vanadium	42.4	30.7	32%	None
Zinc	12300	8080	41%	None

Compound	SB-27(0-4) mg/kg	DUP-2 mg/kg	RPD	Qualifier
Aluminum	8860	8120	9%	None
Antimony	26.7	13.1	68%	None
Arsenic	6.46	3.84	51%	None
Barium	732	596	20%	None
Beryllium	0.77	0.83	7%	None
Cadmium	23.3	17.3	30%	None
Calcium	58900	35300	50%	None
Chromium	221	175	23%	None
Cobalt	13.3	15.3	14%	None
Copper	588	581	1%	None
Iron	64100	65800	3%	None
Lead	4780	3590	28%	None
Magnesium	19500	4650	123%	J
Manganese	538	535	1%	None
Mercury	17	1.3	172%	J
Nickel	161	241	40%	None
Potassium	1150	944	20%	None
Selenium	4.44	3.35	28%	None
Sodium	1330	545	84%	None
Thallium	1.1	1.89	53%	None
Vanadium	89.3	120	29%	None
Zinc	3830	2890	28%	None

Field duplicate results summaries is presented below for SDG A5237:

Compound	SED-2-11-20-09 mg/kg	DUP-SED-11-20-09 mg/kg	RPD	Qualifier
Aluminum	11900	10200	15%	None
Antimony	31.1	28.1	10%	None
Arsenic	34.2	34.7	1%	None
Barium	583	400	37%	None
Beryllium	0.97	0.58	50%	None

Compound	SED-2-11-20-09 mg/kg	DUP-SED-11-20-09 mg/kg	RPD	Qualifier
Cadmium	57.5	186	106%	J
Calcium	18200	12000	41%	None
Chromium	283	731	88%	None
Cobalt	17.8	19.9	11%	None
Copper	1380	2300	50%	None
Iron	101000	59400	52%	None
Lead	2250	2070	8%	None
Magnesium	12800	9050	34%	None
Manganese	450	289	44%	None
Mercury	2.5	5.7	78%	None
Nickel	245	524	73%	None
Potassium	2550	2060	21%	None
Selenium	3.42	6.04	55%	None
Silver	1.460 U	20.6	NC	None
Sodium	18000	18800	4%	None
Vanadium	82.7	113	31%	None
Zinc	5290	6530	21%	None

Compound	MW-5-11-20-09 µg/L	DUP-11-20-09 µg/L	RPD	Qualifier
Aluminum	830	664	22%	None
Barium	190	186	2%	None
Calcium	143000	142000	1%	None
Copper	23.4	18.8	22%	None
Iron	2080	1600	26%	None
Lead	49.7	36.5	31%	None
Magnesium	28400	28200	1%	None
Manganese	427	419	2%	None
Mercury	0.48	0.33	37%	None
Nickel	9.71	15.8	48%	None
Potassium	34500	34400	0%	None
Sodium	155000	154000	1%	None
Vanadium	4.45	4.28	4%	None
Zinc	136	127	7%	None

Compound	MW-5-11-20-09(D) µg/L	DUP-11-20-09(D) µg/L	RPD	Qualifier
Aluminum	89.3	79.6	11%	None
Barium	154	157	2%	None
Calcium	134000	139000	4%	None
Copper	4.03	3.35	18%	None
Iron	127	120	6%	None

Compound	MW-5-11-20-09(D) µg/L	DUP-11-20-09(D) µg/L	RPD	Qualifier
Lead	14.2	14.2	0%	None
Magnesium	25900	26800	3%	None
Manganese	364	372	2%	None
Nickel	4.45	5.15	15%	None
Potassium	31600	32500	3%	None
Sodium	143000	148000	3%	None
Zinc	60.3	61.9	3%	None

Overall Usability

SDG A5011

There were several rejections of data.

- All VOC compounds were rejected in one reanalysis sample due to a severely low surrogate recovery.
- Several VOC compounds were rejected in several samples due to severely low internal standard recoveries.
- One SVOC compound was rejected in one sample due to a severely low MS/MSD recovery.
- One pesticide compound was rejected in one sample due to a severely low MS/MSD recovery.

Overall the remaining data is acceptable for the intended purposes. Data were qualified for the following deficiencies.

- Several VOC compounds were qualified as estimated in several samples due to low surrogate recoveries.
- Several VOC compounds were qualified as estimated in two samples due to low MS/MSD recoveries.
- Three VOC compounds were qualified as estimated in several samples due to high continuing calibration %D values.
- Several VOC compounds were qualified as estimated in several samples due to low

internal standard recoveries.

- One VOC compound was qualified as estimated in two duplicate pairs due to poor field duplicate precision.
- Several SVOC compounds were qualified as estimated in one sample due to low MS/MSD recoveries.
- One SVOC compound was qualified as non-detected in several samples due to method blank contamination.
- Two SVOC compounds were qualified as estimated in several samples due to high continuing calibration %D values.
- One SVOC compound was qualified as estimated in one duplicate pair due to poor field duplicate precision.
- Several PCB compounds were qualified as estimated in several samples due to high surrogate recoveries.
- One metals compound was qualified as non-detected in several samples due to method blank contamination.
- Several metals compounds were qualified as estimated in all samples due to high ICP serial dilution recoveries.
- Two metals compounds were qualified as estimated in one duplicate pair due to poor field duplicate precision.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

SDG A5023

There were several rejections of data.

- Several SVOC compounds were rejected in one sample due to a severely low surrogate recovery.
- One SVOC compound was rejected in one sample due to a severely low MS/MSD recovery.

Overall the remaining data is acceptable for the intended purposes. Data were qualified for the following deficiencies.

- Nine VOC compounds were qualified as estimated in three samples due to high continuing calibration %D values.
- Several VOC compounds were qualified as estimated in one sample and one reanalysis sample due to low internal standard recoveries.
- Several SVOC compounds were qualified as estimated in one sample and one reanalysis sample due to low surrogate recoveries.
- Several SVOC compounds were qualified as estimated in one sample due to low MS/MSD recoveries.
- One SVOC compound was qualified as non-detected in four samples due to method blank contamination.
- Several SVOC compounds were qualified as estimated in several samples due to high continuing calibration %D values.
- One pesticide compound was qualified as estimated in one sample due to a high surrogate recovery.
- Several PCB compounds were qualified as estimated in several samples due to high surrogate recoveries.
- One metals compound was qualified as estimated in all samples due to a low MS recovery.
- One metals compound was qualified as non-detected in several samples due to method blank contamination.
- Two metals compounds were qualified as non-detected in several samples due to field blank contamination.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

SDG A5041

There were no rejections of data.

Overall the remaining data is acceptable for the intended purposes. Data were qualified for the following deficiencies.

- One compound was qualified as estimated in several samples due to a low LCS recovery.
- Several compounds were qualified as estimated in several samples due to high internal standard recoveries.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

SDG A5237

There were several rejections of data.

- Several VOC compounds were rejected in one sample and one reanalysis sample due to severely low surrogate recoveries.
- Several SVOC compounds were rejected in one reanalysis sample due to a severely low internal standard recovery.
- One pesticide compound was rejected in one sample due to a severely low LCS recovery.

Overall the remaining data is acceptable for the intended purposes. Data were qualified for the following deficiencies.

- All VOC compounds were qualified as estimated in one sample due to a low surrogate recovery.
- One VOC compound was qualified as non-detected in several samples due to method blank contamination.
- One VOC compound was qualified as estimated in two samples due to a high initial

calibration %RSD value.

- Several VOC compounds were qualified as estimated in several samples due to high continuing calibration %D values.
- Several VOC compounds were qualified as estimated in one sample and one reanalysis sample due to low internal standard recoveries.
- One VOC compound was qualified as estimated in one duplicate pair due to poor field duplicate precision.
- One SVOC compound was qualified as non-detected in two samples due to method blank contamination.
- Several SVOC compounds were qualified as estimated in several samples due to high initial calibration %RSD values.
- One SVOC compound was qualified as estimated in one sample due to a high continuing calibration %D value.
- Several SVOC compounds were qualified as estimated in one sample due to a low internal standard recovery.
- One SVOC compound was qualified as estimated in one duplicate pair due to poor field duplicate precision.
- One PCB compound was qualified as estimated in one duplicate pair due to poor field duplicate precision.
- Fourteen metals compounds were qualified as estimated in all samples due to high MS/MSD %R and RPD values.
- Two metals compounds were qualified as non-detected in several samples due to method blank contamination.
- Two metals compounds were qualified as non-detected in several samples due to field blank contamination.
- One metals compound was qualified as estimated in one duplicate pair due to poor field duplicate precision.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.