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April 8, 2016

VIA FEDEX

Mr. Richard Dana
Environmental Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 11th Floor
Albany, New York 12233-7017

Re: Supplemental Remedial Investigation Report
550 West 20th Street, Tax Block 691, Lots 1, Manhattan, New York
W. 18th St. Former MGP (NYSDEC Site No. V00553)
Voluntary Clean-up Agreement – Index No. D2-0003-02-08

Dear Mr. Dana:

Attached for your review is the Supplemental Remedial Investigation Report (SRIR) for the property at 550 West 20th Street, which is one of the parcels that comprise the West 18th Street Gas Works Site. This document is submitted to the New York State Department of Environmental Conservation (NYSDEC) in accordance with the requirements and provisions of the August 15, 2002 Voluntary Cleanup Agreement between the NYSDEC and Consolidated Edison Company of New York, Inc. (Con Edison).

Please call me at (718) 204-4145 should you have any questions regarding this submittal.

Very truly yours,

Neil O'Halloran
Project Manager,
MGP Remediation Group
Environment, Health and Safety Department

Encl/ CD:

cc: D. Hettrick, NYSDOH
K. Kaiser, Con Edison (w/o encl.)
Project File

Mr. Neil O'Halloran
MGP Project Manager
EH&S – Remediation
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue – Building 136
Long Island City, New York 11105

Subject:
Supplemental Remedial Investigation Report
Former W 18th Street Gas Works
550 W 20th Street
New York, New York 11101
NYSDEC Site # V00530

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B0043000.0000

Dear Mr. O'Halloran:

1.0 Introduction

This letter presents the results of a Supplemental Remedial Investigation (Supplemental RI) that was performed by Arcadis of New York, Inc. (Arcadis) between November 9 and November 18, 2015 on behalf of Consolidated Edison Company of New York, Inc. (Con Edison) at a portion of the Former West 18th Street Manufactured Gas Plant (MGP) Site. The investigation was performed pursuant to the Voluntary Cleanup Agreement Index # D2-0003-02-08 between the New York State Department of Environmental Conservation (NYSDEC) and Con Edison.

The investigation focused specifically on the property at 550 West 20th Street in New York, New York (Tax Block 691 Lot 1), which is one of the parcels that comprises the former gas plant site. During operation of the gas plant, this parcel contained a gas holder that was used to store produced gas prior to its distribution to customers. Subsequent to closure of the gas works, the property was redeveloped and was most recently occupied by the State of New York Bayview Correctional Facility. In 2012, the facility ceased operations as a prison and was vacated, allowing Con Edison the necessary access to conduct the Supplemental RI. The subject parcel is referred to in this report as the Property or the Bayview Property.

The purpose of the Supplemental RI work was to characterize the subsurface soil and groundwater conditions and soil lithology across the parcel with a focus on conditions within and adjacent to the former gas holder.

Property Description and History Site History

The Property is located within the boundaries of the former West 18th Street Gas Works on the west side of Manhattan, New York. The former MGP was constructed during the 1830s and was operated by the Manhattan Gas Light Company, one of Con Edison's predecessor companies. The original MGP covered portions of four modern city blocks between West 16th and West 20th Streets, west of 10th Avenue, as well as a small parcel located east of 10th Avenue on West 18th Street. The Bayview Property is located on the south side of West 20th Street, whereupon the former Bayview Correctional Facility presently exists. **Figure 1** presents the location of the Property and layout of the former MGP operations.

Based on review of historical maps of the former West 18th Street MGP Site, the shore of the Hudson River was located along present-day 10th Avenue and the majority of the area that later became occupied by the MGP was submerged land. Accordingly, this area was backfilled prior to construction of the MGP. The historic drawings and maps also showed that the smallest of the 11 gas holders associated with the former gas works was located on this subject Property. The small gas holder was approximately 85 feet in diameter. Historical reports indicate that portions of the Property may also have been used to store coal. The West 18th Street MGP ceased operations in 1902 to 1903.

Sometime in the early 1900s, the gas holder was demolished, and a new building was constructed on the Property for use by the American Red Cross. By 1930, that building was razed and a new 8-story building with a basement was constructed for a YMCA facility. The building application on file with the New York City Department of Buildings indicated that the foundation (concrete-filled casings) would be excavated to hard rock. The *Site History Report* (Parsons, August 2002) postulated that little, if any, of the former gas holder base was expected to remain on this parcel.

2.0 Summary of Previous Site Investigations

Site Characterization Study (2006)

The site characterization study (SCS) at the former Bayview Correctional Facility property (Block 691, Lot 1) and adjacent property (Block 691, Lot 11) was conducted by TRC Environmental Corporation, Inc. (TRC) between April 2004 and December 2005. The results of the SCS are documented in the *Site Characterization Study Report* (TRC 2006). The results of the site characterization activities indicated that soil and groundwater beneath the property contained MGP-related impacts as well as non-MGP related impacts.

The SCS field activities conducted at the former Bayview Property and adjacent sidewalk included advancement of four soil borings (SB-90, SB-91, SB-92 and SB-31) and installation of one monitoring well (MW-31A), which was constructed at the location of soil boring SB-31. The purpose of the SCS was to preliminarily evaluate soil and groundwater quality and identify the presence or absence of residual MGP byproducts such as coal tar, in the subsurface. Soil boring SB-91 was advanced in the alleyway along the south side of the Property, outside of the former gas holder foundation. SB-90 was installed in the southern portion of the Property, just north of the alley. SB-92 was installed on the northeast portion of the Property in the annex building. Both SB-90 and SB-92 were installed inside the perimeter of the former gas holder.

Field Observations: As indicated in the logs for these borings, soil beneath the Property consists of an upper layer of historic urban fill overlying silty sand. Groundwater detected in the soil borings ranged from 3 to 10 feet below grade.

Based on field observations and/or measurements during drilling and screening of the soil core, no impacts, either MGP or non-MGP-related, were observed or detected in the soil cores collected from the borings advanced within the footprint of the building.

Soil Analytical Results: A total of 10 soil samples were collected and analyzed for target compound list (TCL) volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B, TCL semi-volatile organic compounds (SVOCs) by USEPA Method 8270C and Priority Pollutant (PP) Metals by USEPA Method 6010B/7000. Soil analytical data were compared to NYSDEC Soil Cleanup Objectives (SCO) per the Technical and Administrative Guidance Manual No. 4046 (TAGM 4046). Groundwater analytical data were compared to the NYSDOH Ambient Water Quality Standards and Guidance Values (AWQSGVs) per the Technical Operational and Guidance Series No.1.1.1 (TOGS 1.1.1).

VOCs were not detected above method detection limits (MDLs) in soil samples collected from SB-90, SB-91 and SB-92. VOCs were detected at low concentrations in soil samples collected from SB-31.

SVOCs and PP metals were detected in all 10 soil samples. Detected SVOCs consisted of the following compounds: phenanthrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, pyrene, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene and benzo(g,h,i)perylene. Additional SVOCs were detected in SB-31 including naphthalene, 2-methylnaphthalene, 1,1-biphenyl, acenaphthene, dibenzofuran, fluorene and carbazole.

All metals in the PP analytical suite, including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc, were detected in soil samples collected from SB-31. Of these, only arsenic, mercury and zinc exceeded their respective NYSDEC SCOs. With the exception of cadmium, selenium and thallium, no metals were detected above MDLs in any of the soil samples collected from soil borings SB-90 through SB-92.

The concentrations of detected VOCs, SVOCs and metals were relatively low and consistent with concentrations often detected in historic urban fill. Results of the SCS lead to the site-wide remedial investigation (RI) activities.

Groundwater Analytical Results: Analytical data for monitoring well MW-31A detected no VOCs. One of the SVOCs (acenaphthene) was detected, but at a concentration below its AWQSGV. Of the metals detected in groundwater samples, all except chromium, copper, lead, and nickel were detected at concentrations above their respective AWQSGVs.

Air and Soil Gas Sampling (September 2005)

On September 14 and 15, 2005 TRC conducted a site inspection, product inventory and sampling of indoor air, sub-slab soil gas, and ambient air at and inside the building that occupies the Bayview Property. These activities were performed to evaluate indoor air quality and the potential for migration of sub-slab soil gas that may be associated with historic operations of the West 18th Street former MGP Site into the building.

The findings of this assessment were summarized in a report titled: *Report of the Evaluation of Indoor Air, Sub-Slab Soil Gas and Ambient Air Sampling Program - Bayview Correctional Facility* (TRC 2005).

The key findings presented in this report are listed below.

- A total of seven air samples (two ambient air and five indoor air samples), one headspace air sample from a trench-like crawl space and utility chase located beneath the ground-level slab along the building perimeter) and three soil gas samples were collected.

- During the site inspection, various products used during routine maintenance and operations at the facility were observed to have been stored in the basement of the building. Several of the products, which included cleaner/degreasers, paint thinners, solvents, paints, cleaners, carpet adhesives, etc., contained VOCs, including many of those detected in the indoor air.

- The VOC data for indoor air samples was compared to New York State Department of Health (NYSDOH) published background concentrations and it was concluded that the concentrations found in the basement were typical for indoor air, and no human exposure risk existed.

- Of the VOCs detected in the indoor air samples, 12 were detected at concentrations above the NYSDOH 75th percentile background concentration typical of indoor air, and only five of these including, bromomethane, chloroform, 1,4-dichlorobenzene, m,p-xylenes and styrene exceeded their NYSDOH 90th percentile background concentrations. Seven of the 12 VOCs detected in indoor air are possibly MGP-related VOCs and five are non-MGP-related. With the exception of cyclohexane, six of the seven VOCs detected in indoor air that are possibly MGP-related were also detected in soil

gas. These six VOCs, namely 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, m/p-xylene, o-xylene, ethylbenzene and styrene, were detected at higher concentrations in the soil gas than in the corresponding indoor air sample. Benzene and cyclohexane were either not detected or were detected at lower concentrations in the soil gas than in the corresponding indoor air samples.

- Of the VOCs that are possibly related to MGP residues, only m,p-xylene and styrene exceeded their NYSDOH 90th percentiles for background concentrations typical of indoor air. Styrene was detected above the range of typical residential indoor air background concentrations (90th percentile) in three indoor air samples, IA-1, IA-2, and IA-5 (which is the field duplicate of IA-2). Styrene is commonly found in indoor air as it is a key component in plastic and rubber products, such as carpet fibers and backing, pipes and pipe insulations, styrofoam products and sealants, as well as varnishes and paints.

- The five non-MGP VOCs detected in indoor air were acetone, bromomethane, chloroform, chloromethane and tetrachloroethene. Of these, only chloroform and tetrachloroethene were detected in higher concentrations in the soil gas than in indoor air.

- A total of 19 VOCs were detected at low concentrations in sub-slab soil gas samples, 10 of which are possibly related to MGP residues. Seven of these 10 possible MGP-related VOCs, ethylbenzene, 4-ethyltoluene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, toluene, m,p-xylene, o-xylene, were detected at higher concentrations in soil gas than in the corresponding indoor air samples and, thus, have the potential to contribute to indoor air quality. Of the 10 compounds possibly related to MGP residues, six of these VOCs in indoor air were above the NYSDOH 75th percentile of background, but only m,p-xylene and styrene exceeded their NYSDOH 90th percentile. It is noted that, although m,p-xylenes may be associated with MGP residues, they are also significant components of common petroleum products, such as fuel oils and gasoline. Although styrene was only detected in soil gas sample SG-3 at a concentration of 2.2 micrograms per cubic meter (ug/m3), it was not detected in the co-located indoor air sample.

- A total of 21 VOCs were detected in the headspace air. Twelve of these were possibly MGP-related and nine were not MGP-related. Generally, the concentrations of VOCs detected in the headspace sample are higher than those in soil gas samples, which suggests that VOCs detected in the sub-slab soil gas may be accumulating, to some extent, within the air space.

The air and sub-slab soil gas sampling program conducted at the Bayview Correctional Facility confirmed the presence of a total of five VOCs in excess of the published NYSDOH 90th percentile background indoor air concentrations. Two of these may be related to MGP sources and three of these compounds are not associated with former MGP operations. The data suggests that the presence of these compounds in sub-slab soil gas have the potential to impact indoor air quality. However, the analytical data, in conjunction with the observed presence of numerous VOC-containing products stored and used at the facility during routine operations and maintenance and the air flow in the basement, suggest that

these potential sources are likely having a greater influence on the overall indoor air quality than intrusion of VOCs in the soil gas into the basement. Finally, based on the comparisons of the various VOCs detected in indoor air to their NYSDOH published background concentrations, it is concluded that their concentrations are generally typical for in indoor air. This is especially relevant considering that the facility is located in a heavily urbanized area of Manhattan where background concentrations in air tend to be high as compared to air quality in less developed or rural areas.

Site-Wide Remedial investigation Report – Former West 18th Street Gas Works (Arcadis 2009)

Between January 2006 and October 2008, Arcadis completed site-wide RI activities at the former West 18th Gas Works Site. The RI activities were focused on parcels that were not subject to redevelopment and had feasible access at the time. In addition to the site-wide remedial investigation activities and findings, results presented in previous reports that included the *Site Characterization Study Report* (TRC 2006) and property–specific remedial investigation reports were summarized in the *Site-Wide Remedial Investigation Report* (Arcadis, 2009). The RI activities included excavation of soil borings, installation of groundwater monitoring wells, and the collection and analysis of soil and groundwater samples. At the time of the site-wide RI field investigation, the Bayview Correctional Facility was an active prison. As a result of the constraints posed by operation of the facility, RI activities were not completed on the Property. The *Site-Wide Remedial Investigation Report* was submitted as a draft to NYSDEC in December 2009 and is currently pending approval. Property-specific RI reports have been prepared and submitted to NYSDEC for parcels that have since been redeveloped.

3.0 Supplemental Remedial Investigation Field Activities

The following Supplemental RI field activities were completed:

- Advancement and assessment of nine soil borings within and adjacent to the former gas holder (SB-300 to SB-308).
- Collection of soil samples for laboratory analysis.
- Survey of new soil boring locations and points on the exterior of the building.

Prior to conducting ground-intrusive activities, Arcadis completed utility clearance activities that included notification to Dig Safely New York, review of site drawings and plans, and a visual site inspection. In addition, NAEVA Geophysics (NAEVA; under subcontract to Arcadis) conducted a private utility mark-out with ground-penetrating radar (GPR) on August 25, 2015. GPR was used to confirm the location of the former gas holder foundation, and to clear the proposed soil boring locations.

ARCADIS subcontracted with ZEBRA Technical Services, LLC (Zebra) of Lynbrook, New York to perform the drilling activities. The soil borings were advanced between November 9 and November 18, 2015. Soil boring locations are shown on **Figure 2**.

Soil Boring Investigation

Zebra cored through the concrete and hand-cleared the uppermost soil to 5 feet below ground surface (ft bgs) at each location prior to drilling the soil borings. For the purposes of this report, "ground surface" refers to the surface of the concrete floor slab upon which the drilling took place. Upon clearing each location, the soil borings were advanced using a GeoProbe 420M, utilizing 3-foot long Macro-core® sampler equipped with disposable acetate liner.

Soil was sampled continuously to 25 ft bgs or until refusal, and was visually characterized and screened for VOCs using an organic vapor meter equipped with a photoionization detector (PID). The geologic composition, recovery, screening results, and the presence (if any) of visible sheen, staining, and odors were documented per the NYSDEC Field Descriptions of Samples for Former MGP Sites. Each boring was backfilled with bentonite/cement grout to the bottom of the concrete floor slab and the slab was backfilled to grade with concrete.

Soil Boring SB-302 was attempted twice and could not be advanced to the desired depth. At the original proposed location on the main level of the building (SB-302M), the concrete was over 19-inches thick which was greater than the physical capability of the concrete coring equipment. The boring was abandoned and moved to the building annex (SB-302A), where it was cored and hand-cleared to 5 ft bgs. However, at 5 ft bgs, an additional layer of concrete was encountered with the hand auger. The drill rig was unable to advance the boring through the concrete and the boring was abandoned.

Decontamination water, soil and drill cuttings were stored and containerized in New York State Department of Transportation (NYSDOT)-approved 55-gallon drums for subsequent transportation and offsite disposal at a Con Edison-approved permitted disposal facility.

Soil Sampling and Analysis

As described above, upon retrieval of the Macro-core® sampler from the ground, relatively undisturbed samples of soil core from each interval were placed in a sealed container (plastic bag) for field screening of total VOCs. The bag and core samples were allowed to equilibrate to room temperature for approximately 20 minutes prior to screening. The head space air above the soil sample in each bag was then screened for total VOCs using a PID.

In addition, a total of 25 samples were collected for laboratory analysis from soil borings SB-300 through SB-308 using Encore™ samplers. Samples were selected based on the following:

- One sample was collected from within the 0-5 ft bgs interval at each location. The specific interval was selected based on the strongest physical evidence of potential impact such as elevated PID readings, staining, non-aqueous phase liquid (NAPL), and/or odors. If no evidence was apparent then the sample was collected from the 4 to 5 foot interval.

- Soil samples were also collected from the vicinity of the water table and from the terminal depth of the boring.

Soil samples were labeled, placed in an ice-chilled cooler, and couriered under chain-of-custody documentation to TestAmerica Laboratories, Inc. (TestAmerica) located in Edison, New Jersey for the following analyses:

- TCL VOCs by USEPA Method 8260.

- TCL SVOCs by USEPA Method 8270C.

Additional soil samples collected from soil borings SB-300, SB-301, SB-302A and SB-307 (per the same sampling and chain-of-custody procedures listed above) were couriered to Alpha Analytical Laboratories (Alpha) in Mansfield, Massachusetts for analysis of the following:

- Forensic total petroleum hydrocarbons (TPH).

- Forensic VOCs suite consisting of paraffins, isoparaffins, aromatics, naphthenes and olefins (PIANO).

Surveying Activities

Arcadis subcontracted DPK Consulting to complete the surveying activities. Each soil boring and reference points on the building exterior were surveyed relative to UTM Zone 18 coordinates referenced to the North American Datum of 1983 (NAD83) and the National Geodetic Vertical Datum of 1929 (NGVD29). The survey work was conducted on November 30, 2015.

Investigation Derived Waste

Two drums of investigation derived waste (IDW) were generated during the field investigation activities. One drum was used to contain soil cuttings, concrete and debris and the second drum was used to store liquid from water generated during concrete coring and equipment decontamination activities. The drums were temporarily staged on secondary containment within the building and properly labeled. The drums were transported from the site and disposed of at a Con Edison-approved facility permitted to accept such wastes on December 10, 2015 by Clean Earth, under a subcontract to Arcadis.

4.0 Field Observations

A summary of the soil boring field observations is shown in the table below. Soil boring logs are presented in **Attachment A,** and project photographs are presented in **Attachment B**. Cross sections are presented on **Figures 3 through 5**.

Subsurface Soil

Based on the field observations in borings completed during the Supplemental RI, subsurface soil encountered at the Property consists of a layer of urban fill overlaying a silty sand and/or silty clay unit (**Figures 4 and 5**). The nature of each of these lithologic descriptions is provided below.

Soil borings SB-300, SB-302A and SB-304 were completed inside the holder foundation. Soil lithology encountered in borings SB-300, SB-302A and SB-304 contained significantly more coarse debris as compared to soil encountered in borings located outside the holder foundations. This likely represents debris generated during demolition of the former holder.

With the exception of SB-300, SB-302A and SB-303, soils are vertically delineated at the Property. Due to the constrained physical access posed by the configuration of the Bayview building (e.g., width of the doorways, multiple stairs, low ceilings, etc.) only hand mobilized drilling equipment could be deployed. Such equipment has inherent limited depth capabilities. Despite these limitations, the borings were advanced until refusal was encountered at each boring location or sufficient depths were achieved. In addition, the reinforced concrete floors at several locations limited the effectiveness of the available equipment. Urban fill was encountered in the subsurface lithology at all soil boring locations. Advancement depth was further impeded by coarse and competent nature of debris in the fill. Descriptions of the nature of fill encountered are presented below:

- Brick debris was consistently encountered in shallow soils (<5 ft bgs) at SB-90, SB-300, SB-301, SB-302A, SB-304, and SB-308. Brick debris was also encountered at various depth intervals in soil borings SB-91, SB-300, SB-301, SB-302A, SB-303, SB-304, SB-305, SB-306 and SB-307.

- Wood debris was consistently encountered throughout the soil borings at SB-302A, SB-303, SB-304, SB-305 and SB-307. Additionally, wood debris was encountered at the bottom of soil boring SB-303

- Glass and/or debris was also encountered in soil borings SB-303, SB-307 and SB-308.

- Cement debris or large gravel was encountered in soil boring SB-307.

It is noted that the ground surface at which the borings were advanced is variable across the Property due to the different floor levels in the main building and the Annex building. The depth intervals below are reported as feet below ground surface (ft bgs) at the particular boring location where the sample was collected, or the observation made. Based on the variable grades described above, it is important to note that the depths "below ground surface" do not correlate across the Property. Assuming that the sidewalk of West 20th Street is grade, most of the borings were advanced from either slightly below or slightly above grade, with the exception of the borings advanced in the Annex Basement (**Table 1**). Those borings were advanced from an elevation that is almost five feet below grade. Please also refer to the cross sections depicted on **Figures 4 and 5** for an accurate depiction of observations relative to other boring locations across the Property.

Physical evidence of potential impacts encountered during the Supplemental RI, such as odors, staining and elevated PID readings, was similar in nature to the subsurface soil conditions encountered during previous investigations at the Property and the other areas of the West 18th Street former MGP Site. A summary of the potential impacts is provided below.

Soil Boring ID	Ground Surface Elevation (ft RMSL)	Total Depth (feet bgs)	Soil Boring Field Observations		
			Odor	Visual	Description and Depth of Field Findings (PID concentrations in parenthesis)
SB-300	5.40	20	X	-	• 5.5-6.5 ft bgs moderate odor (0.6 to 2.0 ppm) • 8.0-10.0 ft bgs faint PHC-like odor (0.6 to 0.7 ppm) • 11.0-17.0 ft bgs slight PHC-like odor (0.3 to 1.0 ppm)
SB-301	5.42	19	X	-	• 3.5 ft bgs odor (0.5 ppm) • 6.0 ft bgs faint PHC-like odor (2.6 ppm) • 7.0 ft bgs faint MGP-like odor (0.9 ppm)
SB-302A	1.64	5	X	X	• 1.3-3.0 ft bgs PHC-like odor; sheen (0.3 to 28.1 ppm)
SB-303	1.60	20	X	X	• 18.5-19.25 ft bgs faint MGP-like odor (1.7 to 2.7 ppm) • 19.25 ft bgs sheen (33.3 ppm)
SB-304	7.92	22	X	-	• 17 ft bgs faint MGP-like odor (0.5 ppm)
SB-305	7.88	18	X	-	• 15.0-16.5 ft bgs faint MGP-like odor (1.3 to 2.0 ppm)
SB-306	7.90	19	X	-	• 14.0-16.0 ft bgs faint odor (0.7 to 1.5 ppm)
SB-307	7.91	16	X	-	• 8.5-10 ft bgs strong PHC-like odor (4.6 to 870 ppm)
SB-308	1.59	18.5	X	X	• 1.5-5 ft bgs faint odor; staining (1.2 to 5.8 ppm) • 17.5 ft bgs MGP-like odor (5.3 ppm)

(Notes on next page)

Notes:
MGP = manufactured gas plant
PHC = petroleum hydrocarbon
ppm = parts per million
X = observation
- = no observation
ft bgs = feet below ground surface
ft RMSL = feet relative mean sea level
Ground Surface Elevation is the elevation at the ground surface at which the drilling was initiated at each location.
As noted above, "depth below ground surface" does not correlate across the Property, due to the variable grades across the Property. "Grade" is considered to be the sidewalk on West 20th Street. Refer to Figures 4 and 5 for an accurate visual depiction of observations relative to the boring locations.

Groundwater

On November 11, 2015, depth to water was measured at existing monitoring well MW-31A, which is located in the sidewalk of West 20th Street near the eastern corner of the Annex building. The depth to water was measured prior to commencement of drilling to determine the potential for the water table to be above the top of the basement slab in the lower portions of Annex building. The water level measured in monitoring well MW-31A was 7.60 ft bgs. Based on this measurement, it was not anticipated that groundwater would be encountered above drilling grade during the work.

Groundwater was encountered in the soil borings at depths ranging from 3.5 ft bgs in SB-303 to 8.5 ft bgs in SB-307. Please note that although there is an apparent 5-foot difference in these measurements, due to the differing grades within the building (as described above), the water table is at a generally consistent elevation at the Property. The observations of the water table are depicted on **Figures 4 and 5**.

5.0 Soil Analytical Results – VOCs and SVOCs

The soil analytical results are summarized below and are provided in **Tables 2 and 3**. Field quality assurance / quality control (QA/QC) samples, including blind duplicates at SB-306 at 18.5-19 ft bgs and SB-308 at 4-4.5 ft bgs, were collected during the work. The analytical results for the duplicate samples are presented in the tables. Data usability summary reports (DUSRs) for all laboratory data are presented as **Attachment C**. Results of the data review conducted by Arcadis are presented in the DUSRs and indicate that the analytical data are acceptable for use in the assessment of soil conditions at the Property. Soil results were compared to the NYSDEC New York Codes, Rules and Regulations (NYCRR) Part 375 Restricted Use soil cleanup objectives (SCOs) effective December 14, 2006.

Volatile Organic Compounds

VOCs were not detected above MDLs or their respective NYSDEC Restricted Use SCOs except benzene at SB-301 (18.5-19 ft bgs) and acetone at SB-305 (16-16.5 ft bgs), each of which exceeded the protection of groundwater SCO only.

Semi-Volatile Organic Compounds

SVOCs were detected at concentrations above their respective SCOs at soil samples collected from soil borings SB-300, SB-301, SB-302A, SB-303, SB-305, SB-306 and SB-307. Individual compound exceedances are summarized below:

- Benzo(a)anthracene was detected above SCOs in eight soil samples at concentrations that ranged from 1.3 milligrams per kilogram (mg/k)g in SB-301 (17.5-18 ft bgs) to 38 (mg/kg) in SB-300 (16.5-17 ft bgs). All concentrations detected exceeded the benzo(a)anthracene SCOs for protection of groundwater and restricted residential use, both of which are 1 mg/kg.

- Benzo(a)pyrene was detected above SCOs in seven soil samples at concentrations that ranged from 2.3 mg/kg in soil sample SB-303 (19-19.5 ft bgs) to 30 mg/kg in sample SB-300 (16.5–17 ft bgs). The benzo(a)pyrene concentrations in all seven samples exceeded its SCO for restricted residential use, which is 1 mg/kg. Only one sample SB-300 (16.5-17 ft bgs) also exceed its SCO for the protection of groundwater which is 22 mg/kg.

- Benzo(b)fluoranthene was detected above SCOs in seven soil samples at concentrations that ranged from 2.8 mg/kg in sample SB-303 (19-19.5 ft bgs) to 39 mg/kg in sample SB-300 (16.5-17 ft bgs). The concentrations detected in all seven samples exceeded the benzo(b)fluoranthene SCOs for protection of groundwater and restricted residential use of 1.7 mg/kg and 1 mg/kg, respectively.

- Benzo(k)fluoranthene was detected above SCOs in four soil samples at concentrations that ranged from 2.9 mg/kg in sample SB-303 (3.25-3.75 ft bgs) to 13 mg/kg in sample SB-300 (16.5-17 ft bgs). The concentrations detected in all four samples exceeded the benzo(k)fluoranthene SCO for the protection of groundwater of 1.7 mg/kg, and two of the four samples exceeded the benzo(k)fluoranthene SCO for restricted residential use of 3.9 mg/kg.

- Chrysene was detected above SCOs in eight soil samples at concentrations that ranged from 1.3 mg/kg in sample SB-301 (17.5-18 ft bgs) to 40 mg/kg in sample SB-300 (16.5-17 ft bgs). The concentrations detected in five samples exceeded the chrysene SCOs for both the protection of groundwater and restricted residential use of 1 mg/kg and 3.9 mg/kg, respectively. Concentrations detected in the remaining three samples exceeded the protection of groundwater SCO only.

- Dibenzo(a,h)anthracene was detected above SCOs in seven soil samples at concentrations that ranged from 0.44 mg/kg in samples SB-303 (19-19.5 ft bgs) and SB-307 (4.5-5) to 4.7 mg/kg in sample SB-300 (16.5-17 ft bgs). The concentrations detected in all seven samples exceeded the dibenzo(a,h)anthracene SCO for the restricted residential use of 0.33 mg/kg but not the SCO for groundwater protection.

- Indeno(1,2,3-cd)pyrene was detected above SCOs in eight soil samples at concentrations that ranged from 0.54 mg/kg in sample SB-300 (5-6 ft bgs) to 18 mg/kg in sample SB-300 (16.5-17 ft bgs). The concentrations detected in three of the eight samples exceeded the indeno(1,2,3-cd)pyrene SCOs for both the protection of groundwater and restricted residential use of 0.5 mg/kg and 8.2 mg/kg, respectively. Concentrations detected in the remaining five samples exceeded the restricted residential use SCO only.

- Phenanthrene was detected in soil sample SB-300 (16.5-17), at a concentration of 140 mg/kg which exceeded its SCO for restricted residential use of 100 mg/kg.

- Total PAHs were detected in all soil samples at concentrations that ranged from 0.14 mg/kg in soil sample SB-306 (4.5-5 ft bgs) to 610 mg/kg in soil sample SB-300 (16.5–17 ft bgs). With the exception of soil samples SB-300 (16.5–17 ft bgs) and SB-303 (19-19.5 ft bgs) the concentrations of total PAHs were less than 85 mg/kg in 23 of the 25 soil samples, or approximately 90% of the samples analyzed for SVOCs. In addition, 80% of the samples analyzed for SVOCs contained total PAHs at concentrations less than 40 mg/kg.

Comparison of the analytical results and field observations indicated a correlation between field evidence of potential impacts and the analytical data at some locations. Specifically, soil samples containing concentrations of SVOCs exceeding their respective SCOs at SB-300, SB-302A and SB-303 correlated with the field findings as summarized below.

- At soil boring SB-300, elevated SVOCs concentrations were detected in the soil sample collected from the 16.5 to 17 ft bgs interval. Odor was detected in the soil core of this boring in the 5 to 6 feet bgs interval. The lithology of this interval was urban fill, which consisted of black sandy silt, some gravel and brick debris. Slight petroleum hydrocarbon (PHC)-like odor was detected in the 11 to 17 feet bgs interval.

- At soil boring SB-302A, SVOCs were detected in the 1.5 to 2 ft bgs soil sample interval exceeding their respective SCOs. This is consistent with field observations SB-302A where total VOCs were measured in headspace air using a PID at a maximum concentration of 28.1 parts per million (ppm), PHC-like odor was detected and sheen was observed between 1.3 to 3 ft bgs with lithology consisting of dark gray sandy silt, gravel and wood debris which is indicative of fill material.

- At soil boring SB-303, SVOCs were detected in the 19 to 19.5 ft bgs soil sample interval exceeding their respective SCOs. This is consistent with field observations in soil boring SB-303 where total VOCs were measured in headspace air at a maximum concentration 33.3 ppm using a PID, MGP-like odor was detected and sheen was observed at 19.25 ft bgs with lithology consisting of black clayey silt, and wood debris, which is indicative of fill material.

- No apparent correlation between field observations / measurements and analytical data were seen in any of the other soil borings.

These findings are consistent with fill material observed and analyzed at other portions of the Site during the RI, which had SCO exceedances for many of the same SVOCs.

6.0 Forensic Analysis

Selected soil samples collected from soil borings SB-300, SB-301, SB-302A and SB-307 were analyzed for a suite of volatile hydrocarbons that included TPH, and paraffins, isoparaffins, aromatics, naphthenes, and olefins, collectively referred to as PIANO. Interpretation of the concentrations of these analytes are useful in identifying common sources of petroleum product residuals, particularly gasoline, in groundwater and soil samples. However, due to the absence of strong visual and olfactory evidence of both MGP- and petroleum-related impacts and the relatively low concentrations of VOCs and SVOCs detected in the soil samples, a formal forensics analysis of the PIANO data was not conducted.

7.0 Summary

The key findings of the Supplemental RI in conjunction with the findings from previous investigations performed at the Bayview Property are outlined below:

- The lithology encountered at the Property during the Supplemental RI is consistent with borings completed there during the SCS. Specifically, soil beneath the concrete slab of the building foundation is comprised primarily of urban fill overlaying naturally occurring sand, silt and or silty-clays. The fill is generally characterized as a silty sand containing abundant anthropogenic debris including pieces of brick, metal, concrete, cobbles, wood, etc. and is consistent with descriptions of fill material observed and analyzed at other portions of the site during the previous investigations.

- The fill layer is consistent with the pre-site history of this area of Manhattan which was former riverbed of the Hudson River. The shoreline was originally along 10th Avenue to the east of the Property and this area was substantially backfilled.

- Physical evidence of impacts to subsurface soil and or groundwater were generally limited to odors which could be related to either petroleum hydrocarbon products and or MGP residue (e.g., coal tar). However, the total VOCs detected in corresponding soil sample head space as measured in the field using PID were low; and, no gross evidence of impacts, such as NAPLs were observed.

- Groundwater in the vicinity of the Property occurs at approximately 7 feet below grade (sidewalk of West 20th Street). Based on findings presented in the *Site Characterization Study Report* (TRC 2006) groundwater generally flows in a west–southwesterly direction towards the Hudson River.

- VOCs were not detected in the majority of soil samples at concentrations above the MDLs or their respective NYSDEC SCOs.

- SVOCs exceeded their respective SCOs at soil samples collected from SB-300, SB-301, SB-302A SB-303, SB-305, SB-306, and SB-307. Many of the same SVOCs were also detected in subsurface soil samples collected during the RI at concentrations that exceeded their respective SCOs.

- Concentrations of total PAHs were generally consistent with those commonly found in urban fill. The majority of the total PAHs were detected at or below 40 mg/kg.

- The SVOCs analytical data correlate with field evidence such as elevated total VOC concentrations in headspace air measured with a PID, and or odors at some locations.

8.0 Conclusions and Recommendations

Based on the field observations and analytical data summarized herein, it is concluded that the quality of the subsurface soil is predominantly attributed to the urban fill that underlies the Bayview Property and which is prevalent in this area of Manhattan. While tar-like odors were detected periodically, no corresponding evidence of gross MGP-related residue was detected in the subsurface. It is noted that petroleum odors were detected more frequently than coal tar-like odors. The analytical data indicates that SVOCs and metals were typically detected at concentrations above their respective SCOs, but that such exceedances were generally consistent with corresponding concentrations detected in the fill across much of the remaining areas of the West 18th Street Works former MGP site.

It is also concluded that, in keeping with the quality of the subsurface soil/urban fill at the Property, the absence of gross impacts and the effective barrier resulting from the contiguous foundation of the Bayview building, the soil/fill does not pose a potential exposure risk.

In light of the information presented in this report and the conclusions outlined above, it is recommended that no further action is warranted at the Bayview Property at this time.

Please contact me at (518) 867-6166 if you have any questions about the results presented herein.

Sincerely,

Arcadis of New York, Inc.

Adam Etringer

Project Manager

Copies:
Loretta Kwong, Arcadis
Nancy Gensky, Arcadis

Enclosures:

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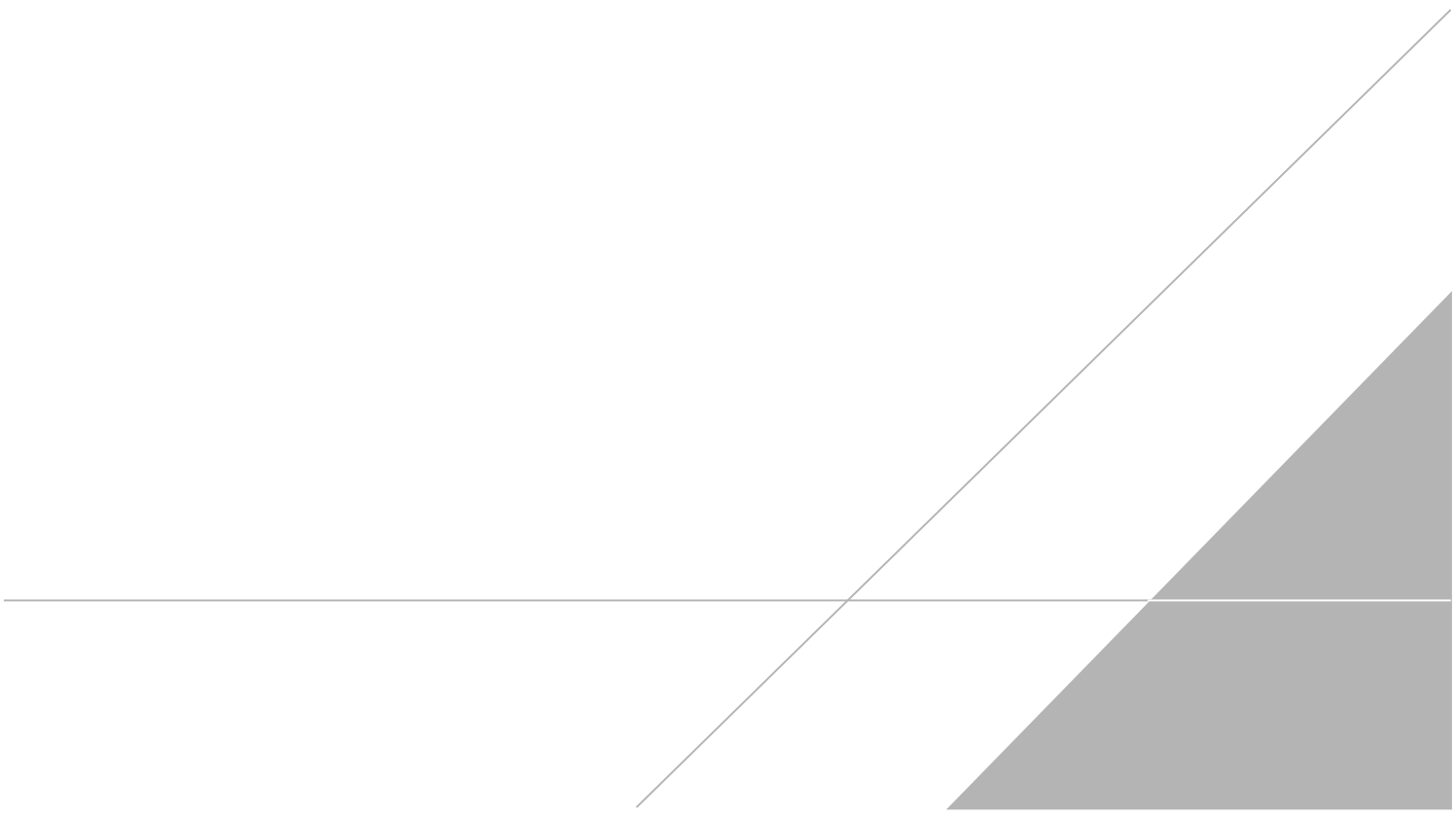


Table 1: Soil Boring Depth Information
Consolidated Edison Company of New York, Inc.
Former West 18th Street Gas Works
550 West 20th Street (Bayview Correctional Facility)

Soil Boring	**Ground Surface Elevation** (ft RMSL)	**Total Depth** (ft bgs)	**Location**	**Relative Grade**	**Elevation Difference** (Relative to Grade)
SB-300	5.40	20	Cafeteria	Below	-1.07
SB-301	5.42	19	Cafeteria	Below	-1.05
SB-302A	1.64	5	Annex Basement	Below	-4.83
SB-303	1.60	20	Annex Basement	Below	-4.87
SB-304	7.92	22	Kitchen	Slightly Above	1.45
SB-305	7.88	18	Kitchen	Slightly Above	1.41
SB-306	7.90	19	Meeting Area	Slightly Above	1.43
SB-307	7.91	16	Meeting Area	Slightly Above	1.44
SB-308	1.59	18.5	Annex Basement	Below	-4.88
SB-90	7.72	6	Alley way (Holder wall refusal)	Slightly Above	1.25
SB-91	7.72	15	Alley way	Slightly Above	1.25
SB-92	2.02	15	Annex Basement	Below	-4.45
SB-31	6.47	27	Sidewalk W. 20th St.	Grade	0

Notes:
"Grade" is defined as the sidewalk of West 20th Street.
"Ground Surface Elevation" is the ground surface at which the drilling was initiated at each location
ft bgs = feet below ground surface
ft RMSL = feet relative mean sea level

Table 2: Summary of VOCs Detected in Subsurface Soils
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

Location ID: Sample Depth(Feet bgs): Date Collected:	Part 375 Restricted Use SCOs Restricted-Residential	Part 375 Restricted Use SCOs Groundwater	Units	SB-300 5 - 6 11/18/15	SB-300 16.5 - 17 11/18/15	SB-301 4.5 - 5 11/09/15	SB-301 6 - 7 11/18/15	SB-301 17.5 - 18 11/18/15	SB-301 18.5 - 19 11/18/15	SB-302A 1.5 - 2 11/13/15	SB-303 3.25 - 3.75 11/12/15	SB-303 17.5 - 18 11/16/15	SB-303 19 - 19.5 11/16/15	SB-304 4.5 - 5 11/11/15	SB-304 9 - 9.5 11/17/15	SB-304 21.5 - 22 11/17/15
Volatile Organics																
2-Butanone (Methyl ethyl ketone)	100	0.12	mg/kg	0.00075 UJ	0.00092 UJ	0.00098 U	0.0057 J	0.0083 J	0.0011 UJ	0.0084	0.0037 J	0.013	0.041	0.00084 U	0.00079 UJ	0.0010 UJ
4-Methyl-2-pentanone (MIBK)	- -	- -	mg/kg	0.0022 U	0.0027 U	0.0028 U	0.0028 U	0.0036 U	0.0033 U	0.0031 U	0.0028 U	0.0040 U	0.0042 U	0.0024 U	0.0023 U	0.0029 U
Acetone (2-propanone)	100	0.05	mg/kg	0.0010 U	0.0013 U	0.0013 U	0.020	0.028	0.0016 U	0.021	0.011	0.032 J	**0.13 J**	0.0012 U	0.0050 J	0.0014 U
Benzene	4.8	0.06	mg/kg	0.0026	0.00031 J	0.00025 U	0.00062 J	0.011	**0.21**	0.0013 J	0.0063	0.00065 J	0.0034	0.00022 U	0.00020 U	0.00045 J
Carbon disulfide	- -	- -	mg/kg	0.00042 U	0.00052 U	0.00054 UJ	0.00054 U	0.00069 U	0.00064 U	0.00075 J	0.00054 U	0.0017 J	0.0023	0.00047 U	0.00085 J	0.00057 U
Cyclohexane	- -	- -	mg/kg	0.00045 U	0.00082 J	0.00058 U	0.00057 U	0.0024	0.0046	0.00091 J	0.00057 U	0.00082 U	0.00087 U	0.00050 U	0.00047 U	0.00061 U
Ethylbenzene	41	1	mg/kg	0.00018 U	0.00022 U	0.00023 U	0.00022 U	0.0025	0.014	0.00025 U	0.00024 J	0.0061	0.084	0.00020 U	0.00018 U	0.00024 U
Isopropylbenzene (Cumene)	- -	- -	mg/kg	0.00017 U	0.00020 U	0.00022 U	0.00027 J	0.0025	0.0063	0.00099 J	0.00021 U	0.019	0.11	0.00019 U	0.00017 U	0.00022 U
Methyl cyclohexane	- -	- -	mg/kg	0.00049 U	0.0050	0.00063 U	0.00062 U	0.010	0.023	0.0055	0.00062 U	0.00089 U	0.00095 U	0.00055 U	0.00051 U	0.00066 U
Styrene	- -	- -	mg/kg	0.00015 U	0.00018 U	0.00019 U	0.00019 U	0.00060 J	0.00022 U	0.00021 U	0.00019 U	0.00027 U	0.00029 U	0.00016 U	0.00015 U	0.00020 U
Toluene	100	0.7	mg/kg	0.00043 J	0.00023 U	0.00024 U	0.00024 U	0.00048 J	0.00093 J	0.00046 J	0.00024 U	0.00040 J	0.0075	0.00021 U	0.00019 U	0.00025 U
Xylenes (m&p)	- -	- -	mg/kg	0.00037 J	0.00013 UJ	0.00014 U	0.00014 UJ	0.0051 J	0.022 J	0.00041 J	0.00028 J	0.0031 J	0.082	0.00012 U	0.00011 U	0.00015 U
Xylenes (o)	- -	- -	mg/kg	0.00017 J	0.00019 U	0.00020 U	0.00020 U	0.016	0.045	0.00033 J	0.00020 U	0.023	0.099	0.00018 U	0.00016 U	0.00021 U
Total BTEX	- -	- -	mg/kg	0.0036 J	0.00031 J	ND	0.00062 J	0.035 J	0.29 J	0.0025 J	0.0068 J	0.033 J	0.28	ND	ND	0.00045 J

See notes on page 3

Table 2: Summary of VOCs Detected in Subsurface Soils
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

Location ID: Sample Depth(Feet bgs): Date Collected:	Part 375 Restricted Use SCOs Restricted-Residential	Part 375 Restricted Use SCOs Groundwater	Units	SB-305 4 - 4.5 11/16/15	SB-305 8.5 - 9 11/16/15	SB-305 16 - 16.5 11/16/15	SB-306 4.5 - 5 11/10/15	SB-306 7.5 - 8 11/17/15	SB-306 18.5 - 19 11/17/15	SB-307 4.5 - 5 11/10/15	SB-307 8.5 - 9 11/17/15	SB-307 15 - 15.5 11/17/15	SB-308 4 - 4.5 11/12/15	SB-308 18 - 18.5 11/13/15	SB-308 16.5 - 17 11/13/15
Volatile Organics															
2-Butanone (Methyl ethyl ketone)	100	0.12	mg/kg	0.0012 U	0.015	0.018	0.00077 U	0.0010 UJ	0.00095 UJ [0.00076 UJ]	0.00094 U	0.0011 UJ	0.00082 U	0.011 [0.013]	0.012	0.012
4-Methyl-2-pentanone (MIBK)	- -	- -	mg/kg	0.0033 U	0.0031 U	0.0034 U	0.0022 U	0.0029 U	0.0027 U [0.0022 U]	0.0027 U	0.0031 U	0.0024 U	0.0035 U [0.0035 U]	0.0041 U	0.0030 U
Acetone (2-propanone)	100	0.05	mg/kg	0.015 J	0.040 J	**0.051 J**	0.0011 U	0.0094	0.0013 U [0.0060]	0.0013 U	0.0057 J	0.0011 UJ	0.046 [0.049]	0.032	0.034
Benzene	4.8	0.06	mg/kg	0.0041	0.0084	0.060	0.00020 U	0.0017	0.057 J [0.012 J]	0.00024 U	0.0045	0.0051	0.00032 U [0.00031 U]	0.028	0.0016
Carbon disulfide	- -	- -	mg/kg	0.0021	0.0013 J	0.0010 J	0.00043 U	0.00056 U	0.00053 U [0.00042 U]	0.00052 UJ	0.0011 J	0.00051 J	0.00070 J [0.00067 U]	0.00079 U	0.00059 U
Cyclohexane	- -	- -	mg/kg	0.00069 U	0.00065 U	0.00071 U	0.00046 U	0.00060 U	0.00057 U [0.00045 U]	0.00056 U	0.00064 U	0.00049 U	0.00073 U [0.00072 U]	0.00085 U	0.00063 U
Ethylbenzene	41	1	mg/kg	0.00027 U	0.00048 J	0.0081	0.00018 U	0.00024 U	0.00022 U [0.00018 U]	0.00022 U	0.00025 U	0.00019 U	0.00028 U [0.00028 U]	0.16	0.0010 J
Isopropylbenzene (Cumene)	- -	- -	mg/kg	0.00026 U	0.00024 U	0.0059	0.00017 U	0.00022 U	0.00021 U [0.00017 U]	0.00021 U	0.0031	0.00018 U	0.00027 U [0.00027 U]	0.13	0.0088
Methyl cyclohexane	- -	- -	mg/kg	0.00075 U	0.00070 U	0.00077 U	0.00050 U	0.00066 U	0.00061 U [0.00049 U]	0.00061 U	0.00070 U	0.00053 U	0.00079 U [0.00078 U]	0.00092 U	0.00069 U
Styrene	- -	- -	mg/kg	0.00023 U	0.00023 J	0.00023 U	0.00015 U	0.00020 U	0.00018 U [0.00015 U]	0.00018 U	0.00021 U	0.00016 U	0.00024 U [0.00023 U]	0.00028 U	0.00021 U
Toluene	100	0.7	mg/kg	0.00063 J	0.00095 J	0.00070 J	0.00019 U	0.00025 U	0.00023 U [0.00019 U]	0.00023 U	0.00080 J	0.00020 UJ	0.00030 U [0.00030 U]	0.0097	0.00039 J
Xylenes (m&p)	- -	- -	mg/kg	0.00017 U	0.00051 J	0.013	0.00011 U	0.00014 U	0.00014 U [0.00011 U]	0.00013 U	0.00015 U	0.00012 U	0.00017 U [0.00017 U]	0.22	0.00099 J
Xylenes (o)	- -	- -	mg/kg	0.00024 U	0.00022 U	0.014	0.00016 U	0.00021 U	0.00020 U [0.00016 U]	0.00019 U	0.00022 U	0.00017 U	0.00025 U [0.00025 U]	0.18	0.013
Total BTEX	- -	- -	mg/kg	0.0047 J	0.010 J	0.096 J	ND	0.0017	0.057 J [0.012 J]	ND	0.0053 J	0.0051	ND [ND]	0.60	0.017 J

See notes on page 3

Table 2: Summary of VOCs Detected in Subsurface Soils
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

1. NYSDEC = New York State Department of Environmental Conservation.
2. bgs = below ground surface.
3. All concentrations in units of milligrams per kilogram (mg/kg).
4. Targeted Compound List of VOCs analyzed by United States Environmental Protection Agency (USEPA) Method 8260C
5. Field duplicate sample results are presented in brackets.
6. Data qualifiers are defined as follows:
   J = Indicates an estimated value
   ND = none detected
   U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
   R = Rejected
7. NYSDEC Restricted Use Soil Cleanup Objectives (SCOs) are from Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
8. - - = No 6 NYCRR Part 375 SCO listed.
9. Bolding indicates that the sample result exceeds NYSDEC Restricted Use SCO - Protection of Groundwater.
10. Only those constituents detected in one or more samples are summarized.
11. SB-302M was relocated to SB-302A due to the concrete thickness exceeding the physical limit of the coring equipment.

Table 3: Summary of SVOCs Detected in Subsurface Soil
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

Location ID: Sample Depth(Feet bgs): Date Collected:	Part 375 Restricted Use SCOs Restricted-Residential	Part 375 Restricted Use SCOs Groundwater	Units	SB-300 5 - 6 11/18/15	SB-300 16.5 - 17 11/18/15	SB-301 4.5 - 5 11/09/15	SB-301 6 - 7 11/18/15	SB-301 17.5 - 18 11/18/15	SB-301 18.5 - 19 11/18/15	SB-302A 1.5 - 2 11/13/15	SB-303 3.25 - 3.75 11/12/15	SB-303 17.5 - 18 11/16/15	SB-303 19 - 19.5 11/16/15	SB-304 4.5 - 5 11/11/15	SB-304 9 - 9.5 11/17/15	SB-304 21.5 - 22 11/17/15
Semivolatile Organics																
1,1'-Biphenyl	- -	- -	mg/kg	0.031 U	1.0 J	0.039 J	0.040 J	0.054 J	0.045 J	0.039 U	0.082 J	0.044 U	0.82 J	0.029 U	0.033 U	0.038 UJ
2,4-Dinitrophenol	- -	- -	mg/kg	0.28 U	6.2 U	0.33 U	0.31 U	0.36 U	0.36 U	0.35 U	0.32 U	0.39 U	4.0 UJ	0.26 U	0.29 U	R
2-Methylnaphthalene	- -	- -	mg/kg	0.097 J	4.8 J	0.18 J	0.22 J	0.20 J	0.28 J	0.82	0.26 J	0.12 J	9.6 J	0.0076 U	0.0084 U	0.063 J
4-Methylphenol	100	0.33	mg/kg	0.010 U	0.22 U	0.012 U	0.012 J	0.019 J	0.013 U	0.013 U	0.012 U	0.039 J	0.14 UJ	0.0093 U	0.010 U	0.012 U
Acenaphthene	100	98	mg/kg	0.068 J	15	0.28 J	0.13 J	0.14 J	0.21 J	0.60	0.44	0.091 J	2.5 J	0.0083 U	0.030 J	0.15 J
Acenaphthylene	100	107	mg/kg	0.045 J	0.21 U	0.011 U	0.049 J	0.012 U	0.012 U	0.012 U	0.11 J	0.025 J	0.14 UJ	0.0088 U	0.0098 U	0.011 U
Acetophenone	- -	- -	mg/kg	0.0080 U	0.18 U	0.0095 U	0.0090 U	0.010 U	0.010 U	0.016 J	0.054 J	0.011 U	0.12 UJ	0.0075 U	0.0083 U	0.011 J
Anthracene	100	1,000	mg/kg	0.20 J	40	0.35 J	0.27 J	0.91	0.32 J	0.62	0.76	0.23 J	7.0 J	0.033 U	0.053 J	0.32 J
Benzo(a)anthracene	1	1	mg/kg	0.68	**38**	0.51	0.50	**1.3**	0.25	**2.4**	**3.9**	0.44	**4.1 J**	0.035	0.20	0.61 J
Benzo(a)pyrene	1	22	mg/kg	0.79	**30**	0.58	0.60	0.88	0.27	2.9	6.6	0.38	2.3 J	0.039	0.20 J	0.56 J
Benzo(b)fluoranthene	1	1.7	mg/kg	0.88	**39**	0.64	0.60	0.93	0.28	**3.0**	**6.1**	0.44	**2.8 J**	0.055	0.24	0.69
Benzo(g,h,i)perylene	100	1,000	mg/kg	0.46	17	0.36 J	0.33 J	0.33 J	0.17 J	2.7	6.2	0.20 J	0.83 J	0.031 J	0.15 J	0.36 J
Benzo(k)fluoranthene	3.9	1.7	mg/kg	0.37	**13**	0.30	0.26	0.37	0.11	1.2	**2.9**	0.19	1.1 J	0.026 J	0.10	0.27
Bis(2-ethylhexyl)phthalate	- -	- -	mg/kg	1.3	0.32 U	0.017 U	0.10 J	0.019 U	0.018 U	0.43 J	0.16 J	0.020 U	0.21 UJ	0.050 J	0.19 J	0.038 J
Butyl benzyl phthalate	- -	- -	mg/kg	0.45	0.25 U	0.014 U	0.013 U	0.015 U	0.015 U	0.014 U	0.017 J	0.016 U	0.16 UJ	0.011 U	0.012 U	0.014 U
Carbazole	- -	- -	mg/kg	0.056 J	10	0.011 U	0.043 J	0.13 J	0.047 J	0.011 U	0.24 J	0.013 U	0.34 J	0.0085 U	0.0095 U	0.13 J
Chrysene	3.9	1	mg/kg	0.71	**40**	0.51	0.54	**1.3**	0.27 J	**2.5**	**4.3**	0.48 J	**5.0 J**	0.038 J	0.21 J	0.66
Dibenzo(a,h)anthracene	0.33	1,000	mg/kg	0.17	4.7	0.10	0.13	0.14	0.057	0.57	1.5	0.080	0.44 J	0.018 U	0.050	0.12
Dibenzofuran	59	210	mg/kg	0.055 J	14	0.013 U	0.070 J	0.11 J	0.014 U	0.014 U	0.24 J	0.044 J	1.1 J	0.010 U	0.026 J	0.075 J
Fluoranthene	100	1,000	mg/kg	1.1	92	0.59	0.70	2.1	0.41 J	2.9	3.7	0.49 J	5.7 J	0.026 J	0.40	1.3 J
Fluorene	100	386	mg/kg	0.083 J	20	0.0095 U	0.10 J	0.27 J	0.20 J	0.82	0.31 J	0.086 J	4.3 J	0.0075 U	0.016 J	0.17 J
Indeno(1,2,3-cd)pyrene	0.5	8.2	mg/kg	0.54	**18**	0.37	0.38	0.41	0.18	2.4	6.5	0.22	1.0 J	0.033 J	0.17	0.43
Naphthalene	100	12	mg/kg	0.29 J	4.9 J	0.28 J	0.40 J	0.39 J	0.51	0.65	2.7	0.48 J	4.6 J	0.0087 U	0.11 J	0.27 J
Phenanthrene	100	1,000	mg/kg	0.62	140	0.33 J	0.61	2.8	2.2	3.7	2.1	0.59	45 J	0.012 J	0.10 J	1.4 J
Pyrene	100	1,000	mg/kg	1.0	96	0.84	0.78	2.3	0.50	3.0	3.8	0.69	10 J	0.031 J	0.50	1.4 J
Total PAHs	- -	- -	mg/kg	8.1 J	610 J	6.2 J	6.6 J	15 J	6.2 J	31	52 J	5.2 J	110 J	0.33 J	2.5 J	8.8 J

See notes on page 3.

Table 3: Summary of SVOCs Detected in Subsurface Soil
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

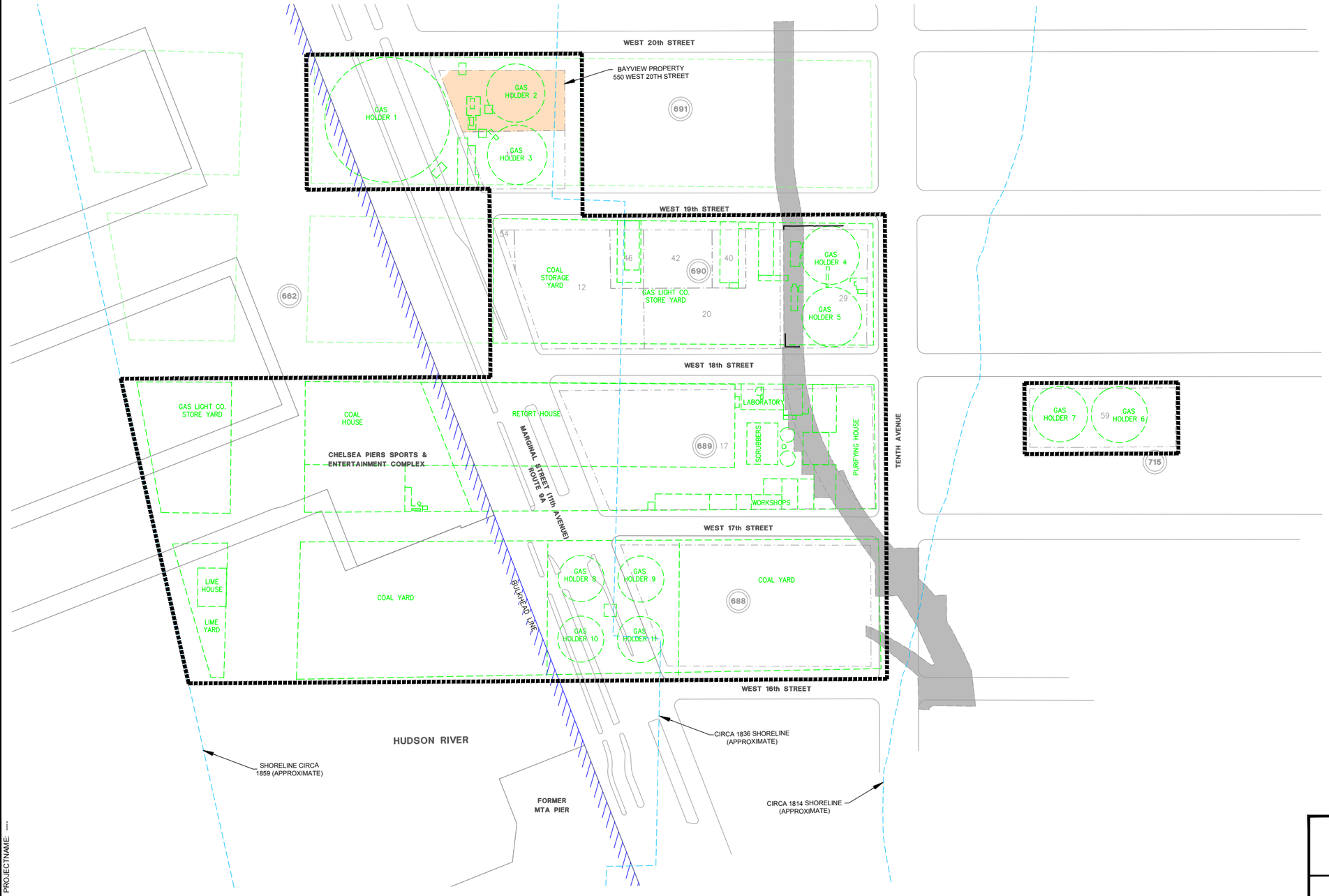
Location ID: Sample Depth(Feet bgs): Date Collected:	Part 375 Restricted Use SCOs Restricted-Residential	Part 375 Restricted Use SCOs Groundwater	Units	SB-305 4 - 4.5 11/16/15	SB-305 8.5 - 9 11/16/15	SB-305 16 - 16.5 11/16/15	SB-306 4.5 - 5 11/10/15	SB-306 7.5 - 8 11/17/15	SB-306 18.5 - 19 11/17/15	SB-307 4.5 - 5 11/10/15	SB-307 8.5 - 9 11/17/15	SB-307 15 - 15.5 11/17/15	SB-308 4 - 4.5 11/12/15	SB-308 18 - 18.5 11/13/15	SB-308 16.5 - 17 11/13/15
Semivolatile Organics															
1,1'-Biphenyl	- -	- -	mg/kg	0.029 U	0.11 J	0.17 J	0.029 U	0.071 U	0.036 U [0.034 U]	0.035 U	0.084 J	0.035 U	0.047 U [0.038 U]	0.55 J	0.041 U
2,4-Dinitrophenol	- -	- -	mg/kg	0.26 U	0.64 U	0.37 U	0.26 U	0.63 U	0.32 U [0.31 U]	R	0.38 U	0.31 U	0.41 U [0.34 U]	0.80 U	0.36 U
2-Methylnaphthalene	- -	- -	mg/kg	0.0090 J	0.38 J	0.63	0.0076 U	0.15 J	0.0093 U [0.0089 U]	0.063 J	0.95	0.0090 U	0.20 J [0.10 J]	6.6	0.21 J
4-Methylphenol	100	0.33	mg/kg	0.0093 U	0.073 J	0.017 J	0.0093 U	0.038 J	0.022 J [0.011 U]	0.011 U	0.014 U	0.011 U	0.030 J [0.012 U]	0.029 U	0.013 U
Acenaphthene	100	98	mg/kg	0.0082 U	0.77 J	0.49	0.0083 U	0.28 J	0.010 U [0.0098 U]	0.44 J	0.13 J	0.0099 U	0.17 J [0.094 J]	1.4	0.20 J
Acenaphthylene	100	107	mg/kg	0.011 J	0.15 J	0.013 U	0.0088 U	0.046 J	0.011 U [0.010 U]	0.034 J	0.089 J	0.011 U	0.047 J [0.016 J]	0.027 U	0.033 J
Acetophenone	- -	- -	mg/kg	0.0074 U	0.038 J	0.011 U	0.0075 U	0.018 U	0.0091 U [0.0088 U]	0.0090 U	0.011 U	0.0089 U	0.012 U [0.0097 U]	0.023 U	0.010 U
Anthracene	100	1,000	mg/kg	0.043 J	1.7	0.45 J	0.033 U	1.1	0.040 U [0.038 U]	1.1 J	0.052 J	0.039 U	0.56 [0.18 J]	1.4	0.20 J
Benzo(a)anthracene	1	1	mg/kg	0.24	**6.9**	0.53	0.029 U	**6.8**	0.035 U [0.034 U]	**2.6 J**	0.11	0.034 U	0.64 J [0.23 J]	0.22	0.21
Benzo(a)pyrene	1	22	mg/kg	0.17	10	0.46	0.020 J	9.1 J	0.013 U [0.012 U]	2.7 J	0.11 J	0.021 J	0.53 J [0.17 J]	0.086 J	0.19
Benzo(b)fluoranthene	1	1.7	mg/kg	0.30	**10**	0.51	0.031 J	**10**	0.016 U [0.016 U]	**3.4 J**	0.23	0.024 J	0.50 J [0.21 J]	0.042 U	0.20
Benzo(g,h,i)perylene	100	1,000	mg/kg	0.13 J	7.5	0.28 J	0.020 U	7.5	0.024 U [0.023 U]	1.7 J	0.15 J	0.024 U	0.29 J [0.10 J]	0.061 U	0.16 J
Benzo(k)fluoranthene	3.9	1.7	mg/kg	0.11	**4.6**	0.21	0.015 U	**3.8**	0.018 U [0.018 U]	1.5	0.075	0.018 U	0.17 [0.082]	0.046 U	0.080
Bis(2-ethylhexyl)phthalate	- -	- -	mg/kg	0.86	0.51 J	0.14 J	0.013 U	0.033 U	0.13 J [0.077 J]	0.11 J	0.082 J	0.29 J	0.021 U [0.20 J]	0.042 U	0.055 J
Butyl benzyl phthalate	- -	- -	mg/kg	0.33 J	0.026 U	0.015 U	0.18 J	0.026 U	0.022 J [0.012 U]	0.041 J	0.016 U	0.013 U	0.017 U [0.014 U]	0.033 U	0.015 U
Carbazole	- -	- -	mg/kg	0.014 J	0.60 J	0.23 J	0.0085 U	0.41 J	0.010 U [0.010 U]	0.37 J	0.013 U	0.010 U	0.031 J [0.012 J]	0.11 J	0.036 J
Chrysene	3.9	1	mg/kg	0.27 J	**7.3**	0.56	0.022 J	**6.8**	0.011 U [0.011 U]	**2.9 J**	0.10 J	0.017 J	0.80 [0.24 J]	0.29 J	0.25 J
Dibenzo(a,h)anthracene	0.33	1,000	mg/kg	0.045	2.1	0.11	0.018 U	2.5	0.022 U [0.021 U]	0.44	0.066	0.021 U	0.15 [0.050]	0.055 U	0.063
Dibenzofuran	59	210	mg/kg	0.010 U	0.46 J	0.29 J	0.010 U	0.17 J	0.013 U [0.012 U]	0.21 J	0.040 J	0.012 U	0.017 U [0.023 J]	0.032 U	0.014 U
Fluoranthene	100	1,000	mg/kg	0.41	7.6	0.78	0.030 J	6.1	0.022 J [0.012 U]	5.4 J	0.20 J	0.019 J	0.86 [0.30 J]	0.59 J	0.28 J
Fluorene	100	386	mg/kg	0.0074 U	0.67 J	0.59	0.0075 U	0.24 J	0.0091 U [0.0088 U]	0.23 J	0.036 J	0.0089 U	0.13 J [0.068 J]	1.5	0.10 J
Indeno(1,2,3-cd)pyrene	0.5	8.2	mg/kg	0.14	**8.9**	0.30	0.023 U	**8.5**	0.028 U [0.027 U]	1.8	0.16	0.027 U	0.37 J [0.11 J]	0.071 U	0.12
Naphthalene	100	12	mg/kg	0.011 J	1.8	1.8	0.0087 U	0.34 J	0.12 J [0.033 J]	0.11 J	1.3	0.057 J	0.33 J [0.16 J]	4.2	0.54
Phenanthrene	100	1,000	mg/kg	0.31 J	4.4	2.3	0.0091 U	3.3	0.032 J [0.014 J]	4.9 J	0.16 J	0.013 J	3.6 J [0.99 J]	15	1.2
Pyrene	100	1,000	mg/kg	0.46	9.1	1.1	0.039 J	6.3	0.021 J [0.018 U]	5.8 J	0.18 J	0.022 J	0.91 [0.46]	0.72 J	0.44 J
Total PAHs	- -	- -	mg/kg	2.7 J	84 J	11 J	0.14 J	73 J	0.20 J [0.047 J]	35 J	4.1 J	0.17 J	10 J [3.6 J]	32 J	4.5 J

See notes on page 3.

Table 3: Summary of SVOCs Detected in Subsurface Soil
Consolidated Edison Company of New York, Inc.
Former W 18th Street Gas Works
550 W 20th Street (Bayview Correctional Facility)

1. NYSDEC = New York State Department of Environmental Conservation.
2. bgs = below ground surface.
3. All concentrations in units of milligrams per kilogram (mg/kg).
4. Targeted Compound List of SVOCs analyzed by United States Environmental Protection Agency (USEPA) Method 8270.
4. Field duplicate sample results are presented in brackets.
5. Data qualifiers are defined as follows:
   J = Indicates an estimated value
   ND = none detected
   U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
   R = Rejected
6. NYSDEC Restricted Use Soil Cleanup Objectives (SCOs) are from Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York (6 NYCRR) Part 375-6.8(b).
7. - - = No 6 NYCRR Part 375 SCO listed.
8. Bolding indicates that the sample result exceeds NYSDEC Restricted Use SCO - Protection of Groundwater.
9. Shading indicates that the sample result exceeds NYSDEC Restricted Use SCO - Restricted Residential.
10. Only those constituents detected in one or more samples are summarized.
11. SB-302M was relocated to SB-302A due to the concrete thickness exceeding the physical limit of the coring equipment.

FIGURES



LEGEND:

- LOT BOUNDARY
- HISTORICAL FEATURE
- 691 BLOCK ID
- 43 LOT ID
- LIMITS OF FORMER GAS WORKS
- BUILKHEAD
- HIGH LINE

NOTE:

1. BLOCK AND LOT ID AND PROPERTY LINE INFORMATION WAS OBTAINED FROM NEW YORK CITY DEPARTMENT OF FINANCE AUTOMATED CITY REGISTER INFORMATION SYSTEM (ACRIS).
2. CURBING AND STREET BOUNDARIES TAKEN FROM MUNOZ ENGINEERING DRAWING ENTITLED MONITORING WELLS AND BORINGS LOCATION SURVEY" DATED 11/24/2008 AND TRC DRAWING ENTITLED PROPOSED REMEDIAL INVESTIGATION SAMPLE LOCATIONS" DATE UNKNOWN.
3. BUILDING LOCATIONS ARE APPROXIMATE.
4. HISTORICAL SHORELINES DIGITIZED FROM W BRIDGES, 1814, COLTON, 1836, AND PERRIS, 1859.
5. FORMER MANUFACTURED GAS PLANT (MGP) STRUCTURES ARE FROM THE CONSOLIDATED GAS COMPANY PLANT, AS SHOWN ON SANBORN MAPPING DATED 1895.

0 80' 160'
GRAPHIC SCALE

FORMER WEST 18TH STREET GAS WORKS
550 WEST 20TH STREET
NEW YORK, NEW YORK
-

HISTORICAL SITE FEATURES

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

CITY:Syracuse DIV/GROUP:Env-141 DB:A.Schilling LD:A.Schilling PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*OFF=*REF*
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XREFS: IMAGES: PROJECTNAME: ----
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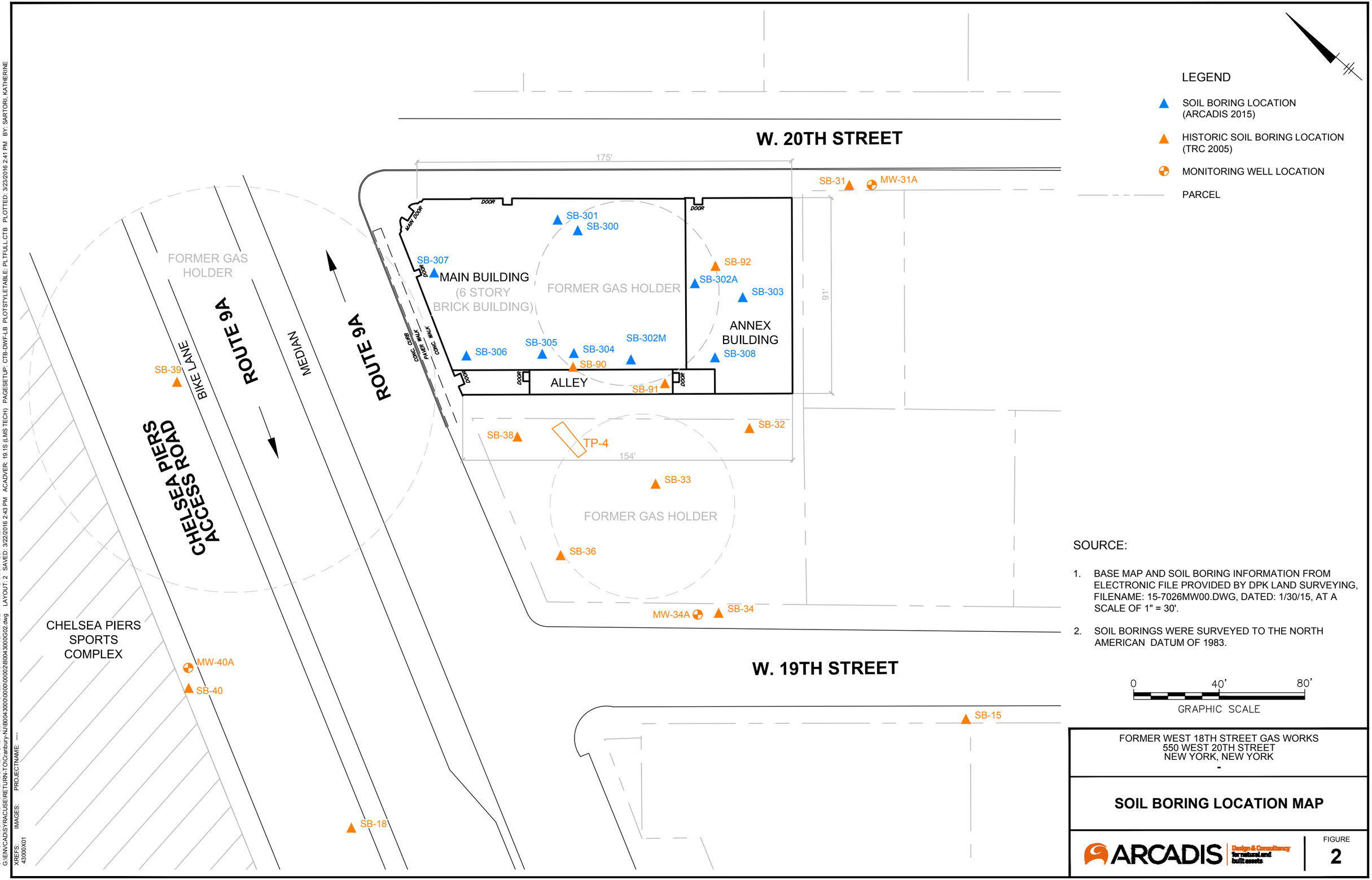
43011X05
43011X07
43011X06
43011X04

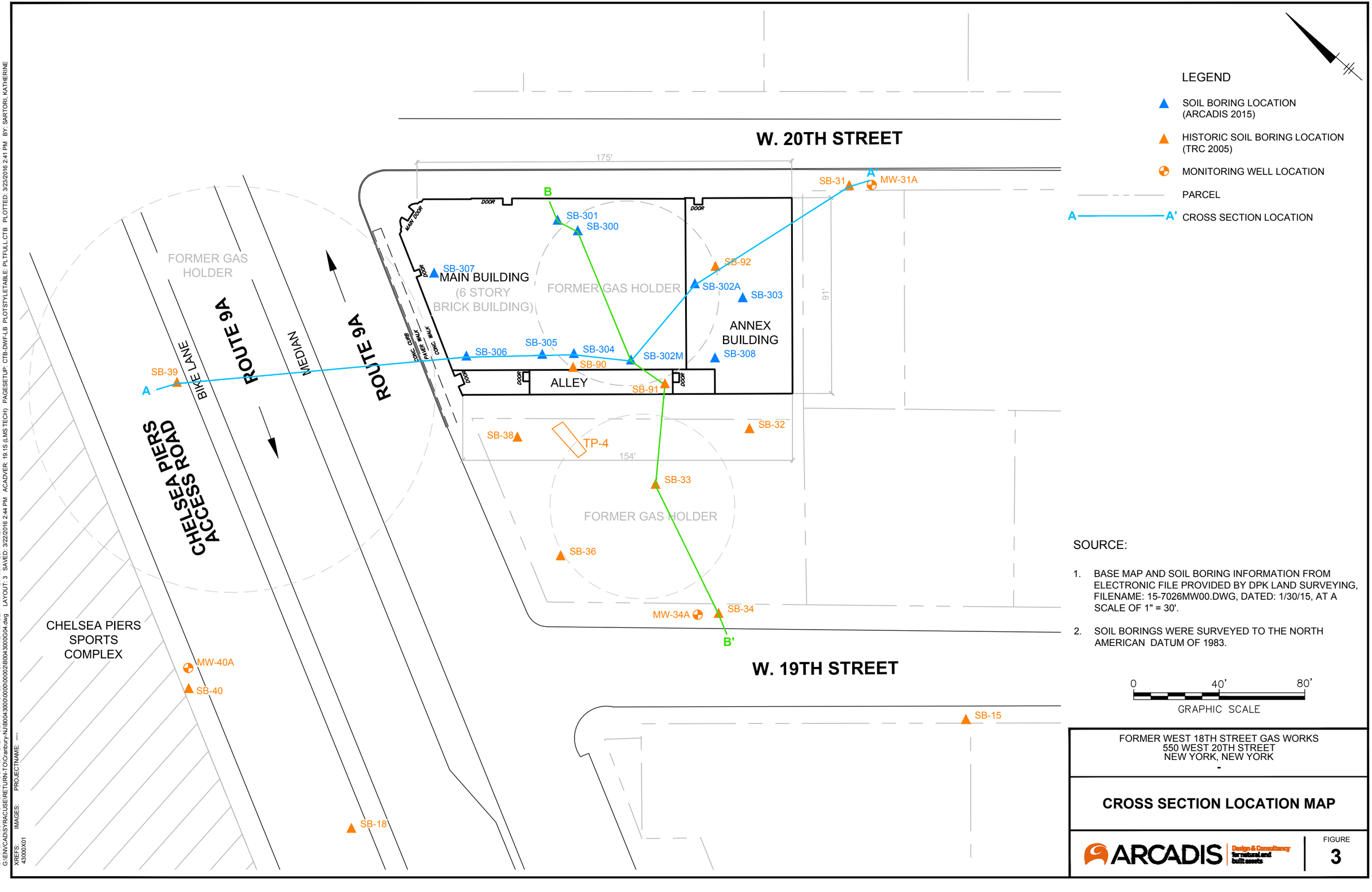


FORMER WEST 18TH STREET GAS WORKS
550 WEST 20TH STREET
NEW YORK, NEW YORK
-

SOIL BORING LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2



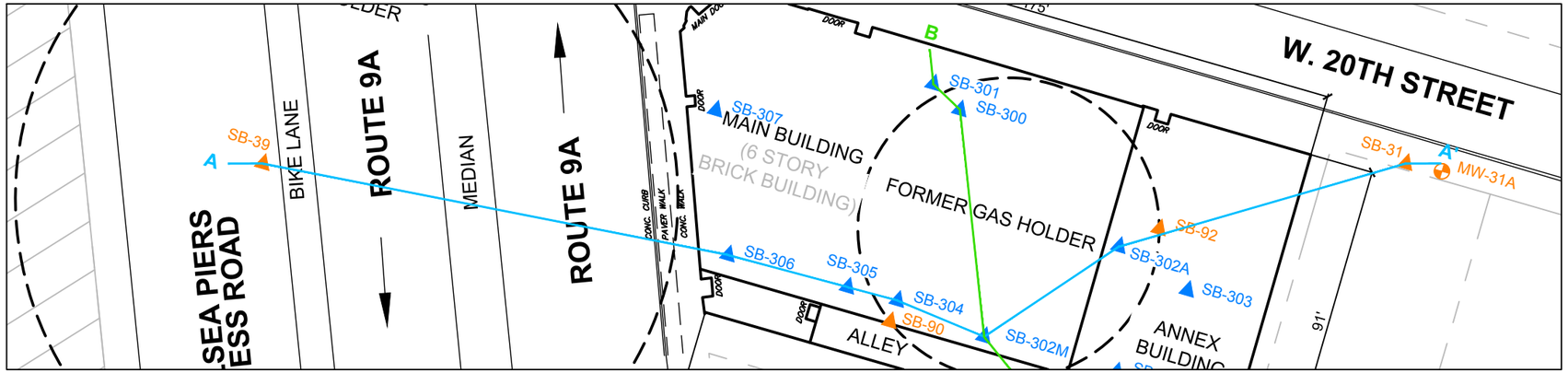
FORMER WEST 18TH STREET GAS WORKS
550 WEST 20TH STREET
NEW YORK, NEW YORK
-

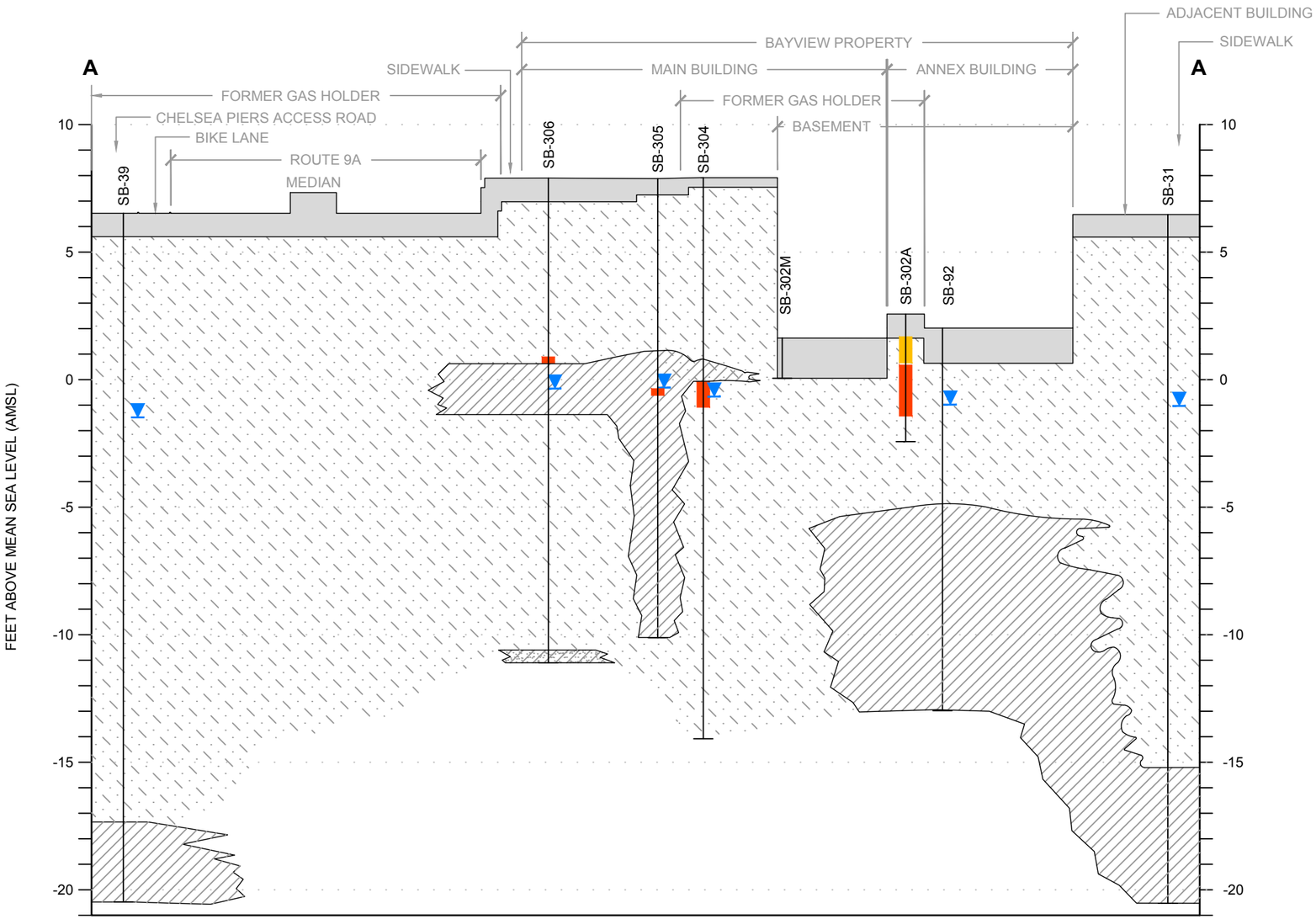
CROSS SECTION LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: CRANBURY-NJ DIV/GROUP: ENVCAD DB: T.FATTO LD: PIC: PM: A.ETRINGER TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Cranbury-NJ\B0043000\0000002\B0043000G04.dwg LAYOUT: 3 SAVED: 3/22/2016 2:44 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: CTB-DWF-LB PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/23/2016 2:41 PM BY: SARTORI, KATHERINE
XREFS: IMAGES: PROJECTNAME: ---
43000X01





LEGEND

- SOIL BORING LOCATION (ARCADIS 2015)
- HISTORIC SOIL BORING LOCATION (TRC 2005)
- MONITORING WELL LOCATION
- CONCRETE
- FILL - SAND/SILTY SAND WITH GRAVEL AND/OR WOOD/BRICK DEBRIS
- SAND
- SILTY CLAY / CLAYEY, SANDY SILT
- GROUNDWATER ELEVATION

SOIL BORING CONSTRUCTION:

- SB-302 — SOIL BORING IDENTIFICATION
- EXISTING GROUND SURFACE
- BOREHOLE
- BRICK DEBRIS
- STAINING/SHEEN
- END OF BOREHOLE

SOURCE:

BASE MAP AND SOIL BORING INFORMATION FROM ELECTRONIC FILE PROVIDED BY DPK LAND SURVEYING, FILENAME: 15-7026MW00.DWG, DATED: 1/30/15, AT A SCALE OF 1" = 30'.

0 40' 80'
HORIZONTAL GRAPHIC SCALE

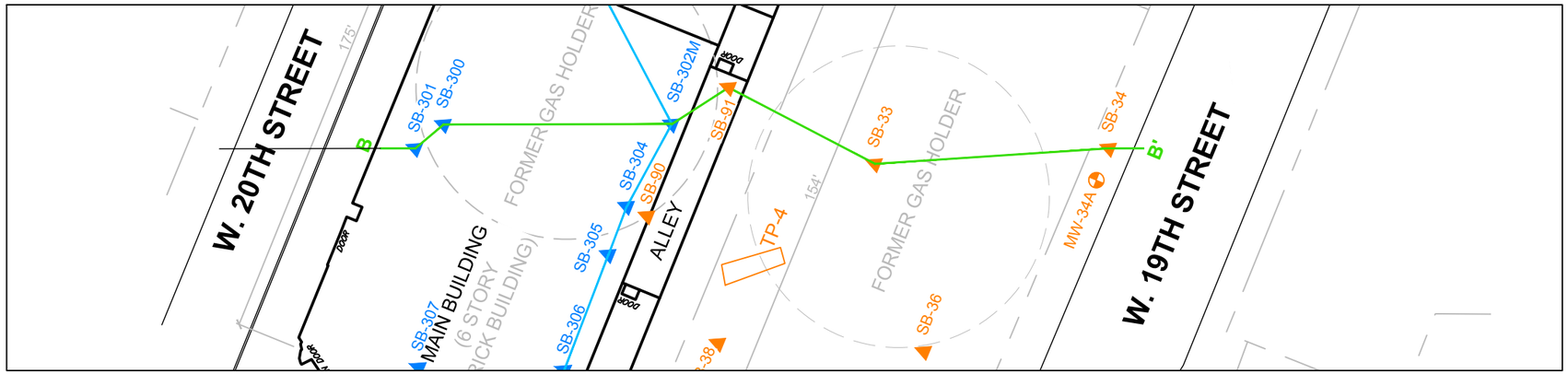
0 5' 10'
VERTICAL GRAPHIC SCALE

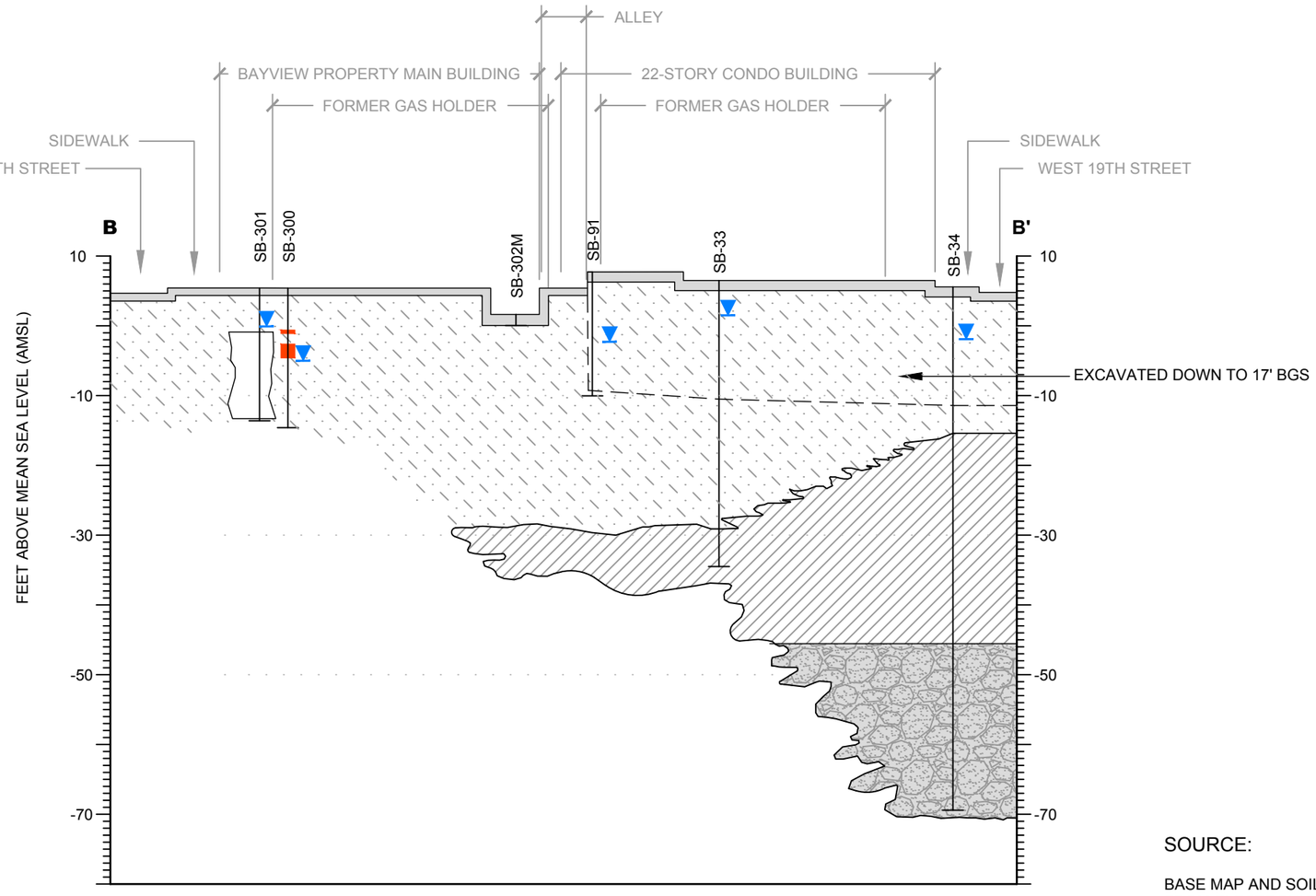
FORMER WEST 18TH STREET GAS WORKS
550 WEST 20TH STREET
NEW YOUR, NEW YORK
-

CROSS SECTION A-A'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

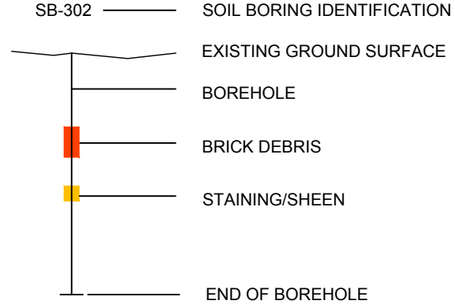


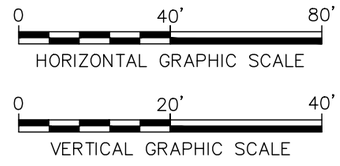


LEGEND

- SOIL BORING LOCATION (ARCADIS 2015)
- HISTORIC SOIL BORING LOCATION (TRC 2005)
- MONITORING WELL LOCATION
- ASPHALT
- FILL - SAND/SILTY SAND WITH GRAVEL AND/OR WOOD/BRICK DEBRIS
- SILTY CLAY
- INTERBEDDED SILTY SAND AND CLAYEY SILT WITH GRAVEL

SOIL BORING CONSTRUCTION:





SOURCE:

BASE MAP AND SOIL BORING INFORMATION FROM ELECTRONIC FILE PROVIDED BY DPK LAND SURVEYING, FILENAME: 15-7026MW00.DWG, DATED: 1/30/15, AT A SCALE OF 1" = 30'.

FORMER WEST 18TH STREET GAS WORKS
550 WEST 20TH STREET
NEW YOUR, NEW YORK
-

CROSS SECTION B-B'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

CITY: CRANBURY-NJ DIV/GROUP: ENV/CAD DB: T.FATTO LD: PIC: PM: A.ETRINGER TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Cranbury-NJ\B0043000\00000002\B0043000V04.dwg LAYOUT: 5 SAVED: 3/25/2016 7:42 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: CRAN-BL-PDF PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/25/2016 10:32 AM BY: SARTORI, KATHERINE
XREFS: IMAGES: PROJECTNAME: ----
B0043000G04
43000X01

ATTACHMENT A

Soil Boring Logs

Date Start/Finish: 11/9 - 11/18/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211258.34
Easting: 982170.34
Casing Elevation: NA

Borehole Depth: 20 feet bgs
Surface Elevation: 5.40 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-300**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
	5				NA			CONCRETE	Topped off with gravel and concrete.
					NA				
					0.2			Light brown SAND, fine to coarse, subangular; some Gravel, 10 to 35 mm dia., subangular; loose, no odor, moist.	
					0.4			Brown to dark olive brown (2.5Y 3/3) Clayey SILT, little fine Sand and Gravel, <10 mm dia., angular to subangular; low to medium plasticity, soft, brick debris, no odor, trace black mottling, moist.	
		1	0-5	NA	0.3				
					0.4				
					0.3				
					0.3				
					0.5				
5					NA				
	0				1.0				
					2.0			Black (2.5Y 2.5/1) Sandy SILT; some Gravel, 2 to 10 mm dia., subangular to subrounded; low plasticity, odor, black debris, moist.	
					0.6			BRICK DEBRIS; little black Gravel, <10 mm, subangular; odor.	
		2	5-8	1.5	NA			No recovery.	
					NA				
					NA				
					0.7			Very dark grayish brown (10YR 3/2) Silty SAND, fine to medium; little Gravel, 5 to 25 mm dia., subangular; Brick Debris; medium dense, slight PHC-like odor, saturated.	Borehole backfilled with neat cement grout to grade.
					0.6				
					0.6				
		3	8-11	2.0	0.3			SAND; fine to coarse.	
10					NA			No recovery.	
	-5				NA				
					0.5			Very dark gray (2.5Y 3/1) SAND, very fine; little Silt; medium dense, slight PHC-like odor, saturated.	
					0.6				
					0.7			Very dark grayish brown (2.5Y 3/2).	
		4	11-14	3.0	0.3			Very dark gray (2.5Y 3/1).	
					0.5				
					0.6				
					0.2				
					0.7				
15					0.8				
	-10	5	14-17	3.0	0.5			Very dark grayish brown (2.5 3/2).	

ARCADIS Design & Consultancy for natural and built assets

Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 5-6' and 16.5-17' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: **SB-300**

Borehole Depth: 20 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					0.6 1.0	X			
		6	17-20	0.0	NA NA NA NA NA NA			No recovery.	Borehole backfilled with neat cement grout to grade.
20	-15							Refusal at 20 feet bgs. End of boring.	
25	-20								
30	-25								
35	-30								

ARCADIS Design & Consultancy for natural and built assets

Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 5-6' and 16.5-17' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/9 - 11/18/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211258.34
Easting: 982164.49
Casing Elevation: NA

Borehole Depth: 19 feet bgs
Surface Elevation: 5.42 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-301**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
5	0				NA			CONCRETE.	Topped off with gravel and concrete.
					NA				
					0.1			Brown Silty SAND, fine to coarse; some Gravel, 5 to 35 mm dia.; loose, no odor, moist.	
					0.2				
					0.3			Dark grayish brown (2.5Y 4/2) Clayey SILT, little fine Sand and Gravel, <10 mm dia., subangular to angular; trace Brick Debris; no odor, low to medium plasticity, soft, moist.	
		1	0-5	NA	0.9				
					0.6				
					0.5			Odor at 3.5 feet bgs. Black to dark brown.	
					0.4				
					0.5				
5	0				0.7				
					0.2			Wet at 5.5 fet bgs.	
					2.6			Faint PHC-like odor at 6 feet bgs.	
		2	5-8	3.0	0.9				
					0.8			Very dark gray (2.5Y 3/1) Clayey SILT, little fine Sand, soft to medium stiff, little Brick Debris, wet.	
					0.7			No brick debris, faint MGP-like odor at 7 feet bgs.	
					0.8				Borehole backfilled with neat cement grout to grade.
					1.3				
					1.2			Trace subangular to subrounded Gravel, <25 mm dia.	
10	-5	3	8-11	3.0	1.3				
					1.3			Trace brick debris, possibly from above.	
					1.2				
					0.7				
					1.1				
					1.1				
		4	11-14	3.0	1.2			Little black mottling.	
					0.9				
					1.3				
15	-10				1.0				
					1.0				
					1.0				
		5	14-17	3.0	1.3				

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 6-7', 17.5-18', and 18.5-19' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: SB-301

Borehole Depth: 19 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				1.7 1.4				
				0.9				
	6	17-19	2.0	1.6 3.9 10.6	X X			Borehole backfilled with neat cement grout to grade.
20 -15							Refusal. End of boring at 19 feet bgs.	
25 -20								
30 -25								
35 -30								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 6-7', 17.5-18', and 18.5-19' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/13/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211201.20
Easting: 982206.24
Casing Elevation: NA

Borehole Depth: 5 feet bgs
Surface Elevation: 1.64 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-302A**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 0							CONCRETE.	Topped off with gravel and concrete.
0 / 0	1	0-5	0.7	28.1 9.1 0.3 NA NA NA NA	X		Dark gray Sandy SILT; some Gravel, 2 to 45 mm dia., angular to subrounded; trace Clay and fine to coarse Sand; soft, low plasticity, odor, wood debris, sheen, moist.	Borehole backfilled with neat cement grout to grade.
5 / -5							BRICK DEBRIS. Hard to break up with dig bar.	
							CONCRETE. Refusal. End of boring at 5 feet bgs.	
10 / -10								
15								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 1.5-2' bgs.

Boring was hand-cleared to 3 feet bgs. Digbar used to 5 feet bgs.

Date Start/Finish: 11/12 - 11/16/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211184.51
Easting: 982162.80
Casing Elevation: NA

Borehole Depth: 20 feet bgs
Surface Elevation: 1.60 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-303**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 0				NA			CONCRETE.	Topped off with gravel and concrete.
				NA			Brown Clayey SILT; little fine to coarse Sand and angular to subangular Gravel, 2 mm to 35 mm dia.; soft, no odor, moist.	
				0.4				
				0.6			SAME AS ABOVE. Dark gray, trace wood debris.	
	1	0-5	NA	0.4				
				0.6				
				0.3			Very dark gray (5Y 5/1) Sandy SILT; little Gravel, subangular to subrounded, 2 to 25 mm dia.; soft, non-plastic, no odor, wet at 3.75 feet bgs.	
				0.4				
5 / -5				NA				
				0.0			Wood debris from 4 to 4.5 feet bgs.	
				0.0				
				0.0			Very dark gray (5Y 5/1) Clayey SILT; trace fine Sand; medium plasticity, soft, no odor, moist.	
	2	5-8	2.0	0.1				
				NA			No recovery.	
				NA				
				0.1			Very dark gray (5Y 5/1) Sandy SILT; little subangular to subrounded Gravel, 2 to 20 mm dia.; trace Clay; non-plastic to low plasticity, soft, no odor, wet.	Borehole backfilled with neat cement grout to grade.
				0.2				
				0.1				
	3	8-11	3.0	0.1			Little Clay, low plasticity.	
10 / -10				0.2				
				0.3				
				0.2				
				0.2				
				0.5				
	4	11-14	3.0	0.1			Very dark gray (5Y 5/1) Clayey SILT; little fine to medium Sand and Gravel, 2 to 5 mm dia.; low to medium plasticity, soft to medium stiff, no odor, moist.	
				0.5				
				0.4			Brick Debris at 13 feet bgs.	
				0.5				
15				0.4				
				0.5				
	5	14-17	3.0	0.8			Dark gray (5Y 4/1) Silty fine to medium SAND, medium dense, subangular to subrounded, no odor, wet.	

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 3.25-3.75', 17.5-18', and 19-19.5' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: SB-303

Borehole Depth: 20 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
-15				2.9 0.3			Black (5Y 2.5/1) Clayey SILT, medium plasticity, medium stiff, moist. Trace shells at 16.5 to 17 feet bgs.	
				0.3			Very dark gray at 17 feet bgs. (5Y 3/1).	
				0.2	X			
				1.2				Borehole backfilled with neat cement grout to grade.
	6	17-20	2.5	2.7			Faint coal tar-like odor at 18.5 feet bgs.	
				33.3	X		Coal tar-like odor at 19 feet bgs. Wood debris with trace sheen at 19.25 feet bgs.	
20				NA			No recovery. Refusal at 20 feet bgs.	
-20								
25								
-25								
30								
-30								
35								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 3.25-3.75', 17.5-18', and 19-19.5' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/11 - 11/17/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211200.06
Easting: 982140.89
Casing Elevation: NA

Borehole Depth: 22 feet bgs
Surface Elevation: 7.92 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-304**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-5	NA	0.1 0.0 0.2 0.1 0.1 0.1 0.2 0.1 0.1			CONCRETE. Dark brown (10YR 3/3) SAND, fine to coarse, subangular to subrounded; little Gravel, 2 to 40 mm dia., trace 150 mm dia. angular to subrounded; Blue Stone Gravel; little Brick Debris; loose, no odor, dry.	Topped off with gravel and concrete.
5								
5	2	5-8	1.0	NA NA NA NA 0.5 0.5			No recovery. Same as above.	
0							Dark olive brown (2.5Y 3/3) Clayey SILT, medium plasticity; trace fine Sand and Wood debris; soft, no odor, moist.	Borehole backfilled with neat cement grout to grade.
	3	8-11	1.5	0.5 0.4 0.3 NA NA NA			BRICK and GRAVEL DEBRIS; Gravel 2-mm to 30 mm dia. angular to subangular, beige and black, wet at 8.5 feet bgs. White (GLEY 1 8/N) and gray (GLEY1 6/N) Silty fine SAND; some Gravel, angular, <10 mm dia.; medium dense, no odor, wet. Dark gray (GLEY 1 4/N) Silty very fine SAND, medium dense, no odor, wet. No recovery.	
10								
	4	11-14	3.0	0.3 0.5 0.7 0.5 0.7 0.4			Dark gray (GLEY 1 4/N) SAND; very fine to fine; little Silt; medium dense, wet. Only very fine grained at 12.5 feet bgs. Little black Sand at 13 feet bgs.	
-5								
	5	14-17	3.0	0.1 0.6 0.5 0.6				
15								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 9-9.5', and 21.5-22' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: SB-304

Borehole Depth: 22 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				0.7 0.4			Very fine to fine SAND.	
				0.5 0.8 0.8			Faint coal tar-like odor at 17 feet bgs.	
-10	6	17-20	3.0	0.9 0.8 0.6			Very fine grained only at 19 feet bgs. Dark olive gray (5Y 3/2).	Borehole backfilled with neat cement grout to grade.
20		20-22	2.0	0.8 0.8 0.9 0.8	X			
							Refusal at 22 feet bgs. End of boring.	
-15								
25								
-20								
30								
-25								
35								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 9-9.5', and 21.5-22' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/11 - 11/16/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211206.92
Easting: 982127.78
Casing Elevation: NA

Borehole Depth: 18 feet bgs
Surface Elevation: 7.88 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-305**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 10								
0 / 7.88				NA			REINFORCED CONCRETE.	Topped off with gravel and concrete.
				0.4			Brown to dark yellowish brown (10YR 4/4) SAND, fine to coarse, subangular to subrounded; little Gravel, angular to subangular; little brick debris; no odor, loose, dry,.	
				0.3				
				0.3				
5 / 2.88	1	0-4.5	NA	0.3				
				0.2				
				0.2				
				0.3	X			
				NA			No recovery.	
5 / 2.88	2	4.5-6	1.0	NA				
				NA				
				NA				
				NA				
				NA			Brown to dark yellowish brown (10YR 4/4) SAND, fine to coarse, subangular to subrounded; little Gravel, angular to subangular; little brick debris; no odor, loose, dry, .	
	3	6-9	1.5	0.6				
0 / 7.88				0.6			Brown (10YR 4/3) Clayey SILT; little fine Sand; low plasticity, soft, no odor, moist.	Borehole backfilled with neat cement grout to grade.
				0.7	X		BRICK DEBRIS, wet.	
							Black (5Y 2.5/1) Clayey SILT; little fine Sand; low to medium plasticity, soft to medium stiff, wet.	
10 / -2.12				NA			Little Wood Debris; saturated, soft.	
	4	9-12	3.0	NA				
				1.7				
				1.0			Black (5Y 2.5/1) Sandy SILT, low plasticity; little Clay; trace Gravel, 0.2 to 10 mm dia., subangular to subrounded; trace Wood Debris; soft, wet.	
-5 / 12.88				1.1				
	5	12-15	3.0	0.8				
				0.8			Black (5Y 2.5/1) Clayey SILT, medium plasticity, no gravel, trace fine Sand.	
				1.4			No recovery.	
15 / -7.12				NA			Black (5Y 2.5/1) Clayey SILT, medium plasticity, soft to medium stiff, faint coal tar-like odor, trace wood debris, moist.	
				1.3				

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 8.5-9', and 16-16.5' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: SB-305

Borehole Depth: 18 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
-10	6	15-18	3.0	2.0 2.0 NA NA	X			Borehole backfilled with neat cement grout to grade.
20							Refusal at 18 feet bgs. End of boring.	
-15								
25								
-20								
30								
-25								
35								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 8.5-9', and 16-16.5' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/10 - 11/17/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211223.42
Easting: 982096.36
Casing Elevation: NA

Borehole Depth: 19 feet bgs
Surface Elevation: 7.90 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-306**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
				NA			CONCRETE.	Topped off with gravel and concrete.
				NA			Chipped CONCRETE pieces from adjacent concrete slab in boring.	
				NA			Dark yellowish brown (10YR 4/4) SAND, fine to coarse, subangular to subrounded; little Silt; little Gravel, angular to subangular, 2 to 35 mm diameter; loose, no odor, moist.	
5	1	0-5	NA	0.6				
				0.3				
				0.2				
				0.3				
				0.3				
				0.5	X			
5				0.4				
				NA				
				NA				
	2	5-8	2.25	0.7				
				0.3			Very dark grayish brown (10YR 3/2) and black (5Y 2.5/N) Clayey SILT; some Gravel, <35 mm dia., angular to subangular; little fine Sand; non-plastic to low plasticity, no odor, soft, moist.	
0				0.6	X			Borehole backfilled with neat cement grout to grade.
				1.2			BRICK DEBRIS and black angular GRAVEL, <10 mm dia., wet.	
				2.3			Very dark gray (5Y 3/1) Clayey SILT; trace Gravel, 2 to 30 mm dia., subangular; trace fine Sand, low to medium plasticity, soft, little black mottling, no odor, wet.	
	3	8-11	2.5	1.0				
10				1.2				
				1.6				
				NA				
				NA			Slough.	
				NA				
				NA				
	4	11-14	1.5	NA				
-5				NA				
				NA				
				1.3			Dark olive gray (5Y 3/2) SAND, very fine to fine; little Silt; loose to medium dense, faint odor, saturated.	
15				1.5				
				0.7			Dark olive gray (5Y 3/2) well graded SAND, fine to coarse; some Gravel, 1 to 10 mm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.	
	5	14-17	3.0	0.8				

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 7.5-8', and 18.5-19' bgs.

Boring was hand-cleared to 5 feet bgs.

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: **SB-306**

Borehole Depth: 19 feet bgs

Site Location:
550 West 20th Street, NY, NY

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				1.1 1.9			Dark olive gray (5Y 3/2) SAND and GRAVEL, fine to medium, 2 to 15 mm dia., subangular to subrounded, medium dense, wet.	
-10	6	17-19	NA	1.1 0.8 1.8 1.3			Fine to coarse. Dark olive gray (5Y 3/2) Silty SAND, very fine to fine; little Gravel, 2 to 10 mm dia., angular to subangular; trace Brick Debris; medium dense, no odor, wet.	Borehole backfilled with neat cement grout to grade.
							Refusal at 19 feet bgs. End of boring.	
20								
-15								
25								
-20								
30								
-25								
35								

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Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 7.5-8', and 18.5-19' bgs.

Boring was hand-cleared to 5 feet bgs.

Date Start/Finish: 11/10 - 11/17/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211264.70
Easting: 982101.99
Casing Elevation: NA

Borehole Depth: 16 feet bgs.
Surface Elevation: 7.91 feet msl

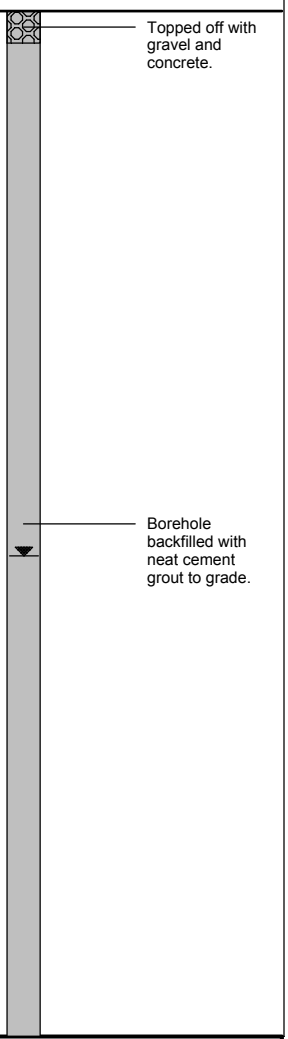
Descriptions By: Loretta Kwong

Well/Boring ID: **SB-307**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
10							
0							
				NA			CONCRETE.
				NA			Subbase GRAVEL.
				0.3			Dark brown Sandy SILT, fine to medium, subangular to subrounded; little Clay and Gravel, 2 to 40 mm dia., subangular to subrounded; soft, low plasticity, no odor, moist.
	1	0-5	NA	0.2			
5				0.5			
				0.3			
				0.3			
				0.5			
				0.3	X		Dark grayish brown (2.5Y 4/2) Sandy SILT; some Gravel, fine to medium, 2 to 10 mm dia, subangular to subrounded; little Clay; low plasticity, soft, no odor, moist.
5				0.5			
				0.7			ROCK or CEMENT chunk at 5.25 feet bgs. Obstructed sampler.
				NA			Black (5Y 2.5/2) Silty SAND; some Gravel, 2 to 15 mm, angular to subrounded; little Clay; medium dense, no odor, moist.
	2	5-8	0.5	NA			
				NA			
				NA			
0				NA			
				4.6	X		Wet at 8.5 feet bgs; very dark gray (5Y 3/1) Gravel, 2 to 20 mm dia., strong PHC-like odor.
				489	X		Little sheen at 9.0 feet bgs, strong PHC-like odor.
	3	8-11	2.0	870			
10				82.1			Large Wooden Debris at 9.5 bgs, little PHC-like odor.
				NA			No recovery.
				NA			Very dark gray (5Y 2/1) well graded SAND, fine to coarse, subangular to subrounded; little Silt and Gravel, 2 to 10 mm dia., subangular to subrounded; shell debris, medium dense, no odor, wet.
				29.0			
				12.6			No recovery.
	4	11-14	1.0	NA			
-5				NA			
				NA			
				NA			Very dark gray (5Y 2/1) well graded SAND, fine to coarse, subangular to subrounded; little Silt and Gravel, 2 to 10 mm dia., subangular to subrounded; shell debris, large wood debris, medium dense, no odor, wet.
				54.1			
15				3.3	X		
	5	14-16	1.5	2.1			BRICK DEBRIS. No recovery 15.5-16' bgs. Refusal at 16 feet bgs. End of boring.



Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical samples collected from 4.5-5', 8.5-9', 9-9.5', and 15-15.5' bgs.

Boring was hand-cleared to 5 feet bgs.

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Date Start/Finish: 11/12/2015
Drilling Company: Zebra Technical Services
Driller's Name: Luke Caballeno
Drilling Method: HSA/Geoprobe
Sampling Method: 3' Acetate Liner
Rig Type: Portable Unit Geoprobe Rig

Northing: 211166.28
Easting: 982197.65
Casing Elevation: NA

Borehole Depth: 18.5 feet bgs.
Surface Elevation: 1.59 feet msl

Descriptions By: Loretta Kwong

Well/Boring ID: **SB-308**

Client: Consolidated Edison Company of New York, Inc.

Location: 550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 0				NA			CONCRETE.	Topped off with gravel and concrete.
				NA				
				1.3			Brown Clayey SILT; little fine Sand and Gravel, subangular to subrounded, 5 to 20 mm dia.; moist, low to medium plasticity, soft, no odor.	
				1.2				
				1.2			Dark gray Clayey SILT; little fine Sand and Gravel, 5 to 10 mm dia., subangular to subrounded; little Glass and Brick Debris from 1.5 to 2.5 feet bgs; low to medium plasticity, soft, slight odor, little black mottling, trace tarpit staining, moist.	
	1	0-5	NA	1.4				
				1.4				
				1.3				
				3.6	X			
				5.8			Wet at 4.5 feet bgs.	
5 / -5				0.7			Dark grayish brown (2.5Y 4/2) Sandy SILT; little Gravel, 2 to 50 mm, subangular; non-plastic, soft, no odor, wet.	
				0.6				
				0.5			Very dark gray (2.5Y 3/2) Clayey SILT; trace very fine Sand and Gravel, 2 to 50 mm dia., subangular to subrounded; medium plasticity, soft, no odor, wet. Little fine to medium Sand, low plasticity.	
	2	5-8	3.0	0.6				
				0.6				
				0.7				
				0.7				
				0.7				
				0.9				Borehole backfilled with neat cement grout to grade.
10 / -10	3	8-11	3.0	0.8				
				0.9			Medium stiff.	
				0.9				
				1.0			Very dark gray (2.5Y 3/1) Sandy SILT and fine SAND; little Gravel, 2 to 10 mm, subangular to subrounded; soft, non-plastic, no odor, wet.	
				1.0				
				1.0				
	4	11-14	3.0	1.0				
				0.8			Very dark gray (2.5Y 3/1) Clayey SILT; trace fine Sand and Gravel, 2 to 10 mm dia., subangular to subrounded; low to medium plasticity, soft, no odor, wet.	
				1.1				
				0.8			Medium stiff at 14 feet bgs.	
15				1.1				
		14-17	3.0	1.0				
	5			1.0				

Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical sample collected from 4-4.5', 16.5-17, and 18-18.5' bgs.

Boring was hand-cleared to 5 feet bgs.

ARCADIS Design & Consultancy for natural and built assets

Client: Consolidated Edison Company of New York, Inc.

Well/Boring ID: **SB-308**

Borehole Depth: 18.5 feet bgs.

Site Location:
550 West 20th Street, NY, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
-15				1.4 1.4	X			
				5.3				
	6	17-18.5	1.5	2.4			Coal tar-like odor at 17.5 feet bgs.	
				5.8	X			
							Refusal at 18.5 feet bgs. End of boring.	
20 -20								
25 -25								
30 -30								
35								

ARCADIS Design & Consultancy for natural and built assets

Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter.

Analytical sample collected from 4-4.5', 16.5-17, and 18-18.5' bgs.

Boring was hand-cleared to 5 feet bgs.

BORING No.: SB-31

SHEET 1 OF 2

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE
W18th St MGP SCS/Con Edison	41318-0700-10000	East of Gas Holder #5
ADDRESS		**ELEVATION/DATUM**
Southern sidewalk on 20th St between 10th and 11th Ave		6.47/NAVD 88

DRILLING CONTRACTOR	DRILLER	TRC INSPECTOR	
ADT	Lloyd Adams	Jessica Elliott	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
CME-LC60	4.25" Hollow Stem Auger	10/9/2004	10/9/2004
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))**	**WATER LEVEL (ft bgs)**
2" Split Spoon	140 lbs./30"	27'	7.5'

WELL CONSTRUCTION	SAMPLES: NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS (f - fine m - medium c - coarse; lt - light dk - dark tr - trace ltl - little sl - slight)	REMARKS (PID, STAINING, ODORS, ETC.) (N/S = No Staining N/O = No odors)
						0.0'-0.5': CONCRETE	
				1		0.5'-9.0': Fill-Dk brown SILT, f to c SAND, some gravel, brick fragments, wood fibers and sewage odor.	1'-2': N/O, N/S PID = 0.2 ppm max.
				3			2'-3': N/O, N/S PID = 0.2 ppm max. 3'-4': N/O, N/S PID = 0.3 ppm max.
				5			4'-5': N/O, N/S PID = 0.1 ppm max. 5'-7': N/O, N/S PID = 0.1 ppm max.
				7		Sample collected: W18STMGP-B31-7.17.7	
			1			Sample collected: W18STMGP-B31-78	7'-9': Sl sewage odor, N/S
	1	0.05'	1				PID = 3.5 ppm max.
			2				
			1	9			
			1/2.0'			9.0'-13.1': Fill- Lt gray f SAND, SILT, tr m sand, clay, brick fragments and wood fibers.	9'-11': Sl sewage odor, N/S PID = 2.1 ppm max.
	2	0.8'					
				11			
			1				11'-13': Sl sewage odor
	3	0.1'	1				PID = 0.6 ppm max. in shoe
			2				
			4				
			WOH	13		13.1'-21.0': Fill-Gray f SAND, tr silt, wood timbers and brick fragments.	13'-15': Burned wood odor, N/S
	4	0.6'	5				PID = 0.7 ppm max.
			13				
			7				
			15	15			15'-17': Burned wood odor, N/S
	5	0.8'	50/5"				PID = 0.9 ppm max.
				17			
			23				17'-19': Burned wood odor, N/S
	6	1.0'	50				PID = 2.1 ppm max.

TRC

BORING No.: SB-31

SHEET 2 OF 2

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE
W18th St MGP SCS/Con Edison	41318-0700-10000	East of Gas Holder #5
ADDRESS		**ELEVATION/DATUM**
Southern sidewalk on 20th St between 10th and 11th Ave		6.47/NAVD 88
DRILLING CONTRACTOR	**DRILLER**	**TRC INSPECTOR**
ADT	Lloyd Adams	Jessica Elliott
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE** / **END DATE**
CME-LC60	4.25" Hollow Stem Auger	10/9/2004 / 10/9/2004
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))** / **WATER LEVEL (ft bgs)**
2" Split Spoon	140 lbs./30"	27' / 7.5'

WELL CONSTRUCTION	SAMPLES: NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS (f - fine, m - medium, c - coarse; lt - light, dk - dark, tr - trace, ltl - little, sl - slight)	REMARKS (PID, STAINING, ODORS, ETC.) (N/S = No Staining, N/O = No odors)
			17				
			17				
			17	19			19'-21': Burned wood odor, N/S
	7	0.6'	14				PID = 1.2 ppm max.
			9				
			5			Sample collected: W18STMGP-B31-2123	
			1/2.0'	21		21.1-27.0': ML-Gray silty CLAY, tr f sand and shell fragments.	21'-23': N/O, N/S
	8	1.1'					PID = 1.7 ppm max.
			WOH/2'	23			23'-25': N/O, N/S
	9	2.0'					PID = 2.4 ppm max.
			WOH/2'	25		Sample collected: W18STMGP-B31-2527	25'-27': N/O, N/S
	10	2.0'					PID = 0.0 ppm max.
				27		E.O.B @ 27' bgs.	
				29			
				31			
				33			
				35			

TRC

BORING No.: MW-31A

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE
W18th St MGP SCS/Con Edison	41318-0700-10000	East of Gas Holder #5
ADDRESS		**ELEVATION/DATUM**
Southern sidewalk on 20th St between 10th and 11th Ave		6.48/NAVD 88

DRILLING CONTRACTOR	DRILLER	TRC INSPECTOR	
ADT	Lloyd Adams	Jessica Elliott	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
CME-LC60	4.25" Hollow Stem Auger	10/9/2004	10/9/2004
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))**	**WATER LEVEL (ft bgs)**
2" Split Spoon	140 lbs./30"	14'	7.5'

WELL CONSTRUCTION	SAMPLES NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS (f - fine m - medium c - coarse; lt - light dk - dark tr - trace ltl - little sl - slight)	REMARKS (PID, STAINING, ODORS, ETC.) (N/S = No Staining N/O = No odors)
						0.0'-0.5': CONCRETE	
				1		0.5'-9.0': Fill-Dk brown SILT, f to c SAND, some gravel, brick fragments and wood fibers.	1'-2': N/O, N/S PID = 0.2 ppm max.
							2'-3': N/O, N/S PID = 0.2 ppm max.
				3			3'-4': N/O, N/S PID = 0.3 ppm max.
							4'-5': N/O, N/S PID = 0.1 ppm max.
				5			5'-7': N/O, N/S PID = 0.1 ppm max.
				7			
			1			Sample collected: W18STMGP-B31-78	7'-9': Sl sewage odor, N/S PID = 3.5 ppm max.
	1	0.05'	1				
			2				
			1				
			1/2.0'	9		9.0'-13.1': Fill- Lt gray f SAND, SILT, tr m sand and clay, brick fragments and wood fibers.	9'-11': Sl sewage odor, N/S PID = 2.1 ppm max.
	2	0.8'					
			1	11			11'-13': Sl sewage odor PID = 0.6 ppm max. in shoe
	3	0.1'	1				
			2				
			4	13			
							14.0': Well set at 14.0' bgs. Screen Interval: 14.0'-4.0' bgs.
				15			
				17			

Sand
Bentonite Chips
Concrete
Well Screen

TRC

BORING No.: SB-90

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE	
West 18th St MGP SCS/Con Edison	41318-0700-10000	Bayview Correctional Facility	
ADDRESS		**ELEVATION/DATUM**	
Alley of facility		7.72/NAVD 88	
DRILLING CONTRACTOR	**DRILLER**	**TRC INSPECTOR**	
Zerba	Charles Green	Samuel Monte	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
Geoprobe remote unit	3' x 2" macrocore	11/4/2005	11/4/2005
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))**	**WATER LEVEL (ft bgs)**
Macrocore		6'	N/A

WELL CONSTRUCTION	SAMPLES: NUMBER	SAMPLES: RECOVERY IN FEET	SAMPLES: BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sl - slight	REMARKS (PID, STAINING, ODORS, ETC.) N/S = No Staining N/O = No odors
						0.0'-0.5': CONCRETE . 0.5'-5.0' cleared with Hand Auger.	
				1		0.5'-1.0': Lt brown f SAND , some c gravel.	0.5'-1.0': N/O, N/S, dry PID = 2.0 ppm max.
						1.0'-3.0': Brown f SAND, brick pieces. (fill)	1'-3': N/O, N/S, dry PID = 2.8 ppm max.
				3		3.0'-5.0': Brown f SAND, some f gravel, brick pieces. (fill)	3'-5': N/O, N/S, dry PID = 2.9 ppm max.
				5		5.0'-6.0': Brown f to c SAND, some clay and brick. Concrete in shoe.	5'-6': N/O, N/S, dry PID = 3.4
						Boring complete at 6.0'.	
				7			
				9			
				11			
				13			
				15			
				17			
	6	2.0'	1				

TRC

BORING No.: SB-91

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE	
West 18th St MGP SCS/Con Edison	41318-0700-10000	Bayview Correctional Facility	
ADDRESS		**ELEVATION/DATUM**	
Alley of facility			
DRILLING CONTRACTOR	**DRILLER**	**TRC INSPECTOR**	
Zerba	Charles Green	Samuel Monte	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
Geoprobe remote unit	3' x 2" macrocore	11/4/2005	11/4/2005
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))**	**WATER LEVEL (ft bgs)**
Macrocore		15'	8-11'

WELL CONSTRUCTION	SAMPLES: NUMBER	SAMPLES: RECOVERY IN FEET	SAMPLES: BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS (f - fine m - medium c - coarse; lt - light dk - dark tr - trace ltl - little sl - slight)	REMARKS (PID, STAINING, ODORS, ETC.) (N/S = No Staining N/O = No odors)
				0		0.0'-0.8': CONCRETE . 0.8'-5.0' cleared with Hand Auger.	
				1		0.8'-2.0': Lt to dk brown f to c SAND , some c gravel.	0.8'-1.0': N/O, N/S, dry PID = 1.0 ppm max.
				3		2.0'-5.0': Dk brown f to c SAND, some c gravel.	2.0'-5.0': N/O, N/S, dry PID = 3.5 ppm max.
				5			
	1	0.5'				5.0'-8.0': Dk brown f to m SAND, some clay and brick. Brick in shoe.	5.0'-8.0': N/O, N/S, dry PID = 5.8
				7			
	2	3'		9		8.0'-11.0': Brown f to c SAND, trace f gravel.	5.0'-8.0': Organic odor, N/S, damp/wet PID = 3.9
					?		
				11			
	3	3'				11.0'-15.0': Brown f to c sand. Unable to descrete sample through water column with Remote Georobe.	11.0'-15.0': N/O, N/S, damp/wet PID = 0.0
				13			
				15			
				17			

TRC

BORING No.: SB-92

SHEET 1 OF 1

BORING LOG

JOB NAME/ CLIENT	PROJECT NO.	AREA OF SITE	
West 18th St MGP SCS/Con Edison	41318-0700-10000	Bayview Correctional Facility	
ADDRESS		**ELEVATION/DATUM**	
Boiler room of facility		2.02/NAVD 88	
DRILLING CONTRACTOR	**DRILLER**	**TRC INSPECTOR**	
Zerba	Charles Green	Samuel Monte	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
Geoprobe remote unit	3' x 2" macrocore	11/4/2005	11/4/2005
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH (feet below ground surface (ft bgs))**	**WATER LEVEL (ft bgs)**
Macrocore		15'	3'

WELL CONSTRUCTION	SAMPLES: NUMBER	SAMPLES: RECOVERY IN FEET	SAMPLES: BLOWS PER 6"	DEPTH	WATER	DESCRIPTION OF SOILS (f - fine, m - medium, c - coarse; lt - light, dk - dark, tr - trace, ltl - little, sl - slight)	REMARKS (PID, STAINING, ODORS, ETC.; N/S = No Staining, N/O = No odors)
				0		0.0'-1.2': CONCRETE . 1.2'-5.0' cleared with Hand Auger.	
				1		1.2'-2.0': Brown f SAND, some f gravel.	0.8'-1.0': N/O, N/S, damp PID = 5.1 ppm max.
				3	?	3.0": Dk gray f to c SAND, some f gravel.	3.0': N/O, N/S, wet PID = 3.4 ppm max.
	1	3'		5		5.0": Dk gray f to c SAND, some f gravel.	5.0': slight odor, N/S, wet PID = 5.7 ppm max.
				7		5.0'-9.0': Dk gray clayey SILT, trace f sand.	5.0'-8.0': N/O, N/S, wet PID = 5.8
	2	3'		9			
				11		9.0'-13.0': Dk gray clayey SILT, trace f sand.	9.0'-13.0': Organic odor, N/S, wet PID = 6.1
	3	0		13		13.0'-15.0': No recovery	13.0'-15.0': N/O, N/S, wet PID = 0.0
				15			
				17			

TRC

ATTACHMENT B

Photo Log

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/18/2015

Description:
5 to 8 feet bgs

Location:
SB-300

Date:
11/18/2015

Description:
8 to 11 feet bgs

Location:
SB-300

Date:
11/18/2015

Description:
11 to 14 feet bgs

Location:
SB-300

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/18/2015

Description:
14 to 17 feet bgs

Location:
SB-300

Date:
11/18/2015

Description:
Surface Completion

Location:
SB-300

Date:
11/18/2015

Description:
5 to 8 feet bgs

Location:
SB-301

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/18/2015

Description:
8 to 11 feet bgs

Location:
SB-301

Date:
11/18/2015

Description:
11 to 14 feet bgs

Location:
SB-301

Date:
11/18/2015

Description:
14 to 17 feet bgs

Location:
SB-301

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/18/2015

Description:
17 to 19 feet bgs

Location:
SB-301

Date:
11/18/2015

Description:
Surface completion

Location:
SB-301

Date:
11/11/2015

Description:
Surface completion

Location:
SB-302 (original location)

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/13/2015

Description:
5 feet bgs

Location:
SB-302

Date:
11/13/2015

Description:
Surface completion

Location:
SB-302

Date:
11/16/2015

Description:
5 to 8 feet bgs

Location:
SB-303

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/16/2015

Description:
8 to 11 feet bgs

Location:
SB-303

Date:
11/16/2015

Description:
11 to 14 feet bgs

Location:
SB-303

Date:
11/16/2015

Description:
14 to 17 feet bgs

Location:
SB-303

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/16/2015

Description:
17 to 20 feet bgs

Location:
SB-303

Date:
11/16/2015

Description:
Surface completion

Location:
SB-303

Date:
11/17/2015

Description:
5 to 8 feet bgs

Location:
SB-304

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/17/2015

Description:
8 to 11 feet bgs

Location:
SB-304

Date:
11/17/2015

Description:
14 to 17 feet bgs

Location:
SB-304

Date:
11/17/2015

Description:
17 to 20 feet bgs

Location:
SB-304

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/17/2015

Description:
20 to 22 feet bgs

Location:
SB-304

Date:
11/17/2015

Description:
Surface completion

Location:
SB-304

Date:
11/16/2015

Description:
3.5 to 6 feet bgs

Location:
SB-305

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/16/2015

Description:
6 to 9 feet bgs

Location:
SB-305

Date:
11/16/2015

Description:
9 to 12 feet bgs

Location:
SB-305

Date:
11/16/2015

Description:
12 to 15 feet bgs

Location:
SB-305

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/16/2015

Description:
15 to 18 feet bgs

Location:
SB-305

Date:
11/16/2015

Description:
Surface completion

Location:
SB-305

Date:
11/17/2015

Description:
3 to 8 feet bgs

Location:
SB-306

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/172015

Description:
8 to 11 feet bgs

Location:
SB-306

Date:
11/17/2015

Description:
11 to 14 feet bgs

Location:
SB-306

Date:
11/17/2015

Description:
14 to 17 feet bgs

Location:
SB-306

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/172015

Description:
17 to 19 feet bgs

Location:
SB-306

Date:
11/17/2015

Description:
Surface completion

Location:
SB-306

Date:
11/17/2015

Description:
5 to 8 feet bgs

Location:
SB-307

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/172015

Description:
8 to 11 feet bgs

Location:
SB-307

Date:
11/17/2015

Description:
11 to 14 feet bgs

Location:
SB-307

Date:
11/17/2015

Description:
14 to 16 feet bgs

Location:
SB-307

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/172015

Description:
Surface completion

Location:
SB-307

Date:
11/13/2015

Description:
8 to 11 feet bgs

Location:
SB-308 (note boring ID label incorrect on photo)

Date:
11/13/2015

Description:
11 to 14 feet bgs

Location:
SB-308 (note boring ID label incorrect on photo)

Project Photographs

ConEdison Former West
18th Street Gas Works

Date:
11/132015

Description:
14 to 17 feet bgs

Location:
SB-308 (note boring ID label incorrect on photo)

Date:
11/13/2015

Description:
17 to 18.5 feet bgs

Location:
SB-308 (note boring ID label incorrect on photo)

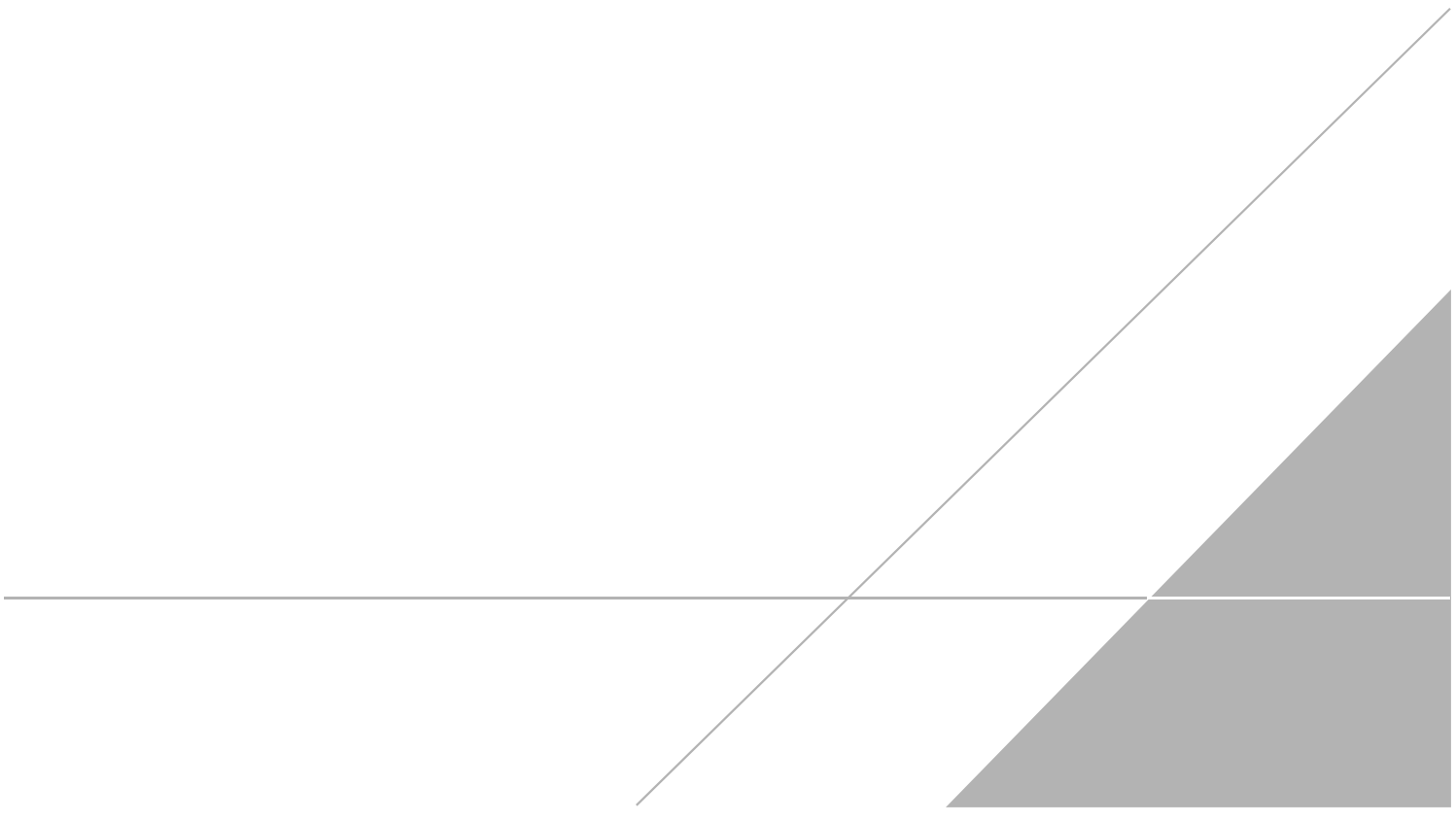
Date:
11/13/2015

Description:
11 to 14 feet bgs

Location:
SB-308

ATTACHMENT C

Data Usability Summary Reports



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Imagine the result

Consolidated Edison Company of New York, Inc.

Bayview - West 18th Street Site

Data Usability Summary Report (DUSR)

NEW YORK CITY, NEW YORK

Volatile and Semivolatile Analyses

SDGs #460-104360-1 and 460-104424-1

Analyses Performed By:
TestAmerica Laboratories, Inc.
Edison, New Jersey

Report #24874R
Review Level: Tier III
Project: B0043000.0000.00002

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 460-104360-1 and 460-104424-1 for samples collected in association the Con Edison Bayview West 18th Street site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	MET	MISC
460-104360-1	SB-301-S-4.5-5.0	460-104360-1	Soil	11/9/2015		X	X			
	SB-306-S-4.5-5.0	460-104360-2	Soil	11/10/2015		X	X			
	SB-307-S-4.5-5.0	460-104360-3	Soil	11/10/2015		X	X			
	TB-151109	460-104360-4	Water	11/9/2015		X				
460-104424-1	SB-304-S-4.5-5.0	460-104424-1	Soil	11/11/2015		X	X			
	TB-151111	460-104424-2	Water	11/11/2015		X				

Note:

1. Matrix spike/matrix spike duplicate was performed on sample location SB-307-S-4.5-5.0 for VOC and SVOC analyses.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 methods 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

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:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Solid	14 days from collection to analysis	Cool to <6 °C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-301-S-4.5-5.0 SB-306-S-4.5-5.0 SB-307-S-4.5-5.0 SB-304-S-4.5-5.0	ICV %RSD	1,4-Dioxane	17.0%
		1,4-Dichlorobenzene	16.9%
SB-301-S-4.5-5.0 SB-307-S-4.5-5.0	CCV %D	Dichlorodifluoromethane	-24.9%
		Carbon disulfide	-21.0%
SB-306-S-4.5-5.0	CCV %D	Methyl acetate	25.9%
		Cyclohexane	30.9%
		1,1,1-Trichloroethane	21.7%
		Methylcyclohexane	22.6%
TB-151109 TB-151111	ICV %RSD	1,1-Dichloroethene	18.4%
		Methyl acetate	16.5%
		Methylene Chloride	16.1%
		cis-1,2-Dichloroethene	16.4%
		Chloroform	15.4%
		Cyclohexane	17.5%
		1,1,1-Trichloroethane	17.5%
		Benzene	18.7%
		4-Methyl-2-pentanone (MIBK)	15.8%
		Toluene	16.0%
		1,1,2-Trichloroethane	15.2%
		Isopropylbenzene	15.1%
		1,1,2,2-Tetrachloroethane	17.7%
TB-151109	CCV %D	Cyclohexane	21.9%
		Bromoform	-22.0%
		1,2-Dibromo-3-Chloropropane	-25.9%
		1,2,3-Trichlorobenzene	-20.6%
TB-151111	CCV %D	1,1,2-Trichloro-1,2,2-trifluoroethane	24.5%
		Cyclohexane	20.6%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% and <90% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% and <90% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90%	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SB-307-S-4.5-5.0	1,2,3-Trichlorobenzene	<LL but >10%	<LL but >10%
	1,2,4-Trichlorobenzene		
	1,3-Dichlorobenzene		
	1,4-Dichlorobenzene		
	trans-1,2-Dichloroethene		
	Carbon disulfide	AC	<LL but >10%
	Chlorobenzene		
	1,2-Dichlorobenzene		

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X	X		
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Solid	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions. All target compounds associated with the initial calibration standards must exhibit a %RSD

less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-301-S-4.5-5.0 SB-306-S-4.5-5.0 SB-307-S-4.5-5.0	CCV %D	2,2'-oxybis[1-chloropropane]	-28.0%
		4-Chloroaniline	-34.7%
		2-Nitroaniline	-27.1%
		4-Nitroaniline	-25.0%
		3,3'-Dichlorobenzidine	-28.8%
		Di-n-octyl phthalate	27.9%
		Atrazine	-42.8%
SB-304-S-4.5-5.0	CCV %D	Hexachlorocyclopentadiene	-21.9%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SB-307-S-4.5-5.0	2,3,4,6-Tetrachlorophenol	<LL but >10%	<LL but >10%
	2,4,5-Trichlorophenol		
	2,4-Dimethylphenol		
	4,6-Dinitro-2-methylphenol		
	4-Nitroaniline		
	Acenaphthene		
	Anthracene		
	Benzo[a]anthracene		
	Benzo[a]pyrene		

Sample Locations	Compound	MS Recovery	MSD Recovery
	Benzo[b]fluoranthene		
	Benzo[g,h,i]perylene		
	Chrysene		
	Dibenzofuran		
	Fluorene		
	Pentachlorophenol		
	Caprolactam	<LL but >10%	AC
	Carbazole		
	N-Nitrosodiphenylamine		
	Fluoranthene	<10%	<10%
	Phenanthrene		
	Pyrene		
	2,4-Dinitrophenol	<10%	<LL but >10%

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
SB-307-S-4.5-5.0	4-Chloroaniline

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X	X		
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

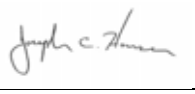
SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
460-104360-1	11/9/2015	SW-846	SB-301-S-4.5-5.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – CCAL %D
	11/10/2015	SW-846	SB-306-S-4.5-5.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – CCAL %D
	11/10/2015	SW-846	SB-307-S-4.5-5.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D, MS/MSD %Recovery SVOC – CCAL %D, MS/MSD %Recovery/RPD
	11/9/2015	SW-846	TB-151109	Water	No	--	--	--	--	VOC – ICAL %RSD, CCAL %D
460-104424-1	11/11/2015	SW-846	SB-304-S-4.5-5.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – CCAL %D
	11/11/2015	SW-846	TB-151111	Water	No	--	--	--	--	VOC – ICAL %RSD

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: January 4, 2016

PEER REVIEW: Dennis Capria

DATE: January 7, 2016

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-301-S-4.5-5.0

Lab Sample ID: 460-104360-1
Client Matrix: Solid

% Moisture: 24.5

Date Sampled: 11/09/2015 1015
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/13/2015 1908
Prep Date: 11/11/2015 0058

Analysis Batch: 460-335182
Prep Batch: 460-334534

Instrument ID: CVOAMS4
Lab File ID: D16506.D
Initial Weight/Volume: 5.23 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.48	U	0.48	1.3
1,1,2,2-Tetrachloroethane	0.22	U	0.22	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane	0.56	U	0.56	1.3
1,1,2-Trichloroethane	0.35	U	0.35	1.3
1,1-Dichloroethane	0.43	U	0.43	1.3
1,1-Dichloroethene	0.52	U	0.52	1.3
1,2,3-Trichlorobenzene	0.14	U	0.14	1.3
1,2,4-Trichlorobenzene	0.41	U	0.41	1.3
1,2-Dichloropropane	0.22	U	0.22	1.3
1,3-Dichlorobenzene	0.15	U	0.15	1.3
1,4-Dichlorobenzene	0.16	U J	0.16	1.3
1,4-Dioxane	8.1	U J	8.1	25
2-Butanone (MEK)	0.98	U	0.98	6.3
2-Hexanone	1.2	U	1.2	6.3
4-Methyl-2-pentanone (MIBK)	2.8	U	2.8	6.3
Acetone	1.3	U	1.3	6.3
Benzene	0.25	U	0.25	1.3
Bromoform	0.16	U	0.16	1.3
Bromomethane	0.41	U	0.41	1.3
Carbon disulfide	0.54	U J	0.54	1.3
Carbon tetrachloride	0.54	U	0.54	1.3
Chlorobenzene	0.18	U	0.18	1.3
Chlorobromomethane	0.22	U	0.22	1.3
Chlorodibromomethane	0.19	U	0.19	1.3
Chloroethane	0.44	U	0.44	1.3
Chloroform	0.27	U	0.27	1.3
Chloromethane	0.48	U	0.48	1.3
cis-1,2-Dichloroethene	0.28	U	0.28	1.3
cis-1,3-Dichloropropene	0.19	U	0.19	1.3
Cyclohexane	0.58	U	0.58	1.3
Dichlorobromomethane	0.48	U	0.48	1.3
Dichlorodifluoromethane	0.41	U J	0.41	1.3
Ethylbenzene	0.23	U	0.23	1.3
Ethylene Dibromide	0.15	U	0.15	1.3
Isopropylbenzene	0.22	U	0.22	1.3
Methyl acetate	1.1	U	1.1	6.3
Methyl tert-butyl ether	0.22	U	0.22	1.3
Methylcyclohexane	0.63	U	0.63	1.3
Methylene Chloride	0.41	U	0.41	1.3
m-Xylene & p-Xylene	0.14	U	0.14	1.3
o-Xylene	0.20	U	0.20	1.3
Styrene	0.19	U	0.19	1.3
Tetrachloroethene	0.35	U	0.35	1.3
Toluene	0.24	U	0.24	1.3
trans-1,2-Dichloroethene	0.49	U	0.49	1.3
2-Methyl-2-propanol	4.4	U	4.4	13

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-301-S-4.5-5.0

Lab Sample ID: 460-104360-1
Client Matrix: Solid

% Moisture: 24.5

Date Sampled: 11/09/2015 1015
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/13/2015 1908
Prep Date: 11/11/2015 0058

Analysis Batch: 460-335182
Prep Batch: 460-334534

Instrument ID: CVOAMS4
Lab File ID: D16506.D
Initial Weight/Volume: 5.23 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.13	U	0.13	1.3
Trichloroethene		0.33	U	0.33	1.3
Trichlorofluoromethane		0.43	U	0.43	1.3
Vinyl chloride		0.49	U	0.49	1.3
1,2-Dichloroethane		0.14	U	0.14	1.3
1,2-Dichlorobenzene		0.18	U	0.18	1.3
1,2-Dibromo-3-Chloropropane		0.60	U	0.60	1.3
1,1,1,2-Tetrachloroethane		0.52	U	0.52	1.3

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	104		78 - 135
4-Bromofluorobenzene	96		67 - 126
Dibromofluoromethane (Surr)	101		61 - 149
Toluene-d8 (Surr)	97		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-301-S-4.5-5.0**

Lab Sample ID: 460-104360-1
Client Matrix: Solid

% Moisture: 24.5

Date Sampled: 11/09/2015 1015
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335182	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334534	Lab File ID:	D16506.D
Dilution:	1.0			Initial Weight/Volume:	5.23 g
Analysis Date:	11/13/2015 1908			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 0058				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	11.30	37	J N
1000152-47-3	trans-Decalin, 2-methyl-	11.78	31	J N
	Unknown	11.95	37	J N
	Unknown	12.43	35	J
	Unknown	12.76	36	J
66660-38-6	cis,trans-2-Ethylbicyclo[4.4.0]decane	12.93	40	J N
	Unknown	13.39	45	J N
	Unknown	15.02	69	J
	Unknown	15.32	32	J
80655-44-3	Decahydro-4,4,8,9,10-pentamethylnaphthal	16.13	70	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-306-S-4.5-5.0**

Lab Sample ID: 460-104360-2
Client Matrix: Solid

% Moisture: 3.5

Date Sampled: 11/10/2015 1100
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/14/2015 1155
Prep Date: 11/11/2015 0749

Analysis Batch: 460-335313
Prep Batch: 460-334615

Instrument ID: CVOAMS4
Lab File ID: D16528.D
Initial Weight/Volume: 5.19 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.38	U	0.38	1.0
1,1,2,2-Tetrachloroethane		0.17	U	0.17	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane		0.44	U	0.44	1.0
1,1,2-Trichloroethane		0.28	U	0.28	1.0
1,1-Dichloroethane		0.34	U	0.34	1.0
1,1-Dichloroethene		0.41	U	0.41	1.0
1,2,3-Trichlorobenzene		0.11	U	0.11	1.0
1,2,4-Trichlorobenzene		0.32	U	0.32	1.0
1,2-Dichloropropane		0.17	U	0.17	1.0
1,3-Dichlorobenzene		0.12	U	0.12	1.0
1,4-Dichlorobenzene		0.13	U J	0.13	1.0
1,4-Dioxane		6.4	U J	6.4	20
2-Butanone (MEK)		0.77	U	0.77	5.0
2-Hexanone		0.94	U	0.94	5.0
4-Methyl-2-pentanone (MIBK)		2.2	U	2.2	5.0
Acetone		1.1	U	1.1	5.0
Benzene		0.20	U	0.20	1.0
Bromoform		0.13	U	0.13	1.0
Bromomethane		0.32	U	0.32	1.0
Carbon disulfide		0.43	U	0.43	1.0
Carbon tetrachloride		0.43	U	0.43	1.0
Chlorobenzene		0.14	U	0.14	1.0
Chlorobromomethane		0.17	U	0.17	1.0
Chlorodibromomethane		0.15	U	0.15	1.0
Chloroethane		0.35	U	0.35	1.0
Chloroform		0.21	U	0.21	1.0
Chloromethane		0.38	U	0.38	1.0
cis-1,2-Dichloroethene		0.22	U	0.22	1.0
cis-1,3-Dichloropropene		0.15	U	0.15	1.0
Cyclohexane		0.46	U	0.46	1.0
Dichlorobromomethane		0.38	U	0.38	1.0
Dichlorodifluoromethane		0.32	U	0.32	1.0
Ethylbenzene		0.18	U	0.18	1.0
Ethylene Dibromide		0.12	U	0.12	1.0
Isopropylbenzene		0.17	U	0.17	1.0
Methyl acetate		0.90	U	0.90	5.0
Methyl tert-butyl ether		0.17	U	0.17	1.0
Methylcyclohexane		0.50	U	0.50	1.0
Methylene Chloride		0.32	U	0.32	1.0
m-Xylene & p-Xylene		0.11	U	0.11	1.0
o-Xylene		0.16	U	0.16	1.0
Styrene		0.15	U	0.15	1.0
Tetrachloroethene		0.28	U	0.28	1.0
Toluene		0.19	U	0.19	1.0
trans-1,2-Dichloroethene		0.39	U	0.39	1.0
2-Methyl-2-propanol		3.5	U	3.5	10

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-306-S-4.5-5.0

Lab Sample ID: 460-104360-2
Client Matrix: Solid

% Moisture: 3.5

Date Sampled: 11/10/2015 1100
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335313	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334615	Lab File ID:	D16528.D
Dilution:	1.0			Initial Weight/Volume:	5.19 g
Analysis Date:	11/14/2015 1155			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 0749				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.10	U	0.10	1.0
Trichloroethene		0.26	U	0.26	1.0
Trichlorofluoromethane		0.34	U	0.34	1.0
Vinyl chloride		0.39	U	0.39	1.0
1,2-Dichloroethane		0.11	U	0.11	1.0
1,2-Dichlorobenzene		0.14	U	0.14	1.0
1,2-Dibromo-3-Chloropropane		0.47	U	0.47	1.0
1,1,1,2-Tetrachloroethane		0.41	U	0.41	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		78 - 135
4-Bromofluorobenzene	96		67 - 126
Dibromofluoromethane (Surr)	120		61 - 149
Toluene-d8 (Surr)	100		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-306-S-4.5-5.0**

Lab Sample ID: 460-104360-2
Client Matrix: Solid

% Moisture: 3.5

Date Sampled: 11/10/2015 1100
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335313	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334615	Lab File ID:	D16528.D
Dilution:	1.0			Initial Weight/Volume:	5.19 g
Analysis Date:	11/14/2015 1155			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 0749				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-307-S-4.5-5.0

Lab Sample ID: 460-104360-3
Client Matrix: Solid

% Moisture: 20.6

Date Sampled: 11/10/2015 1410
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/13/2015 1438
Prep Date: 11/11/2015 0749

Analysis Batch: 460-335182
Prep Batch: 460-334615

Instrument ID: CVOAMS4
Lab File ID: D16495.D
Initial Weight/Volume: 5.18 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.46	U	0.46	1.2
1,1,2,2-Tetrachloroethane		0.21	U	0.21	1.2
1,1,2-Trichloro-1,2,2-trifluoroethane		0.53	U	0.53	1.2
1,1,2-Trichloroethane		0.34	U	0.34	1.2
1,1-Dichloroethane		0.41	U	0.41	1.2
1,1-Dichloroethene		0.50	U	0.50	1.2
1,2,3-Trichlorobenzene		0.13	U F1 J	0.13	1.2
1,2,4-Trichlorobenzene		0.39	U F1 J	0.39	1.2
1,2-Dichloropropane		0.21	U	0.21	1.2
1,3-Dichlorobenzene		0.15	U F1 J	0.15	1.2
1,4-Dichlorobenzene		0.16	U F1 J	0.16	1.2
1,4-Dioxane		7.8	U J	7.8	24
2-Butanone (MEK)		0.94	U	0.94	6.1
2-Hexanone		1.1	U	1.1	6.1
4-Methyl-2-pentanone (MIBK)		2.7	U	2.7	6.1
Acetone		1.3	U	1.3	6.1
Benzene		0.24	U	0.24	1.2
Bromoform		0.16	U	0.16	1.2
Bromomethane		0.39	U	0.39	1.2
Carbon disulfide		0.52	U F1 J	0.52	1.2
Carbon tetrachloride		0.52	U	0.52	1.2
Chlorobenzene		0.17	U F1 J	0.17	1.2
Chlorobromomethane		0.21	U	0.21	1.2
Chlorodibromomethane		0.18	U	0.18	1.2
Chloroethane		0.43	U	0.43	1.2
Chloroform		0.26	U	0.26	1.2
Chloromethane		0.46	U	0.46	1.2
cis-1,2-Dichloroethene		0.27	U	0.27	1.2
cis-1,3-Dichloropropene		0.18	U	0.18	1.2
Cyclohexane		0.56	U	0.56	1.2
Dichlorobromomethane		0.46	U	0.46	1.2
Dichlorodifluoromethane		0.39	U J	0.39	1.2
Ethylbenzene		0.22	U	0.22	1.2
Ethylene Dibromide		0.15	U	0.15	1.2
Isopropylbenzene		0.21	U	0.21	1.2
Methyl acetate		1.1	U	1.1	6.1
Methyl tert-butyl ether		0.21	U	0.21	1.2
Methylcyclohexane		0.61	U	0.61	1.2
Methylene Chloride		0.39	U	0.39	1.2
m-Xylene & p-Xylene		0.13	U	0.13	1.2
o-Xylene		0.19	U	0.19	1.2
Styrene		0.18	U	0.18	1.2
Tetrachloroethene		0.34	U	0.34	1.2
Toluene		0.23	U	0.23	1.2
trans-1,2-Dichloroethene		0.47	U F1 J	0.47	1.2
2-Methyl-2-propanol		4.2	U	4.2	12

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-307-S-4.5-5.0**

Lab Sample ID: 460-104360-3
Client Matrix: Solid

% Moisture: 20.6

Date Sampled: 11/10/2015 1410
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335182	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334615	Lab File ID:	D16495.D
Dilution:	1.0			Initial Weight/Volume:	5.18 g
Analysis Date:	11/13/2015 1438			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 0749				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.12	U	0.12	1.2
Trichloroethene		0.32	U	0.32	1.2
Trichlorofluoromethane		0.41	U	0.41	1.2
Vinyl chloride		0.47	U	0.47	1.2
1,2-Dichloroethane		0.13	U	0.13	1.2
1,2-Dichlorobenzene		0.17	U F1 J	0.17	1.2
1,2-Dibromo-3-Chloropropane		0.57	U	0.57	1.2
1,1,1,2-Tetrachloroethane		0.50	U	0.50	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100		78 - 135
4-Bromofluorobenzene	98		67 - 126
Dibromofluoromethane (Surr)	98		61 - 149
Toluene-d8 (Surr)	97		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-307-S-4.5-5.0**

Lab Sample ID: 460-104360-3
Client Matrix: Solid

% Moisture: 20.6

Date Sampled: 11/10/2015 1410
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335182	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334615	Lab File ID:	D16495.D
Dilution:	1.0			Initial Weight/Volume:	5.18 g
Analysis Date:	11/13/2015 1438			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 0749				

Tentatively Identified Compounds **Number TIC's Found: 1**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
71-36-3	n-Butanol	6.70	34	JN

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **TB-151109**

Lab Sample ID: 460-104360-4TB
Client Matrix: Water

Date Sampled: 11/09/2015 0000
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/12/2015 2257
Prep Date: 11/12/2015 2257

Analysis Batch: 460-335020
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33274.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U J	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U J	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U J	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U J	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U J	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U J	0.63	5.0
Acetone	1.1	U	1.1	5.0
Benzene	0.090	U J	0.090	1.0
Bromoform	0.18	U J	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U	0.37	1.0
Chloroform	0.22	U J	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U J	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U J	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U J	0.32	1.0
Methyl acetate	0.58	U J	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U J	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **TB-151109**

Lab Sample ID: 460-104360-4TB
Client Matrix: Water

Date Sampled: 11/09/2015 0000
Date Received: 11/10/2015 1740

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335020	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J33274.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	11/12/2015 2257			Final Weight/Volume:	5 mL
Prep Date:	11/12/2015 2257				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dibromo-3-Chloropropane	0.23	U J	0.23	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	114		70 - 137
4-Bromofluorobenzene	106		70 - 131
Dibromofluoromethane (Surr)	114		72 - 136
Toluene-d8 (Surr)	104		74 - 120

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-301-S-4.5-5.0

Lab Sample ID: 460-104360-1
Client Matrix: Solid
% Moisture: 24.5

Date Sampled: 11/09/2015 1015
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335980	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-335679	Lab File ID:	L128125.D
Dilution:	1.0			Initial Weight/Volume:	15.0111 g
Analysis Date:	11/18/2015 0519			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		39	J	37	440
1,2,4,5-Tetrachlorobenzene		33	U	33	440
2,2'-oxybis[1-chloropropane]		18	U J	18	440
2,3,4,6-Tetrachlorophenol		41	U	41	440
2,4,5-Trichlorophenol		44	U	44	440
2,4,6-Trichlorophenol		12	U	12	180
2,4-Dichlorophenol		10	U	10	180
2,4-Dimethylphenol		96	U	96	440
2,4-Dinitrophenol		330	U	330	350
2,4-Dinitrotoluene		17	U	17	89
2,6-Dinitrotoluene		23	U	23	89
2-Chloronaphthalene		9.9	U	9.9	440
2-Chlorophenol		11	U	11	440
2-Methylnaphthalene		180	J	9.7	440
2-Methylphenol		19	U	19	440
2-Nitroaniline		14	U J	14	440
2-Nitrophenol		15	U	15	440
3,3'-Dichlorobenzidine		49	U J	49	180
3-Nitroaniline		13	U	13	440
4,6-Dinitro-2-methylphenol		120	U	120	350
4-Bromophenyl phenyl ether		14	U	14	440
4-Chloro-3-methylphenol		19	U	19	440
4-Chloroaniline		11	U J	11	440
4-Chlorophenyl phenyl ether		13	U	13	440
4-Methylphenol		12	U	12	440
4-Nitroaniline		17	U J	17	440
4-Nitrophenol		210	U	210	890
Acenaphthene		280	J	11	440
Acenaphthylene		11	U	11	440
Acetophenone		9.5	U	9.5	440
Anthracene		350	J	42	440
Atrazine		19	U J	19	180
Benzaldehyde		33	U	33	440
Benzo[a]anthracene		510		37	44
Benzo[a]pyrene		580		13	44
Benzo[b]fluoranthene		640		17	44
Benzo[g,h,i]perylene		360	J	25	440
Benzo[k]fluoranthene		300		19	44
Bis(2-chloroethoxy)methane		14	U	14	440
Bis(2-chloroethyl)ether		10	U	10	44
Bis(2-ethylhexyl) phthalate		17	U	17	440
Butyl benzyl phthalate		14	U	14	440
Caprolactam		32	U	32	440
Carbazole		11	U	11	440
Chrysene		510		12	440
Dibenz(a,h)anthracene		100		23	44

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-301-S-4.5-5.0**

Lab Sample ID: 460-104360-1
Client Matrix: Solid
% Moisture: 24.5

Date Sampled: 11/09/2015 1015
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335980	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-335679	Lab File ID:	L128125.D
Dilution:	1.0			Initial Weight/Volume:	15.0111 g
Analysis Date:	11/18/2015 0519			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		13	U	13	440
Diethyl phthalate		12	U	12	440
Dimethyl phthalate		13	U	13	440
Di-n-butyl phthalate		13	U	13	440
Di-n-octyl phthalate		22	U	22	440
Fluoranthene		590		13	440
Fluorene		9.5	U	9.5	440
Hexachlorobenzene		18	U	18	44
Hexachlorobutadiene		12	U	12	89
Hexachlorocyclopentadiene		27	U	27	440
Hexachloroethane		16	U	16	44
Indeno[1,2,3-cd]pyrene		370		29	44
Isophorone		9.4	U	9.4	180
Naphthalene		280	J	11	440
Nitrobenzene		14	U	14	44
N-Nitrosodi-n-propylamine		15	U	15	44
N-Nitrosodiphenylamine		40	U	40	440
Pentachlorophenol		53	U	53	350
Phenanthrene		330	J	12	440
Phenol		14	U	14	440
Pyrene		840		20	440

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	45		10 - 95
2-Fluorobiphenyl	59		27 - 84
2-Fluorophenol (Surr)	59		21 - 84
Nitrobenzene-d5 (Surr)	59		28 - 92
Phenol-d5 (Surr)	58		22 - 88
Terphenyl-d14 (Surr)	77		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-306-S-4.5-5.0**

Lab Sample ID: 460-104360-2
Client Matrix: Solid

% Moisture: 3.5

Date Sampled: 11/10/2015 1100
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335980	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-335679	Lab File ID:	L128126.D
Dilution:	1.0			Initial Weight/Volume:	15.0021 g
Analysis Date:	11/18/2015 0548			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		29	U	29	340
1,2,4,5-Tetrachlorobenzene		25	U	25	340
2,2'-oxybis[1-chloropropane]		14	U J	14	340
2,3,4,6-Tetrachlorophenol		32	U	32	340
2,4,5-Trichlorophenol		34	U	34	340
2,4,6-Trichlorophenol		9.7	U	9.7	140
2,4-Dichlorophenol		8.1	U	8.1	140
2,4-Dimethylphenol		75	U	75	340
2,4-Dinitrophenol		260	U	260	280
2,4-Dinitrotoluene		14	U	14	69
2,6-Dinitrotoluene		18	U	18	69
2-Chloronaphthalene		7.8	U	7.8	340
2-Chlorophenol		8.7	U	8.7	340
2-Methylnaphthalene		7.6	U	7.6	340
2-Methylphenol		15	U	15	340
2-Nitroaniline		11	U J	11	340
2-Nitrophenol		12	U	12	340
3,3'-Dichlorobenzidine		38	U J	38	140
3-Nitroaniline		10	U	10	340
4,6-Dinitro-2-methylphenol		91	U	91	280
4-Bromophenyl phenyl ether		11	U	11	340
4-Chloro-3-methylphenol		15	U	15	340
4-Chloroaniline		8.8	U J	8.8	340
4-Chlorophenyl phenyl ether		10	U	10	340
4-Methylphenol		9.3	U	9.3	340
4-Nitroaniline		13	U J	13	340
4-Nitrophenol		160	U	160	690
Acenaphthene		8.3	U	8.3	340
Acenaphthylene		8.8	U	8.8	340
Acetophenone		7.5	U	7.5	340
Anthracene		33	U	33	340
Atrazine		15	U J	15	140
Benzaldehyde		26	U	26	340
Benzo[a]anthracene		29	U	29	34
Benzo[a]pyrene		20	J	10	34
Benzo[b]fluoranthene		31	J	13	34
Benzo[g,h,i]perylene		20	U	20	340
Benzo[k]fluoranthene		15	U	15	34
Bis(2-chloroethoxy)methane		11	U	11	340
Bis(2-chloroethyl)ether		8.1	U	8.1	34
Bis(2-ethylhexyl) phthalate		13	U	13	340
Butyl benzyl phthalate		180	J	11	340
Caprolactam		25	U	25	340
Carbazole		8.5	U	8.5	340
Chrysene		22	J	9.3	340
Dibenz(a,h)anthracene		18	U	18	34

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: SB-306-S-4.5-5.0

Lab Sample ID: 460-104360-2
Client Matrix: Solid

% Moisture: 3.5

Date Sampled: 11/10/2015 1100
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335980	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-335679	Lab File ID:	L128126.D
Dilution:	1.0			Initial Weight/Volume:	15.0021 g
Analysis Date:	11/18/2015 0548			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		10	U	10	340
Diethyl phthalate		9.7	U	9.7	340
Dimethyl phthalate		9.9	U	9.9	340
Di-n-butyl phthalate		10	U	10	340
Di-n-octyl phthalate		17	U	17	340
Fluoranthene		30	J	10	340
Fluorene		7.5	U	7.5	340
Hexachlorobenzene		14	U	14	34
Hexachlorobutadiene		9.6	U	9.6	69
Hexachlorocyclopentadiene		21	U	21	340
Hexachloroethane		13	U	13	34
Indeno[1,2,3-cd]pyrene		23	U	23	34
Isophorone		7.4	U	7.4	140
Naphthalene		8.7	U	8.7	340
Nitrobenzene		11	U	11	34
N-Nitrosodi-n-propylamine		12	U	12	34
N-Nitrosodiphenylamine		31	U	31	340
Pentachlorophenol		41	U	41	280
Phenanthrene		9.1	U	9.1	340
Phenol		11	U	11	340
Pyrene		39	J	16	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	50		10 - 95
2-Fluorobiphenyl	66		27 - 84
2-Fluorophenol (Surr)	70		21 - 84
Nitrobenzene-d5 (Surr)	69		28 - 92
Phenol-d5 (Surr)	67		22 - 88
Terphenyl-d14 (Surr)	95		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-307-S-4.5-5.0**

Lab Sample ID: 460-104360-3
Client Matrix: Solid

% Moisture: 20.6

Date Sampled: 11/10/2015 1410
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/18/2015 0424
Prep Date: 11/16/2015 1435

Analysis Batch: 460-335980
Prep Batch: 460-335679

Instrument ID: CBNAMS12
Lab File ID: L128123.D
Initial Weight/Volume: 15.0394 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		35	U	35	410
1,2,4,5-Tetrachlorobenzene		31	U	31	410
2,2'-oxybis[1-chloropropane]		17	U	17	410
2,3,4,6-Tetrachlorophenol		39	U F1	39	410
2,4,5-Trichlorophenol		41	U F1	41	410
2,4,6-Trichlorophenol		12	U	12	170
2,4-Dichlorophenol		9.8	U	9.8	170
2,4-Dimethylphenol		91	U F1	91	410
2,4-Dinitrophenol		310	U F1	310	330 R
2,4-Dinitrotoluene		16	U	16	84
2,6-Dinitrotoluene		22	U	22	84
2-Chloronaphthalene		9.4	U	9.4	410
2-Chlorophenol		11	U	11	410
2-Methylnaphthalene		63	J	9.2	410
2-Methylphenol		18	U	18	410
2-Nitroaniline		14	U	14	410
2-Nitrophenol		14	U	14	410
3,3'-Dichlorobenzidine		46	U	46	170
3-Nitroaniline		12	U	12	410
4,6-Dinitro-2-methylphenol		110	U F1	110	330
4-Bromophenyl phenyl ether		13	U	13	410
4-Chloro-3-methylphenol		18	U	18	410
4-Chloroaniline		11	U F2	11	410
4-Chlorophenyl phenyl ether		12	U	12	410
4-Methylphenol		11	U	11	410
4-Nitroaniline		16	U F1	16	410
4-Nitrophenol		200	U	200	840
Acenaphthene		440	F1	10	410
Acenaphthylene		34	J	11	410
Acetophenone		9.0	U	9.0	410
Anthracene		1100	F1	39	410
Atrazine		18	U	18	170
Benzaldehyde		32	U	32	410
Benzo[a]anthracene		2600	F1	35	41
Benzo[a]pyrene		2700	F1	13	41
Benzo[b]fluoranthene		3400	F1	16	41
Benzo[g,h,i]perylene		1700	F1	24	410
Benzo[k]fluoranthene		1500		18	41
Bis(2-chloroethoxy)methane		13	U	13	410
Bis(2-chloroethyl)ether		9.8	U	9.8	41
Bis(2-ethylhexyl) phthalate		110	J	16	410
Butyl benzyl phthalate		41	J	13	410
Caprolactam		30	U F1	30	410
Carbazole		370	J F1	10	410
Chrysene		2900	F1	11	410
Dibenz(a,h)anthracene		440		22	41

Client: ARCADIS U.S. Inc

Job Number: 460-104360-1

Client Sample ID: **SB-307-S-4.5-5.0**

Lab Sample ID: 460-104360-3
Client Matrix: Solid

% Moisture: 20.6

Date Sampled: 11/10/2015 1410
Date Received: 11/10/2015 1740

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335980	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-335679	Lab File ID:	L128123.D
Dilution:	1.0			Initial Weight/Volume:	15.0394 g
Analysis Date:	11/18/2015 0424			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		210	J ~~F1~~	13	410
Diethyl phthalate		12	U	12	410
Dimethyl phthalate		12	U	12	410
Di-n-butyl phthalate		12	U	12	410
Di-n-octyl phthalate		21	U	21	410
Fluoranthene		5400	~~F1~~ J	12	410
Fluorene		230	J ~~F1~~	9.0	410
Hexachlorobenzene		17	U	17	41
Hexachlorobutadiene		12	U	12	84
Hexachlorocyclopentadiene		26	U	26	410
Hexachloroethane		15	U	15	41
Indeno[1,2,3-cd]pyrene		1800		28	41
Isophorone		8.9	U	8.9	170
Naphthalene		110	J	11	410
Nitrobenzene		13	U	13	41
N-Nitrosodi-n-propylamine		14	U	14	41
N-Nitrosodiphenylamine		38	U ~~F1~~ J	38	410
Pentachlorophenol		50	U ~~F1~~ J	50	330
Phenanthrene		4900	~~F1~~ J	11	410
Phenol		14	U	14	410
Pyrene		5800	~~F1~~ J	19	410

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	49		10 - 95
2-Fluorobiphenyl	66		27 - 84
2-Fluorophenol (Surr)	66		21 - 84
Nitrobenzene-d5 (Surr)	68		28 - 92
Phenol-d5 (Surr)	64		22 - 88
Terphenyl-d14 (Surr)	89		16 - 114

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REC

460-104360 Chain of Custody

(: (732) 549-3679

__ of 1

Name (for report and invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/I Con Edison Bayview	
Company Arcadis	P. O. # P0043000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:	
Address 655 3rd Ave., 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:	
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐		
Phone 415.744.4906 Fax 212.682.9275			

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

LAB USE ONLY
Project No:
Job No: 104360

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8020	SVOCs 8270									Sample Numbers
SB-301-S-4.5-5.0	11/9/15	1015	S	5	X	X									1
SB-306-S-4.5-5.0	11/10/15	1100	S	5	X	X									2
SB-307-S-4.5-5.0*	11/10/15	1410	S	15	X	X									3
TB-151109	11/9/15	—	W	2	X										4

SHORT HOLD

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH Soil:
6 = Other _____, 7 = Other _____ Water:

Special Instructions * = MS/MSD

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	Arcadis	11/10/15 1537	1)	T. B.
Relinquished by 2)	Company T. B.	Date / Time 11/10/15 17:40	Received by 2)	Company 11/10
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0814)

Massachusetts (M-NJ312), North Carolina (No. 578) 1,4/1,4 JKB & NOC

11/19/2015

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: **SB-304-S-4.5-5.0**

Lab Sample ID: 460-104424-1
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 11/11/2015 1150
Date Received: 11/11/2015 1640

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/13/2015 0908
Prep Date: 11/11/2015 1945

Analysis Batch: 460-335072
Prep Batch: 460-334777

Instrument ID: CVOAMS4
Lab File ID: D16482.D
Initial Weight/Volume: 4.74 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.42	U	0.42	1.1
1,1,2,2-Tetrachloroethane		0.19	U	0.19	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane		0.48	U	0.48	1.1
1,1,2-Trichloroethane		0.31	U	0.31	1.1
1,1-Dichloroethane		0.37	U	0.37	1.1
1,1-Dichloroethene		0.45	U	0.45	1.1
1,2,3-Trichlorobenzene		0.12	U	0.12	1.1
1,2,4-Trichlorobenzene		0.35	U	0.35	1.1
1,2-Dichloropropane		0.19	U	0.19	1.1
1,3-Dichlorobenzene		0.13	U	0.13	1.1
1,4-Dichlorobenzene		0.14	U J	0.14	1.1
1,4-Dioxane		7.0	U J	7.0	22
2-Butanone (MEK)		0.84	U	0.84	5.5
2-Hexanone		1.0	U	1.0	5.5
4-Methyl-2-pentanone (MIBK)		2.4	U	2.4	5.5
Acetone		1.2	U	1.2	5.5
Benzene		0.22	U	0.22	1.1
Bromoform		0.14	U	0.14	1.1
Bromomethane		0.35	U	0.35	1.1
Carbon disulfide		0.47	U	0.47	1.1
Carbon tetrachloride		0.47	U	0.47	1.1
Chlorobenzene		0.15	U	0.15	1.1
Chlorobromomethane		0.19	U	0.19	1.1
Chlorodibromomethane		0.16	U	0.16	1.1
Chloroethane		0.38	U	0.38	1.1
Chloroform		0.23	U	0.23	1.1
Chloromethane		0.42	U	0.42	1.1
cis-1,2-Dichloroethene		0.24	U	0.24	1.1
cis-1,3-Dichloropropene		0.16	U	0.16	1.1
Cyclohexane		0.50	U	0.50	1.1
Dichlorobromomethane		0.42	U	0.42	1.1
Dichlorodifluoromethane		0.35	U	0.35	1.1
Ethylbenzene		0.20	U	0.20	1.1
Ethylene Dibromide		0.13	U	0.13	1.1
Isopropylbenzene		0.19	U	0.19	1.1
Methyl acetate		0.99	U	0.99	5.5
Methyl tert-butyl ether		0.19	U	0.19	1.1
Methylcyclohexane		0.55	U	0.55	1.1
Methylene Chloride		0.35	U	0.35	1.1
m-Xylene & p-Xylene		0.12	U	0.12	1.1
o-Xylene		0.18	U	0.18	1.1
Styrene		0.16	U	0.16	1.1
Tetrachloroethene		0.31	U	0.31	1.1
Toluene		0.21	U	0.21	1.1
trans-1,2-Dichloroethene		0.43	U	0.43	1.1
2-Methyl-2-propanol		3.8	U	3.8	11

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: **SB-304-S-4.5-5.0**

Lab Sample ID: 460-104424-1
Client Matrix: Solid
% Moisture: 3.8

Date Sampled: 11/11/2015 1150
Date Received: 11/11/2015 1640

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/13/2015 0908
Prep Date: 11/11/2015 1945

Analysis Batch: 460-335072
Prep Batch: 460-334777

Instrument ID: CVOAMS4
Lab File ID: D16482.D
Initial Weight/Volume: 4.74 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.11	U	0.11	1.1
Trichloroethene		0.29	U	0.29	1.1
Trichlorofluoromethane		0.37	U	0.37	1.1
Vinyl chloride		0.43	U	0.43	1.1
1,2-Dichloroethane		0.12	U	0.12	1.1
1,2-Dichlorobenzene		0.15	U	0.15	1.1
1,2-Dibromo-3-Chloropropane		0.52	U	0.52	1.1
1,1,1,2-Tetrachloroethane		0.45	U	0.45	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	101		78 - 135
4-Bromofluorobenzene	106		67 - 126
Dibromofluoromethane (Surr)	101		61 - 149
Toluene-d8 (Surr)	106		73 - 121

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: **SB-304-S-4.5-5.0**

Lab Sample ID: 460-104424-1
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 11/11/2015 1150
Date Received: 11/11/2015 1640

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335072	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-334777	Lab File ID:	D16482.D
Dilution:	1.0			Initial Weight/Volume:	4.74 g
Analysis Date:	11/13/2015 0908			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 1945				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: **TB-151111**

Lab Sample ID: 460-104424-2TB
Client Matrix: Water

Date Sampled: 11/11/2015 0000
Date Received: 11/11/2015 1640

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/13/2015 0834
Prep Date: 11/13/2015 0834

Analysis Batch: 460-335122
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33296.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U J	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U J	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U J	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U J	0.63	5.0
Acetone	1.1	U	1.1	5.0
Benzene	0.090	U J	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U	0.37	1.0
Chloroform	0.22	U J	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U J	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U J	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U J	0.32	1.0
Methyl acetate	0.58	U J	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U J	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: TB-151111

Lab Sample ID: 460-104424-2TB
Client Matrix: Water

Date Sampled: 11/11/2015 0000
Date Received: 11/11/2015 1640

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-335122	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J33296.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	11/13/2015 0834			Final Weight/Volume:	5 mL
Prep Date:	11/13/2015 0834				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	117		70 - 137
4-Bromofluorobenzene	102		70 - 131
Dibromofluoromethane (Surr)	111		72 - 136
Toluene-d8 (Surr)	102		74 - 120

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: SB-304-S-4.5-5.0

Lab Sample ID: 460-104424-1
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 11/11/2015 1150
Date Received: 11/11/2015 1640

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/17/2015 1937
Prep Date: 11/16/2015 1440

Analysis Batch: 460-335884
Prep Batch: 460-335682

Instrument ID: CBNAMS11
Lab File ID: z38697.D
Initial Weight/Volume: 15.0552 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		29	U	29	340
1,2,4,5-Tetrachlorobenzene		25	U	25	340
2,2'-oxybis[1-chloropropane]		14	U	14	340
2,3,4,6-Tetrachlorophenol		32	U	32	340
2,4,5-Trichlorophenol		34	U	34	340
2,4,6-Trichlorophenol		9.7	U	9.7	140
2,4-Dichlorophenol		8.1	U	8.1	140
2,4-Dimethylphenol		75	U	75	340
2,4-Dinitrophenol		260	U	260	280
2,4-Dinitrotoluene		14	U	14	69
2,6-Dinitrotoluene		18	U	18	69
2-Chloronaphthalene		7.8	U	7.8	340
2-Chlorophenol		8.7	U	8.7	340
2-Methylnaphthalene		7.6	U	7.6	340
2-Methylphenol		15	U	15	340
2-Nitroaniline		11	U	11	340
2-Nitrophenol		11	U	11	340
3,3'-Dichlorobenzidine		38	U	38	140
3-Nitroaniline		10	U	10	340
4,6-Dinitro-2-methylphenol		91	U	91	280
4-Bromophenyl phenyl ether		11	U	11	340
4-Chloro-3-methylphenol		15	U	15	340
4-Chloroaniline		8.8	U	8.8	340
4-Chlorophenyl phenyl ether		10	U	10	340
4-Methylphenol		9.3	U	9.3	340
4-Nitroaniline		13	U	13	340
4-Nitrophenol		160	U	160	690
Acenaphthene		8.3	U	8.3	340
Acenaphthylene		8.8	U	8.8	340
Acetophenone		7.5	U	7.5	340
Anthracene		33	U	33	340
Atrazine		15	U	15	140
Benzaldehyde		26	U	26	340
Benzo[a]anthracene		35		29	34
Benzo[a]pyrene		39		10	34
Benzo[b]fluoranthene		55		13	34
Benzo[g,h,i]perylene		31	J	20	340
Benzo[k]fluoranthene		26	J	15	34
Bis(2-chloroethoxy)methane		11	U	11	340
Bis(2-chloroethyl)ether		8.1	U	8.1	34
Bis(2-ethylhexyl) phthalate		50	J	13	340
Butyl benzyl phthalate		11	U	11	340
Caprolactam		25	U	25	340
Carbazole		8.5	U	8.5	340
Chrysene		38	J	9.3	340
Dibenz(a,h)anthracene		18	U	18	34

Client: ARCADIS U.S., Inc

Job Number: 460-104424-1

Client Sample ID: SB-304-S-4.5-5.0

Lab Sample ID: 460-104424-1
Client Matrix: Solid

% Moisture: 3.8

Date Sampled: 11/11/2015 1150
Date Received: 11/11/2015 1640

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-335884	Instrument ID:	CBNAMS11
Prep Method:	3546	Prep Batch:	460-335682	Lab File ID:	z38697.D
Dilution:	1.0			Initial Weight/Volume:	15.0552 g
Analysis Date:	11/17/2015 1937			Final Weight/Volume:	1 mL
Prep Date:	11/16/2015 1440			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		10	U	10	340
Diethyl phthalate		9.7	U	9.7	340
Dimethyl phthalate		9.9	U	9.9	340
Di-n-butyl phthalate		10	U	10	340
Di-n-octyl phthalate		17	U	17	340
Fluoranthene		26	J	10	340
Fluorene		7.5	U	7.5	340
Hexachlorobenzene		14	U	14	34
Hexachlorobutadiene		9.6	U	9.6	69
Hexachlorocyclopentadiene		21	U J	21	340
Hexachloroethane		13	U	13	34
Indeno[1,2,3-cd]pyrene		33	J	23	34
Isophorone		7.4	U	7.4	140
Naphthalene		8.7	U	8.7	340
Nitrobenzene		11	U	11	34
N-Nitrosodi-n-propylamine		11	U	11	34
N-Nitrosodiphenylamine		31	U	31	340
Pentachlorophenol		41	U	41	280
Phenanthrene		12	J	9.1	340
Phenol		11	U	11	340
Pyrene		31	J	16	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	55		10 - 95
2-Fluorobiphenyl	66		27 - 84
2-Fluorophenol (Surr)	64		21 - 84
Nitrobenzene-d5 (Surr)	72		28 - 92
Phenol-d5 (Surr)	70		22 - 88
Terphenyl-d14 (Surr)	86		16 - 114

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460-104424 Chain of Custody

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Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

11/19/2015

Name (for report and invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/Project Identification Confluence Bayview
Company Arcadis	P. O. # B0043000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 655 Third Avenue, 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	LAB USE ONLY Project No:
Phone 415.744.4990 Fax 212.682.9275		Job No: 104424

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8260	SVOCs 8270	Sample Numbers
SB-304-S-4.5-5.0	11/11/15	1150	S	5	X	X	-1
TB-151117	11/11/15	—	W	2	X		-2

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____ Soil: Water:

SHORT HOLD

Special Instructions

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	Arcadis	11/11/15 1454	1)	T. A
Relinquished by 2)	Company T. A	Date / Time 11/11/15 16:52	Received by 2)	Company TA Ed
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0814)

Massachusetts (M-NJ312), North Carolina (No. 578) 1.4 2.4 5 RH 6 WSC 7

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Consolidated Edison Company of New York, Inc.

Bayview - West 18th Street Site

Data Usability Summary Report (DUSR)

NEW YORK CITY, NEW YORK

Volatile and Semivolatile Analyses

SDGs #460-104542-1 and 460-104623-1

Analyses Performed By:
TestAmerica Laboratories, Inc.
Edison, New Jersey

Report #24887R
Review Level: Tier III
Project: B0043000.0000.00002

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 460-104542-1 and 460-104623-1 for samples collected in association the Con Edison Bayview West 18th Street site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	MET	MISC
460-104542-1	SB-308-S-4.0-4.5	460-104542-1	Soil	11/12/2015		X	X			
	SB-303-S-3.25-3.75	460-104542-2	Soil	11/12/2015		X	X			
	DUP-1-S	460-104542-3	Soil	11/12/2015	SB-308-S-4.0-4.5	X	X			
	TB-151112	460-104542-4	Water	11/12/2015		X				
460-104623-1	SB-302-S-1.5-2.0	460-104623-1	Soil	11/13/2015		X	X			
	SB-308-S-18.0-18.5	460-104623-2	Soil	11/13/2015		X	X			
	SB-308-S-165.-17.0	460-104623-3	Soil	11/13/2015		X	X			
	TB-151113	460-104623-4	Water	11/13/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 methods 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

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:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Solid	14 days from collection to analysis	Cool to <6 °C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-308-S-4.0-4.5 SB-303-S-3.25-3.75 DUP-1-S SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-165.-17.0	ICV %RSD	2-Methyl-2-propanol	16.8%
		1,2-Dibromo-3-Chloropropane	18.0%
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-165.-17.0	CCV %D	Chloromethane	-28.5%
		Vinyl chloride	-21.4%
		Methyl acetate	-26.9%
		2-Methyl-2-propanol	-22.4%
		1,2-Dichloropropane	-21.1%
		1,1,2,2-Tetrachloroethane	-21.3%
TB-151112 TB-151113	ICV %RSD	1,1-Dichloroethene	18.4%
		Methyl acetate	16.5%
		Methylene Chloride	16.1%
		cis-1,2-Dichloroethene	16.4%
		Chloroform	15.4%
		Cyclohexane	17.5%
		1,1,1-Trichloroethane	17.5%
		Benzene	18.7%
		4-Methyl-2-pentanone (MIBK)	15.8%
		Toluene	16.0%
		1,1,2-Trichloroethane	15.2%
		Isopropylbenzene	15.1%
		1,1,2,2-Tetrachloroethane	17.7%
TB-151112	CCV %D	1,1,2-Trichloro-1,2,2-trifluoroethane	32.0%
		Cyclohexane	20.6%
TB-151113	CCV %D	1,1,2-Trichloro-1,2,2-trifluoroethane	22.8%
		Methyl acetate	-20.5%
		1,1,2,2-Tetrachloroethane	-26.1%
		1,2-Dibromo-3-Chloropropane	-28.5%
		1,2,3-Trichlorobenzene	-29.3%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% and <90% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% and <90% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90%	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within these sample data groups.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
SB-308-S-4.0-4.5 SB-303-S-3.25-3.75 DUP-1-S	2-Methyl-2-propanol	AC	<LL but >10%
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-165.-17.0	Chloromethane	<LL but >10%	<LL but >10%
	Vinyl chloride	AC	<LL but >10%

AC Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit three times the RL is applied for solid matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SB-308-S-4.0-4.5/DUP-1-S	2-Butanone (MEK)	11	13	AC
	Acetone	46	49	6.3%
	Carbon disulfide	0.7 J	1.6 U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)		X	X		
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Solid	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions. All target compounds associated with the initial calibration standards must exhibit a %RSD

less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-308-S-4.0-4.5	CCV %D	2-Nitroaniline	-20.3%
SB-303-S-3.25-3.75 DUP-1-S SB-302-S-1.5-2.0 SB-308-S-165.-17.0	CCV %D	4-Nitroaniline	-22.8%
		4-Nitrophenol	-30.1%
SB-308-S-18.0-18.5	CCV %D	Hexachlorocyclopentadiene	-31.5%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within these sample data groups.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-165.-17.0	N-Nitrosodiphenylamine	<LL but >10%

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for solid matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SB-308-S-4.0-4.5/DUP-1-S	2-Methylnaphthalene	200 J	100 J	AC
	4-Methylphenol	30 J	440 U	AC
	Acenaphthene	170 J	94 J	AC
	Acenaphthylene	47 J	16 J	AC
	Anthracene	560	180 J	AC
	Benzaldehyde	73 J	48 J	AC
	Benzo[a]anthracene	640	230	94.2%
	Benzo[a]pyrene	530	170	102.8%
	Benzo[b]fluoranthene	500	210	81.6%
	Benzo[g,h,i]perylene	290 J	100 J	AC
	Benzo[k]fluoranthene	170	82	AC
	Bis(2-ethylhexyl) phthalate	550 U	200 J	AC
	Carbazole	31 J	12 J	AC
	Chrysene	800	240 J	AC
	Dibenz(a,h)anthracene	150	50	AC
	Dibenzofuran	550 U	23 J	AC
	Fluoranthene	860	300 J	AC
	Fluorene	130 J	68 J	AC
	Indeno[1,2,3-cd]pyrene	370	110	NC
	Naphthalene	330 J	160 J	AC
	Phenanthrene	3600	990	NC
	Pyrene	910	460	AC

AC Acceptable
NC Not compliant

The compounds Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Indeno[1,2,3-cd]pyrene and Phenanthrene associated with sample locations SB-308-S-4.0-4.5 and DUP-1-S exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

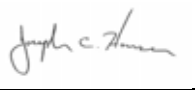
SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
460-104542-1	11/12/2015	SW-846	SB-308-S-4.0-4.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, LCSD %Recovery SVOC – CCAL %D, Field Duplicate RPD
	11/12/2015	SW-846	SB-303-S-3.25-3.75	Soil	No	No	--	--	--	VOC – ICAL %RSD, LCSD %Recovery SVOC – CCAL %D
	11/12/2015	SW-846	DUP-1-S	Soil	No	No	--	--	--	VOC – ICAL %RSD, LCSD %Recovery SVOC – CCAL %D, Field Duplicate RPD
	11/12/2015	SW-846	TB-151112	Water	No	--	--	--	--	VOC – ICAL %RSD
460-104623-1	11/13/2015	SW-846	SB-302-S-1.5-2.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D, LCS/LCSD %Recovery SVOC – CCAL %D, LCS %Recovery
	11/13/2015	SW-846	SB-308-S-18.0-18.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D, LCS/LCSD %Recovery SVOC – CCAL %D, LCS %Recovery
	11/13/2015	SW-846	SB-308-S-165.-17.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D, LCS/LCSD %Recovery SVOC – CCAL %D, LCS %Recovery
	11/13/2015	SW-846	TB-151113	Water	No	--	--	--	--	VOC – ICAL %RSD, CCAL %D

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: January 5, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **SB-308-S-4.0-4.5**

Lab Sample ID: 460-104542-1
Client Matrix: Solid
% Moisture: 39.7

Date Sampled: 11/12/2015 1130
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/21/2015 0144
Prep Date: 11/12/2015 2128

Analysis Batch: 460-336667
Prep Batch: 460-335070

Instrument ID: CVOAMS4
Lab File ID: D16743.D
Initial Weight/Volume: 5.24 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.60	U	0.60	1.6
1,1,2,2-Tetrachloroethane		0.27	U	0.27	1.6
1,1,2-Trichloro-1,2,2-trifluoroethane		0.70	U	0.70	1.6
1,1,2-Trichloroethane		0.44	U	0.44	1.6
1,1-Dichloroethane		0.54	U	0.54	1.6
1,1-Dichloroethene		0.65	U	0.65	1.6
1,2,3-Trichlorobenzene		0.17	U	0.17	1.6
1,2,4-Trichlorobenzene		0.51	U	0.51	1.6
1,2-Dichloropropane		0.27	U	0.27	1.6
1,3-Dichlorobenzene		0.19	U	0.19	1.6
1,4-Dichlorobenzene		0.21	U	0.21	1.6
1,4-Dioxane		10	U	10	32
2-Butanone (MEK)		11		1.2	7.9
2-Hexanone		1.5	U	1.5	7.9
4-Methyl-2-pentanone (MIBK)		3.5	U	3.5	7.9
Acetone		46		1.7	7.9
Benzene		0.32	U	0.32	1.6
Bromoform		0.21	U	0.21	1.6
Bromomethane		0.51	U	0.51	1.6
Carbon disulfide		0.70	J	0.68	1.6
Carbon tetrachloride		0.68	U	0.68	1.6
Chlorobenzene		0.22	U	0.22	1.6
Chlorobromomethane		0.27	U	0.27	1.6
Chlorodibromomethane		0.24	U	0.24	1.6
Chloroethane		0.55	U	0.55	1.6
Chloroform		0.33	U	0.33	1.6
Chloromethane		0.60	U	0.60	1.6
cis-1,2-Dichloroethene		0.35	U	0.35	1.6
cis-1,3-Dichloropropene		0.24	U	0.24	1.6
Cyclohexane		0.73	U	0.73	1.6
Dichlorobromomethane		0.60	U	0.60	1.6
Dichlorodifluoromethane		0.51	U	0.51	1.6
Ethylbenzene		0.28	U	0.28	1.6
Ethylene Dibromide		0.19	U	0.19	1.6
Isopropylbenzene		0.27	U	0.27	1.6
Methyl acetate		1.4	U	1.4	7.9
Methyl tert-butyl ether		0.27	U	0.27	1.6
Methylcyclohexane		0.79	U	0.79	1.6
Methylene Chloride		0.51	U	0.51	1.6
m-Xylene & p-Xylene		0.17	U	0.17	1.6
o-Xylene		0.25	U	0.25	1.6
Styrene		0.24	U	0.24	1.6
Tetrachloroethene		0.44	U	0.44	1.6
Toluene		0.30	U	0.30	1.6
trans-1,2-Dichloroethene		0.62	U	0.62	1.6
2-Methyl-2-propanol		5.5	U ← J	5.5	16

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **SB-308-S-4.0-4.5**

Lab Sample ID: 460-104542-1
Client Matrix: Solid

% Moisture: 39.7

Date Sampled: 11/12/2015 1130
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-336667	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335070	Lab File ID:	D16743.D
Dilution:	1.0			Initial Weight/Volume:	5.24 g
Analysis Date:	11/21/2015 0144			Final Weight/Volume:	5 mL
Prep Date:	11/12/2015 2128				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.16	U	0.16	1.6
Trichloroethene		0.41	U	0.41	1.6
Trichlorofluoromethane		0.54	U	0.54	1.6
Vinyl chloride		0.62	U	0.62	1.6
1,2-Dichloroethane		0.17	U	0.17	1.6
1,2-Dichlorobenzene		0.22	U	0.22	1.6
1,2-Dibromo-3-Chloropropane		0.74	U	0.74	1.6
1,1,1,2-Tetrachloroethane		0.65	U	0.65	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		78 - 135
4-Bromofluorobenzene	91		67 - 126
Dibromofluoromethane (Surr)	104		61 - 149
Toluene-d8 (Surr)	92		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **SB-308-S-4.0-4.5**

Lab Sample ID: 460-104542-1
Client Matrix: Solid

% Moisture: 39.7

Date Sampled: 11/12/2015 1130
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/21/2015 0144
Prep Date: 11/12/2015 2128

Analysis Batch: 460-336667
Prep Batch: 460-335070

Instrument ID: CVOAMS4
Lab File ID: D16743.D
Initial Weight/Volume: 5.24 g
Final Weight/Volume: 5 mL

Tentatively Identified Compounds

Number TIC's Found: 1

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
5989-27-5	D-Limonene	10.98	27	J N

Client Sample ID: **SB-303-S-3.25-3.75**

Lab Sample ID: 460-104542-2
Client Matrix: Solid
% Moisture: 23.2

Date Sampled: 11/12/2015 1350
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/21/2015 0208
Prep Date: 11/12/2015 2129

Analysis Batch: 460-336667
Prep Batch: 460-335070

Instrument ID: CVOAMS4
Lab File ID: D16744.D
Initial Weight/Volume: 5.22 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.47	U	0.47	1.2
1,1,2,2-Tetrachloroethane		0.21	U	0.21	1.2
1,1,2-Trichloro-1,2,2-trifluoroethane		0.55	U	0.55	1.2
1,1,2-Trichloroethane		0.35	U	0.35	1.2
1,1-Dichloroethane		0.42	U	0.42	1.2
1,1-Dichloroethene		0.51	U	0.51	1.2
1,2,3-Trichlorobenzene		0.14	U	0.14	1.2
1,2,4-Trichlorobenzene		0.40	U	0.40	1.2
1,2-Dichloropropane		0.21	U	0.21	1.2
1,3-Dichlorobenzene		0.15	U	0.15	1.2
1,4-Dichlorobenzene		0.16	U	0.16	1.2
1,4-Dioxane		8.0	U	8.0	25
2-Butanone (MEK)		3.7	J	0.96	6.2
2-Hexanone		1.2	U	1.2	6.2
4-Methyl-2-pentanone (MIBK)		2.8	U	2.8	6.2
Acetone		11		1.3	6.2
Benzene		6.3		0.25	1.2
Bromoform		0.16	U	0.16	1.2
Bromomethane		0.40	U	0.40	1.2
Carbon disulfide		0.54	U	0.54	1.2
Carbon tetrachloride		0.54	U	0.54	1.2
Chlorobenzene		0.17	U	0.17	1.2
Chlorobromomethane		0.21	U	0.21	1.2
Chlorodibromomethane		0.19	U	0.19	1.2
Chloroethane		0.44	U	0.44	1.2
Chloroform		0.26	U	0.26	1.2
Chloromethane		0.47	U	0.47	1.2
cis-1,2-Dichloroethene		0.27	U	0.27	1.2
cis-1,3-Dichloropropene		0.19	U	0.19	1.2
Cyclohexane		0.57	U	0.57	1.2
Dichlorobromomethane		0.47	U	0.47	1.2
Dichlorodifluoromethane		0.40	U	0.40	1.2
Ethylbenzene		0.24	J	0.22	1.2
Ethylene Dibromide		0.15	U	0.15	1.2
Isopropylbenzene		0.21	U	0.21	1.2
Methyl acetate		1.1	U	1.1	6.2
Methyl tert-butyl ether		0.21	U	0.21	1.2
Methylcyclohexane		0.62	U	0.62	1.2
Methylene Chloride		0.40	U	0.40	1.2
m-Xylene & p-Xylene		0.28	J	0.14	1.2
o-Xylene		0.20	U	0.20	1.2
Styrene		0.19	U	0.19	1.2
Tetrachloroethene		0.35	U	0.35	1.2
Toluene		0.24	U	0.24	1.2
trans-1,2-Dichloroethene		0.49	U	0.49	1.2
2-Methyl-2-propanol		4.4	U	4.4	12

Client Sample ID: **SB-303-S-3.25-3.75**

Lab Sample ID: 460-104542-2
Client Matrix: Solid

% Moisture: 23.2

Date Sampled: 11/12/2015 1350
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/21/2015 0208
Prep Date: 11/12/2015 2129

Analysis Batch: 460-336667
Prep Batch: 460-335070

Instrument ID: CVOAMS4
Lab File ID: D16744.D
Initial Weight/Volume: 5.22 g
Final Weight/Volume: 5 mL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene	0.12	U	0.12	1.2
Trichloroethene	0.32	U	0.32	1.2
Trichlorofluoromethane	0.42	U	0.42	1.2
Vinyl chloride	0.49	U	0.49	1.2
1,2-Dichloroethane	0.14	U	0.14	1.2
1,2-Dichlorobenzene	0.17	U	0.17	1.2
1,2-Dibromo-3-Chloropropane	0.59	U J	0.59	1.2
1,1,1,2-Tetrachloroethane	0.51	U	0.51	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		78 - 135
4-Bromofluorobenzene	93		67 - 126
Dibromofluoromethane (Surr)	106		61 - 149
Toluene-d8 (Surr)	93		73 - 121

Client Sample ID: **SB-303-S-3.25-3.75**

Lab Sample ID: 460-104542-2
Client Matrix: Solid

% Moisture: 23.2

Date Sampled: 11/12/2015 1350
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-336667	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335070	Lab File ID:	D16744.D
Dilution:	1.0			Initial Weight/Volume:	5.22 g
Analysis Date:	11/21/2015 0208			Final Weight/Volume:	5 mL
Prep Date:	11/12/2015 2129				

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte Tentatively Identified Compound	RT	Est. Result (ug/Kg)	Qualifier
	None			

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **DUP-1-S**

Lab Sample ID: 460-104542-3
Client Matrix: Solid

% Moisture: 25.8

Date Sampled: 11/12/2015 0800
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-336667	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335070	Lab File ID:	D16745.D
Dilution:	1.0			Initial Weight/Volume:	4.31 g
Analysis Date:	11/21/2015 0232			Final Weight/Volume:	5 mL
Prep Date:	11/12/2015 2130				

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.59	U	0.59	1.6
1,1,2,2-Tetrachloroethane	0.27	U	0.27	1.6
1,1,2-Trichloro-1,2,2-trifluoroethane	0.69	U	0.69	1.6
1,1,2-Trichloroethane	0.44	U	0.44	1.6
1,1-Dichloroethane	0.53	U	0.53	1.6
1,1-Dichloroethene	0.64	U	0.64	1.6
1,2,3-Trichlorobenzene	0.17	U	0.17	1.6
1,2,4-Trichlorobenzene	0.50	U	0.50	1.6
1,2-Dichloropropane	0.27	U	0.27	1.6
1,3-Dichlorobenzene	0.19	U	0.19	1.6
1,4-Dichlorobenzene	0.20	U	0.20	1.6
1,4-Dioxane	10	U	10	31
2-Butanone (MEK)	13		1.2	7.8
2-Hexanone	1.5	U	1.5	7.8
4-Methyl-2-pentanone (MIBK)	3.5	U	3.5	7.8
Acetone	49		1.7	7.8
Benzene	0.31	U	0.31	1.6
Bromoform	0.20	U	0.20	1.6
Bromomethane	0.50	U	0.50	1.6
Carbon disulfide	0.67	U	0.67	1.6
Carbon tetrachloride	0.67	U	0.67	1.6
Chlorobenzene	0.22	U	0.22	1.6
Chlorobromomethane	0.27	U	0.27	1.6
Chlorodibromomethane	0.23	U	0.23	1.6
Chloroethane	0.55	U	0.55	1.6
Chloroform	0.33	U	0.33	1.6
Chloromethane	0.59	U	0.59	1.6
cis-1,2-Dichloroethene	0.34	U	0.34	1.6
cis-1,3-Dichloropropene	0.23	U	0.23	1.6
Cyclohexane	0.72	U	0.72	1.6
Dichlorobromomethane	0.59	U	0.59	1.6
Dichlorodifluoromethane	0.50	U	0.50	1.6
Ethylbenzene	0.28	U	0.28	1.6
Ethylene Dibromide	0.19	U	0.19	1.6
Isopropylbenzene	0.27	U	0.27	1.6
Methyl acetate	1.4	U	1.4	7.8
Methyl tert-butyl ether	0.27	U	0.27	1.6
Methylcyclohexane	0.78	U	0.78	1.6
Methylene Chloride	0.50	U	0.50	1.6
m-Xylene & p-Xylene	0.17	U	0.17	1.6
o-Xylene	0.25	U	0.25	1.6
Styrene	0.23	U	0.23	1.6
Tetrachloroethene	0.44	U	0.44	1.6
Toluene	0.30	U	0.30	1.6
trans-1,2-Dichloroethene	0.61	U	0.61	1.6
2-Methyl-2-propanol	5.5	U J	5.5	16

Client Sample ID: **DUP-1-S**

Lab Sample ID: 460-104542-3
Client Matrix: Solid

% Moisture: 25.8

Date Sampled: 11/12/2015 0800
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/21/2015 0232
Prep Date: 11/12/2015 2130

Analysis Batch: 460-336667
Prep Batch: 460-335070

Instrument ID: CVOAMS4
Lab File ID: D16745.D
Initial Weight/Volume: 4.31 g
Final Weight/Volume: 5 mL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene	0.16	U	0.16	1.6
Trichloroethene	0.41	U	0.41	1.6
Trichlorofluoromethane	0.53	U	0.53	1.6
Vinyl chloride	0.61	U	0.61	1.6
1,2-Dichloroethane	0.17	U	0.17	1.6
1,2-Dichlorobenzene	0.22	U	0.22	1.6
1,2-Dibromo-3-Chloropropane	0.73	U J	0.73	1.6
1,1,1,2-Tetrachloroethane	0.64	U	0.64	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	122		78 - 135
4-Bromofluorobenzene	106		67 - 126
Dibromofluoromethane (Surr)	121		61 - 149
Toluene-d8 (Surr)	108		73 - 121

Client Sample ID: **DUP-1-S**

Lab Sample ID: 460-104542-3
Client Matrix: Solid

% Moisture: 25.8

Date Sampled: 11/12/2015 0800
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-336667	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335070	Lab File ID:	D16745.D
Dilution:	1.0			Initial Weight/Volume:	4.31 g
Analysis Date:	11/21/2015 0232			Final Weight/Volume:	5 mL
Prep Date:	11/12/2015 2130				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **TB-151112**

Lab Sample ID: 460-104542-4TB
Client Matrix: Water

Date Sampled: 11/12/2015 0000
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/16/2015 0013
Prep Date: 11/16/2015 0013

Analysis Batch: 460-335511
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33417.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U J	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U J	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U J	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U J	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U J	0.63	5.0
Acetone	1.1	U	1.1	5.0
Benzene	0.090	U J	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U	0.37	1.0
Chloroform	0.22	U J	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U J	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U J	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U J	0.32	1.0
Methyl acetate	0.58	U J	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U J	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **TB-151112**

Lab Sample ID: 460-104542-4TB
Client Matrix: Water

Date Sampled: 11/12/2015 0000
Date Received: 11/12/2015 1730

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/16/2015 0013
Prep Date: 11/16/2015 0013

Analysis Batch: 460-335511
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33417.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	113		70 - 137
4-Bromofluorobenzene	108		70 - 131
Dibromofluoromethane (Surr)	114		72 - 136
Toluene-d8 (Surr)	101		74 - 120

Client Sample ID: **SB-308-S-4.0-4.5**

Lab Sample ID: 460-104542-1
Client Matrix: Solid

% Moisture: 39.7

Date Sampled: 11/12/2015 1130
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/18/2015 1111
Prep Date: 11/17/2015 1524

Analysis Batch: 460-335977
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8571.D
Initial Weight/Volume: 15.0512 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl	47	U	47	550
1,2,4,5-Tetrachlorobenzene	41	U	41	550
2,2'-oxybis[1-chloropropane]	22	U	22	550
2,3,4,6-Tetrachlorophenol	51	U	51	550
2,4,5-Trichlorophenol	54	U	54	550
2,4,6-Trichlorophenol	16	U	16	220
2,4-Dichlorophenol	13	U	13	220
2,4-Dimethylphenol	120	U	120	550
2,4-Dinitrophenol	410	U	410	440
2,4-Dinitrotoluene	22	U	22	110
2,6-Dinitrotoluene	29	U	29	110
2-Chloronaphthalene	12	U	12	550
2-Chlorophenol	14	U	14	550
2-Methylnaphthalene	200	J	12	550
2-Methylphenol	24	U	24	550
2-Nitroaniline	18	U J	18	550
2-Nitrophenol	18	U	18	550
3,3'-Dichlorobenzidine	61	U	61	220
3-Nitroaniline	16	U	16	550
4,6-Dinitro-2-methylphenol	150	U	150	440
4-Bromophenyl phenyl ether	17	U	17	550
4-Chloro-3-methylphenol	23	U	23	550
4-Chloroaniline	14	U	14	550
4-Chlorophenyl phenyl ether	16	U	16	550
4-Methylphenol	30	J	15	550
4-Nitroaniline	21	U	21	550
4-Nitrophenol	260	U	260	1100
Acenaphthene	170	J	13	550
Acenaphthylene	47	J	14	550
Acetophenone	12	U	12	550
Anthracene	560		52	550
Atrazine	24	U	24	220
Benzaldehyde	73	J	42	550
Benzo[a]anthracene	640	J J	46	55
Benzo[a]pyrene	530	J J	17	55
Benzo[b]fluoranthene	500	J	21	55
Benzo[g,h,i]perylene	290	J	31	550
Benzo[k]fluoranthene	170		24	55
Bis(2-chloroethoxy)methane	17	U	17	550
Bis(2-chloroethyl)ether	13	U	13	55
Bis(2-ethylhexyl) phthalate	21	U	21	550
Butyl benzyl phthalate	17	U	17	550
Caprolactam	39	U	39	550
Carbazole	31	J	14	550
Chrysene	800		15	550
Dibenz(a,h)anthracene	150		28	55

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: SB-308-S-4.0-4.5

Lab Sample ID: 460-104542-1
Client Matrix: Solid

% Moisture: 39.7

Date Sampled: 11/12/2015 1130
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/18/2015 1111
Prep Date: 11/17/2015 1524

Analysis Batch: 460-335977
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8571.D
Initial Weight/Volume: 15.0512 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		17	U	17	550
Diethyl phthalate		16	U	16	550
Dimethyl phthalate		16	U	16	550
Di-n-butyl phthalate		16	U	16	550
Di-n-octyl phthalate		28	U	28	550
Fluoranthene		860		16	550
Fluorene		130	J	12	550
Hexachlorobenzene		22	U	22	55
Hexachlorobutadiene		15	U	15	110
Hexachlorocyclopentadiene		34	U	34	550
Hexachloroethane		20	U	20	55
Indeno[1,2,3-cd]pyrene		370	J	36	55
Isophorone		12	U	12	220
Naphthalene		330	J	14	550
Nitrobenzene		17	U	17	55
N-Nitrosodi-n-propylamine		18	U	18	55
N-Nitrosodiphenylamine		50	U	50	550
Pentachlorophenol		66	U	66	440
Phenanthrene		3600	J	15	550
Phenol		18	U	18	550
Pyrene		910		25	550

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	40		10 - 95
2-Fluorobiphenyl	67		27 - 84
2-Fluorophenol (Surr)	54		21 - 84
Nitrobenzene-d5 (Surr)	62		28 - 92
Phenol-d5 (Surr)	52		22 - 88
Terphenyl-d14 (Surr)	57		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **SB-303-S-3.25-3.75**

Lab Sample ID: 460-104542-2
Client Matrix: Solid

% Moisture: 23.2

Date Sampled: 11/12/2015 1350
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/20/2015 0316
Prep Date: 11/17/2015 1524

Analysis Batch: 460-336422
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8661.D
Initial Weight/Volume: 15.0441 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		82	J	37	430
1,2,4,5-Tetrachlorobenzene		32	U	32	430
2,2'-oxybis[1-chloropropane]		18	U	18	430
2,3,4,6-Tetrachlorophenol		40	U	40	430
2,4,5-Trichlorophenol		43	U	43	430
2,4,6-Trichlorophenol		12	U	12	170
2,4-Dichlorophenol		10	U	10	170
2,4-Dimethylphenol		94	U	94	430
2,4-Dinitrophenol		320	U	320	350
2,4-Dinitrotoluene		17	U	17	87
2,6-Dinitrotoluene		23	U	23	87
2-Chloronaphthalene		9.7	U	9.7	430
2-Chlorophenol		11	U	11	430
2-Methylnaphthalene		260	J	9.5	430
2-Methylphenol		19	U	19	430
2-Nitroaniline		14	U	14	430
2-Nitrophenol		14	U	14	430
3,3'-Dichlorobenzidine		48	U	48	170
3-Nitroaniline		13	U	13	430
4,6-Dinitro-2-methylphenol		110	U	110	350
4-Bromophenyl phenyl ether		13	U	13	430
4-Chloro-3-methylphenol		18	U	18	430
4-Chloroaniline		11	U	11	430
4-Chlorophenyl phenyl ether		13	U	13	430
4-Methylphenol		12	U	12	430
4-Nitroaniline		16	U	16	430
4-Nitrophenol		210	U	210	870
Acenaphthene		440		10	430
Acenaphthylene		110	J	11	430
Acetophenone		54	J	9.3	430
Anthracene		760		41	430
Atrazine		19	U	19	170
Benzaldehyde		33	U	33	430
Benzo[a]anthracene		3900		36	43
Benzo[a]pyrene		6600		13	43
Benzo[b]fluoranthene		6100		17	43
Benzo[g,h,i]perylene		6200		25	430
Benzo[k]fluoranthene		2900		19	43
Bis(2-chloroethoxy)methane		13	U	13	430
Bis(2-chloroethyl)ether		10	U	10	43
Bis(2-ethylhexyl) phthalate		160	J	17	430
Butyl benzyl phthalate		17	J	13	430
Caprolactam		31	U	31	430
Carbazole		240	J	11	430
Chrysene		4300		12	430
Dibenz(a,h)anthracene		1500		22	43

Client: ARCADIS U.S. Inc

Job Number: 460-104542-1

Client Sample ID: **SB-303-S-3.25-3.75**

Lab Sample ID: 460-104542-2
Client Matrix: Solid

% Moisture: 23.2

Date Sampled: 11/12/2015 1350
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/20/2015 0316
Prep Date: 11/17/2015 1524

Analysis Batch: 460-336422
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8661.D
Initial Weight/Volume: 15.0441 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran	240	J	13	430
Diethyl phthalate	12	U	12	430
Dimethyl phthalate	12	U	12	430
Di-n-butyl phthalate	13	U	13	430
Di-n-octyl phthalate	22	U	22	430
Fluoranthene	3700		13	430
Fluorene	310	J	9.3	430
Hexachlorobenzene	17	U	17	43
Hexachlorobutadiene	12	U	12	87
Hexachlorocyclopentadiene	27	U	27	430
Hexachloroethane	16	U	16	43
Indeno[1,2,3-cd]pyrene	6500		29	43
Isophorone	9.2	U	9.2	170
Naphthalene	2700		11	430
Nitrobenzene	13	U	13	43
N-Nitrosodi-n-propylamine	14	U	14	43
N-Nitrosodiphenylamine	39	U	39	430
Pentachlorophenol	52	U	52	350
Phenanthrene	2100		11	430
Phenol	14	U	14	430
Pyrene	3800		19	430

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	21		10 - 95
2-Fluorobiphenyl	67		27 - 84
2-Fluorophenol (Surr)	51		21 - 84
Nitrobenzene-d5 (Surr)	62		28 - 92
Phenol-d5 (Surr)	55		22 - 88
Terphenyl-d14 (Surr)	73		16 - 114

Client Sample ID: **DUP-1-S**

Lab Sample ID: 460-104542-3
Client Matrix: Solid

% Moisture: 25.8

Date Sampled: 11/12/2015 0800
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2051
Prep Date: 11/17/2015 1524

Analysis Batch: 460-336422
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8648.D
Initial Weight/Volume: 15.0347 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl	38	U	38	440
1,2,4,5-Tetrachlorobenzene	33	U	33	440
2,2'-oxybis[1-chloropropane]	18	U	18	440
2,3,4,6-Tetrachlorophenol	42	U	42	440
2,4,5-Trichlorophenol	44	U	44	440
2,4,6-Trichlorophenol	13	U	13	180
2,4-Dichlorophenol	10	U	10	180
2,4-Dimethylphenol	98	U	98	440
2,4-Dinitrophenol	340	U	340	360
2,4-Dinitrotoluene	18	U	18	90
2,6-Dinitrotoluene	24	U	24	90
2-Chloronaphthalene	10	U	10	440
2-Chlorophenol	11	U	11	440
2-Methylnaphthalene	100	J	9.8	440
2-Methylphenol	19	U	19	440
2-Nitroaniline	15	U	15	440
2-Nitrophenol	15	U	15	440
3,3'-Dichlorobenzidine	50	U	50	180
3-Nitroaniline	13	U	13	440
4,6-Dinitro-2-methylphenol	120	U	120	360
4-Bromophenyl phenyl ether	14	U	14	440
4-Chloro-3-methylphenol	19	U	19	440
4-Chloroaniline	11	U	11	440
4-Chlorophenyl phenyl ether	13	U	13	440
4-Methylphenol	12	U	12	440
4-Nitroaniline	17	U	17	440
4-Nitrophenol	210	U	210	900
Acenaphthene	94	J	11	440
Acenaphthylene	16	J	11	440
Acetophenone	9.7	U	9.7	440
Anthracene	180	J	42	440
Atrazine	20	U	20	180
Benzaldehyde	48	J	34	440
Benzo[a]anthracene	230	J	37	44
Benzo[a]pyrene	170	J	13	44
Benzo[b]fluoranthene	210	J	17	44
Benzo[g,h,i]perylene	100	J	26	440
Benzo[k]fluoranthene	82	J	19	44
Bis(2-chloroethoxy)methane	14	U	14	440
Bis(2-chloroethyl)ether	10	U	10	44
Bis(2-ethylhexyl) phthalate	200	J	17	440
Butyl benzyl phthalate	14	U	14	440
Caprolactam	32	U	32	440
Carbazole	12	J	11	440
Chrysene	240	J	12	440
Dibenz(a,h)anthracene	50		23	44

Client Sample ID: **DUP-1-S**

Lab Sample ID: 460-104542-3
Client Matrix: Solid

% Moisture: 25.8

Date Sampled: 11/12/2015 0800
Date Received: 11/12/2015 1730

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2051
Prep Date: 11/17/2015 1524

Analysis Batch: 460-336422
Prep Batch: 460-335916

Instrument ID: CBNAMS5
Lab File ID: x8648.D
Initial Weight/Volume: 15.0347 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran	23	J	13	440
Diethyl phthalate	13	U	13	440
Dimethyl phthalate	13	U	13	440
Di-n-butyl phthalate	13	U	13	440
Di-n-octyl phthalate	23	U	23	440
Fluoranthene	300	J	13	440
Fluorene	68	J	9.7	440
Hexachlorobenzene	18	U	18	44
Hexachlorobutadiene	13	U	13	90
Hexachlorocyclopentadiene	28	U	28	440
Hexachloroethane	16	U	16	44
Indeno[1,2,3-cd]pyrene	110	U	30	44
Isophorone	9.5	U	9.5	180
Naphthalene	160	J	11	440
Nitrobenzene	14	U	14	44
N-Nitrosodi-n-propylamine	15	U	15	44
N-Nitrosodiphenylamine	40	U	40	440
Pentachlorophenol	54	U	54	360
Phenanthrene	990	U	12	440
Phenol	15	U	15	440
Pyrene	460	U	20	440

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	37		10 - 95
2-Fluorobiphenyl	51		27 - 84
2-Fluorophenol (Surr)	46		21 - 84
Nitrobenzene-d5 (Surr)	53		28 - 92
Phenol-d5 (Surr)	43		22 - 88
Terphenyl-d14 (Surr)	70		16 - 114

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460-104542 Chain of Custody

New Durham Road
on, New Jersey 08817
ie: (732) 549-3900 Fax: (732) 549-3679

11/23/2015

Name (for report and invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/Project Identification ConEdison Bayview
Company Arcadis	P. O. # B0043000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 855 3rd Avenue, 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	LAB USE ONLY Project No:
Phone 415.744.4900 Fax 212.682.9275		Job No: 104542

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8260	SVOCs 8270	Sample Numbers
SB-305-S-4.0-4.5	11/12/15	1130	S	5	X	X	-1
SB-303-S-3.25-3.75	11/12/15	1350	S	5	X	X	-2
DUP-1-S	11/12/15	0800	S	5	X	X	-3
TB-151112	11/12/15	—	W	2	X		-4

SHORT HOLD

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____

Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

	Company	Date / Time		Company
Relinquished by 1)	Arcadis	11/12/15 1537	Received by 1)	T. B
Relinquished by 2)	T. B	11/12/15 1730	Received by 2)	Con Ed
Relinquished by 3)			Received by 3)	
Relinquished by 4)			Received by 4)	

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).

Massachusetts (M-NJ312), North Carolina (No. 578) 1.5 (1.0 TRIP BLK.)

TAL - 0016 (0814)

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-302-S-1.5-2.0**

Lab Sample ID: 460-104623-1
Client Matrix: Solid

% Moisture: 28.1

Date Sampled: 11/13/2015 1050
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0919
Prep Date: 11/14/2015 0745

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16932.D
Initial Weight/Volume: 4.97 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.53	U	0.53	1.4
1,1,2,2-Tetrachloroethane		0.24	U J	0.24	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane		0.62	U	0.62	1.4
1,1,2-Trichloroethane		0.39	U	0.39	1.4
1,1-Dichloroethane		0.48	U	0.48	1.4
1,1-Dichloroethene		0.57	U	0.57	1.4
1,2,3-Trichlorobenzene		0.15	U	0.15	1.4
1,2,4-Trichlorobenzene		0.45	U	0.45	1.4
1,2-Dichloropropane		0.24	U J	0.24	1.4
1,3-Dichlorobenzene		0.17	U	0.17	1.4
1,4-Dichlorobenzene		0.18	U	0.18	1.4
1,4-Dioxane		8.9	U	8.9	28
2-Butanone (MEK)		8.4		1.1	7.0
2-Hexanone		1.3	U	1.3	7.0
4-Methyl-2-pentanone (MIBK)		3.1	U	3.1	7.0
Acetone		21		1.5	7.0
Benzene		1.3	J	0.28	1.4
Bromoform		0.18	U	0.18	1.4
Bromomethane		0.45	U	0.45	1.4
Carbon disulfide		0.75	J	0.60	1.4
Carbon tetrachloride		0.60	U	0.60	1.4
Chlorobenzene		0.20	U	0.20	1.4
Chlorobromomethane		0.24	U	0.24	1.4
Chlorodibromomethane		0.21	U	0.21	1.4
Chloroethane		0.49	U	0.49	1.4
Chloroform		0.29	U	0.29	1.4
Chloromethane		0.53	U J	0.53	1.4
cis-1,2-Dichloroethene		0.31	U	0.31	1.4
cis-1,3-Dichloropropene		0.21	U	0.21	1.4
Cyclohexane		0.91	J	0.64	1.4
Dichlorobromomethane		0.53	U	0.53	1.4
Dichlorodifluoromethane		0.45	U	0.45	1.4
Ethylbenzene		0.25	U	0.25	1.4
Ethylene Dibromide		0.17	U	0.17	1.4
Isopropylbenzene		0.99	J	0.24	1.4
Methyl acetate		1.3	U J	1.3	7.0
Methyl tert-butyl ether		0.24	U	0.24	1.4
Methylcyclohexane		5.5		0.70	1.4
Methylene Chloride		0.45	U	0.45	1.4
m-Xylene & p-Xylene		0.41	J	0.15	1.4
o-Xylene		0.33	J	0.22	1.4
Styrene		0.21	U	0.21	1.4
Tetrachloroethene		0.39	U	0.39	1.4
Toluene		0.46	J	0.27	1.4
trans-1,2-Dichloroethene		0.55	U	0.55	1.4
2-Methyl-2-propanol		4.9	U J	4.9	14

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-302-S-1.5-2.0**

Lab Sample ID: 460-104623-1
Client Matrix: Solid

% Moisture: 28.1

Date Sampled: 11/13/2015 1050
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0919
Prep Date: 11/14/2015 0745

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16932.D
Initial Weight/Volume: 4.97 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.14	U	0.14	1.4
Trichloroethene		0.36	U	0.36	1.4
Trichlorofluoromethane		0.48	U	0.48	1.4
Vinyl chloride		0.55	U J	0.55	1.4
1,2-Dichloroethane		0.15	U	0.15	1.4
1,2-Dichlorobenzene		0.20	U	0.20	1.4
1,2-Dibromo-3-Chloropropane		0.66	U J	0.66	1.4
1,1,1,2-Tetrachloroethane		0.57	U	0.57	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	94		78 - 135
4-Bromofluorobenzene	106		67 - 126
Dibromofluoromethane (Surr)	96		61 - 149
Toluene-d8 (Surr)	95		73 - 121

Client Sample ID: SB-302-S-1.5-2.0

Lab Sample ID: 460-104623-1
Client Matrix: Solid

% Moisture: 28.1

Date Sampled: 11/13/2015 1050
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0919
Prep Date: 11/14/2015 0745

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16932.D
Initial Weight/Volume: 4.97 g
Final Weight/Volume: 5 mL

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
1678-93-9	Cyclohexane, butyl-	10.94	120	J N
493-02-7	Naphthalene, decahydro-, trans-	11.30	190	J N
	Unknown	11.42	130	J N
	Unknown	11.48	140	J N
1000152-47-3	trans-Decalin, 2-methyl-	11.68	140	J N
527-53-7	Benzene, 1,2,3,5-tetramethyl-	11.78	300	J N
2958-76-1	Naphthalene, decahydro-2-methyl-	11.89	120	J N
17059-48-2	1H-Indene, 2,3-dihydro-1,6-dimethyl-	11.95	190	J N
	Unknown	12.78	230	J N
		12.87	170	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-18.0-18.5**

Lab Sample ID: 460-104623-2
Client Matrix: Solid

% Moisture: 37.9

Date Sampled: 11/13/2015 1455
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0944
Prep Date: 11/14/2015 0746

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16933.D
Initial Weight/Volume: 4.38 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.70	U	0.70	1.8
1,1,2,2-Tetrachloroethane		0.31	U J	0.31	1.8
1,1,2-Trichloro-1,2,2-trifluoroethane		0.81	U	0.81	1.8
1,1,2-Trichloroethane		0.51	U	0.51	1.8
1,1-Dichloroethane		0.63	U	0.63	1.8
1,1-Dichloroethene		0.75	U	0.75	1.8
1,2,3-Trichlorobenzene		0.20	U	0.20	1.8
1,2,4-Trichlorobenzene		0.59	U	0.59	1.8
1,2-Dichloropropane		0.31	U J	0.31	1.8
1,3-Dichlorobenzene		0.22	U	0.22	1.8
1,4-Dichlorobenzene		0.24	U	0.24	1.8
1,4-Dioxane		12	U	12	37
2-Butanone (MEK)		12		1.4	9.2
2-Hexanone		1.7	U	1.7	9.2
4-Methyl-2-pentanone (MIBK)		4.1	U	4.1	9.2
Acetone		32		1.9	9.2
Benzene		28		0.37	1.8
Bromoform		0.24	U	0.24	1.8
Bromomethane		0.59	U	0.59	1.8
Carbon disulfide		0.79	U	0.79	1.8
Carbon tetrachloride		0.79	U	0.79	1.8
Chlorobenzene		0.26	U	0.26	1.8
Chlorobromomethane		0.31	U	0.31	1.8
Chlorodibromomethane		0.28	U	0.28	1.8
Chloroethane		0.64	U	0.64	1.8
Chloroform		0.39	U	0.39	1.8
Chloromethane		0.70	U J	0.70	1.8
cis-1,2-Dichloroethene		0.40	U	0.40	1.8
cis-1,3-Dichloropropene		0.28	U	0.28	1.8
Cyclohexane		0.85	U	0.85	1.8
Dichlorobromomethane		0.70	U	0.70	1.8
Dichlorodifluoromethane		0.59	U	0.59	1.8
Ethylbenzene		160		0.33	1.8
Ethylene Dibromide		0.22	U	0.22	1.8
Isopropylbenzene		130		0.31	1.8
Methyl acetate		1.7	U J	1.7	9.2
Methyl tert-butyl ether		0.31	U	0.31	1.8
Methylcyclohexane		0.92	U	0.92	1.8
Methylene Chloride		0.59	U	0.59	1.8
m-Xylene & p-Xylene		220		0.20	1.8
o-Xylene		180		0.29	1.8
Styrene		0.28	U	0.28	1.8
Tetrachloroethene		0.51	U	0.51	1.8
Toluene		9.7		0.35	1.8
trans-1,2-Dichloroethene		0.72	U	0.72	1.8
2-Methyl-2-propanol		6.4	U J	6.4	18

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-18.0-18.5**

Lab Sample ID: 460-104623-2
Client Matrix: Solid

% Moisture: 37.9

Date Sampled: 11/13/2015 1455
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337315	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335371	Lab File ID:	D16933.D
Dilution:	1.0			Initial Weight/Volume:	4.38 g
Analysis Date:	11/25/2015 0944			Final Weight/Volume:	5 mL
Prep Date:	11/14/2015 0746				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene		0.18	U	0.18	1.8
Trichloroethene		0.48	U	0.48	1.8
Trichlorofluoromethane		0.63	U	0.63	1.8
Vinyl chloride		0.72	U J	0.72	1.8
1,2-Dichloroethane		0.20	U	0.20	1.8
1,2-Dichlorobenzene		0.26	U	0.26	1.8
1,2-Dibromo-3-Chloropropane		0.86	U J	0.86	1.8
1,1,1,2-Tetrachloroethane		0.75	U	0.75	1.8

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		78 - 135
4-Bromofluorobenzene	120		67 - 126
Dibromofluoromethane (Surr)	105		61 - 149
Toluene-d8 (Surr)	104		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-18.0-18.5**

Lab Sample ID: 460-104623-2
Client Matrix: Solid

% Moisture: 37.9

Date Sampled: 11/13/2015 1455
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337315	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335371	Lab File ID:	D16933.D
Dilution:	1.0			Initial Weight/Volume:	4.38 g
Analysis Date:	11/25/2015 0944			Final Weight/Volume:	5 mL
Prep Date:	11/14/2015 0746				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
620-14-4	Benzene, 1-ethyl-3-methyl-	10.47	740	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.81	240	J N
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	10.99	980	J N
526-73-8	Benzene, 1,2,3-trimethyl-	11.12	160	J N
141-93-5	Benzene, 1,3-diethyl-	11.23	290	J N
496-11-7	Indane	11.26	110	J N
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-	11.66	380	J N
91-20-3	Naphthalene	13.01	2200	J N
91-57-6	Naphthalene, 2-methyl-	14.49	1300	J N
90-12-0	Naphthalene, 1-methyl-	14.80	690	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-165.-17.0**

Lab Sample ID: 460-104623-3
Client Matrix: Solid

% Moisture: 30.6

Date Sampled: 11/13/2015 1505
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0726
Prep Date: 11/14/2015 0747

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16931.D
Initial Weight/Volume: 5.25 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1-Trichloroethane		0.52	U	0.52	1.4
1,1,2,2-Tetrachloroethane		0.23	U J	0.23	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane		0.60	U	0.60	1.4
1,1,2-Trichloroethane		0.38	U	0.38	1.4
1,1-Dichloroethane		0.47	U	0.47	1.4
1,1-Dichloroethene		0.56	U	0.56	1.4
1,2,3-Trichlorobenzene		0.15	U	0.15	1.4
1,2,4-Trichlorobenzene		0.44	U	0.44	1.4
1,2-Dichloropropane		0.23	U J	0.23	1.4
1,3-Dichlorobenzene		0.16	U	0.16	1.4
1,4-Dichlorobenzene		0.18	U	0.18	1.4
1,4-Dioxane		8.8	U	8.8	27
2-Butanone (MEK)		12		1.1	6.9
2-Hexanone		1.3	U	1.3	6.9
4-Methyl-2-pentanone (MIBK)		3.0	U	3.0	6.9
Acetone		34		1.5	6.9
Benzene		1.6		0.27	1.4
Bromoform		0.18	U	0.18	1.4
Bromomethane		0.44	U	0.44	1.4
Carbon disulfide		0.59	U	0.59	1.4
Carbon tetrachloride		0.59	U	0.59	1.4
Chlorobenzene		0.19	U	0.19	1.4
Chlorobromomethane		0.23	U	0.23	1.4
Chlorodibromomethane		0.21	U	0.21	1.4
Chloroethane		0.48	U	0.48	1.4
Chloroform		0.29	U	0.29	1.4
Chloromethane		0.52	U J	0.52	1.4
cis-1,2-Dichloroethene		0.30	U	0.30	1.4
cis-1,3-Dichloropropene		0.21	U	0.21	1.4
Cyclohexane		0.63	U	0.63	1.4
Dichlorobromomethane		0.52	U	0.52	1.4
Dichlorodifluoromethane		0.44	U	0.44	1.4
Ethylbenzene		1.0	J	0.25	1.4
Ethylene Dibromide		0.16	U	0.16	1.4
Isopropylbenzene		8.8		0.23	1.4
Methyl acetate		1.2	U J	1.2	6.9
Methyl tert-butyl ether		0.23	U	0.23	1.4
Methylcyclohexane		0.69	U	0.69	1.4
Methylene Chloride		0.44	U	0.44	1.4
m-Xylene & p-Xylene		0.99	J	0.15	1.4
o-Xylene		13		0.22	1.4
Styrene		0.21	U	0.21	1.4
Tetrachloroethene		0.38	U	0.38	1.4
Toluene		0.39	J	0.26	1.4
trans-1,2-Dichloroethene		0.54	U	0.54	1.4
2-Methyl-2-propanol		4.8	U J	4.8	14

Client Sample ID: **SB-308-S-165.-17.0**

Lab Sample ID: 460-104623-3
Client Matrix: Solid

% Moisture: 30.6

Date Sampled: 11/13/2015 1505
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0726
Prep Date: 11/14/2015 0747

Analysis Batch: 460-337315
Prep Batch: 460-335371

Instrument ID: CVOAMS4
Lab File ID: D16931.D
Initial Weight/Volume: 5.25 g
Final Weight/Volume: 5 mL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
trans-1,3-Dichloropropene	0.14	U	0.14	1.4
Trichloroethene	0.36	U	0.36	1.4
Trichlorofluoromethane	0.47	U	0.47	1.4
Vinyl chloride	0.54	U J	0.54	1.4
1,2-Dichloroethane	0.15	U	0.15	1.4
1,2-Dichlorobenzene	0.19	U	0.19	1.4
1,2-Dibromo-3-Chloropropane	0.64	U J	0.64	1.4
1,1,1,2-Tetrachloroethane	0.56	U	0.56	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99		78 - 135
4-Bromofluorobenzene	107		67 - 126
Dibromofluoromethane (Surr)	99		61 - 149
Toluene-d8 (Surr)	92		73 - 121

Client Sample ID: **SB-308-S-165.-17.0**

Lab Sample ID: 460-104623-3
Client Matrix: Solid

% Moisture: 30.6

Date Sampled: 11/13/2015 1505
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337315	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335371	Lab File ID:	D16931.D
Dilution:	1.0			Initial Weight/Volume:	5.25 g
Analysis Date:	11/25/2015 0726			Final Weight/Volume:	5 mL
Prep Date:	11/14/2015 0747				

Tentatively Identified Compounds **Number TIC's Found: 9**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
1000142-17-5	Bicyclo[3.1.0]hexane, 1,5-dimethyl-	8.67	8.7	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.81	10	J N
535-77-3	Benzene, 1-methyl-3-(1-methylethyl)-	10.99	24	J N
526-73-8	Benzene, 1,2,3-trimethyl-	11.12	8.8	J N
	Indane	11.27	9.1	J N
4920-99-4	Benzene, 1-ethyl-3-(1-methylethyl)-	11.66	22	J N
91-20-3	Naphthalene	13.01	38	J N
91-57-6	Naphthalene, 2-methyl-	14.49	11	J N
90-12-0	Naphthalene, 1-methyl-	14.80	26	J N

Client Sample ID: **TB-151113**

Lab Sample ID: 460-104623-4TB
Client Matrix: Water

Date Sampled: 11/13/2015 0000
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/16/2015 2040
Prep Date: 11/16/2015 2040

Analysis Batch: 460-335703
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33462.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U J	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U J	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U J	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U J	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U J	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U J	0.63	5.0
Acetone	1.1	U	1.1	5.0
Benzene	0.090	U J	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U	0.37	1.0
Chloroform	0.22	U J	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U J	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U J	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U J	0.32	1.0
Methyl acetate	0.58	U J	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U J	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **TB-151113**

Lab Sample ID: 460-104623-4TB
Client Matrix: Water

Date Sampled: 11/13/2015 0000
Date Received: 11/13/2015 1750

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/16/2015 2040
Prep Date: 11/16/2015 2040

Analysis Batch: 460-335703
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33462.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	113		70 - 137
4-Bromofluorobenzene	106		70 - 131
Dibromofluoromethane (Surr)	116		72 - 136
Toluene-d8 (Surr)	99		74 - 120

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-302-S-1.5-2.0**

Lab Sample ID: 460-104623-1
Client Matrix: Solid

% Moisture: 28.1

Date Sampled: 11/13/2015 1050
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2251
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336422
Prep Batch: 460-336142

Instrument ID: CBNAMS5
Lab File ID: x8653.D
Initial Weight/Volume: 15.0221 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		39	U	39	460
1,2,4,5-Tetrachlorobenzene		34	U	34	460
2,2'-oxybis[1-chloropropane]		19	U	19	460
2,3,4,6-Tetrachlorophenol		43	U	43	460
2,4,5-Trichlorophenol		46	U	46	460
2,4,6-Trichlorophenol		13	U	13	180
2,4-Dichlorophenol		11	U	11	180
2,4-Dimethylphenol		100	U	100	460
2,4-Dinitrophenol		350	U	350	370
2,4-Dinitrotoluene		18	U	18	93
2,6-Dinitrotoluene		24	U	24	93
2-Chloronaphthalene		10	U	10	460
2-Chlorophenol		12	U	12	460
2-Methylnaphthalene		820		10	460
2-Methylphenol		20	U	20	460
2-Nitroaniline		15	U	15	460
2-Nitrophenol		15	U	15	460
3,3'-Dichlorobenzidine		51	U	51	180
3-Nitroaniline		14	U	14	460
4,6-Dinitro-2-methylphenol		120	U	120	370
4-Bromophenyl phenyl ether		14	U	14	460
4-Chloro-3-methylphenol		20	U	20	460
4-Chloroaniline		12	U	12	460
4-Chlorophenyl phenyl ether		14	U	14	460
4-Methylphenol		13	U	13	460
4-Nitroaniline		17	U J	17	460
4-Nitrophenol		220	U J	220	930
Acenaphthene		600		11	460
Acenaphthylene		12	U	12	460
Acetophenone		16	J	10	460
Anthracene		620		44	460
Atrazine		20	U	20	180
Benzaldehyde		35	U	35	460
Benzo[a]anthracene		2400		38	46
Benzo[a]pyrene		2900		14	46
Benzo[b]fluoranthene		3000		18	46
Benzo[g,h,i]perylene		2700		26	460
Benzo[k]fluoranthene		1200		20	46
Bis(2-chloroethoxy)methane		14	U	14	460
Bis(2-chloroethyl)ether		11	U	11	46
Bis(2-ethylhexyl) phthalate		430	J	18	460
Butyl benzyl phthalate		14	U	14	460
Caprolactam		33	U	33	460
Carbazole		11	U	11	460
Chrysene		2500		13	460
Dibenz(a,h)anthracene		570		24	46

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-302-S-1.5-2.0**

Lab Sample ID: 460-104623-1
Client Matrix: Solid

% Moisture: 28.1

Date Sampled: 11/13/2015 1050
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2251
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336422
Prep Batch: 460-336142

Instrument ID: CBNAMS5
Lab File ID: x8653.D
Initial Weight/Volume: 15.0221 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		14	U	14	460
Diethyl phthalate		13	U	13	460
Dimethyl phthalate		13	U	13	460
Di-n-butyl phthalate		14	U	14	460
Di-n-octyl phthalate		23	U	23	460
Fluoranthene		2900		14	460
Fluorene		820		10	460
Hexachlorobenzene		19	U	19	46
Hexachlorobutadiene		13	U	13	93
Hexachlorocyclopentadiene		29	U	29	460
Hexachloroethane		17	U	17	46
Indeno[1,2,3-cd]pyrene		2400		31	46
Isophorone		9.9	U	9.9	180
Naphthalene		650		12	460
Nitrobenzene		14	U	14	46
N-Nitrosodi-n-propylamine		15	U	15	46
N-Nitrosodiphenylamine		42	U	42	460
Pentachlorophenol		56	U	56	370
Phenanthrene		3700		12	460
Phenol		15	U	15	460
Pyrene		3000		21	460

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	57		10 - 95
2-Fluorobiphenyl	72		27 - 84
2-Fluorophenol (Surr)	57		21 - 84
Nitrobenzene-d5 (Surr)	65		28 - 92
Phenol-d5 (Surr)	58		22 - 88
Terphenyl-d14 (Surr)	77		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-18.0-18.5**

Lab Sample ID: 460-104623-2
Client Matrix: Solid

% Moisture: 37.9

Date Sampled: 11/13/2015 1455
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 2.0
Analysis Date: 11/20/2015 1345
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336494
Prep Batch: 460-336142

Instrument ID: CBNAMS11
Lab File ID: z38828.D
Initial Weight/Volume: 15.0167 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		550	J	91	1100
1,2,4,5-Tetrachlorobenzene		79	U	79	1100
2,2'-oxybis[1-chloropropane]		44	U	44	1100
2,3,4,6-Tetrachlorophenol		100	U	100	1100
2,4,5-Trichlorophenol		110	U	110	1100
2,4,6-Trichlorophenol		30	U	30	430
2,4-Dichlorophenol		25	U	25	430
2,4-Dimethylphenol		230	U	230	1100
2,4-Dinitrophenol		800	U	800	860
2,4-Dinitrotoluene		42	U	42	220
2,6-Dinitrotoluene		57	U	57	220
2-Chloronaphthalene		24	U	24	1100
2-Chlorophenol		27	U	27	1100
2-Methylnaphthalene		6600		23	1100
2-Methylphenol		46	U	46	1100
2-Nitroaniline		35	U	35	1100
2-Nitrophenol		36	U	36	1100
3,3'-Dichlorobenzidine		120	U	120	430
3-Nitroaniline		32	U	32	1100
4,6-Dinitro-2-methylphenol		280	U	280	860
4-Bromophenyl phenyl ether		33	U	33	1100
4-Chloro-3-methylphenol		46	U	46	1100
4-Chloroaniline		27	U	27	1100
4-Chlorophenyl phenyl ether		32	U	32	1100
4-Methylphenol		29	U	29	1100
4-Nitroaniline		40	U	40	1100
4-Nitrophenol		510	U	510	2200
Acenaphthene		1400		26	1100
Acenaphthylene		27	U	27	1100
Acetophenone		23	U	23	1100
Anthracene		1400		100	1100
Atrazine		47	U	47	430
Benzaldehyde		81	U	81	1100
Benzo[a]anthracene		220		89	110
Benzo[a]pyrene		86	J	32	110
Benzo[b]fluoranthene		42	U	42	110
Benzo[g,h,i]perylene		61	U	61	1100
Benzo[k]fluoranthene		46	U	46	110
Bis(2-chloroethoxy)methane		33	U	33	1100
Bis(2-chloroethyl)ether		25	U	25	110
Bis(2-ethylhexyl) phthalate		42	U	42	1100
Butyl benzyl phthalate		33	U	33	1100
Caprolactam		77	U	77	1100
Carbazole		110	J	26	1100
Chrysene		290	J	29	1100
Dibenz(a,h)anthracene		55	U	55	110

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-18.0-18.5**

Lab Sample ID: 460-104623-2
Client Matrix: Solid

% Moisture: 37.9

Date Sampled: 11/13/2015 1455
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 2.0
Analysis Date: 11/20/2015 1345
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336494
Prep Batch: 460-336142

Instrument ID: CBNAMS11
Lab File ID: z38828.D
Initial Weight/Volume: 15.0167 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		32	U	32	1100
Diethyl phthalate		30	U	30	1100
Dimethyl phthalate		31	U	31	1100
Di-n-butyl phthalate		32	U	32	1100
Di-n-octyl phthalate		54	U	54	1100
Fluoranthene		590	J	32	1100
Fluorene		1500		23	1100
Hexachlorobenzene		43	U	43	110
Hexachlorobutadiene		30	U	30	220
Hexachlorocyclopentadiene		66	U J	66	1100
Hexachloroethane		39	U	39	110
Indeno[1,2,3-cd]pyrene		71	U	71	110
Isophorone		23	U	23	430
Naphthalene		4200		27	1100
Nitrobenzene		33	U	33	110
N-Nitrosodi-n-propylamine		36	U	36	110
N-Nitrosodiphenylamine		97	U ← J	97	1100
Pentachlorophenol		130	U	130	860
Phenanthrene		15000		28	1100
Phenol		35	U	35	1100
Pyrene		720	J	48	1100

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	33		10 - 95
2-Fluorobiphenyl	60		27 - 84
2-Fluorophenol (Surr)	53		21 - 84
Nitrobenzene-d5 (Surr)	59		28 - 92
Phenol-d5 (Surr)	52		22 - 88
Terphenyl-d14 (Surr)	62		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104623-1

Client Sample ID: **SB-308-S-165.-17.0**

Lab Sample ID: 460-104623-3
Client Matrix: Solid

% Moisture: 30.6

Date Sampled: 11/13/2015 1505
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2315
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336422
Prep Batch: 460-336142

Instrument ID: CBNAMS5
Lab File ID: x8654.D
Initial Weight/Volume: 15.0224 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl	41	U	41	470
1,2,4,5-Tetrachlorobenzene	35	U	35	470
2,2'-oxybis[1-chloropropane]	20	U	20	470
2,3,4,6-Tetrachlorophenol	45	U	45	470
2,4,5-Trichlorophenol	47	U	47	470
2,4,6-Trichlorophenol	14	U	14	190
2,4-Dichlorophenol	11	U	11	190
2,4-Dimethylphenol	100	U	100	470
2,4-Dinitrophenol	360	U	360	380
2,4-Dinitrotoluene	19	U	19	96
2,6-Dinitrotoluene	25	U	25	96
2-Chloronaphthalene	11	U	11	470
2-Chlorophenol	12	U	12	470
2-Methylnaphthalene	210	J	11	470
2-Methylphenol	21	U	21	470
2-Nitroaniline	16	U	16	470
2-Nitrophenol	16	U	16	470
3,3'-Dichlorobenzidine	53	U	53	190
3-Nitroaniline	14	U	14	470
4,6-Dinitro-2-methylphenol	130	U	130	380
4-Bromophenyl phenyl ether	15	U	15	470
4-Chloro-3-methylphenol	20	U	20	470
4-Chloroaniline	12	U	12	470
4-Chlorophenyl phenyl ether	14	U	14	470
4-Methylphenol	13	U	13	470
4-Nitroaniline	18	U	18	470
4-Nitrophenol	230	U	230	960
Acenaphthene	200	J	12	470
Acenaphthylene	33	J	12	470
Acetophenone	10	U	10	470
Anthracene	200	J	45	470
Atrazine	21	U	21	190
Benzaldehyde	36	U	36	470
Benzo[a]anthracene	210		40	47
Benzo[a]pyrene	190		14	47
Benzo[b]fluoranthene	200		19	47
Benzo[g,h,i]perylene	160	J	27	470
Benzo[k]fluoranthene	80		21	47
Bis(2-chloroethoxy)methane	15	U	15	470
Bis(2-chloroethyl)ether	11	U	11	47
Bis(2-ethylhexyl) phthalate	55	J	19	470
Butyl benzyl phthalate	15	U	15	470
Caprolactam	34	U	34	470
Carbazole	36	J	12	470
Chrysene	250	J	13	470
Dibenz(a,h)anthracene	63		25	47

Client Sample ID: **SB-308-S-165.-17.0**

Lab Sample ID: 460-104623-3
Client Matrix: Solid

% Moisture: 30.6

Date Sampled: 11/13/2015 1505
Date Received: 11/13/2015 1750

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/19/2015 2315
Prep Date: 11/18/2015 1356

Analysis Batch: 460-336422
Prep Batch: 460-336142

Instrument ID: CBNAMS5
Lab File ID: x8654.D
Initial Weight/Volume: 15.0224 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran	14	U	14	470
Diethyl phthalate	14	U	14	470
Dimethyl phthalate	14	U	14	470
Di-n-butyl phthalate	14	U	14	470
Di-n-octyl phthalate	24	U	24	470
Fluoranthene	280	J	14	470
Fluorene	100	J	10	470
Hexachlorobenzene	19	U	19	47
Hexachlorobutadiene	13	U	13	96
Hexachlorocyclopentadiene	30	U	30	470
Hexachloroethane	17	U	17	47
Indeno[1,2,3-cd]pyrene	120		32	47
Isophorone	10	U	10	190
Naphthalene	540		12	470
Nitrobenzene	15	U	15	47
N-Nitrosodi-n-propylamine	16	U	16	47
N-Nitrosodiphenylamine	43	U ← J	43	470
Pentachlorophenol	58	U	58	380
Phenanthrene	1200		13	470
Phenol	16	U	16	470
Pyrene	440	J	22	470

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	51		10 - 95
2-Fluorobiphenyl	69		27 - 84
2-Fluorophenol (Surr)	59		21 - 84
Nitrobenzene-d5 (Surr)	67		28 - 92
Phenol-d5 (Surr)	62		22 - 88
Terphenyl-d14 (Surr)	88		16 - 114

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CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice): Loretta Kwong	Samplers Name (Printed): Loretta Kwong	Site/Project Identification: Con Edison Bayview
Company: Arcadis	P. O. #: B00430000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address: 605 3rd Avenue, 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City: New York State: NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	
Phone: 415.744.4906 Fax: 212.682.9275		

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8260D	SVOCs 8270D	LAB USE ONLY Sample Numbers
SB-302-S-1.5-2.0	11/13/15	1050	S	5	X	X	-1
SB-308-S-18.0-18.5	11/13/15	1455	S	5	X	X	-2
SB-308-S-16.5-17.0	11/13/15	1505	S	5	X	X	-3
TB-151113	11/13/15	—	W	2	X		-4

LAB USE ONLY Project No: Job No: 104623

460-104623 Chain of Custody

SHORT HOLD

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____

Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

	Company	Date / Time	Received by	Company
Relinquished by 1)	Arcadis	11/13/15 1615	1)	T-B
Relinquished by 2)	T-B	11/13/15 1700	Received by 2)	Company TA ED 11/13/15 1750
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). Massachusetts (M-NJ312), North Carolina (No. 578)

1, 2, 3, 4 TRIP BLANKS.

TAL - 0016 (0814)

11/27/2015

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Consolidated Edison Company of New York, Inc.

Bayview - West 18th Street Site

Data Usability Summary Report (DUSR)

NEW YORK CITY, NEW YORK

Volatile and Semivolatile Analyses

SDG #460-104720-1

Analyses Performed By:
TestAmerica Laboratories, Inc.
Edison, New Jersey

Report #24895R
Review Level: Tier III
Project: B0043000.0000.00002

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 460-104720-1 for samples collected in association the Con Edison Bayview West 18th Street site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	MET	MISC
460-104720-1	SB-303-S-17.5-18.0	460-104720-1	Soil	11/16/2015		X	X			
	SB-303-S-19.0-19.5	460-104720-2	Soil	11/16/2015		X	X			
	SB-305-S-4.0-4.5	460-104720-3	Soil	11/16/2015		X	X			
	SB-305-S-8.5-9.0	460-104720-4	Soil	11/16/2015		X	X			
	SB-305-S-16.0-16.5	460-104720-5	Soil	11/16/2015		X	X			
	TB-151116	460-104720-6	Water	11/16/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 methods 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

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:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Solid	14 days from collection to analysis	Cool to <6 °C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-303-S-17.5-18.0	ICV %RSD	Acetone	17.5%
		2-Methyl-2-propanol	18.8%
		m-Xylene & p-Xylene	15.4%
SB-303-S-19.0-19.5 SB-305-S-4.0-4.5 SB-305-S-8.5-9.0 SB-305-S-16.0-16.5	ICV %RSD	2-Methyl-2-propanol	16.8%
		1,2-Dibromo-3-Chloropropane	18.0%
	CCV %D	Acetone	-28.5%
		1,4-Dioxane	21.1%
TB-151116	ICV %RSD	1,1-Dichloroethene	18.4%
		Methyl acetate	16.5%
		Methylene Chloride	16.1%
		cis-1,2-Dichloroethene	16.4%
		Chloroform	15.4%
		Cyclohexane	17.5%
		1,1,1-Trichloroethane	17.5%
		Benzene	18.7%
		4-Methyl-2-pentanone (MIBK)	15.8%
		Toluene	16.0%
		1,1,2-Trichloroethane	15.2%
		Isopropylbenzene	15.1%
		1,1,2,2-Tetrachloroethane	17.7%
	CCV %D	1,1,2-Trichloro-1,2,2-trifluoroethane	23.9%
		Cyclohexane	20.9%
		1,1,2,2-Tetrachloroethane	-20.1%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% and <90% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% and <90% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90%	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within this SDG.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
SB-303-S-17.5-18.0	Bromomethane	AC	> UL
	Chloromethane		
	Vinyl chloride		
	Ethylene Dibromide		

AC Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
SB-303-S-17.5-18.0	Chloromethane
	Vinyl chloride

The criteria used to evaluate the RPD between the LCS/LCSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X	X		
LCS/LCSD Precision (RPD)		X	X		
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Solid	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions. All target compounds associated with the initial calibration standards must exhibit a %RSD

less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-303-S-17.5-18.0 SB-303-S-19.0-19.5 SB-305-S-4.0-4.5 SB-305-S-8.5-9.0 SB-305-S-16.0-16.5	ICV %RSD	3,3'-Dichlorobenzidine	15.4%
		4,6-Dinitro-2-methylphenol	15.2%
		Hexachlorocyclopentadiene	17.0%
	CCV %D	Hexachlorocyclopentadiene	28.1%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
SB-303-S-19.0-19.5	Phenol-d5	D
	2-Fluorophenol	
	2,4,6-Tribromophenol	
	Nitrobenzene-d5	
	2-Fluorobiphenyl	
	Terphenyl-d14	

D Diluted

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	J[1]
	Detect	

[1] A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within this SDG.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-165.-17.0	Hexachlorocyclopentadiene	> UL

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

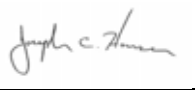
SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
460-104720-1	11/16/2015	SW-846	SB-303-S-17.5-18.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, LCS/LCSD RPD SVOC – ICAL %RSD
	11/16/2015	SW-846	SB-303-S-19.0-19.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD, Surrogate %Recovery
	11/16/2015	SW-846	SB-305-S-4.0-4.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD
	11/16/2015	SW-846	SB-305-S-8.5-9.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD
	11/16/2015	SW-846	SB-305-S-16.0-16.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD
	11/16/2015	SW-846	TB-151116	Water	No	--	--	--	--	VOC – ICAL %RSD, CCAL %D

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: January 6, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-303-S-17.5-18.0

Lab Sample ID: 460-104720-1
Client Matrix: Solid

% Moisture: 36.6

Date Sampled: 11/16/2015 1040
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/25/2015 0831
Prep Date: 11/17/2015 0730

Analysis Batch: 460-337310
Prep Batch: 460-335797

Instrument ID: CVOAMS9
Lab File ID: K47339.D
Initial Weight/Volume: 4.43 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.73	U	0.73	1.8
1,1,1-Trichloroethane		0.68	U	0.68	1.8
1,1,2,2-Tetrachloroethane		0.30	U	0.30	1.8
1,1,2-Trichloro-1,2,2-trifluoroethane		0.78	U	0.78	1.8
1,1,2-Trichloroethane		0.50	U	0.50	1.8
1,1-Dichloroethane		0.61	U	0.61	1.8
1,1-Dichloroethene		0.73	U	0.73	1.8
1,2,3-Trichlorobenzene		0.20	U	0.20	1.8
1,2,4-Trichlorobenzene		0.57	U	0.57	1.8
1,2-Dibromo-3-Chloropropane		0.84	U	0.84	1.8
1,2-Dichlorobenzene		0.25	U	0.25	1.8
1,2-Dichloroethane		0.20	U	0.20	1.8
1,2-Dichloropropane		0.30	U	0.30	1.8
1,3-Dichlorobenzene		0.21	U	0.21	1.8
1,4-Dichlorobenzene		0.23	U	0.23	1.8
1,4-Dioxane		11	U	11	36
2-Butanone (MEK)		13		1.4	8.9
2-Hexanone		1.7	U	1.7	8.9
2-Methyl-2-propanol		6.2	U J	6.2	18
4-Methyl-2-pentanone (MIBK)		4.0	U	4.0	8.9
Acetone		32	J	1.9	8.9
Benzene		0.65	J	0.36	1.8
Bromoform		0.23	U	0.23	1.8
Bromomethane		0.57	U	0.57	1.8
Carbon disulfide		1.7	J	0.77	1.8
Carbon tetrachloride		0.77	U	0.77	1.8
Chlorobenzene		0.25	U	0.25	1.8
Chlorobromomethane		0.30	U	0.30	1.8
Chlorodibromomethane		0.27	U	0.27	1.8
Chloroethane		0.62	U	0.62	1.8
Chloroform		0.37	U	0.37	1.8
Chloromethane		0.68	U J	0.68	1.8
cis-1,2-Dichloroethene		0.39	U	0.39	1.8
cis-1,3-Dichloropropene		0.27	U	0.27	1.8
Cyclohexane		0.82	U	0.82	1.8
Dichlorobromomethane		0.68	U	0.68	1.8
Dichlorodifluoromethane		0.57	U	0.57	1.8
Ethylbenzene		6.1		0.32	1.8
Ethylene Dibromide		0.21	U	0.21	1.8
Isopropylbenzene		19		0.30	1.8
Methyl acetate		1.6	U	1.6	8.9
Methyl tert-butyl ether		0.30	U	0.30	1.8
Methylcyclohexane		0.89	U	0.89	1.8
Methylene Chloride		0.57	U	0.57	1.8
m-Xylene & p-Xylene		3.1	J	0.20	1.8
o-Xylene		23		0.28	1.8

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-303-S-17.5-18.0**

Lab Sample ID: 460-104720-1
Client Matrix: Solid
% Moisture: 36.6

Date Sampled: 11/16/2015 1040
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337310	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	K47339.D
Dilution:	1.0			Initial Weight/Volume:	4.43 g
Analysis Date:	11/25/2015 0831			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0730				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.27	U	0.27	1.8
Tetrachloroethene		0.50	U	0.50	1.8
Toluene		0.40	J	0.34	1.8
trans-1,2-Dichloroethene		0.69	U	0.69	1.8
trans-1,3-Dichloropropene		0.18	U	0.18	1.8
Trichloroethene		0.46	U	0.46	1.8
Trichlorofluoromethane		0.61	U	0.61	1.8
Vinyl chloride		0.69	U	0.69	1.8

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		78 - 135
4-Bromofluorobenzene	103		67 - 126
Dibromofluoromethane (Surr)	110		61 - 149
Toluene-d8 (Surr)	99		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-303-S-17.5-18.0**

Lab Sample ID: 460-104720-1
Client Matrix: Solid
% Moisture: 36.6

Date Sampled: 11/16/2015 1040
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337310	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	K47339.D
Dilution:	1.0			Initial Weight/Volume:	4.43 g
Analysis Date:	11/25/2015 0831			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0730				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
1528-22-9	Cyclobutane, (1-methylethylidene)-	6.58	11	J N
2808-76-6	1,3-Dimethyl-1-cyclohexene	8.01	16	J N
611-14-3	Benzene, 1-ethyl-2-methyl-	10.66	12	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.79	22	J N
99-87-6	Benzene, 1-methyl-4-(1-methylethyl)-	10.96	100	J N
526-73-8	Benzene, 1,2,3-trimethyl-	11.08	31	J N
496-11-7	Indane	11.21	22	J N
	Unknown	11.55	35	J N
91-20-3	Naphthalene	12.47	42	J N
90-12-0	Naphthalene, 1-methyl-	13.47	25	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-303-S-19.0-19.5

Lab Sample ID: 460-104720-2
Client Matrix: Solid
% Moisture: 38.0

Date Sampled: 11/16/2015 1050
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/26/2015 1201
Prep Date: 11/17/2015 0731

Analysis Batch: 460-337504
Prep Batch: 460-335797

Instrument ID: CVOAMS4
Lab File ID: D16995.D
Initial Weight/Volume: 4.24 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.78	U	0.78	1.9
1,1,1-Trichloroethane	0.72	U	0.72	1.9
1,1,2,2-Tetrachloroethane	0.32	U	0.32	1.9
1,1,2-Trichloro-1,2,2-trifluoroethane	0.84	U	0.84	1.9
1,1,2-Trichloroethane	0.53	U	0.53	1.9
1,1-Dichloroethane	0.65	U	0.65	1.9
1,1-Dichloroethene	0.78	U	0.78	1.9
1,2,3-Trichlorobenzene	0.21	U	0.21	1.9
1,2,4-Trichlorobenzene	0.61	U	0.61	1.9
1,2-Dibromo-3-Chloropropane	0.89	U J	0.89	1.9
1,2-Dichlorobenzene	0.27	U	0.27	1.9
1,2-Dichloroethane	0.21	U	0.21	1.9
1,2-Dichloropropane	0.32	U	0.32	1.9
1,3-Dichlorobenzene	0.23	U	0.23	1.9
1,4-Dichlorobenzene	0.25	U	0.25	1.9
1,4-Dioxane	12	U	12	38
2-Butanone (MEK)	41		1.5	9.5
2-Hexanone	1.8	U	1.8	9.5
2-Methyl-2-propanol	6.6	U J	6.6	19
4-Methyl-2-pentanone (MIBK)	4.2	U	4.2	9.5
Acetone	130	J	2.0	9.5
Benzene	3.4		0.38	1.9
Bromoform	0.25	U	0.25	1.9
Bromomethane	0.61	U	0.61	1.9
Carbon disulfide	2.3		0.82	1.9
Carbon tetrachloride	0.82	U	0.82	1.9
Chlorobenzene	0.27	U	0.27	1.9
Chlorobromomethane	0.32	U	0.32	1.9
Chlorodibromomethane	0.29	U	0.29	1.9
Chloroethane	0.67	U	0.67	1.9
Chloroform	0.40	U	0.40	1.9
Chloromethane	0.72	U	0.72	1.9
cis-1,2-Dichloroethene	0.42	U	0.42	1.9
cis-1,3-Dichloropropene	0.29	U	0.29	1.9
Cyclohexane	0.87	U	0.87	1.9
Dichlorobromomethane	0.72	U	0.72	1.9
Dichlorodifluoromethane	0.61	U	0.61	1.9
Ethylbenzene	84		0.34	1.9
Ethylene Dibromide	0.23	U	0.23	1.9
Isopropylbenzene	110		0.32	1.9
Methyl acetate	1.7	U	1.7	9.5
Methyl tert-butyl ether	0.32	U	0.32	1.9
Methylcyclohexane	0.95	U	0.95	1.9
Methylene Chloride	4.1		0.61	1.9
m-Xylene & p-Xylene	82		0.21	1.9
o-Xylene	99		0.30	1.9

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-303-S-19.0-19.5

Lab Sample ID: 460-104720-2
Client Matrix: Solid

% Moisture: 38.0

Date Sampled: 11/16/2015 1050
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16995.D
Dilution:	1.0			Initial Weight/Volume:	4.24 g
Analysis Date:	11/26/2015 1201			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0731				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.29	U	0.29	1.9
Tetrachloroethene		0.53	U	0.53	1.9
Toluene		7.5		0.36	1.9
trans-1,2-Dichloroethene		0.74	U	0.74	1.9
trans-1,3-Dichloropropene		0.19	U	0.19	1.9
Trichloroethene		0.49	U	0.49	1.9
Trichlorofluoromethane		0.65	U	0.65	1.9
Vinyl chloride		0.74	U	0.74	1.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108		78 - 135
4-Bromofluorobenzene	106		67 - 126
Dibromofluoromethane (Surr)	106		61 - 149
Toluene-d8 (Surr)	101		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-303-S-19.0-19.5**

Lab Sample ID: 460-104720-2
Client Matrix: Solid
% Moisture: 38.0

Date Sampled: 11/16/2015 1050
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16995.D
Dilution:	1.0			Initial Weight/Volume:	4.24 g
Analysis Date:	11/26/2015 1201			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0731				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
1000142-17-5	Bicyclo[3.1.0]hexane, 1,5-dimethyl-	8.67	77	J N
620-14-4	Benzene, 1-ethyl-3-methyl-	10.47	190	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.81	92	J N
99-87-6	Benzene, 1-methyl-4-(1-methylethyl)-	10.99	470	J N
141-93-5	Benzene, 1,3-diethyl-	11.23	130	J N
496-11-7	Indane	11.27	81	J N
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-	11.66	210	J N
91-20-3	Naphthalene	13.01	460	J N
91-57-6	Naphthalene, 2-methyl-	14.50	410	J N
90-12-0	Naphthalene, 1-methyl-	14.81	270	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: 460-104720-3
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 11/16/2015 1420
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/26/2015 1047
Prep Date: 11/17/2015 0732

Analysis Batch: 460-337504
Prep Batch: 460-335797

Instrument ID: CVOAMS4
Lab File ID: D16992.D
Initial Weight/Volume: 3.43 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.62	U	0.62	1.5
1,1,1-Trichloroethane		0.57	U	0.57	1.5
1,1,2,2-Tetrachloroethane		0.26	U	0.26	1.5
1,1,2-Trichloro-1,2,2-trifluoroethane		0.66	U	0.66	1.5
1,1,2-Trichloroethane		0.42	U	0.42	1.5
1,1-Dichloroethane		0.51	U	0.51	1.5
1,1-Dichloroethene		0.62	U	0.62	1.5
1,2,3-Trichlorobenzene		0.17	U	0.17	1.5
1,2,4-Trichlorobenzene		0.48	U	0.48	1.5
1,2-Dibromo-3-Chloropropane		0.71	U J	0.71	1.5
1,2-Dichlorobenzene		0.21	U	0.21	1.5
1,2-Dichloroethane		0.17	U	0.17	1.5
1,2-Dichloropropane		0.26	U	0.26	1.5
1,3-Dichlorobenzene		0.18	U	0.18	1.5
1,4-Dichlorobenzene		0.20	U	0.20	1.5
1,4-Dioxane		9.6	U	9.6	30
2-Butanone (MEK)		1.2	U	1.2	7.5
2-Hexanone		1.4	U	1.4	7.5
2-Methyl-2-propanol		5.2	U J	5.2	15
4-Methyl-2-pentanone (MIBK)		3.3	U	3.3	7.5
Acetone		15	J	1.6	7.5
Benzene		4.1		0.30	1.5
Bromoform		0.20	U	0.20	1.5
Bromomethane		0.48	U	0.48	1.5
Carbon disulfide		2.1		0.65	1.5
Carbon tetrachloride		0.65	U	0.65	1.5
Chlorobenzene		0.21	U	0.21	1.5
Chlorobromomethane		0.26	U	0.26	1.5
Chlorodibromomethane		0.23	U	0.23	1.5
Chloroethane		0.53	U	0.53	1.5
Chloroform		0.32	U	0.32	1.5
Chloromethane		0.57	U	0.57	1.5
cis-1,2-Dichloroethene		0.33	U	0.33	1.5
cis-1,3-Dichloropropene		0.23	U	0.23	1.5
Cyclohexane		0.69	U	0.69	1.5
Dichlorobromomethane		0.57	U	0.57	1.5
Dichlorodifluoromethane		0.48	U	0.48	1.5
Ethylbenzene		0.27	U	0.27	1.5
Ethylene Dibromide		0.18	U	0.18	1.5
Isopropylbenzene		0.26	U	0.26	1.5
Methyl acetate		1.4	U	1.4	7.5
Methyl tert-butyl ether		0.26	U	0.26	1.5
Methylcyclohexane		0.75	U	0.75	1.5
Methylene Chloride		0.48	U	0.48	1.5
m-Xylene & p-Xylene		0.17	U	0.17	1.5
o-Xylene		0.24	U	0.24	1.5

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: 460-104720-3
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 11/16/2015 1420
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/26/2015 1047
Prep Date: 11/17/2015 0732

Analysis Batch: 460-337504
Prep Batch: 460-335797

Instrument ID: CVOAMS4
Lab File ID: D16992.D
Initial Weight/Volume: 3.43 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.23	U	0.23	1.5
Tetrachloroethene		0.42	U	0.42	1.5
Toluene		0.63	J	0.29	1.5
trans-1,2-Dichloroethene		0.59	U	0.59	1.5
trans-1,3-Dichloropropene		0.15	U	0.15	1.5
Trichloroethene		0.39	U	0.39	1.5
Trichlorofluoromethane		0.51	U	0.51	1.5
Vinyl chloride		0.59	U	0.59	1.5

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	97		78 - 135
4-Bromofluorobenzene	98		67 - 126
Dibromofluoromethane (Surr)	99		61 - 149
Toluene-d8 (Surr)	97		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: 460-104720-3
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 11/16/2015 1420
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16992.D
Dilution:	1.0			Initial Weight/Volume:	3.43 g
Analysis Date:	11/26/2015 1047			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0732				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-8.5-9.0

Lab Sample ID: 460-104720-4
Client Matrix: Solid

% Moisture: 21.7

Date Sampled: 11/16/2015 1500
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/26/2015 1112
Prep Date: 11/17/2015 0733

Analysis Batch: 460-337504
Prep Batch: 460-335797

Instrument ID: CVOAMS4
Lab File ID: D16993.D
Initial Weight/Volume: 4.55 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.58	U	0.58	1.4
1,1,1-Trichloroethane	0.53	U	0.53	1.4
1,1,2,2-Tetrachloroethane	0.24	U	0.24	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane	0.62	U	0.62	1.4
1,1,2-Trichloroethane	0.39	U	0.39	1.4
1,1-Dichloroethane	0.48	U	0.48	1.4
1,1-Dichloroethene	0.58	U	0.58	1.4
1,2,3-Trichlorobenzene	0.15	U	0.15	1.4
1,2,4-Trichlorobenzene	0.45	U	0.45	1.4
1,2-Dibromo-3-Chloropropane	0.66	U J	0.66	1.4
1,2-Dichlorobenzene	0.20	U	0.20	1.4
1,2-Dichloroethane	0.15	U	0.15	1.4
1,2-Dichloropropane	0.24	U	0.24	1.4
1,3-Dichlorobenzene	0.17	U	0.17	1.4
1,4-Dichlorobenzene	0.18	U	0.18	1.4
1,4-Dioxane	9.0	U	9.0	28
2-Butanone (MEK)	15		1.1	7.0
2-Hexanone	1.3	U	1.3	7.0
2-Methyl-2-propanol	4.9	U J	4.9	14
4-Methyl-2-pentanone (MIBK)	3.1	U	3.1	7.0
Acetone	40	J	1.5	7.0
Benzene	8.4		0.28	1.4
Bromoform	0.18	U	0.18	1.4
Bromomethane	0.45	U	0.45	1.4
Carbon disulfide	1.3	J	0.60	1.4
Carbon tetrachloride	0.60	U	0.60	1.4
Chlorobenzene	0.20	U	0.20	1.4
Chlorobromomethane	0.24	U	0.24	1.4
Chlorodibromomethane	0.21	U	0.21	1.4
Chloroethane	0.49	U	0.49	1.4
Chloroform	0.29	U	0.29	1.4
Chloromethane	0.53	U	0.53	1.4
cis-1,2-Dichloroethene	0.31	U	0.31	1.4
cis-1,3-Dichloropropene	0.21	U	0.21	1.4
Cyclohexane	0.65	U	0.65	1.4
Dichlorobromomethane	0.53	U	0.53	1.4
Dichlorodifluoromethane	0.45	U	0.45	1.4
Ethylbenzene	0.48	J	0.25	1.4
Ethylene Dibromide	0.17	U	0.17	1.4
Isopropylbenzene	0.24	U	0.24	1.4
Methyl acetate	1.3	U	1.3	7.0
Methyl tert-butyl ether	0.24	U	0.24	1.4
Methylcyclohexane	0.70	U	0.70	1.4
Methylene Chloride	0.45	U	0.45	1.4
m-Xylene & p-Xylene	0.51	J	0.15	1.4
o-Xylene	0.22	U	0.22	1.4

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-8.5-9.0

Lab Sample ID: 460-104720-4
Client Matrix: Solid

% Moisture: 21.7

Date Sampled: 11/16/2015 1500
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16993.D
Dilution:	1.0			Initial Weight/Volume:	4.55 g
Analysis Date:	11/26/2015 1112			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0733				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.23	J	0.21	1.4
Tetrachloroethene		0.39	U	0.39	1.4
Toluene		0.95	J	0.27	1.4
trans-1,2-Dichloroethene		0.55	U	0.55	1.4
trans-1,3-Dichloropropene		0.14	U	0.14	1.4
Trichloroethene		0.36	U	0.36	1.4
Trichlorofluoromethane		0.48	U	0.48	1.4
Vinyl chloride		0.55	U	0.55	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	97		78 - 135
4-Bromofluorobenzene	98		67 - 126
Dibromofluoromethane (Surr)	100		61 - 149
Toluene-d8 (Surr)	95		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-8.5-9.0**

Lab Sample ID: 460-104720-4
Client Matrix: Solid

% Moisture: 21.7

Date Sampled: 11/16/2015 1500
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16993.D
Dilution:	1.0			Initial Weight/Volume:	4.55 g
Analysis Date:	11/26/2015 1112			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0733				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-16.0-16.5**

Lab Sample ID: 460-104720-5
Client Matrix: Solid

% Moisture: 32.7

Date Sampled: 11/16/2015 1510
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/26/2015 1136
Prep Date: 11/17/2015 0734

Analysis Batch: 460-337504
Prep Batch: 460-335797

Instrument ID: CVOAMS4
Lab File ID: D16994.D
Initial Weight/Volume: 4.82 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.63	U	0.63	1.5
1,1,1-Trichloroethane	0.59	U	0.59	1.5
1,1,2,2-Tetrachloroethane	0.26	U	0.26	1.5
1,1,2-Trichloro-1,2,2-trifluoroethane	0.68	U	0.68	1.5
1,1,2-Trichloroethane	0.43	U	0.43	1.5
1,1-Dichloroethane	0.52	U	0.52	1.5
1,1-Dichloroethene	0.63	U	0.63	1.5
1,2,3-Trichlorobenzene	0.17	U	0.17	1.5
1,2,4-Trichlorobenzene	0.49	U	0.49	1.5
1,2-Dibromo-3-Chloropropane	0.72	U J	0.72	1.5
1,2-Dichlorobenzene	0.22	U	0.22	1.5
1,2-Dichloroethane	0.17	U	0.17	1.5
1,2-Dichloropropane	0.26	U	0.26	1.5
1,3-Dichlorobenzene	0.18	U	0.18	1.5
1,4-Dichlorobenzene	0.20	U	0.20	1.5
1,4-Dioxane	9.8	U	9.8	31
2-Butanone (MEK)	18		1.2	7.7
2-Hexanone	1.4	U	1.4	7.7
2-Methyl-2-propanol	5.4	U J	5.4	15
4-Methyl-2-pentanone (MIBK)	3.4	U	3.4	7.7
Acetone	51	J	1.6	7.7
Benzene	60		0.31	1.5
Bromoform	0.20	U	0.20	1.5
Bromomethane	0.49	U	0.49	1.5
Carbon disulfide	1.0	J	0.66	1.5
Carbon tetrachloride	0.66	U	0.66	1.5
Chlorobenzene	0.22	U	0.22	1.5
Chlorobromomethane	0.26	U	0.26	1.5
Chlorodibromomethane	0.23	U	0.23	1.5
Chloroethane	0.54	U	0.54	1.5
Chloroform	0.32	U	0.32	1.5
Chloromethane	0.59	U	0.59	1.5
cis-1,2-Dichloroethene	0.34	U	0.34	1.5
cis-1,3-Dichloropropene	0.23	U	0.23	1.5
Cyclohexane	0.71	U	0.71	1.5
Dichlorobromomethane	0.59	U	0.59	1.5
Dichlorodifluoromethane	0.49	U	0.49	1.5
Ethylbenzene	8.1		0.28	1.5
Ethylene Dibromide	0.18	U	0.18	1.5
Isopropylbenzene	5.9		0.26	1.5
Methyl acetate	1.4	U	1.4	7.7
Methyl tert-butyl ether	0.26	U	0.26	1.5
Methylcyclohexane	0.77	U	0.77	1.5
Methylene Chloride	0.49	U	0.49	1.5
m-Xylene & p-Xylene	13		0.17	1.5
o-Xylene	14		0.25	1.5

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-16.0-16.5

Lab Sample ID: 460-104720-5
Client Matrix: Solid

% Moisture: 32.7

Date Sampled: 11/16/2015 1510
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16994.D
Dilution:	1.0			Initial Weight/Volume:	4.82 g
Analysis Date:	11/26/2015 1136			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0734				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.23	U	0.23	1.5
Tetrachloroethene		0.43	U	0.43	1.5
Toluene		0.70	J	0.29	1.5
trans-1,2-Dichloroethene		0.60	U	0.60	1.5
trans-1,3-Dichloropropene		0.15	U	0.15	1.5
Trichloroethene		0.40	U	0.40	1.5
Trichlorofluoromethane		0.52	U	0.52	1.5
Vinyl chloride		0.60	U	0.60	1.5

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	102		78 - 135
4-Bromofluorobenzene	97		67 - 126
Dibromofluoromethane (Surr)	99		61 - 149
Toluene-d8 (Surr)	94		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-16.0-16.5**

Lab Sample ID: 460-104720-5
Client Matrix: Solid

% Moisture: 32.7

Date Sampled: 11/16/2015 1510
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337504	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-335797	Lab File ID:	D16994.D
Dilution:	1.0			Initial Weight/Volume:	4.82 g
Analysis Date:	11/26/2015 1136			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 0734				

Tentatively Identified Compounds **Number TIC's Found: 8**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
108-67-8	Benzene, 1,3,5-trimethyl-	10.54	10	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.81	13	J N
496-11-7	Indane	11.27	42	J N
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-	11.67	21	J N
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	12.33	12	J N
91-20-3	Naphthalene	13.01	85	J N
91-57-6	Naphthalene, 2-methyl-	14.49	18	J N
90-12-0	Naphthalene, 1-methyl-	14.81	58	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **TB-151116**

Lab Sample ID: 460-104720-6
Client Matrix: Water

Date Sampled: 11/16/2015 0000
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/17/2015 2157
Prep Date: 11/17/2015 2157

Analysis Batch: 460-335929
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33519.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	UJ	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	UJ	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	UJ	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	UJ	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	UJ	0.63	5.0
Acetone	1.1	U	1.1	5.0
Benzene	0.090	UJ	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U	0.37	1.0
Chloroform	0.22	UJ	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	UJ	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	UJ	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	UJ	0.32	1.0
Methyl acetate	0.58	UJ	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	UJ	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **TB-151116**

Lab Sample ID: 460-104720-6
Client Matrix: Water

Date Sampled: 11/16/2015 0000
Date Received: 11/16/2015 1620

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/17/2015 2157
Prep Date: 11/17/2015 2157

Analysis Batch: 460-335929
Prep Batch: N/A

Instrument ID: CVOAMS8
Lab File ID: J33519.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		70 - 137
4-Bromofluorobenzene	109		70 - 131
Dibromofluoromethane (Surr)	110		72 - 136
Toluene-d8 (Surr)	100		74 - 120

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-303-S-17.5-18.0

Lab Sample ID: 460-104720-1
Client Matrix: Solid

% Moisture: 36.6

Date Sampled: 11/16/2015 1040
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128196.D
Dilution:	1.0			Initial Weight/Volume:	15.0211 g
Analysis Date:	11/20/2015 2310			Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		44	U	44	520
1,2,4,5-Tetrachlorobenzene		39	U	39	520
2,2'-oxybis[1-chloropropane]		21	U	21	520
2,3,4,6-Tetrachlorophenol		49	U	49	520
2,4,5-Trichlorophenol		52	U	52	520
2,4,6-Trichlorophenol		15	U	15	210
2,4-Dichlorophenol		12	U	12	210
2,4-Dimethylphenol		110	U	110	520
2,4-Dinitrophenol		390	U	390	420
2,4-Dinitrotoluene		21	U	21	110
2,6-Dinitrotoluene		28	U	28	110
2-Chloronaphthalene		12	U	12	520
2-Chlorophenol		13	U	13	520
2-Methylnaphthalene		120	J	11	520
2-Methylphenol		23	U	23	520
2-Nitroaniline		17	U	17	520
2-Nitrophenol		17	U	17	520
3,3'-Dichlorobenzidine		58	U J	58	210
3-Nitroaniline		15	U	15	520
4,6-Dinitro-2-methylphenol		140	U J	140	420
4-Bromophenyl phenyl ether		16	U	16	520
4-Chloro-3-methylphenol		22	U	22	520
4-Chloroaniline		13	U	13	520
4-Chlorophenyl phenyl ether		16	U	16	520
4-Methylphenol		39	J	14	520
4-Nitroaniline		20	U	20	520
4-Nitrophenol		250	U	250	1100
Acenaphthene		91	J	13	520
Acenaphthylene		25	J	13	520
Acetophenone		11	U	11	520
Anthracene		230	J	49	520
Atrazine		23	U	23	210
Benzaldehyde		40	U	40	520
Benzo[a]anthracene		440		43	52
Benzo[a]pyrene		380		16	52
Benzo[b]fluoranthene		440		20	52
Benzo[g,h,i]perylene		200	J	30	520
Benzo[k]fluoranthene		190		23	52
Bis(2-chloroethoxy)methane		16	U	16	520
Bis(2-chloroethyl)ether		12	U	12	52
Bis(2-ethylhexyl) phthalate		20	U	20	520
Butyl benzyl phthalate		16	U	16	520
Caprolactam		37	U	37	520
Carbazole		13	U	13	520
Chrysene		480	J	14	520
Dibenz(a,h)anthracene		80		27	52

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-303-S-17.5-18.0

Lab Sample ID: 460-104720-1
Client Matrix: Solid

% Moisture: 36.6

Date Sampled: 11/16/2015 1040
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128196.D
Dilution:	1.0			Initial Weight/Volume:	15.0211 g
Analysis Date:	11/20/2015 2310			Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		44	J	16	520
Diethyl phthalate		15	U	15	520
Dimethyl phthalate		15	U	15	520
Di-n-butyl phthalate		16	U	16	520
Di-n-octyl phthalate		26	U	26	520
Fluoranthene		490	J	15	520
Fluorene		86	J	11	520
Hexachlorobenzene		21	U	21	52
Hexachlorobutadiene		15	U	15	110
Hexachlorocyclopentadiene		32	U	32	520
Hexachloroethane		19	U	19	52
Indeno[1,2,3-cd]pyrene		220		35	52
Isophorone		11	U	11	210
Naphthalene		480	J	13	520
Nitrobenzene		16	U	16	52
N-Nitrosodi-n-propylamine		17	U	17	52
N-Nitrosodiphenylamine		47	U	47	520
Pentachlorophenol		63	U	63	420
Phenanthrene		590		14	520
Phenol		17	U	17	520
Pyrene		690		24	520

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	40		10 - 95
2-Fluorobiphenyl	45		27 - 84
2-Fluorophenol (Surr)	43		21 - 84
Nitrobenzene-d5 (Surr)	46		28 - 92
Phenol-d5 (Surr)	44		22 - 88
Terphenyl-d14 (Surr)	60		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-303-S-19.0-19.5**

Lab Sample ID: 460-104720-2
Client Matrix: Solid

% Moisture: 38.0

Date Sampled: 11/16/2015 1050
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 10
Analysis Date: 11/20/2015 2035
Prep Date: 11/18/2015 1348

Analysis Batch: 460-336628
Prep Batch: 460-336140

Run Type: DL

Instrument ID: CBNAMS12
Lab File ID: L128190.D
Initial Weight/Volume: 15.0332 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		820	J D	450	5300
1,2,4,5-Tetrachlorobenzene		400	U	400	5300
2,2'-oxybis[1-chloropropane]		220	U	220	5300
2,3,4,6-Tetrachlorophenol		500	U	500	5300
2,4,5-Trichlorophenol		530	U	530	5300
2,4,6-Trichlorophenol		150	U	150	2100
2,4-Dichlorophenol		130	U	130	2100
2,4-Dimethylphenol		1200	U	1200	5300
2,4-Dinitrophenol		4000	U	4000	4300
2,4-Dinitrotoluene		210	U	210	1100
2,6-Dinitrotoluene		280	U	280	1100
2-Chloronaphthalene		120	U	120	5300
2-Chlorophenol		140	U	140	5300
2-Methylnaphthalene		9600	D	120	5300
2-Methylphenol		230	U	230	5300
2-Nitroaniline		180	U	180	5300
2-Nitrophenol		180	U	180	5300
3,3'-Dichlorobenzidine		590	U	590	2100
3-Nitroaniline		160	U	160	5300
4,6-Dinitro-2-methylphenol		1400	U	1400	4300
4-Bromophenyl phenyl ether		170	U	170	5300
4-Chloro-3-methylphenol		230	U	230	5300
4-Chloroaniline		140	U	140	5300
4-Chlorophenyl phenyl ether		160	U	160	5300
4-Methylphenol		140	U	140	5300
4-Nitroaniline		200	U	200	5300
4-Nitrophenol		2600	U	2600	11000
Acenaphthene		2500	J D	130	5300
Acenaphthylene		140	U	140	5300
Acetophenone		120	U	120	5300
Anthracene		7000	D	510	5300
Atrazine		240	U	240	2100
Benzaldehyde		410	U	410	5300
Benzo[a]anthracene		4100	D	440	530
Benzo[a]pyrene		2300	D	160	530
Benzo[b]fluoranthene		2800	D	210	530
Benzo[g,h,i]perylene		830	J D	310	5300
Benzo[k]fluoranthene		1100	D	230	530
Bis(2-chloroethoxy)methane		170	U	170	5300
Bis(2-chloroethyl)ether		130	U	130	530
Bis(2-ethylhexyl) phthalate		210	U	210	5300
Butyl benzyl phthalate		160	U	160	5300
Caprolactam		380	U	380	5300
Carbazole		340	J D	130	5300
Chrysene		5000	J D	140	5300
Dibenz(a,h)anthracene		440	J D	280	530

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-303-S-19.0-19.5**

Lab Sample ID: 460-104720-2
Client Matrix: Solid
% Moisture: 38.0
Date Sampled: 11/16/2015 1050
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128190.D
Dilution:	10			Initial Weight/Volume:	15.0332 g
Analysis Date:	11/20/2015 2035	Run Type:	DL	Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		1100	J D	160	5300
Diethyl phthalate		150	U	150	5300
Dimethyl phthalate		150	U	150	5300
Di-n-butyl phthalate		160	U	160	5300
Di-n-octyl phthalate		270	U	270	5300
Fluoranthene		5700	D	160	5300
Fluorene		4300	J D	120	5300
Hexachlorobenzene		220	U	220	530
Hexachlorobutadiene		150	U	150	1100
Hexachlorocyclopentadiene		330	U	330	5300
Hexachloroethane		190	U	190	530
Indeno[1,2,3-cd]pyrene		1000	D	350	530
Isophorone		110	U	110	2100
Naphthalene		4600	J D	140	5300
Nitrobenzene		170	U	170	530
N-Nitrosodi-n-propylamine		180	U	180	530
N-Nitrosodiphenylamine		480	U	480	5300
Pentachlorophenol		640	U	640	4300
Phenanthrene		45000	D	140	5300
Phenol		170	U	170	5300
Pyrene		10000	D	240	5300

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	4	D X	10 - 95
2-Fluorobiphenyl	54	D	27 - 84
2-Fluorophenol (Surr)	52	D	21 - 84
Nitrobenzene-d5 (Surr)	53	D	28 - 92
Phenol-d5 (Surr)	53	D	22 - 88
Terphenyl-d14 (Surr)	68	D	16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: 460-104720-3
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 11/16/2015 1420
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/20/2015 2152
Prep Date: 11/18/2015 1348

Analysis Batch: 460-336628
Prep Batch: 460-336140

Instrument ID: CBNAMS12
Lab File ID: L128193.D
Initial Weight/Volume: 15.0188 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		29	U	29	340
1,2,4,5-Tetrachlorobenzene		25	U	25	340
2,2'-oxybis[1-chloropropane]		14	U	14	340
2,3,4,6-Tetrachlorophenol		32	U	32	340
2,4,5-Trichlorophenol		34	U	34	340
2,4,6-Trichlorophenol		9.7	U	9.7	140
2,4-Dichlorophenol		8.0	U	8.0	140
2,4-Dimethylphenol		75	U	75	340
2,4-Dinitrophenol		260	U	260	270
2,4-Dinitrotoluene		13	U	13	69
2,6-Dinitrotoluene		18	U	18	69
2-Chloronaphthalene		7.7	U	7.7	340
2-Chlorophenol		8.7	U	8.7	340
2-Methylnaphthalene		9.0	J	7.5	340
2-Methylphenol		15	U	15	340
2-Nitroaniline		11	U	11	340
2-Nitrophenol		11	U	11	340
3,3'-Dichlorobenzidine		38	U	38	140
3-Nitroaniline		10	U	10	340
4,6-Dinitro-2-methylphenol		91	U	91	270
4-Bromophenyl phenyl ether		11	U	11	340
4-Chloro-3-methylphenol		15	U	15	340
4-Chloroaniline		8.8	U	8.8	340
4-Chlorophenyl phenyl ether		10	U	10	340
4-Methylphenol		9.3	U	9.3	340
4-Nitroaniline		13	U	13	340
4-Nitrophenol		160	U	160	690
Acenaphthene		8.2	U	8.2	340
Acenaphthylene		11	J	8.8	340
Acetophenone		7.4	U	7.4	340
Anthracene		43	J	32	340
Atrazine		15	U	15	140
Benzaldehyde		26	U	26	340
Benzo[a]anthracene		240		28	34
Benzo[a]pyrene		170		10	34
Benzo[b]fluoranthene		300		13	34
Benzo[g,h,i]perylene		130	J	20	340
Benzo[k]fluoranthene		110		15	34
Bis(2-chloroethoxy)methane		11	U	11	340
Bis(2-chloroethyl)ether		8.0	U	8.0	34
Bis(2-ethylhexyl) phthalate		860		13	340
Butyl benzyl phthalate		330	J	11	340
Caprolactam		25	U	25	340
Carbazole		14	J	8.4	340
Chrysene		270	J	9.3	340
Dibenz(a,h)anthracene		45		18	34

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: 460-104720-3
Client Matrix: Solid

% Moisture: 3.0

Date Sampled: 11/16/2015 1420
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128193.D
Dilution:	1.0			Initial Weight/Volume:	15.0188 g
Analysis Date:	11/20/2015 2152			Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		10	U	10	340
Diethyl phthalate		9.7	U	9.7	340
Dimethyl phthalate		9.9	U	9.9	340
Di-n-butyl phthalate		10	U	10	340
Di-n-octyl phthalate		17	U	17	340
Fluoranthene		410		10	340
Fluorene		7.4	U	7.4	340
Hexachlorobenzene		14	U	14	34
Hexachlorobutadiene		9.6	U	9.6	69
Hexachlorocyclopentadiene		21	U	21	340
Hexachloroethane		12	U	12	34
Indeno[1,2,3-cd]pyrene		140		23	34
Isophorone		7.3	U	7.3	140
Naphthalene		11	J	8.7	340
Nitrobenzene		11	U	11	34
N-Nitrosodi-n-propylamine		11	U	11	34
N-Nitrosodiphenylamine		31	U	31	340
Pentachlorophenol		41	U	41	270
Phenanthrene		310	J	9.1	340
Phenol		11	U	11	340
Pyrene		460		15	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	30		10 - 95
2-Fluorobiphenyl	62		27 - 84
2-Fluorophenol (Surr)	51		21 - 84
Nitrobenzene-d5 (Surr)	65		28 - 92
Phenol-d5 (Surr)	58		22 - 88
Terphenyl-d14 (Surr)	86		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-8.5-9.0**

Lab Sample ID: 460-104720-4
Client Matrix: Solid

% Moisture: 21.7

Date Sampled: 11/16/2015 1500
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 2.0
Analysis Date: 11/20/2015 2244
Prep Date: 11/18/2015 1348

Analysis Batch: 460-336628
Prep Batch: 460-336140

Instrument ID: CBNAMS12
Lab File ID: L128195.D
Initial Weight/Volume: 15.0424 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		110	J	72	840
1,2,4,5-Tetrachlorobenzene		63	U	63	840
2,2'-oxybis[1-chloropropane]		35	U	35	840
2,3,4,6-Tetrachlorophenol		79	U	79	840
2,4,5-Trichlorophenol		84	U	84	840
2,4,6-Trichlorophenol		24	U	24	340
2,4-Dichlorophenol		20	U	20	340
2,4-Dimethylphenol		190	U	190	840
2,4-Dinitrophenol		640	U	640	680
2,4-Dinitrotoluene		33	U	33	170
2,6-Dinitrotoluene		45	U	45	170
2-Chloronaphthalene		19	U	19	840
2-Chlorophenol		21	U	21	840
2-Methylnaphthalene		380	J	19	840
2-Methylphenol		37	U	37	840
2-Nitroaniline		28	U	28	840
2-Nitrophenol		28	U	28	840
3,3'-Dichlorobenzidine		94	U J	94	340
3-Nitroaniline		25	U	25	840
4,6-Dinitro-2-methylphenol		220	U J	220	680
4-Bromophenyl phenyl ether		26	U	26	840
4-Chloro-3-methylphenol		36	U	36	840
4-Chloroaniline		22	U	22	840
4-Chlorophenyl phenyl ether		25	U	25	840
4-Methylphenol		73	J	23	840
4-Nitroaniline		32	U	32	840
4-Nitrophenol		400	U	400	1700
Acenaphthene		770	J	20	840
Acenaphthylene		150	J	22	840
Acetophenone		38	J	18	840
Anthracene		1700		80	840
Atrazine		37	U	37	340
Benzaldehyde		64	U	64	840
Benzo[a]anthracene		6900		70	84
Benzo[a]pyrene		10000		25	84
Benzo[b]fluoranthene		10000		33	84
Benzo[g,h,i]perylene		7500		48	840
Benzo[k]fluoranthene		4600		37	84
Bis(2-chloroethoxy)methane		26	U	26	840
Bis(2-chloroethyl)ether		20	U	20	84
Bis(2-ethylhexyl) phthalate		510	J	33	840
Butyl benzyl phthalate		26	U	26	840
Caprolactam		61	U	61	840
Carbazole		600	J	21	840
Chrysene		7300		23	840
Dibenz(a,h)anthracene		2100		44	84

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-8.5-9.0**

Lab Sample ID: 460-104720-4
Client Matrix: Solid

% Moisture: 21.7

Date Sampled: 11/16/2015 1500
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128195.D
Dilution:	2.0			Initial Weight/Volume:	15.0424 g
Analysis Date:	11/20/2015 2244			Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		460	J	25	840
Diethyl phthalate		24	U	24	840
Dimethyl phthalate		24	U	24	840
Di-n-butyl phthalate		25	U	25	840
Di-n-octyl phthalate		43	U	43	840
Fluoranthene		7600		25	840
Fluorene		670	J	18	840
Hexachlorobenzene		34	U	34	84
Hexachlorobutadiene		24	U	24	170
Hexachlorocyclopentadiene		52	U	52	840
Hexachloroethane		31	U	31	84
Indeno[1,2,3-cd]pyrene		8900		56	84
Isophorone		18	U	18	340
Naphthalene		1800		21	840
Nitrobenzene		26	U	26	84
N-Nitrosodi-n-propylamine		28	U	28	84
N-Nitrosodiphenylamine		76	U	76	840
Pentachlorophenol		100	U	100	680
Phenanthrene		4400		22	840
Phenol		27	U	27	840
Pyrene		9100		38	840

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	29		10 - 95
2-Fluorobiphenyl	65		27 - 84
2-Fluorophenol (Surr)	58		21 - 84
Nitrobenzene-d5 (Surr)	63		28 - 92
Phenol-d5 (Surr)	62		22 - 88
Terphenyl-d14 (Surr)	76		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: **SB-305-S-16.0-16.5**

Lab Sample ID: 460-104720-5
Client Matrix: Solid

% Moisture: 32.7

Date Sampled: 11/16/2015 1510
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/20/2015 2336
Prep Date: 11/18/2015 1348

Analysis Batch: 460-336628
Prep Batch: 460-336140

Instrument ID: CBNAMS12
Lab File ID: L128197.D
Initial Weight/Volume: 15.119 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		170	J	42	490
1,2,4,5-Tetrachlorobenzene		36	U	36	490
2,2'-oxybis[1-chloropropane]		20	U	20	490
2,3,4,6-Tetrachlorophenol		46	U	46	490
2,4,5-Trichlorophenol		48	U	48	490
2,4,6-Trichlorophenol		14	U	14	200
2,4-Dichlorophenol		11	U	11	200
2,4-Dimethylphenol		110	U	110	490
2,4-Dinitrophenol		370	U	370	390
2,4-Dinitrotoluene		19	U	19	99
2,6-Dinitrotoluene		26	U	26	99
2-Chloronaphthalene		11	U	11	490
2-Chlorophenol		12	U	12	490
2-Methylnaphthalene		630		11	490
2-Methylphenol		21	U	21	490
2-Nitroaniline		16	U	16	490
2-Nitrophenol		16	U	16	490
3,3'-Dichlorobenzidine		54	U J	54	200
3-Nitroaniline		14	U	14	490
4,6-Dinitro-2-methylphenol		130	U J	130	390
4-Bromophenyl phenyl ether		15	U	15	490
4-Chloro-3-methylphenol		21	U	21	490
4-Chloroaniline		13	U	13	490
4-Chlorophenyl phenyl ether		15	U	15	490
4-Methylphenol		17	J	13	490
4-Nitroaniline		18	U	18	490
4-Nitrophenol		230	U	230	990
Acenaphthene		490		12	490
Acenaphthylene		13	U	13	490
Acetophenone		11	U	11	490
Anthracene		450	J	46	490
Atrazine		22	U	22	200
Benzaldehyde		37	U	37	490
Benzo[a]anthracene		530		41	49
Benzo[a]pyrene		460		15	49
Benzo[b]fluoranthene		510		19	49
Benzo[g,h,i]perylene		280	J	28	490
Benzo[k]fluoranthene		210		21	49
Bis(2-chloroethoxy)methane		15	U	15	490
Bis(2-chloroethyl)ether		11	U	11	49
Bis(2-ethylhexyl) phthalate		140	J	19	490
Butyl benzyl phthalate		15	U	15	490
Caprolactam		35	U	35	490
Carbazole		230	J	12	490
Chrysene		560		13	490
Dibenz(a,h)anthracene		110		25	49

Client: ARCADIS U.S. Inc

Job Number: 460-104720-1

Client Sample ID: SB-305-S-16.0-16.5

Lab Sample ID: 460-104720-5
Client Matrix: Solid

% Moisture: 32.7

Date Sampled: 11/16/2015 1510
Date Received: 11/16/2015 1620

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-336628	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab File ID:	L128197.D
Dilution:	1.0			Initial Weight/Volume:	15.119 g
Analysis Date:	11/20/2015 2336			Final Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		290	J	15	490
Diethyl phthalate		14	U	14	490
Dimethyl phthalate		14	U	14	490
Di-n-butyl phthalate		15	U	15	490
Di-n-octyl phthalate		25	U	25	490
Fluoranthene		780		14	490
Fluorene		590		11	490
Hexachlorobenzene		20	U	20	49
Hexachlorobutadiene		14	U	14	99
Hexachlorocyclopentadiene		30	U	30	490
Hexachloroethane		18	U	18	49
Indeno[1,2,3-cd]pyrene		300		32	49
Isophorone		10	U	10	200
Naphthalene		1800		12	490
Nitrobenzene		15	U	15	49
N-Nitrosodi-n-propylamine		16	U	16	49
N-Nitrosodiphenylamine		44	U	44	490
Pentachlorophenol		59	U	59	390
Phenanthrene		2300		13	490
Phenol		16	U	16	490
Pyrene		1100		22	490

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	43		10 - 95
2-Fluorobiphenyl	66		27 - 84
2-Fluorophenol (Surr)	59		21 - 84
Nitrobenzene-d5 (Surr)	67		28 - 92
Phenol-d5 (Surr)	61		22 - 88
Terphenyl-d14 (Surr)	82		16 - 114

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CHAIN OF CUSTODY / ANA

460-104720 Chain of Custody

Page 1 of 1

Name (for report and invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/Project Identification Con Edison Bayview
Company Arcadis	P. O. # B00430000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 1655 Third Ave., 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	LAB USE ONLY Project No:
Phone 415.744.4900 Fax 212.682.9275		Job No: 104720

Sample Identification	Date	Time	Matrix	No. of Cont.	ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST) VOCs 8260	SVOCs 8270	Sample Numbers
SB-303-S-17.5-18.0	11/10/15	1040	S	5	X	X	-1
SB-303-S-19.0-19.5	11/10/15	1050	S	5	X	X	-2
SB-305-S-4.0-4.5	11/10/15	1420	S	5	X	X	-3
SB-305-S-8.5-9.0	11/10/15	1500	S	5	X	X	-4
SB-305-S-16.0-16.5	11/10/15	1510	S	5	X	X	-5
TB-151116	11/10/15	—	W	2	X		-6

SHORT HOLD

Preservation Used: 1 = ICE, H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____ = Other _____ Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

	Company	Date / Time	Received by	Company
Relinquished by 1)	Arcadis	11/10/15 1520	1)	T. B
Relinquished by 2)	T. B	11/11/15 1620	2)	TA Ed 11/16/15 1620
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). TAL - 0016 (0814)

Massachusetts (M-NJ312), North Carolina (No. 578) 1, 2, 3, 4 SHORT HOLD

11/27/2015

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Consolidated Edison Company of New York, Inc.

Bayview - West 18th Street Site

Data Usability Summary Report (DUSR)

NEW YORK CITY, NEW YORK

Volatile and Semivolatile Analyses

SDG #460-104781-1

Analyses Performed By:
TestAmerica Laboratories, Inc.
Edison, New Jersey

Report #24896R
Review Level: Tier III
Project: B0043000.0000.00002

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 460-104781-1 for samples collected in association the Con Edison Bayview West 18th Street site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	MET	MISC
460-104781-1	SB-304-S-9.0-9.5	460-104781-1	Soil	11/17/2015		X	X			
	SB-304-S-21.5-22.0	460-104781-2	Soil	11/17/2015		X	X			
	SB-306-S-7.5-8.0	460-104781-3	Soil	11/17/2015		X	X			
	SB-306-S-18.5-19.0	460-104781-4	Soil	11/17/2015		X	X			
	SB-307-S-8.5-9.0	460-104781-5	Soil	11/17/2015		X	X			
	SB-307-S-15.0-15.5	460-104781-6	Soil	11/17/2015		X	X			
	DUP-2-S	460-104781-7	Soil	11/17/2015	SB-306-S-18.5-19.0	X	X			
	TB-151117	460-104781-8	Water	11/17/2015		X				

Note:

1. Matrix spike/matrix spike duplicate was performed on sample location SB-304-S-21.5-22.0 for SVOC analyses.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 methods 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

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:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Solid	14 days from collection to analysis	Cool to <6 °C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-304-S-9.0-9.5 SB-304-S-21.5-22.0 SB-306-S-7.5-8.0 SB-306-S-18.5-19.0 SB-307-S-8.5-9.0 SB-307-S-15.0-15.5 DUP-2-S	ICV %RSD	2-Methyl-2-propanol	16.8%
		1,2-Dibromo-3-Chloropropane	18.0%
SB-304-S-9.0-9.5 SB-304-S-21.5-22.0 SB-306-S-7.5-8.0 SB-306-S-18.5-19.0 SB-307-S-8.5-9.0 DUP-2-S	CCV %D	2-Butanone (MEK)	-21.4%
		1,4-Dioxane	-22.1%
		trans-1,3-Dichloropropene	-22.4%
		1,1,2-Trichloroethane	-20.2%
SB-307-S-15.0-15.5	CCV %D	Vinyl chloride	-21.9%
		Acetone	-28.1%
		Methyl acetate	22.1%
TB-151117	ICV %RSD	Acetone	15.5%
		Chloroethane	16.8%
	CCV %D	Bromomethane	22.6%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% and <90% (increase in	Non-detect	No Action

Initial/Continuing	Criteria	Sample Result	Qualification
	sensitivity)	Detect	J
	%D >20% and <90% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90%	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within this SDG.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
SB-307-S-15.0-15.5	Toluene	<LL but >10%	AC

AC Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit three times the RL is applied for solid matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SB-306-S-18.5-19.0/DUP-2-S	Acetone	6.1 U	6.0	AC
	Benzene	57	12	130.4%

AC Acceptable

The compound Benzene associated with sample locations SB-306-S-18.5-19.0 and DUP-2-S exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Solid	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions. All target compounds associated with the initial calibration standards must exhibit a %RSD

less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-304-S-9.0-9.5 SB-304-S-21.5-22.0 SB-306-S-18.5-19.0 SB-307-S-8.5-9.0 SB-307-S-15.0-15.5 DUP-2-S	ICV %RSD	3,3'-Dichlorobenzidine	17.4%
SB-306-S-7.5-8.0	CCV %D	N-Nitrosodiphenylamine	24.7%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
SB-304-S-21.5-22.0	2,3,4,6-Tetrachlorophenol	<LL but >10%	<LL but >10%
	2,4,5-Trichlorophenol		
	4,6-Dinitro-2-methylphenol		
	Benzo[a]anthracene		
	Fluoranthene		
	Fluorene		
	N-Nitrosodiphenylamine		
	Pentachlorophenol		
	Phenanthrene		
	Pyrene		

Sample Locations	Compound	MS Recovery	MSD Recovery
	1,1'-Biphenyl	<LL but >10%	AC
	2,4,6-Trichlorophenol		
	2,4-Dichlorophenol		
	2-Nitrophenol		
	Benzaldehyde		
	Naphthalene		
	2,4-Dinitrophenol	<10%	<10%

AC Acceptable

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SB-304-S-9.0-9.5 SB-304-S-21.5-22.0 SB-306-S-7.5-8.0 SB-306-S-18.5-19.0 SB-307-S-8.5-9.0 SB-307-S-15.0-15.5 DUP-2-S	Benzo[a]pyrene	> UL

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for solid matrices is applied to the RPD between the parent

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for solid matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SB-306-S-18.5-19.0/DUP-2-S	4-Methylphenol	22 J	400 U	AC
	Bis(2-ethylhexyl) phthalate	130 J	77 J	
	Butyl benzyl phthalate	22 J	400 U	
	Fluoranthene	22 J	400 U	
	Naphthalene	120 J	33 J	
	Phenanthrene	32 J	14 J	
	Pyrene	21 J	400 U	

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

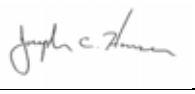
SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
460-104781-1	11/17/2015	SW-846	SB-304-S-9.0-9.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD, LCS %Recovery
	11/17/2015	SW-846	SB-304-S-21.5-22.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD, LCS %Recovery, MS/MSD %Recovery
	11/17/2015	SW-846	SB-306-S-7.5-8.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – LCS %Recovery
	11/17/2015	SW-846	SB-306-S-18.5-19.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD
	11/17/2015	SW-846	SB-307-S-8.5-9.0	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD, LCS %Recovery
	11/17/2015	SW-846	SB-307-S-15.0-15.5	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D, LCS %Recovery SVOC – ICAL %RSD, LCS %Recovery
	11/17/2015	SW-846	DUP-2-S	Soil	No	No	--	--	--	VOC – ICAL %RSD, CCAL %D SVOC – ICAL %RSD
	11/17/2015	SW-846	TB-151117	Water	No	--	--	--	--	VOC – ICAL %RSD

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: January 7, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-9.0-9.5**

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1538
Prep Date: 11/18/2015 1342

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17015.D
Initial Weight/Volume: 5.64 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.42	U	0.42	1.0
1,1,1-Trichloroethane	0.39	U	0.39	1.0
1,1,2,2-Tetrachloroethane	0.17	U	0.17	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.45	U	0.45	1.0
1,1,2-Trichloroethane	0.29	U J	0.29	1.0
1,1-Dichloroethane	0.35	U	0.35	1.0
1,1-Dichloroethene	0.42	U	0.42	1.0
1,2,3-Trichlorobenzene	0.11	U	0.11	1.0
1,2,4-Trichlorobenzene	0.33	U	0.33	1.0
1,2-Dibromo-3-Chloropropane	0.48	U J	0.48	1.0
1,2-Dichlorobenzene	0.14	U	0.14	1.0
1,2-Dichloroethane	0.11	U	0.11	1.0
1,2-Dichloropropane	0.17	U	0.17	1.0
1,3-Dichlorobenzene	0.12	U	0.12	1.0
1,4-Dichlorobenzene	0.13	U	0.13	1.0
1,4-Dioxane	6.5	U J	6.5	20
2-Butanone (MEK)	0.79	U J	0.79	5.1
2-Hexanone	0.96	U	0.96	5.1
2-Methyl-2-propanol	3.6	U J	3.6	10
4-Methyl-2-pentanone (MIBK)	2.3	U	2.3	5.1
Acetone	5.0	J	1.1	5.1
Benzene	0.20	U	0.20	1.0
Bromoform	0.13	U	0.13	1.0
Bromomethane	0.33	U	0.33	1.0
Carbon disulfide	0.85	J	0.44	1.0
Carbon tetrachloride	0.44	U	0.44	1.0
Chlorobenzene	0.14	U	0.14	1.0
Chlorobromomethane	0.17	U	0.17	1.0
Chlorodibromomethane	0.15	U	0.15	1.0
Chloroethane	0.36	U	0.36	1.0
Chloroform	0.22	U	0.22	1.0
Chloromethane	0.39	U	0.39	1.0
cis-1,2-Dichloroethene	0.23	U	0.23	1.0
cis-1,3-Dichloropropene	0.15	U	0.15	1.0
Cyclohexane	0.47	U	0.47	1.0
Dichlorobromomethane	0.39	U	0.39	1.0
Dichlorodifluoromethane	0.33	U	0.33	1.0
Ethylbenzene	0.18	U	0.18	1.0
Ethylene Dibromide	0.12	U	0.12	1.0
Isopropylbenzene	0.17	U	0.17	1.0
Methyl acetate	0.92	U	0.92	5.1
Methyl tert-butyl ether	0.17	U	0.17	1.0
Methylcyclohexane	0.51	U	0.51	1.0
Methylene Chloride	0.33	U	0.33	1.0
m-Xylene & p-Xylene	0.11	U	0.11	1.0
o-Xylene	0.16	U	0.16	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-9.0-9.5**

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1538
Prep Date: 11/18/2015 1342

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17015.D
Initial Weight/Volume: 5.64 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.15	U	0.15	1.0
Tetrachloroethene		0.29	U	0.29	1.0
Toluene		0.19	U	0.19	1.0
trans-1,2-Dichloroethene		0.40	U	0.40	1.0
trans-1,3-Dichloropropene		0.10	U J	0.10	1.0
Trichloroethene		0.27	U	0.27	1.0
Trichlorofluoromethane		0.35	U	0.35	1.0
Vinyl chloride		0.40	U	0.40	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		78 - 135
4-Bromofluorobenzene	88		67 - 126
Dibromofluoromethane (Surr)	106		61 - 149
Toluene-d8 (Surr)	99		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-9.0-9.5**

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17015.D
Dilution:	1.0			Initial Weight/Volume:	5.64 g
Analysis Date:	11/27/2015 1538			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1342				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1602
Prep Date: 11/18/2015 1343

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17016.D
Initial Weight/Volume: 5.06 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.54	U	0.54	1.3
1,1,1-Trichloroethane		0.50	U	0.50	1.3
1,1,2,2-Tetrachloroethane		0.22	U	0.22	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane		0.58	U	0.58	1.3
1,1,2-Trichloroethane		0.37	U J	0.37	1.3
1,1-Dichloroethane		0.45	U	0.45	1.3
1,1-Dichloroethene		0.54	U	0.54	1.3
1,2,3-Trichlorobenzene		0.15	U	0.15	1.3
1,2,4-Trichlorobenzene		0.42	U	0.42	1.3
1,2-Dibromo-3-Chloropropane		0.62	U J	0.62	1.3
1,2-Dichlorobenzene		0.18	U	0.18	1.3
1,2-Dichloroethane		0.15	U	0.15	1.3
1,2-Dichloropropane		0.22	U	0.22	1.3
1,3-Dichlorobenzene		0.16	U	0.16	1.3
1,4-Dichlorobenzene		0.17	U	0.17	1.3
1,4-Dioxane		8.4	U J	8.4	26
2-Butanone (MEK)		1.0	U J	1.0	6.6
2-Hexanone		1.2	U	1.2	6.6
2-Methyl-2-propanol		4.6	U J	4.6	13
4-Methyl-2-pentanone (MIBK)		2.9	U	2.9	6.6
Acetone		1.4	U	1.4	6.6
Benzene		0.45	J	0.26	1.3
Bromoform		0.17	U	0.17	1.3
Bromomethane		0.42	U	0.42	1.3
Carbon disulfide		0.57	U	0.57	1.3
Carbon tetrachloride		0.57	U	0.57	1.3
Chlorobenzene		0.18	U	0.18	1.3
Chlorobromomethane		0.22	U	0.22	1.3
Chlorodibromomethane		0.20	U	0.20	1.3
Chloroethane		0.46	U	0.46	1.3
Chloroform		0.28	U	0.28	1.3
Chloromethane		0.50	U	0.50	1.3
cis-1,2-Dichloroethene		0.29	U	0.29	1.3
cis-1,3-Dichloropropene		0.20	U	0.20	1.3
Cyclohexane		0.61	U	0.61	1.3
Dichlorobromomethane		0.50	U	0.50	1.3
Dichlorodifluoromethane		0.42	U	0.42	1.3
Ethylbenzene		0.24	U	0.24	1.3
Ethylene Dibromide		0.16	U	0.16	1.3
Isopropylbenzene		0.22	U	0.22	1.3
Methyl acetate		1.2	U	1.2	6.6
Methyl tert-butyl ether		0.22	U	0.22	1.3
Methylcyclohexane		0.66	U	0.66	1.3
Methylene Chloride		0.42	U	0.42	1.3
m-Xylene & p-Xylene		0.15	U	0.15	1.3
o-Xylene		0.21	U	0.21	1.3

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17016.D
Dilution:	1.0			Initial Weight/Volume:	5.06 g
Analysis Date:	11/27/2015 1602			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1343				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.20	U	0.20	1.3
Tetrachloroethene		0.37	U	0.37	1.3
Toluene		0.25	U	0.25	1.3
trans-1,2-Dichloroethene		0.52	U	0.52	1.3
trans-1,3-Dichloropropene		0.13	U J	0.13	1.3
Trichloroethene		0.34	U	0.34	1.3
Trichlorofluoromethane		0.45	U	0.45	1.3
Vinyl chloride		0.52	U	0.52	1.3

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		78 - 135
4-Bromofluorobenzene	95		67 - 126
Dibromofluoromethane (Surr)	105		61 - 149
Toluene-d8 (Surr)	92		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17016.D
Dilution:	1.0			Initial Weight/Volume:	5.06 g
Analysis Date:	11/27/2015 1602			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1343				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-7.5-8.0**

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1627
Prep Date: 11/18/2015 1344

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17017.D
Initial Weight/Volume: 4.81 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.54	U	0.54	1.3
1,1,1-Trichloroethane		0.50	U	0.50	1.3
1,1,2,2-Tetrachloroethane		0.22	U	0.22	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane		0.58	U	0.58	1.3
1,1,2-Trichloroethane		0.37	U J	0.37	1.3
1,1-Dichloroethane		0.45	U	0.45	1.3
1,1-Dichloroethene		0.54	U	0.54	1.3
1,2,3-Trichlorobenzene		0.14	U	0.14	1.3
1,2,4-Trichlorobenzene		0.42	U	0.42	1.3
1,2-Dibromo-3-Chloropropane		0.62	U J	0.62	1.3
1,2-Dichlorobenzene		0.18	U	0.18	1.3
1,2-Dichloroethane		0.14	U	0.14	1.3
1,2-Dichloropropane		0.22	U	0.22	1.3
1,3-Dichlorobenzene		0.16	U	0.16	1.3
1,4-Dichlorobenzene		0.17	U	0.17	1.3
1,4-Dioxane		8.4	U J	8.4	26
2-Butanone (MEK)		1.0	U J	1.0	6.6
2-Hexanone		1.2	U	1.2	6.6
2-Methyl-2-propanol		4.6	U J	4.6	13
4-Methyl-2-pentanone (MIBK)		2.9	U	2.9	6.6
Acetone		9.4		1.4	6.6
Benzene		1.7		0.26	1.3
Bromoform		0.17	U	0.17	1.3
Bromomethane		0.42	U	0.42	1.3
Carbon disulfide		0.56	U	0.56	1.3
Carbon tetrachloride		0.56	U	0.56	1.3
Chlorobenzene		0.18	U	0.18	1.3
Chlorobromomethane		0.22	U	0.22	1.3
Chlorodibromomethane		0.20	U	0.20	1.3
Chloroethane		0.46	U	0.46	1.3
Chloroform		0.28	U	0.28	1.3
Chloromethane		0.50	U	0.50	1.3
cis-1,2-Dichloroethene		0.29	U	0.29	1.3
cis-1,3-Dichloropropene		0.20	U	0.20	1.3
Cyclohexane		0.60	U	0.60	1.3
Dichlorobromomethane		0.50	U	0.50	1.3
Dichlorodifluoromethane		0.42	U	0.42	1.3
Ethylbenzene		0.24	U	0.24	1.3
Ethylene Dibromide		0.16	U	0.16	1.3
Isopropylbenzene		0.22	U	0.22	1.3
Methyl acetate		1.2	U	1.2	6.6
Methyl tert-butyl ether		0.22	U	0.22	1.3
Methylcyclohexane		0.66	U	0.66	1.3
Methylene Chloride		0.42	U	0.42	1.3
m-Xylene & p-Xylene		0.14	U	0.14	1.3
o-Xylene		0.21	U	0.21	1.3

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: SB-306-S-7.5-8.0

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1627
Prep Date: 11/18/2015 1344

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17017.D
Initial Weight/Volume: 4.81 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.20	U	0.20	1.3
Tetrachloroethene		0.37	U	0.37	1.3
Toluene		0.25	U	0.25	1.3
trans-1,2-Dichloroethene		0.51	U	0.51	1.3
trans-1,3-Dichloropropene		0.13	U J	0.13	1.3
Trichloroethene		0.34	U	0.34	1.3
Trichlorofluoromethane		0.45	U	0.45	1.3
Vinyl chloride		0.51	U	0.51	1.3

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		78 - 135
4-Bromofluorobenzene	97		67 - 126
Dibromofluoromethane (Surr)	109		61 - 149
Toluene-d8 (Surr)	95		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-7.5-8.0**

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17017.D
Dilution:	1.0			Initial Weight/Volume:	4.81 g
Analysis Date:	11/27/2015 1627			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1344				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid
% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1651
Prep Date: 11/18/2015 1345

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17018.D
Initial Weight/Volume: 5.17 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.50	U	0.50	1.2
1,1,1-Trichloroethane	0.47	U	0.47	1.2
1,1,2,2-Tetrachloroethane	0.21	U	0.21	1.2
1,1,2-Trichloro-1,2,2-trifluoroethane	0.54	U	0.54	1.2
1,1,2-Trichloroethane	0.34	U J	0.34	1.2
1,1-Dichloroethane	0.42	U	0.42	1.2
1,1-Dichloroethene	0.50	U	0.50	1.2
1,2,3-Trichlorobenzene	0.14	U	0.14	1.2
1,2,4-Trichlorobenzene	0.39	U	0.39	1.2
1,2-Dibromo-3-Chloropropane	0.58	U J	0.58	1.2
1,2-Dichlorobenzene	0.17	U	0.17	1.2
1,2-Dichloroethane	0.14	U	0.14	1.2
1,2-Dichloropropane	0.21	U	0.21	1.2
1,3-Dichlorobenzene	0.15	U	0.15	1.2
1,4-Dichlorobenzene	0.16	U	0.16	1.2
1,4-Dioxane	7.9	U J	7.9	25
2-Butanone (MEK)	0.95	U J	0.95	6.1
2-Hexanone	1.2	U	1.2	6.1
2-Methyl-2-propanol	4.3	U J	4.3	12
4-Methyl-2-pentanone (MIBK)	2.7	U	2.7	6.1
Acetone	1.3	U	1.3	6.1
Benzene	57	J	0.25	1.2
Bromoform	0.16	U	0.16	1.2
Bromomethane	0.39	U	0.39	1.2
Carbon disulfide	0.53	U	0.53	1.2
Carbon tetrachloride	0.53	U	0.53	1.2
Chlorobenzene	0.17	U	0.17	1.2
Chlorobromomethane	0.21	U	0.21	1.2
Chlorodibromomethane	0.18	U	0.18	1.2
Chloroethane	0.43	U	0.43	1.2
Chloroform	0.26	U	0.26	1.2
Chloromethane	0.47	U	0.47	1.2
cis-1,2-Dichloroethene	0.27	U	0.27	1.2
cis-1,3-Dichloropropene	0.18	U	0.18	1.2
Cyclohexane	0.57	U	0.57	1.2
Dichlorobromomethane	0.47	U	0.47	1.2
Dichlorodifluoromethane	0.39	U	0.39	1.2
Ethylbenzene	0.22	U	0.22	1.2
Ethylene Dibromide	0.15	U	0.15	1.2
Isopropylbenzene	0.21	U	0.21	1.2
Methyl acetate	1.1	U	1.1	6.1
Methyl tert-butyl ether	0.21	U	0.21	1.2
Methylcyclohexane	0.61	U	0.61	1.2
Methylene Chloride	0.39	U	0.39	1.2
m-Xylene & p-Xylene	0.14	U	0.14	1.2
o-Xylene	0.20	U	0.20	1.2

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17018.D
Dilution:	1.0			Initial Weight/Volume:	5.17 g
Analysis Date:	11/27/2015 1651			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1345				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.18	U	0.18	1.2
Tetrachloroethene		0.34	U	0.34	1.2
Toluene		0.23	U	0.23	1.2
trans-1,2-Dichloroethene		0.48	U	0.48	1.2
trans-1,3-Dichloropropene		0.12	U J	0.12	1.2
Trichloroethene		0.32	U	0.32	1.2
Trichlorofluoromethane		0.42	U	0.42	1.2
Vinyl chloride		0.48	U	0.48	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		78 - 135
4-Bromofluorobenzene	96		67 - 126
Dibromofluoromethane (Surr)	107		61 - 149
Toluene-d8 (Surr)	94		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17018.D
Dilution:	1.0			Initial Weight/Volume:	5.17 g
Analysis Date:	11/27/2015 1651			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1345				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: SB-307-S-8.5-9.0

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1716
Prep Date: 11/18/2015 1346

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17019.D
Initial Weight/Volume: 5.50 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.57	U	0.57	1.4
1,1,1-Trichloroethane	0.53	U	0.53	1.4
1,1,2,2-Tetrachloroethane	0.24	U	0.24	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane	0.61	U	0.61	1.4
1,1,2-Trichloroethane	0.39	U J	0.39	1.4
1,1-Dichloroethane	0.47	U	0.47	1.4
1,1-Dichloroethene	0.57	U	0.57	1.4
1,2,3-Trichlorobenzene	0.15	U	0.15	1.4
1,2,4-Trichlorobenzene	0.45	U	0.45	1.4
1,2-Dibromo-3-Chloropropane	0.66	U J	0.66	1.4
1,2-Dichlorobenzene	0.20	U	0.20	1.4
1,2-Dichloroethane	0.15	U	0.15	1.4
1,2-Dichloropropane	0.24	U	0.24	1.4
1,3-Dichlorobenzene	0.17	U	0.17	1.4
1,4-Dichlorobenzene	0.18	U	0.18	1.4
1,4-Dioxane	8.9	U J	8.9	28
2-Butanone (MEK)	1.1	U J	1.1	7.0
2-Hexanone	1.3	U	1.3	7.0
2-Methyl-2-propanol	4.9	U J	4.9	14
4-Methyl-2-pentanone (MIBK)	3.1	U	3.1	7.0
Acetone	5.7	J	1.5	7.0
Benzene	4.5		0.28	1.4
Bromoform	0.18	U	0.18	1.4
Bromomethane	0.45	U	0.45	1.4
Carbon disulfide	1.1	J	0.60	1.4
Carbon tetrachloride	0.60	U	0.60	1.4
Chlorobenzene	0.20	U	0.20	1.4
Chlorobromomethane	0.24	U	0.24	1.4
Chlorodibromomethane	0.21	U	0.21	1.4
Chloroethane	0.49	U	0.49	1.4
Chloroform	0.29	U	0.29	1.4
Chloromethane	0.53	U	0.53	1.4
cis-1,2-Dichloroethene	0.31	U	0.31	1.4
cis-1,3-Dichloropropene	0.21	U	0.21	1.4
Cyclohexane	0.64	U	0.64	1.4
Dichlorobromomethane	0.53	U	0.53	1.4
Dichlorodifluoromethane	0.45	U	0.45	1.4
Ethylbenzene	0.25	U	0.25	1.4
Ethylene Dibromide	0.17	U	0.17	1.4
Isopropylbenzene	3.1		0.24	1.4
Methyl acetate	1.3	U	1.3	7.0
Methyl tert-butyl ether	0.24	U	0.24	1.4
Methylcyclohexane	0.70	U	0.70	1.4
Methylene Chloride	0.45	U	0.45	1.4
m-Xylene & p-Xylene	0.15	U	0.15	1.4
o-Xylene	0.22	U	0.22	1.4

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-8.5-9.0**

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1716
Prep Date: 11/18/2015 1346

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17019.D
Initial Weight/Volume: 5.50 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.21	U	0.21	1.4
Tetrachloroethene		0.39	U	0.39	1.4
Toluene		0.80	J	0.27	1.4
trans-1,2-Dichloroethene		0.54	U	0.54	1.4
trans-1,3-Dichloropropene		0.14	U J	0.14	1.4
Trichloroethene		0.36	U	0.36	1.4
Trichlorofluoromethane		0.47	U	0.47	1.4
Vinyl chloride		0.54	U	0.54	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	109		78 - 135
4-Bromofluorobenzene	100		67 - 126
Dibromofluoromethane (Surr)	128		61 - 149
Toluene-d8 (Surr)	104		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-8.5-9.0**

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17019.D
Dilution:	1.0			Initial Weight/Volume:	5.50 g
Analysis Date:	11/27/2015 1716			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1346				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
4516-69-2	Cyclopentane, 1,1,3-trimethyl-	6.82	340	J N
	Unknown	7.68	270	J N
	Unknown	7.81	270	J
	Unknown	9.05	230	J
	Unknown	9.73	290	J
	Unknown	9.92	160	J
	Unknown	10.41	290	J
	Unknown	11.30	320	J
1000152-47-3	trans-Decalin, 2-methyl-	11.78	180	J N
17301-23-4	Undecane, 2,6-dimethyl-	12.29	190	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: SB-307-S-15.0-15.5

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/28/2015 0336
Prep Date: 11/18/2015 1348

Analysis Batch: 460-337734
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17041.D
Initial Weight/Volume: 5.82 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.44	U	0.44	1.1
1,1,1-Trichloroethane		0.41	U	0.41	1.1
1,1,2,2-Tetrachloroethane		0.18	U	0.18	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane		0.47	U	0.47	1.1
1,1,2-Trichloroethane		0.30	U	0.30	1.1
1,1-Dichloroethane		0.36	U	0.36	1.1
1,1-Dichloroethene		0.44	U	0.44	1.1
1,2,3-Trichlorobenzene		0.12	U	0.12	1.1
1,2,4-Trichlorobenzene		0.34	U	0.34	1.1
1,2-Dibromo-3-Chloropropane		0.50	U J	0.50	1.1
1,2-Dichlorobenzene		0.15	U	0.15	1.1
1,2-Dichloroethane		0.12	U	0.12	1.1
1,2-Dichloropropane		0.18	U	0.18	1.1
1,3-Dichlorobenzene		0.13	U	0.13	1.1
1,4-Dichlorobenzene		0.14	U	0.14	1.1
1,4-Dioxane		6.8	U	6.8	21
2-Butanone (MEK)		0.82	U	0.82	5.3
2-Hexanone		1.0	U	1.0	5.3
2-Methyl-2-propanol		3.7	U J	3.7	11
4-Methyl-2-pentanone (MIBK)		2.4	U	2.4	5.3
Acetone		1.1	U J	1.1	5.3
Benzene		5.1		0.21	1.1
Bromoform		0.14	U	0.14	1.1
Bromomethane		0.34	U	0.34	1.1
Carbon disulfide		0.51	J	0.46	1.1
Carbon tetrachloride		0.46	U	0.46	1.1
Chlorobenzene		0.15	U	0.15	1.1
Chlorobromomethane		0.18	U	0.18	1.1
Chlorodibromomethane		0.16	U	0.16	1.1
Chloroethane		0.37	U	0.37	1.1
Chloroform		0.22	U	0.22	1.1
Chloromethane		0.41	U	0.41	1.1
cis-1,2-Dichloroethene		0.23	U	0.23	1.1
cis-1,3-Dichloropropene		0.16	U	0.16	1.1
Cyclohexane		0.49	U	0.49	1.1
Dichlorobromomethane		0.41	U	0.41	1.1
Dichlorodifluoromethane		0.34	U	0.34	1.1
Ethylbenzene		0.19	U	0.19	1.1
Ethylene Dibromide		0.13	U	0.13	1.1
Isopropylbenzene		0.18	U	0.18	1.1
Methyl acetate		0.96	U	0.96	5.3
Methyl tert-butyl ether		0.18	U	0.18	1.1
Methylcyclohexane		0.53	U	0.53	1.1
Methylene Chloride		0.34	U	0.34	1.1
m-Xylene & p-Xylene		0.12	U	0.12	1.1
o-Xylene		0.17	U	0.17	1.1

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-15.0-15.5**

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/28/2015 0336
Prep Date: 11/18/2015 1348

Analysis Batch: 460-337734
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17041.D
Initial Weight/Volume: 5.82 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.16	U	0.16	1.1
Tetrachloroethene		0.30	U	0.30	1.1
Toluene		0.20	U J	0.20	1.1
trans-1,2-Dichloroethene		0.42	U	0.42	1.1
trans-1,3-Dichloropropene		0.11	U	0.11	1.1
Trichloroethene		0.28	U	0.28	1.1
Trichlorofluoromethane		0.36	U	0.36	1.1
Vinyl chloride		0.42	U J	0.42	1.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	88		78 - 135
4-Bromofluorobenzene	99		67 - 126
Dibromofluoromethane (Surr)	89		61 - 149
Toluene-d8 (Surr)	101		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-15.0-15.5**

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337734	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17041.D
Dilution:	1.0			Initial Weight/Volume:	5.82 g
Analysis Date:	11/28/2015 0336			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1348				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: DUP-2-S

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1805
Prep Date: 11/18/2015 1348

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17021.D
Initial Weight/Volume: 6.20 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.40	U	0.40	0.99
1,1,1-Trichloroethane	0.38	U	0.38	0.99
1,1,2,2-Tetrachloroethane	0.17	U	0.17	0.99
1,1,2-Trichloro-1,2,2-trifluoroethane	0.43	U	0.43	0.99
1,1,2-Trichloroethane	0.28	U J	0.28	0.99
1,1-Dichloroethane	0.34	U	0.34	0.99
1,1-Dichloroethene	0.40	U	0.40	0.99
1,2,3-Trichlorobenzene	0.11	U	0.11	0.99
1,2,4-Trichlorobenzene	0.32	U	0.32	0.99
1,2-Dibromo-3-Chloropropane	0.46	U J	0.46	0.99
1,2-Dichlorobenzene	0.14	U	0.14	0.99
1,2-Dichloroethane	0.11	U	0.11	0.99
1,2-Dichloropropane	0.17	U	0.17	0.99
1,3-Dichlorobenzene	0.12	U	0.12	0.99
1,4-Dichlorobenzene	0.13	U	0.13	0.99
1,4-Dioxane	6.3	U J	6.3	20
2-Butanone (MEK)	0.76	U J	0.76	4.9
2-Hexanone	0.93	U	0.93	4.9
2-Methyl-2-propanol	3.4	U J	3.4	9.9
4-Methyl-2-pentanone (MIBK)	2.2	U	2.2	4.9
Acetone	6.0		1.0	4.9
Benzene	12	J	0.20	0.99
Bromoform	0.13	U	0.13	0.99
Bromomethane	0.32	U	0.32	0.99
Carbon disulfide	0.42	U	0.42	0.99
Carbon tetrachloride	0.42	U	0.42	0.99
Chlorobenzene	0.14	U	0.14	0.99
Chlorobromomethane	0.17	U	0.17	0.99
Chlorodibromomethane	0.15	U	0.15	0.99
Chloroethane	0.35	U	0.35	0.99
Chloroform	0.21	U	0.21	0.99
Chloromethane	0.38	U	0.38	0.99
cis-1,2-Dichloroethene	0.22	U	0.22	0.99
cis-1,3-Dichloropropene	0.15	U	0.15	0.99
Cyclohexane	0.45	U	0.45	0.99
Dichlorobromomethane	0.38	U	0.38	0.99
Dichlorodifluoromethane	0.32	U	0.32	0.99
Ethylbenzene	0.18	U	0.18	0.99
Ethylene Dibromide	0.12	U	0.12	0.99
Isopropylbenzene	0.17	U	0.17	0.99
Methyl acetate	0.89	U	0.89	4.9
Methyl tert-butyl ether	0.17	U	0.17	0.99
Methylcyclohexane	0.49	U	0.49	0.99
Methylene Chloride	0.32	U	0.32	0.99
m-Xylene & p-Xylene	0.11	U	0.11	0.99
o-Xylene	0.16	U	0.16	0.99

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: DUP-2-S

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/27/2015 1805
Prep Date: 11/18/2015 1348

Analysis Batch: 460-337603
Prep Batch: 460-336137

Instrument ID: CVOAMS4
Lab File ID: D17021.D
Initial Weight/Volume: 6.20 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.15	U	0.15	0.99
Tetrachloroethene		0.28	U	0.28	0.99
Toluene		0.19	U	0.19	0.99
trans-1,2-Dichloroethene		0.39	U	0.39	0.99
trans-1,3-Dichloropropene		0.099	U	0.099	0.99
Trichloroethene		0.26	U	0.26	0.99
Trichlorofluoromethane		0.34	U	0.34	0.99
Vinyl chloride		0.39	U	0.39	0.99

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		78 - 135
4-Bromofluorobenzene	94		67 - 126
Dibromofluoromethane (Surr)	103		61 - 149
Toluene-d8 (Surr)	82		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **DUP-2-S**

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337603	Instrument ID:	CVOAMS4
Prep Method:	5035	Prep Batch:	460-336137	Lab File ID:	D17021.D
Dilution:	1.0			Initial Weight/Volume:	6.20 g
Analysis Date:	11/27/2015 1805			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1348				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **TB-151117**

Lab Sample ID: 460-104781-8TB
Client Matrix: Water

Date Sampled: 11/17/2015 0000
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/21/2015 0122
Prep Date: 11/21/2015 0122

Analysis Batch: 460-336648
Prep Batch: N/A

Instrument ID: CVOAMS12
Lab File ID: O04425.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U	0.63	5.0
Acetone	1.1	U J	1.1	5.0
Benzene	0.090	U	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U J	0.37	1.0
Chloroform	0.22	U	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U	0.32	1.0
Methyl acetate	0.58	U	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **TB-151117**

Lab Sample ID: 460-104781-8TB
Client Matrix: Water

Date Sampled: 11/17/2015 0000
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/21/2015 0122
Prep Date: 11/21/2015 0122

Analysis Batch: 460-336648
Prep Batch: N/A

Instrument ID: CVOAMS12
Lab File ID: O04425.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Toluene	0.25	U	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85		70 - 137
4-Bromofluorobenzene	122		70 - 131
Dibromofluoromethane (Surr)	91		72 - 136
Toluene-d8 (Surr)	93		74 - 120

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **TB-151117**

Lab Sample ID: 460-104781-8TB
Client Matrix: Water

Date Sampled: 11/17/2015 0000
Date Received: 11/17/2015 1630

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/21/2015 0122
Prep Date: 11/21/2015 0122

Analysis Batch: 460-336648
Prep Batch: N/A

Instrument ID: CVOAMS12
Lab File ID: O04425.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-9.0-9.5**

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1059
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8871.D
Initial Weight/Volume: 15.0227 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		33	U	33	380
1,2,4,5-Tetrachlorobenzene		28	U	28	380
2,2'-oxybis[1-chloropropane]		16	U	16	380
2,3,4,6-Tetrachlorophenol		36	U	36	380
2,4,5-Trichlorophenol		38	U	38	380
2,4,6-Trichlorophenol		11	U	11	150
2,4-Dichlorophenol		9.0	U	9.0	150
2,4-Dimethylphenol		84	U	84	380
2,4-Dinitrophenol		290	U	290	310
2,4-Dinitrotoluene		15	U	15	77
2,6-Dinitrotoluene		20	U	20	77
2-Chloronaphthalene		8.7	U	8.7	380
2-Chlorophenol		9.7	U	9.7	380
2-Methylnaphthalene		8.4	U	8.4	380
2-Methylphenol		17	U	17	380
2-Nitroaniline		13	U	13	380
2-Nitrophenol		13	U	13	380
3,3'-Dichlorobenzidine		43	U J	43	150
3-Nitroaniline		11	U	11	380
4,6-Dinitro-2-methylphenol		100	U	100	310
4-Bromophenyl phenyl ether		12	U	12	380
4-Chloro-3-methylphenol		16	U	16	380
4-Chloroaniline		9.8	U	9.8	380
4-Chlorophenyl phenyl ether		11	U	11	380
4-Methylphenol		10	U	10	380
4-Nitroaniline		14	U	14	380
4-Nitrophenol		180	U	180	770
Acenaphthene		30	J	9.2	380
Acenaphthylene		9.8	U	9.8	380
Acetophenone		8.3	U	8.3	380
Anthracene		53	J	36	380
Atrazine		17	U	17	150
Benzaldehyde		29	U	29	380
Benzo[a]anthracene		200		32	38
Benzo[a]pyrene		200	J	12	38
Benzo[b]fluoranthene		240		15	38
Benzo[g,h,i]perylene		150	J	22	380
Benzo[k]fluoranthene		100		17	38
Bis(2-chloroethoxy)methane		12	U	12	380
Bis(2-chloroethyl)ether		9.0	U	9.0	38
Bis(2-ethylhexyl) phthalate		190	J	15	380
Butyl benzyl phthalate		12	U	12	380
Caprolactam		27	U	27	380
Carbazole		9.5	U	9.5	380
Chrysene		210	J	10	380
Dibenz(a,h)anthracene		50		20	38

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: SB-304-S-9.0-9.5

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1059
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8871.D
Initial Weight/Volume: 15.0227 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		26	J	12	380
Diethyl phthalate		11	U	11	380
Dimethyl phthalate		11	U	11	380
Di-n-butyl phthalate		11	U	11	380
Di-n-octyl phthalate		19	U	19	380
Fluoranthene		400		11	380
Fluorene		16	J	8.3	380
Hexachlorobenzene		15	U	15	38
Hexachlorobutadiene		11	U	11	77
Hexachlorocyclopentadiene		24	U	24	380
Hexachloroethane		14	U	14	38
Indeno[1,2,3-cd]pyrene		170		25	38
Isophorone		8.2	U	8.2	150
Naphthalene		110	J	9.7	380
Nitrobenzene		12	U	12	38
N-Nitrosodi-n-propylamine		13	U	13	38
N-Nitrosodiphenylamine		35	U	35	380
Pentachlorophenol		46	U	46	310
Phenanthrene		100	J	10	380
Phenol		12	U	12	380
Pyrene		500		17	380

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	58		10 - 95
2-Fluorobiphenyl	64		27 - 84
2-Fluorophenol (Surr)	59		21 - 84
Nitrobenzene-d5 (Surr)	67		28 - 92
Phenol-d5 (Surr)	61		22 - 88
Terphenyl-d14 (Surr)	84		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-9.0-9.5**

Lab Sample ID: 460-104781-1
Client Matrix: Solid

% Moisture: 13.5

Date Sampled: 11/17/2015 1030
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1059
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8871.D
Initial Weight/Volume: 15.0227 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Tentatively Identified Compounds

Number TIC's Found: 2

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	9.52	340	J N
	Unknown	9.62	340	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0658
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8860.D
Initial Weight/Volume: 15.0521 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		38	U F1 J	38	440
1,2,4,5-Tetrachlorobenzene		33	U	33	440
2,2'-oxybis[1-chloropropane]		18	U	18	440
2,3,4,6-Tetrachlorophenol		41	U F1 J	41	440
2,4,5-Trichlorophenol		44	U F1	44	440
2,4,6-Trichlorophenol		13	U F1	13	180
2,4-Dichlorophenol		10	U F1	10	180
2,4-Dimethylphenol		97	U	97	440
2,4-Dinitrophenol		330	U F1 J	330	350 R
2,4-Dinitrotoluene		17	U	17	89
2,6-Dinitrotoluene		23	U	23	89
2-Chloronaphthalene		10	U	10	440
2-Chlorophenol		11	U	11	440
2-Methylnaphthalene		63	J	9.7	440
2-Methylphenol		19	U	19	440
2-Nitroaniline		15	U	15	440
2-Nitrophenol		15	U F1 J	15	440
3,3'-Dichlorobenzidine		49	U J	49	180
3-Nitroaniline		13	U	13	440
4,6-Dinitro-2-methylphenol		120	U F1 J	120	350
4-Bromophenyl phenyl ether		14	U	14	440
4-Chloro-3-methylphenol		19	U	19	440
4-Chloroaniline		11	U	11	440
4-Chlorophenyl phenyl ether		13	U	13	440
4-Methylphenol		12	U	12	440
4-Nitroaniline		17	U	17	440
4-Nitrophenol		210	U	210	890
Acenaphthene		150	J	11	440
Acenaphthylene		11	U	11	440
Acetophenone		11	J	9.6	440
Anthracene		320	J	42	440
Atrazine		20	U	20	180
Benzaldehyde		34	U F1 J	34	440
Benzo[a]anthracene		610	F1 J	37	44
Benzo[a]pyrene		560	J	13	44
Benzo[b]fluoranthene		690		17	44
Benzo[g,h,i]perylene		360	J	25	440
Benzo[k]fluoranthene		270		19	44
Bis(2-chloroethoxy)methane		14	U	14	440
Bis(2-chloroethyl)ether		10	U	10	44
Bis(2-ethylhexyl) phthalate		38	J	17	440
Butyl benzyl phthalate		14	U	14	440
Caprolactam		32	U	32	440
Carbazole		130	J	11	440
Chrysene		660		12	440
Dibenz(a,h)anthracene		120		23	44

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8860.D
Dilution:	1.0			Initial Weight/Volume:	15.0521 g
Analysis Date:	11/25/2015 0658			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		75	J	13	440
Diethyl phthalate		13	U	13	440
Dimethyl phthalate		13	U	13	440
Di-n-butyl phthalate		13	U	13	440
Di-n-octyl phthalate		22	U	22	440
Fluoranthene		1300	~~F1~~ J	13	440
Fluorene		170	J ~~F1~~	9.6	440
Hexachlorobenzene		18	U	18	44
Hexachlorobutadiene		12	U	12	89
Hexachlorocyclopentadiene		27	U	27	440
Hexachloroethane		16	U	16	44
Indeno[1,2,3-cd]pyrene		430		29	44
Isophorone		9.5	U	9.5	180
Naphthalene		270	J ~~F1~~	11	440
Nitrobenzene		14	U	14	44
N-Nitrosodi-n-propylamine		15	U	15	44
N-Nitrosodiphenylamine		40	U ~~F1~~ J	40	440
Pentachlorophenol		53	U ~~F1~~ J	53	350
Phenanthrene		1400	~~F1~~ J	12	440
Phenol		14	U	14	440
Pyrene		1400	~~F1~~ J	20	440

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	57		10 - 95
2-Fluorobiphenyl	69		27 - 84
2-Fluorophenol (Surr)	61		21 - 84
Nitrobenzene-d5 (Surr)	70		28 - 92
Phenol-d5 (Surr)	65		22 - 88
Terphenyl-d14 (Surr)	93		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-304-S-21.5-22.0**

Lab Sample ID: 460-104781-2
Client Matrix: Solid

% Moisture: 25.2

Date Sampled: 11/17/2015 1040
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8860.D
Dilution:	1.0			Initial Weight/Volume:	15.0521 g
Analysis Date:	11/25/2015 0658			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 2**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	
124-18-5	n-Decane	3.91	13	J N
90-12-0	1-Methylnaphthalene	6.17	61	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: SB-306-S-7.5-8.0

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 2.0
Analysis Date: 11/25/2015 1737
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337415
Prep Batch: 460-337249

Instrument ID: CBNAMS11
Lab File ID: z38945.D
Initial Weight/Volume: 15.0256 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		71	U	71	830
1,2,4,5-Tetrachlorobenzene		62	U	62	830
2,2'-oxybis[1-chloropropane]		34	U	34	830
2,3,4,6-Tetrachlorophenol		78	U	78	830
2,4,5-Trichlorophenol		83	U	83	830
2,4,6-Trichlorophenol		24	U	24	340
2,4-Dichlorophenol		20	U	20	340
2,4-Dimethylphenol		180	U	180	830
2,4-Dinitrophenol		630	U	630	670
2,4-Dinitrotoluene		33	U	33	170
2,6-Dinitrotoluene		44	U	44	170
2-Chloronaphthalene		19	U	19	830
2-Chlorophenol		21	U	21	830
2-Methylnaphthalene		150	J	18	830
2-Methylphenol		36	U	36	830
2-Nitroaniline		27	U	27	830
2-Nitrophenol		28	U	28	830
3,3'-Dichlorobenzidine		93	U	93	340
3-Nitroaniline		25	U	25	830
4,6-Dinitro-2-methylphenol		220	U	220	670
4-Bromophenyl phenyl ether		26	U	26	830
4-Chloro-3-methylphenol		36	U	36	830
4-Chloroaniline		21	U	21	830
4-Chlorophenyl phenyl ether		25	U	25	830
4-Methylphenol		38	J	23	830
4-Nitroaniline		31	U	31	830
4-Nitrophenol		400	U	400	1700
Acenaphthene		280	J	20	830
Acenaphthylene		46	J	21	830
Acetophenone		18	U	18	830
Anthracene		1100		79	830
Atrazine		37	U	37	340
Benzaldehyde		64	U	64	830
Benzo[a]anthracene		6800		70	83
Benzo[a]pyrene		9100		25	83
Benzo[b]fluoranthene		10000		33	83
Benzo[g,h,i]perylene		7500		48	830
Benzo[k]fluoranthene		3800		36	83
Bis(2-chloroethoxy)methane		26	U	26	830
Bis(2-chloroethyl)ether		20	U	20	83
Bis(2-ethylhexyl) phthalate		33	U	33	830
Butyl benzyl phthalate		26	U	26	830
Caprolactam		60	U	60	830
Carbazole		410	J	21	830
Chrysene		6800		23	830
Dibenz(a,h)anthracene		2500		43	83

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-7.5-8.0**

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337415	Instrument ID:	CBNAMS11
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	z38945.D
Dilution:	2.0			Initial Weight/Volume:	15.0256 g
Analysis Date:	11/25/2015 1737			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		170	J	25	830
Diethyl phthalate		24	U	24	830
Dimethyl phthalate		24	U	24	830
Di-n-butyl phthalate		25	U	25	830
Di-n-octyl phthalate		42	U	42	830
Fluoranthene		6100		25	830
Fluorene		240	J	18	830
Hexachlorobenzene		34	U	34	83
Hexachlorobutadiene		23	U	23	170
Hexachlorocyclopentadiene		52	U	52	830
Hexachloroethane		30	U	30	83
Indeno[1,2,3-cd]pyrene		8500		55	83
Isophorone		18	U	18	340
Naphthalene		340	J	21	830
Nitrobenzene		26	U	26	83
N-Nitrosodi-n-propylamine		28	U	28	83
N-Nitrosodiphenylamine		76	U	76	830
Pentachlorophenol		100	U	100	670
Phenanthrene		3300		22	830
Phenol		27	U	27	830
Pyrene		6300		38	830

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	47		10 - 95
2-Fluorobiphenyl	70		27 - 84
2-Fluorophenol (Surr)	65		21 - 84
Nitrobenzene-d5 (Surr)	70		28 - 92
Phenol-d5 (Surr)	66		22 - 88
Terphenyl-d14 (Surr)	80		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-7.5-8.0**

Lab Sample ID: 460-104781-3
Client Matrix: Solid

% Moisture: 20.8

Date Sampled: 11/17/2015 1245
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337415	Instrument ID:	CBNAMS11
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	z38945.D
Dilution:	2.0			Initial Weight/Volume:	15.0256 g
Analysis Date:	11/25/2015 1737			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0910
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8866.D
Initial Weight/Volume: 15.0241 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		36	U	36	420
1,2,4,5-Tetrachlorobenzene		31	U	31	420
2,2'-oxybis[1-chloropropane]		17	U	17	420
2,3,4,6-Tetrachlorophenol		39	U	39	420
2,4,5-Trichlorophenol		42	U	42	420
2,4,6-Trichlorophenol		12	U	12	170
2,4-Dichlorophenol		9.9	U	9.9	170
2,4-Dimethylphenol		92	U	92	420
2,4-Dinitrophenol		320	U	320	340
2,4-Dinitrotoluene		17	U	17	85
2,6-Dinitrotoluene		22	U	22	85
2-Chloronaphthalene		9.5	U	9.5	420
2-Chlorophenol		11	U	11	420
2-Methylnaphthalene		9.3	U	9.3	420
2-Methylphenol		18	U	18	420
2-Nitroaniline		14	U	14	420
2-Nitrophenol		14	U	14	420
3,3'-Dichlorobenzidine		47	U	47	170
3-Nitroaniline		12	U	12	420
4,6-Dinitro-2-methylphenol		110	U	110	340
4-Bromophenyl phenyl ether		13	U	13	420
4-Chloro-3-methylphenol		18	U	18	420
4-Chloroaniline		11	U	11	420
4-Chlorophenyl phenyl ether		13	U	13	420
4-Methylphenol		22	J	11	420
4-Nitroaniline		16	U	16	420
4-Nitrophenol		200	U	200	850
Acenaphthene		10	U	10	420
Acenaphthylene		11	U	11	420
Acetophenone		9.1	U	9.1	420
Anthracene		40	U	40	420
Atrazine		19	U	19	170
Benzaldehyde		32	U	32	420
Benzo[a]anthracene		35	U	35	42
Benzo[a]pyrene		13	U	13	42
Benzo[b]fluoranthene		16	U	16	42
Benzo[g,h,i]perylene		24	U	24	420
Benzo[k]fluoranthene		18	U	18	42
Bis(2-chloroethoxy)methane		13	U	13	420
Bis(2-chloroethyl)ether		9.9	U	9.9	42
Bis(2-ethylhexyl) phthalate		130	J	16	420
Butyl benzyl phthalate		22	J	13	420
Caprolactam		30	U	30	420
Carbazole		10	U	10	420
Chrysene		11	U	11	420
Dibenz(a,h)anthracene		22	U	22	42

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0910
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8866.D
Initial Weight/Volume: 15.0241 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		13	U	13	420
Diethyl phthalate		12	U	12	420
Dimethyl phthalate		12	U	12	420
Di-n-butyl phthalate		13	U	13	420
Di-n-octyl phthalate		21	U	21	420
Fluoranthene		22	J	12	420
Fluorene		9.1	U	9.1	420
Hexachlorobenzene		17	U	17	42
Hexachlorobutadiene		12	U	12	85
Hexachlorocyclopentadiene		26	U	26	420
Hexachloroethane		15	U	15	42
Indeno[1,2,3-cd]pyrene		28	U	28	42
Isophorone		9.0	U	9.0	170
Naphthalene		120	J	11	420
Nitrobenzene		13	U	13	42
N-Nitrosodi-n-propylamine		14	U	14	42
N-Nitrosodiphenylamine		38	U	38	420
Pentachlorophenol		51	U	51	340
Phenanthrene		32	J	11	420
Phenol		14	U	14	420
Pyrene		21	J	19	420

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	55		10 - 95
2-Fluorobiphenyl	57		27 - 84
2-Fluorophenol (Surr)	54		21 - 84
Nitrobenzene-d5 (Surr)	59		28 - 92
Phenol-d5 (Surr)	59		22 - 88
Terphenyl-d14 (Surr)	76		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-306-S-18.5-19.0**

Lab Sample ID: 460-104781-4
Client Matrix: Solid

% Moisture: 21.3

Date Sampled: 11/17/2015 1300
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8866.D
Dilution:	1.0			Initial Weight/Volume:	15.0241 g
Analysis Date:	11/25/2015 0910			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 9**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
526-73-8	Benzene, 1,2,3-trimethyl-	3.90	520	J N
527-84-4	Benzene, 1-methyl-2-(1-methylethyl)-	4.14	410	J N
496-11-7	Indane	4.24	1900	J N
95-13-6	Indene	4.32	780	J N
	Unknown	9.17	350	J N
	Unknown	9.43	620	J N
10544-50-0	Cyclic octaatomic sulfur	9.52	500	J N
32624-67-2	10,18-Bisnorabieta-8,11,13-triene	9.62	5100	J N
483-65-8	Phenanthrene, 1-methyl-7-(1-methylethyl)	10.29	2800	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-8.5-9.0**

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1143
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8873.D
Initial Weight/Volume: 15.0228 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		84	J	43	510
1,2,4,5-Tetrachlorobenzene		38	U	38	510
2,2'-oxybis[1-chloropropane]		21	U	21	510
2,3,4,6-Tetrachlorophenol		48	U	48	510
2,4,5-Trichlorophenol		50	U	50	510
2,4,6-Trichlorophenol		14	U	14	200
2,4-Dichlorophenol		12	U	12	200
2,4-Dimethylphenol		110	U	110	510
2,4-Dinitrophenol		380	U	380	410
2,4-Dinitrotoluene		20	U	20	100
2,6-Dinitrotoluene		27	U	27	100
2-Chloronaphthalene		12	U	12	510
2-Chlorophenol		13	U	13	510
2-Methylnaphthalene		950		11	510
2-Methylphenol		22	U	22	510
2-Nitroaniline		17	U	17	510
2-Nitrophenol		17	U	17	510
3,3'-Dichlorobenzidine		57	U J	57	200
3-Nitroaniline		15	U	15	510
4,6-Dinitro-2-methylphenol		140	U	140	410
4-Bromophenyl phenyl ether		16	U	16	510
4-Chloro-3-methylphenol		22	U	22	510
4-Chloroaniline		13	U	13	510
4-Chlorophenyl phenyl ether		15	U	15	510
4-Methylphenol		14	U	14	510
4-Nitroaniline		19	U	19	510
4-Nitrophenol		240	U	240	1000
Acenaphthene		130	J	12	510
Acenaphthylene		89	J	13	510
Acetophenone		11	U	11	510
Anthracene		52	J	48	510
Atrazine		23	U	23	200
Benzaldehyde		39	U	39	510
Benzo[a]anthracene		110		42	51
Benzo[a]pyrene		110	J	15	51
Benzo[b]fluoranthene		230		20	51
Benzo[g,h,i]perylene		150	J	29	510
Benzo[k]fluoranthene		75		22	51
Bis(2-chloroethoxy)methane		16	U	16	510
Bis(2-chloroethyl)ether		12	U	12	51
Bis(2-ethylhexyl) phthalate		82	J	20	510
Butyl benzyl phthalate		16	U	16	510
Caprolactam		37	U	37	510
Carbazole		13	U	13	510
Chrysene		100	J	14	510
Dibenz(a,h)anthracene		66		26	51

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-8.5-9.0**

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1143
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8873.D
Initial Weight/Volume: 15.0228 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		40	J	15	510
Diethyl phthalate		14	U	14	510
Dimethyl phthalate		15	U	15	510
Di-n-butyl phthalate		15	U	15	510
Di-n-octyl phthalate		26	U	26	510
Fluoranthene		200	J	15	510
Fluorene		36	J	11	510
Hexachlorobenzene		21	U	21	51
Hexachlorobutadiene		14	U	14	100
Hexachlorocyclopentadiene		32	U	32	510
Hexachloroethane		19	U	19	51
Indeno[1,2,3-cd]pyrene		160		34	51
Isophorone		11	U	11	200
Naphthalene		1300		13	510
Nitrobenzene		16	U	16	51
N-Nitrosodi-n-propylamine		17	U	17	51
N-Nitrosodiphenylamine		46	U	46	510
Pentachlorophenol		61	U	61	410
Phenanthrene		160	J	13	510
Phenol		17	U	17	510
Pyrene		180	J	23	510

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	46		10 - 95
2-Fluorobiphenyl	55		27 - 84
2-Fluorophenol (Surr)	51		21 - 84
Nitrobenzene-d5 (Surr)	53		28 - 92
Phenol-d5 (Surr)	50		22 - 88
Terphenyl-d14 (Surr)	47		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-8.5-9.0**

Lab Sample ID: 460-104781-5
Client Matrix: Solid

% Moisture: 34.9

Date Sampled: 11/17/2015 1510
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8873.D
Dilution:	1.0			Initial Weight/Volume:	15.0228 g
Analysis Date:	11/25/2015 1143			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 20**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.62	1200	J N
611-14-3	Benzene, 1-ethyl-2-methyl-	3.64	2100	J N
	Unknown	3.70	1100	J N
108-67-8	Benzene, 1,3,5-trimethyl-	3.90	2300	J N
526-73-8	Benzene, 1,2,3-trimethyl-	4.13	1000	J N
	Unknown	4.22	1500	J N
	Unknown	4.25	1400	J N
135-01-3	Benzene, 1,2-diethyl-	4.32	1100	J N
	Unknown	4.39	3800	J N
493-02-7	Naphthalene, decahydro-, trans-	4.46	1500	J N
	Unknown	4.72	1100	J N
504-20-1	2,5-Heptadien-4-one, 2,6-dimethyl-	4.77	1200	J N
1000152-47-3	trans-Decalin, 2-methyl-	4.88	1400	J N
	Unknown	4.99	1300	J N
95-93-2	Benzene, 1,2,4,5-tetramethyl-	5.10	1500	J N
54411-12-0	Benzene, (2-chloro-2-butenyl)-	5.41	1200	J N
	Unknown	5.46	1200	J N
	Unknown	5.82	1300	J N
90-12-0	Naphthalene, 1-methyl-	6.17	1000	J N
192-65-4	1,2:4,5-Dibenzopyrene	11.93	4000	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-15.0-15.5**

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0931
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8867.D
Initial Weight/Volume: 15.0551 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		35	U	35	410
1,2,4,5-Tetrachlorobenzene		30	U	30	410
2,2'-oxybis[1-chloropropane]		17	U	17	410
2,3,4,6-Tetrachlorophenol		39	U	39	410
2,4,5-Trichlorophenol		41	U	41	410
2,4,6-Trichlorophenol		12	U	12	160
2,4-Dichlorophenol		9.7	U	9.7	160
2,4-Dimethylphenol		90	U	90	410
2,4-Dinitrophenol		310	U	310	330
2,4-Dinitrotoluene		16	U	16	83
2,6-Dinitrotoluene		22	U	22	83
2-Chloronaphthalene		9.3	U	9.3	410
2-Chlorophenol		10	U	10	410
2-Methylnaphthalene		9.0	U	9.0	410
2-Methylphenol		18	U	18	410
2-Nitroaniline		13	U	13	410
2-Nitrophenol		14	U	14	410
3,3'-Dichlorobenzidine		46	U J	46	160
3-Nitroaniline		12	U	12	410
4,6-Dinitro-2-methylphenol		110	U	110	330
4-Bromophenyl phenyl ether		13	U	13	410
4-Chloro-3-methylphenol		18	U	18	410
4-Chloroaniline		11	U	11	410
4-Chlorophenyl phenyl ether		12	U	12	410
4-Methylphenol		11	U	11	410
4-Nitroaniline		15	U	15	410
4-Nitrophenol		200	U	200	830
Acenaphthene		9.9	U	9.9	410
Acenaphthylene		11	U	11	410
Acetophenone		8.9	U	8.9	410
Anthracene		39	U	39	410
Atrazine		18	U	18	160
Benzaldehyde		31	U	31	410
Benzo[a]anthracene		34	U	34	41
Benzo[a]pyrene		21	J	12	41
Benzo[b]fluoranthene		24	J	16	41
Benzo[g,h,i]perylene		24	U	24	410
Benzo[k]fluoranthene		18	U	18	41
Bis(2-chloroethoxy)methane		13	U	13	410
Bis(2-chloroethyl)ether		9.7	U	9.7	41
Bis(2-ethylhexyl) phthalate		290	J	16	410
Butyl benzyl phthalate		13	U	13	410
Caprolactam		29	U	29	410
Carbazole		10	U	10	410
Chrysene		17	J	11	410
Dibenz(a,h)anthracene		21	U	21	41

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-15.0-15.5**

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0931
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8867.D
Initial Weight/Volume: 15.0551 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		12	U	12	410
Diethyl phthalate		12	U	12	410
Dimethyl phthalate		12	U	12	410
Di-n-butyl phthalate		12	U	12	410
Di-n-octyl phthalate		21	U	21	410
Fluoranthene		19	J	12	410
Fluorene		8.9	U	8.9	410
Hexachlorobenzene		17	U	17	41
Hexachlorobutadiene		12	U	12	83
Hexachlorocyclopentadiene		26	U	26	410
Hexachloroethane		15	U	15	41
Indeno[1,2,3-cd]pyrene		27	U	27	41
Isophorone		8.8	U	8.8	160
Naphthalene		57	J	10	410
Nitrobenzene		13	U	13	41
N-Nitrosodi-n-propylamine		14	U	14	41
N-Nitrosodiphenylamine		37	U	37	410
Pentachlorophenol		50	U	50	330
Phenanthrene		13	J	11	410
Phenol		13	U	13	410
Pyrene		22	J	19	410

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	59		10 - 95
2-Fluorobiphenyl	58		27 - 84
2-Fluorophenol (Surr)	56		21 - 84
Nitrobenzene-d5 (Surr)	61		28 - 92
Phenol-d5 (Surr)	58		22 - 88
Terphenyl-d14 (Surr)	86		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **SB-307-S-15.0-15.5**

Lab Sample ID: 460-104781-6
Client Matrix: Solid

% Moisture: 19.6

Date Sampled: 11/17/2015 1515
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8867.D
Dilution:	1.0			Initial Weight/Volume:	15.0551 g
Analysis Date:	11/25/2015 0931			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: DUP-2-S

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0953
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8868.D
Initial Weight/Volume: 15.0467 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl	34	U	34	400
1,2,4,5-Tetrachlorobenzene	30	U	30	400
2,2'-oxybis[1-chloropropane]	17	U	17	400
2,3,4,6-Tetrachlorophenol	38	U	38	400
2,4,5-Trichlorophenol	40	U	40	400
2,4,6-Trichlorophenol	11	U	11	160
2,4-Dichlorophenol	9.5	U	9.5	160
2,4-Dimethylphenol	89	U	89	400
2,4-Dinitrophenol	310	U	310	320
2,4-Dinitrotoluene	16	U	16	82
2,6-Dinitrotoluene	21	U	21	82
2-Chloronaphthalene	9.2	U	9.2	400
2-Chlorophenol	10	U	10	400
2-Methylnaphthalene	8.9	U	8.9	400
2-Methylphenol	18	U	18	400
2-Nitroaniline	13	U	13	400
2-Nitrophenol	14	U	14	400
3,3'-Dichlorobenzidine	45	U	45	160
3-Nitroaniline	12	U	12	400
4,6-Dinitro-2-methylphenol	110	U	110	320
4-Bromophenyl phenyl ether	13	U	13	400
4-Chloro-3-methylphenol	17	U	17	400
4-Chloroaniline	10	U	10	400
4-Chlorophenyl phenyl ether	12	U	12	400
4-Methylphenol	11	U	11	400
4-Nitroaniline	15	U	15	400
4-Nitrophenol	190	U	190	820
Acenaphthene	9.8	U	9.8	400
Acenaphthylene	10	U	10	400
Acetophenone	8.8	U	8.8	400
Anthracene	38	U	38	400
Atrazine	18	U	18	160
Benzaldehyde	31	U	31	400
Benzo[a]anthracene	34	U	34	40
Benzo[a]pyrene	12	U	12	40
Benzo[b]fluoranthene	16	U	16	40
Benzo[g,h,i]perylene	23	U	23	400
Benzo[k]fluoranthene	18	U	18	40
Bis(2-chloroethoxy)methane	13	U	13	400
Bis(2-chloroethyl)ether	9.5	U	9.5	40
Bis(2-ethylhexyl) phthalate	77	J	16	400
Butyl benzyl phthalate	12	U	12	400
Caprolactam	29	U	29	400
Carbazole	10	U	10	400
Chrysene	11	U	11	400
Dibenz(a,h)anthracene	21	U	21	40

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **DUP-2-S**

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 0953
Prep Date: 11/24/2015 1435

Analysis Batch: 460-337327
Prep Batch: 460-337249

Instrument ID: CBNAMS5
Lab File ID: x8868.D
Initial Weight/Volume: 15.0467 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		12	U	12	400
Diethyl phthalate		11	U	11	400
Dimethyl phthalate		12	U	12	400
Di-n-butyl phthalate		12	U	12	400
Di-n-octyl phthalate		21	U	21	400
Fluoranthene		12	U	12	400
Fluorene		8.8	U	8.8	400
Hexachlorobenzene		16	U	16	40
Hexachlorobutadiene		11	U	11	82
Hexachlorocyclopentadiene		25	U	25	400
Hexachloroethane		15	U	15	40
Indeno[1,2,3-cd]pyrene		27	U	27	40
Isophorone		8.7	U	8.7	160
Naphthalene		33	J	10	400
Nitrobenzene		13	U	13	40
N-Nitrosodi-n-propylamine		14	U	14	40
N-Nitrosodiphenylamine		37	U	37	400
Pentachlorophenol		49	U	49	320
Phenanthrene		14	J	11	400
Phenol		13	U	13	400
Pyrene		18	U	18	400

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	62		10 - 95
2-Fluorobiphenyl	69		27 - 84
2-Fluorophenol (Surr)	65		21 - 84
Nitrobenzene-d5 (Surr)	73		28 - 92
Phenol-d5 (Surr)	68		22 - 88
Terphenyl-d14 (Surr)	94		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Client Sample ID: **DUP-2-S**

Lab Sample ID: 460-104781-7
Client Matrix: Solid

% Moisture: 18.3

Date Sampled: 11/17/2015 0800
Date Received: 11/17/2015 1630

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8868.D
Dilution:	1.0			Initial Weight/Volume:	15.0467 g
Analysis Date:	11/25/2015 0953			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

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CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/Project Identification Contractor Bayview
Company Arcadis	P. O. # B0043000-0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 1655 Third Ave., 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	
Phone 415.744.4906 Fax 212.682.9275		

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8260	SVOCs 8270	LAB USE ONLY Sample Numbers
SB-304-S-9.0-9.5	11/17/15	1030	S	5	X	X	-1
SB-304-S-21.5-22.0	11/17/15	1040	S	5	X	X	-2
SB-306-S-7.5-8.0	11/17/15	1245	S	5	X	X	-3
SB-306-S-18.5-19.0	11/17/15	1300	S	5	X	X	-4
SB-307-S-8.5-9.0	11/17/15	1510	S	5	X	X	-5
SB-307-S-15.0-15.5	11/17/15	1515	S	5	X	X	-6
DUP-2-S	11/17/15	0800	S	5	X	X	-7
TB-151117	11/17/15	—	W	2	X		-8

LAB USE ONLY Project No: Job No: 104781

460-104781 Chain of Custody

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH, 6 = Other _____, 7 = Other _____ Soil: Water:

Special Instructions

Water Metals Filtered (Yes/No)? _____

	Company	Date / Time		Company
Relinquished by	Arcadis	11/17/15 1530	Received by 1)	
Relinquished by 2)			Received by 2)	
Relinquished by 3)			Received by 3)	Company 11/17/15 16:30
Relinquished by 4)			Received by 4)	

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). Massachusetts (M-NJ312), North Carolina (No. 578)

TAL - 0016 (0814)

1.4 / 3.4 STD TAT Now

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Consolidated Edison Company of New York, Inc.

Bayview - West 18th Street Site

Data Usability Summary Report (DUSR)

NEW YORK CITY, NEW YORK

Volatile and Semivolatile Analyses

SDG #460-104826-1

Analyses Performed By:
TestAmerica Laboratories, Inc.
Edison, New Jersey

Report #24897R
Review Level: Tier III
Project: B0043000.0000.00002

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 460-104826-1 for samples collected in association the Con Edison Bayview West 18th Street site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PCB	MET	MISC
460-104826-1	SB-300-S-16.5-17.0	460-104826-1	Soil	11/18/2015		X	X			
	SB-301-S-18.5-19.0	460-104826-2	Soil	11/18/2015		X	X			
	SB-300-S-5.0-6.0	460-104826-3	Soil	11/18/2015		X	X			
	SB-301-S-6.0-7.0	460-104826-4	Soil	11/18/2015		X	X			
	SB-301-S-17.5-18.0	460-104826-5	Soil	11/18/2015		X	X			
	TB-151118	460-104826-6	Water	11/18/2015		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 methods 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

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:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

  UB Compound considered non-detect at the listed value due to associated blank contamination.

  N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Solid	14 days from collection to analysis	Cool to <6 °C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-300-S-16.5-17.0 SB-301-S-18.5-19.0 SB-300-S-5.0-6.0 SB-301-S-6.0-7.0 SB-301-S-17.5-18.0	ICV %RSD	1,4-Dioxane	15.3%
		2-Butanone (MEK)	15.1%
		Dichlorodifluoromethane	17.7%
		m-Xylene & p-Xylene	18.5%
	CCV %D	Chloroethane	23.5%
TB-151118	ICV %RSD	Acetone	15.5%
		Chloroethane	16.8%
	CCV %D	Bromomethane	22.6%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% and <90% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% and <90% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90%	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within this SDG.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Note: The laboratory qualified certain non-target constituent result with a “J”. All sample locations that contained non target constituents qualified with a “J” were qualified with “JN” during validation.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Solid	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions. All target compounds associated with the initial calibration standards must exhibit a %RSD

less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SB-301-S-18.5-19.0 SB-300-S-5.0-6.0 SB-301-S-6.0-7.0 SB-301-S-17.5-18.0	ICV %RSD	3,3'-Dichlorobenzidine	15.4%
		4,6-Dinitro-2-methylphenol	15.2%
		Hexachlorocyclopentadiene	17.0%
	CCV %D	Hexachlorocyclopentadiene	26.0%
SB-300-S-16.5-17.0	CCV %D	N-Nitrosodiphenylamine	24.7%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample location within this SDG.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for solid matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for solid matrices.

A field duplicate was not performed on a sample location within this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Rinse blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present				X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

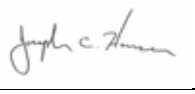
SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
460-104826-1	11/18/2015	SW-846	SB-300-S-16.5-17.0	Soil	No	Yes	--	--	--	VOC – ICAL %RSD
	11/18/2015	SW-846	SB-301-S-18.5-19.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – ICAL %RSD
	11/18/2015	SW-846	SB-300-S-5.0-6.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – ICAL %RSD
	11/18/2015	SW-846	SB-301-S-6.0-7.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – ICAL %RSD
	11/18/2015	SW-846	SB-301-S-17.5-18.0	Soil	No	No	--	--	--	VOC – ICAL %RSD SVOC – ICAL %RSD
	11/18/2015	SW-846	TB-151118	Water	No	--	--	--	--	VOC – ICAL %RSD

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: January 7, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-16.5-17.0**

Lab Sample ID: 460-104826-1
Client Matrix: Solid

% Moisture: 20.2

Date Sampled: 11/18/2015 1000
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1346
Prep Date: 11/18/2015 1922

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47499.D
Initial Weight/Volume: 5.23 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.49	U	0.49	1.2
1,1,1-Trichloroethane		0.46	U	0.46	1.2
1,1,2,2-Tetrachloroethane		0.20	U	0.20	1.2
1,1,2-Trichloro-1,2,2-trifluoroethane		0.53	U	0.53	1.2
1,1,2-Trichloroethane		0.34	U	0.34	1.2
1,1-Dichloroethane		0.41	U	0.41	1.2
1,1-Dichloroethene		0.49	U	0.49	1.2
1,2,3-Trichlorobenzene		0.13	U	0.13	1.2
1,2,4-Trichlorobenzene		0.38	U	0.38	1.2
1,2-Dibromo-3-Chloropropane		0.56	U	0.56	1.2
1,2-Dichlorobenzene		0.17	U	0.17	1.2
1,2-Dichloroethane		0.13	U	0.13	1.2
1,2-Dichloropropane		0.20	U	0.20	1.2
1,3-Dichlorobenzene		0.14	U	0.14	1.2
1,4-Dichlorobenzene		0.16	U	0.16	1.2
1,4-Dioxane		7.7	U J	7.7	24
2-Butanone (MEK)		0.92	U J	0.92	6.0
2-Hexanone		1.1	U	1.1	6.0
2-Methyl-2-propanol		4.2	U	4.2	12
4-Methyl-2-pentanone (MIBK)		2.7	U	2.7	6.0
Acetone		1.3	U	1.3	6.0
Benzene		0.31	J	0.24	1.2
Bromoform		0.16	U	0.16	1.2
Bromomethane		0.38	U	0.38	1.2
Carbon disulfide		0.52	U	0.52	1.2
Carbon tetrachloride		0.52	U	0.52	1.2
Chlorobenzene		0.17	U	0.17	1.2
Chlorobromomethane		0.20	U	0.20	1.2
Chlorodibromomethane		0.18	U	0.18	1.2
Chloroethane		0.42	U	0.42	1.2
Chloroform		0.25	U	0.25	1.2
Chloromethane		0.46	U	0.46	1.2
cis-1,2-Dichloroethene		0.26	U	0.26	1.2
cis-1,3-Dichloropropene		0.18	U	0.18	1.2
Cyclohexane		0.82	J	0.55	1.2
Dichlorobromomethane		0.46	U	0.46	1.2
Dichlorodifluoromethane		0.38	U J	0.38	1.2
Ethylbenzene		0.22	U	0.22	1.2
Ethylene Dibromide		0.14	U	0.14	1.2
Isopropylbenzene		0.20	U	0.20	1.2
Methyl acetate		1.1	U	1.1	6.0
Methyl tert-butyl ether		0.20	U	0.20	1.2
Methylcyclohexane		5.0		0.60	1.2
Methylene Chloride		0.38	U	0.38	1.2
m-Xylene & p-Xylene		0.13	U J	0.13	1.2
o-Xylene		0.19	U	0.19	1.2

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-16.5-17.0**

Lab Sample ID: 460-104826-1
Client Matrix: Solid
% Moisture: 20.2

Date Sampled: 11/18/2015 1000
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47499.D
Dilution:	1.0			Initial Weight/Volume:	5.23 g
Analysis Date:	11/30/2015 1346			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1922				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.18	U	0.18	1.2
Tetrachloroethene		0.34	U	0.34	1.2
Toluene		0.23	U	0.23	1.2
trans-1,2-Dichloroethene		0.47	U	0.47	1.2
trans-1,3-Dichloropropene		0.12	U	0.12	1.2
Trichloroethene		0.31	U	0.31	1.2
Trichlorofluoromethane		0.41	U	0.41	1.2
Vinyl chloride		0.47	U	0.47	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	123		78 - 135
4-Bromofluorobenzene	103		67 - 126
Dibromofluoromethane (Surr)	111		61 - 149
Toluene-d8 (Surr)	107		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-16.5-17.0**

Lab Sample ID: 460-104826-1
Client Matrix: Solid

% Moisture: 20.2

Date Sampled: 11/18/2015 1000
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47499.D
Dilution:	1.0			Initial Weight/Volume:	5.23 g
Analysis Date:	11/30/2015 1346			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1922				

Tentatively Identified Compounds **Number TIC's Found: 8**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
638-04-0	Cyclohexane, 1,3-dimethyl-, cis-	7.04	11	J N
91-57-6	Naphthalene, 2-methyl-	13.29	6.1	J N
90-12-0	Naphthalene, 1-methyl-	13.46	32	J N
571-61-9	Naphthalene, 1,5-dimethyl-	14.28	11	J N
581-42-0	Naphthalene, 2,6-dimethyl-	14.46	17	J N
575-37-1	Naphthalene, 1,7-dimethyl-	14.51	9.1	J N
575-41-7	Naphthalene, 1,3-dimethyl-	14.75	9.1	J N
	Unknown	15.40	36	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-18.5-19.0**

Lab Sample ID: 460-104826-2
Client Matrix: Solid

% Moisture: 30.2

Date Sampled: 11/18/2015 1155
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1412
Prep Date: 11/18/2015 1923

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47500.D
Initial Weight/Volume: 4.82 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.61	U	0.61	1.5
1,1,1-Trichloroethane		0.56	U	0.56	1.5
1,1,2,2-Tetrachloroethane		0.25	U	0.25	1.5
1,1,2-Trichloro-1,2,2-trifluoroethane		0.65	U	0.65	1.5
1,1,2-Trichloroethane		0.42	U	0.42	1.5
1,1-Dichloroethane		0.51	U	0.51	1.5
1,1-Dichloroethene		0.61	U	0.61	1.5
1,2,3-Trichlorobenzene		0.16	U	0.16	1.5
1,2,4-Trichlorobenzene		0.48	U	0.48	1.5
1,2-Dibromo-3-Chloropropane		0.70	U	0.70	1.5
1,2-Dichlorobenzene		0.21	U	0.21	1.5
1,2-Dichloroethane		0.16	U	0.16	1.5
1,2-Dichloropropane		0.25	U	0.25	1.5
1,3-Dichlorobenzene		0.18	U	0.18	1.5
1,4-Dichlorobenzene		0.19	U	0.19	1.5
1,4-Dioxane		9.5	U J	9.5	30
2-Butanone (MEK)		1.1	U J	1.1	7.4
2-Hexanone		1.4	U	1.4	7.4
2-Methyl-2-propanol		5.2	U	5.2	15
4-Methyl-2-pentanone (MIBK)		3.3	U	3.3	7.4
Acetone		1.6	U	1.6	7.4
Benzene		210		0.30	1.5
Bromoform		0.19	U	0.19	1.5
Bromomethane		0.48	U	0.48	1.5
Carbon disulfide		0.64	U	0.64	1.5
Carbon tetrachloride		0.64	U	0.64	1.5
Chlorobenzene		0.21	U	0.21	1.5
Chlorobromomethane		0.25	U	0.25	1.5
Chlorodibromomethane		0.22	U	0.22	1.5
Chloroethane		0.52	U	0.52	1.5
Chloroform		0.31	U	0.31	1.5
Chloromethane		0.56	U	0.56	1.5
cis-1,2-Dichloroethene		0.33	U	0.33	1.5
cis-1,3-Dichloropropene		0.22	U	0.22	1.5
Cyclohexane		4.6		0.68	1.5
Dichlorobromomethane		0.56	U	0.56	1.5
Dichlorodifluoromethane		0.48	U J	0.48	1.5
Ethylbenzene		14		0.27	1.5
Ethylene Dibromide		0.18	U	0.18	1.5
Isopropylbenzene		6.3		0.25	1.5
Methyl acetate		1.3	U	1.3	7.4
Methyl tert-butyl ether		0.25	U	0.25	1.5
Methylcyclohexane		23		0.74	1.5
Methylene Chloride		0.48	U	0.48	1.5
m-Xylene & p-Xylene		22	J	0.16	1.5
o-Xylene		45		0.24	1.5

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-18.5-19.0**

Lab Sample ID: 460-104826-2
Client Matrix: Solid

% Moisture: 30.2

Date Sampled: 11/18/2015 1155
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47500.D
Dilution:	1.0			Initial Weight/Volume:	4.82 g
Analysis Date:	11/30/2015 1412			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1923				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.22	U	0.22	1.5
Tetrachloroethene		0.42	U	0.42	1.5
Toluene		0.93	J	0.28	1.5
trans-1,2-Dichloroethene		0.58	U	0.58	1.5
trans-1,3-Dichloropropene		0.15	U	0.15	1.5
Trichloroethene		0.39	U	0.39	1.5
Trichlorofluoromethane		0.51	U	0.51	1.5
Vinyl chloride		0.58	U	0.58	1.5

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	124		78 - 135
4-Bromofluorobenzene	101		67 - 126
Dibromofluoromethane (Surr)	108		61 - 149
Toluene-d8 (Surr)	104		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-18.5-19.0**

Lab Sample ID: 460-104826-2
Client Matrix: Solid

% Moisture: 30.2

Date Sampled: 11/18/2015 1155
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47500.D
Dilution:	1.0			Initial Weight/Volume:	4.82 g
Analysis Date:	11/30/2015 1412			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1923				

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
638-04-0	Cyclohexane, 1,3-dimethyl-, cis-	7.04	14	J N
108-67-8	Benzene, 1,3,5-trimethyl-	10.50	21	J N
95-63-6	Benzene, 1,2,4-trimethyl-	10.78	16	J N
99-87-6	Benzene, 1-methyl-4-(1-methylethyl)-	10.95	22	J N
496-11-7	Indane	11.20	25	J N
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-	11.54	27	J N
91-20-3	Naphthalene	12.46	31	J N
90-12-0	Naphthalene, 1-methyl-	13.46	38	J N
2027-17-0	Naphthalene, 2-(1-methylethyl)-	14.76	17	J N
83-32-9	Acenaphthene	15.40	16	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-5.0-6.0**

Lab Sample ID: 460-104826-3
Client Matrix: Solid
% Moisture: 9.7

Date Sampled: 11/18/2015 1225
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1437
Prep Date: 11/18/2015 1924

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47501.D
Initial Weight/Volume: 5.66 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.40	U	0.40	0.98
1,1,1-Trichloroethane		0.37	U	0.37	0.98
1,1,2,2-Tetrachloroethane		0.17	U	0.17	0.98
1,1,2-Trichloro-1,2,2-trifluoroethane		0.43	U	0.43	0.98
1,1,2-Trichloroethane		0.27	U	0.27	0.98
1,1-Dichloroethane		0.33	U	0.33	0.98
1,1-Dichloroethene		0.40	U	0.40	0.98
1,2,3-Trichlorobenzene		0.11	U	0.11	0.98
1,2,4-Trichlorobenzene		0.31	U	0.31	0.98
1,2-Dibromo-3-Chloropropane		0.46	U	0.46	0.98
1,2-Dichlorobenzene		0.14	U	0.14	0.98
1,2-Dichloroethane		0.11	U	0.11	0.98
1,2-Dichloropropane		0.17	U	0.17	0.98
1,3-Dichlorobenzene		0.12	U	0.12	0.98
1,4-Dichlorobenzene		0.13	U	0.13	0.98
1,4-Dioxane		6.3	U J	6.3	20
2-Butanone (MEK)		0.75	U J	0.75	4.9
2-Hexanone		0.92	U	0.92	4.9
2-Methyl-2-propanol		3.4	U	3.4	9.8
4-Methyl-2-pentanone (MIBK)		2.2	U	2.2	4.9
Acetone		1.0	U	1.0	4.9
Benzene		2.6		0.20	0.98
Bromoform		0.13	U	0.13	0.98
Bromomethane		0.31	U	0.31	0.98
Carbon disulfide		0.42	U	0.42	0.98
Carbon tetrachloride		0.42	U	0.42	0.98
Chlorobenzene		0.14	U	0.14	0.98
Chlorobromomethane		0.17	U	0.17	0.98
Chlorodibromomethane		0.15	U	0.15	0.98
Chloroethane		0.34	U	0.34	0.98
Chloroform		0.21	U	0.21	0.98
Chloromethane		0.37	U	0.37	0.98
cis-1,2-Dichloroethene		0.22	U	0.22	0.98
cis-1,3-Dichloropropene		0.15	U	0.15	0.98
Cyclohexane		0.45	U	0.45	0.98
Dichlorobromomethane		0.37	U	0.37	0.98
Dichlorodifluoromethane		0.31	U J	0.31	0.98
Ethylbenzene		0.18	U	0.18	0.98
Ethylene Dibromide		0.12	U	0.12	0.98
Isopropylbenzene		0.17	U	0.17	0.98
Methyl acetate		0.88	U	0.88	4.9
Methyl tert-butyl ether		0.17	U	0.17	0.98
Methylcyclohexane		0.49	U	0.49	0.98
Methylene Chloride		0.31	U	0.31	0.98
m-Xylene & p-Xylene		0.37	J	0.11	0.98
o-Xylene		0.17	J	0.16	0.98

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-5.0-6.0**

Lab Sample ID: 460-104826-3
Client Matrix: Solid

% Moisture: 9.7

Date Sampled: 11/18/2015 1225
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1437
Prep Date: 11/18/2015 1924

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47501.D
Initial Weight/Volume: 5.66 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.15	U	0.15	0.98
Tetrachloroethene		0.27	U	0.27	0.98
Toluene		0.43	J	0.19	0.98
trans-1,2-Dichloroethene		0.38	U	0.38	0.98
trans-1,3-Dichloropropene		0.098	U	0.098	0.98
Trichloroethene		0.25	U	0.25	0.98
Trichlorofluoromethane		0.33	U	0.33	0.98
Vinyl chloride		0.38	U	0.38	0.98

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		78 - 135
4-Bromofluorobenzene	100		67 - 126
Dibromofluoromethane (Surr)	107		61 - 149
Toluene-d8 (Surr)	104		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-5.0-6.0**

Lab Sample ID: 460-104826-3
Client Matrix: Solid

% Moisture: 9.7

Date Sampled: 11/18/2015 1225
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method:	8260C	Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47501.D
Dilution:	1.0			Initial Weight/Volume:	5.66 g
Analysis Date:	11/30/2015 1437			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1924				

Tentatively Identified Compounds **Number TIC's Found: 0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-6.0-7.0**

Lab Sample ID: 460-104826-4
Client Matrix: Solid

% Moisture: 20.5

Date Sampled: 11/18/2015 1255
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1504
Prep Date: 11/18/2015 1924

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47502.D
Initial Weight/Volume: 5.05 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane		0.51	U	0.51	1.2
1,1,1-Trichloroethane		0.47	U	0.47	1.2
1,1,2,2-Tetrachloroethane		0.21	U	0.21	1.2
1,1,2-Trichloro-1,2,2-trifluoroethane		0.55	U	0.55	1.2
1,1,2-Trichloroethane		0.35	U	0.35	1.2
1,1-Dichloroethane		0.42	U	0.42	1.2
1,1-Dichloroethene		0.51	U	0.51	1.2
1,2,3-Trichlorobenzene		0.14	U	0.14	1.2
1,2,4-Trichlorobenzene		0.40	U	0.40	1.2
1,2-Dibromo-3-Chloropropane		0.59	U	0.59	1.2
1,2-Dichlorobenzene		0.17	U	0.17	1.2
1,2-Dichloroethane		0.14	U	0.14	1.2
1,2-Dichloropropane		0.21	U	0.21	1.2
1,3-Dichlorobenzene		0.15	U	0.15	1.2
1,4-Dichlorobenzene		0.16	U	0.16	1.2
1,4-Dioxane		8.0	U J	8.0	25
2-Butanone (MEK)		5.7	J	0.96	6.2
2-Hexanone		1.2	U	1.2	6.2
2-Methyl-2-propanol		4.3	U	4.3	12
4-Methyl-2-pentanone (MIBK)		2.8	U	2.8	6.2
Acetone		20		1.3	6.2
Benzene		0.62	J	0.25	1.2
Bromoform		0.16	U	0.16	1.2
Bromomethane		0.40	U	0.40	1.2
Carbon disulfide		0.54	U	0.54	1.2
Carbon tetrachloride		0.54	U	0.54	1.2
Chlorobenzene		0.17	U	0.17	1.2
Chlorobromomethane		0.21	U	0.21	1.2
Chlorodibromomethane		0.19	U	0.19	1.2
Chloroethane		0.44	U	0.44	1.2
Chloroform		0.26	U	0.26	1.2
Chloromethane		0.47	U	0.47	1.2
cis-1,2-Dichloroethene		0.27	U	0.27	1.2
cis-1,3-Dichloropropene		0.19	U	0.19	1.2
Cyclohexane		0.57	U	0.57	1.2
Dichlorobromomethane		0.47	U	0.47	1.2
Dichlorodifluoromethane		0.40	U J	0.40	1.2
Ethylbenzene		0.22	U	0.22	1.2
Ethylene Dibromide		0.15	U	0.15	1.2
Isopropylbenzene		0.27	J	0.21	1.2
Methyl acetate		1.1	U	1.1	6.2
Methyl tert-butyl ether		0.21	U	0.21	1.2
Methylcyclohexane		0.62	U	0.62	1.2
Methylene Chloride		0.40	U	0.40	1.2
m-Xylene & p-Xylene		0.14	U J	0.14	1.2
o-Xylene		0.20	U	0.20	1.2

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-6.0-7.0**

Lab Sample ID: 460-104826-4
Client Matrix: Solid

% Moisture: 20.5

Date Sampled: 11/18/2015 1255
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1504
Prep Date: 11/18/2015 1924

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47502.D
Initial Weight/Volume: 5.05 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.19	U	0.19	1.2
Tetrachloroethene		0.35	U	0.35	1.2
Toluene		0.24	U	0.24	1.2
trans-1,2-Dichloroethene		0.49	U	0.49	1.2
trans-1,3-Dichloropropene		0.12	U	0.12	1.2
Trichloroethene		0.32	U	0.32	1.2
Trichlorofluoromethane		0.42	U	0.42	1.2
Vinyl chloride		0.49	U	0.49	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	119		78 - 135
4-Bromofluorobenzene	102		67 - 126
Dibromofluoromethane (Surr)	108		61 - 149
Toluene-d8 (Surr)	105		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-6.0-7.0**

Lab Sample ID: 460-104826-4
Client Matrix: Solid

% Moisture: 20.5

Date Sampled: 11/18/2015 1255
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1504
Prep Date: 11/18/2015 1924

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47502.D
Initial Weight/Volume: 5.05 g
Final Weight/Volume: 5 mL

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	11.75	79	J N
54676-39-0	Cyclohexane, 2-butyl-1,1,3-trimethyl-	12.30	85	J N
	Unknown	12.41	90	J N
	Unknown	12.55	85	J
	Unknown	12.68	91	J
	Unknown	13.34	92	J
	Unknown	13.49	78	J
80655-44-3	Decahydro-4,4,8,9,10-pentamethylnaphthal	13.57	76	J N
	Unknown	14.13	120	J N
	Unknown	14.23	89	J N

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-17.5-18.0**

Lab Sample ID: 460-104826-5
Client Matrix: Solid

% Moisture: 31.2

Date Sampled: 11/18/2015 1235
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1529
Prep Date: 11/18/2015 1925

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47503.D
Initial Weight/Volume: 4.53 g
Final Weight/Volume: 5 mL

Analyte (DryWt Corrected: Y)	Result (ug/Kg)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.66	U	0.66	1.6
1,1,1-Trichloroethane	0.61	U	0.61	1.6
1,1,2,2-Tetrachloroethane	0.27	U	0.27	1.6
1,1,2-Trichloro-1,2,2-trifluoroethane	0.71	U	0.71	1.6
1,1,2-Trichloroethane	0.45	U	0.45	1.6
1,1-Dichloroethane	0.55	U	0.55	1.6
1,1-Dichloroethene	1.1	J	0.66	1.6
1,2,3-Trichlorobenzene	0.18	U	0.18	1.6
1,2,4-Trichlorobenzene	0.51	U	0.51	1.6
1,2-Dibromo-3-Chloropropane	0.75	U	0.75	1.6
1,2-Dichlorobenzene	0.22	U	0.22	1.6
1,2-Dichloroethane	0.18	U	0.18	1.6
1,2-Dichloropropane	0.27	U	0.27	1.6
1,3-Dichlorobenzene	0.19	U	0.19	1.6
1,4-Dichlorobenzene	0.21	U	0.21	1.6
1,4-Dioxane	10	U J	10	32
2-Butanone (MEK)	8.3	J	1.2	8.0
2-Hexanone	1.5	U	1.5	8.0
2-Methyl-2-propanol	5.6	U	5.6	16
4-Methyl-2-pentanone (MIBK)	3.6	U	3.6	8.0
Acetone	28		1.7	8.0
Benzene	11		0.32	1.6
Bromoform	0.21	U	0.21	1.6
Bromomethane	0.51	U	0.51	1.6
Carbon disulfide	0.69	U	0.69	1.6
Carbon tetrachloride	0.69	U	0.69	1.6
Chlorobenzene	0.22	U	0.22	1.6
Chlorobromomethane	0.27	U	0.27	1.6
Chlorodibromomethane	0.24	U	0.24	1.6
Chloroethane	0.56	U	0.56	1.6
Chloroform	0.34	U	0.34	1.6
Chloromethane	0.61	U	0.61	1.6
cis-1,2-Dichloroethene	0.35	U	0.35	1.6
cis-1,3-Dichloropropene	0.24	U	0.24	1.6
Cyclohexane	2.4		0.74	1.6
Dichlorobromomethane	0.61	U	0.61	1.6
Dichlorodifluoromethane	0.51	U J	0.51	1.6
Ethylbenzene	2.5		0.29	1.6
Ethylene Dibromide	0.19	U	0.19	1.6
Isopropylbenzene	2.5		0.27	1.6
Methyl acetate	1.4	U	1.4	8.0
Methyl tert-butyl ether	0.27	U	0.27	1.6
Methylcyclohexane	10		0.80	1.6
Methylene Chloride	0.51	U	0.51	1.6
m-Xylene & p-Xylene	5.1	J	0.18	1.6
o-Xylene	16		0.26	1.6

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-17.5-18.0**

Lab Sample ID: 460-104826-5
Client Matrix: Solid

% Moisture: 31.2

Date Sampled: 11/18/2015 1235
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1529
Prep Date: 11/18/2015 1925

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47503.D
Initial Weight/Volume: 4.53 g
Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Styrene		0.60	J	0.24	1.6
Tetrachloroethene		0.45	U	0.45	1.6
Toluene		0.48	J	0.30	1.6
trans-1,2-Dichloroethene		0.63	U	0.63	1.6
trans-1,3-Dichloropropene		0.16	U	0.16	1.6
Trichloroethene		0.42	U	0.42	1.6
Trichlorofluoromethane		0.55	U	0.55	1.6
Vinyl chloride		0.63	U	0.63	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	121		78 - 135
4-Bromofluorobenzene	102		67 - 126
Dibromofluoromethane (Surr)	110		61 - 149
Toluene-d8 (Surr)	105		73 - 121

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-17.5-18.0**

Lab Sample ID: 460-104826-5
Client Matrix: Solid

% Moisture: 31.2

Date Sampled: 11/18/2015 1235
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5035
Dilution: 1.0
Analysis Date: 11/30/2015 1529
Prep Date: 11/18/2015 1925

Analysis Batch: 460-337914
Prep Batch: 460-336188

Instrument ID: CVOAMS9
Lab File ID: K47503.D
Initial Weight/Volume: 4.53 g
Final Weight/Volume: 5 mL

Tentatively Identified Compounds **Number TIC's Found: 10**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
526-73-8	Benzene, 1,2,3-trimethyl-	10.50	12	J N
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-	11.54	15	J N
91-20-3	Naphthalene	12.46	12	J N
90-12-0	Naphthalene, 1-methyl-	13.46	21	J N
	Unknown	13.87	8.5	J N
	Unknown	14.13	11	J N
575-41-7	Naphthalene, 1,3-dimethyl-	14.45	19	J N
	Unknown	14.52	22	J N
2027-17-0	Naphthalene, 2-(1-methylethyl)-	14.76	14	J N
83-32-9	Acenaphthene	15.40	16	J N

Client Sample ID: **TB-151118**

Lab Sample ID: 460-104826-6
Client Matrix: Water

Date Sampled: 11/18/2015 0000
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/21/2015 0054
Prep Date: 11/21/2015 0054

Analysis Batch: 460-336648
Prep Batch: N/A

Instrument ID: CVOAMS12
Lab File ID: O04424.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	0.28	U	0.28	1.0
1,1,2,2-Tetrachloroethane	0.19	U	0.19	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	0.34	1.0
1,1,2-Trichloroethane	0.080	U	0.080	1.0
1,1-Dichloroethane	0.24	U	0.24	1.0
1,1-Dichloroethene	0.34	U	0.34	1.0
1,2,3-Trichlorobenzene	0.35	U	0.35	1.0
1,2,4-Trichlorobenzene	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.23	U	0.23	1.0
1,2-Dichlorobenzene	0.22	U	0.22	1.0
1,2-Dichloroethane	0.25	U	0.25	1.0
1,2-Dichloropropane	0.18	U	0.18	1.0
1,3-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dichlorobenzene	0.33	U	0.33	1.0
1,4-Dioxane	8.7	U	8.7	50
2-Butanone (MEK)	2.2	U	2.2	5.0
2-Hexanone	0.72	U	0.72	5.0
4-Methyl-2-pentanone (MIBK)	0.63	U	0.63	5.0
Acetone	1.1	U J	1.1	5.0
Benzene	0.090	U	0.090	1.0
Bromoform	0.18	U	0.18	1.0
Bromomethane	0.18	U	0.18	1.0
Carbon disulfide	0.22	U	0.22	1.0
Carbon tetrachloride	0.33	U	0.33	1.0
Chlorobenzene	0.24	U	0.24	1.0
Chlorobromomethane	0.30	U	0.30	1.0
Chlorodibromomethane	0.22	U	0.22	1.0
Chloroethane	0.37	U J	0.37	1.0
Chloroform	0.22	U	0.22	1.0
Chloromethane	0.22	U	0.22	1.0
cis-1,2-Dichloroethene	0.26	U	0.26	1.0
cis-1,3-Dichloropropene	0.16	U	0.16	1.0
Cyclohexane	0.26	U	0.26	1.0
Dichlorobromomethane	0.15	U	0.15	1.0
Dichlorodifluoromethane	0.14	U	0.14	1.0
Ethylbenzene	0.30	U	0.30	1.0
Ethylene Dibromide	0.19	U	0.19	1.0
Isopropylbenzene	0.32	U	0.32	1.0
Methyl acetate	0.58	U	0.58	5.0
Methyl tert-butyl ether	0.13	U	0.13	1.0
Methylcyclohexane	0.22	U	0.22	1.0
Methylene Chloride	0.21	U	0.21	1.0
m-Xylene & p-Xylene	0.28	U	0.28	1.0
o-Xylene	0.32	U	0.32	1.0
Styrene	0.17	U	0.17	1.0
Tetrachloroethene	0.12	U	0.12	1.0

Client Sample ID: **TB-151118**

Lab Sample ID: 460-104826-6
Client Matrix: Water

Date Sampled: 11/18/2015 0000
Date Received: 11/18/2015 1650

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: 5030C
Dilution: 1.0
Analysis Date: 11/21/2015 0054
Prep Date: 11/21/2015 0054

Analysis Batch: 460-336648
Prep Batch: N/A

Instrument ID: CVOAMS12
Lab File ID: O04424.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

Analyte	Result (ug/L)	Qualifier	MDL	RL
Toluene	0.25	U	0.25	1.0
trans-1,2-Dichloroethene	0.18	U	0.18	1.0
trans-1,3-Dichloropropene	0.19	U	0.19	1.0
Trichloroethene	0.22	U	0.22	1.0
Trichlorofluoromethane	0.15	U	0.15	1.0
Vinyl chloride	0.060	U	0.060	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	83		70 - 137
4-Bromofluorobenzene	118		70 - 131
Dibromofluoromethane (Surr)	88		72 - 136
Toluene-d8 (Surr)	90		74 - 120

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-16.5-17.0**

Lab Sample ID: 460-104826-1
Client Matrix: Solid

% Moisture: 20.2

Date Sampled: 11/18/2015 1000
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 20
Analysis Date: 11/25/2015 1627
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337415
Prep Batch: 460-337251

Run Type: DL

Instrument ID: CBNAMS11
Lab File ID: z38942.D
Initial Weight/Volume: 15.0551 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		1000	J ~~D~~	700	8200
1,2,4,5-Tetrachlorobenzene		610	U	610	8200
2,2'-oxybis[1-chloropropane]		340	U	340	8200
2,3,4,6-Tetrachlorophenol		780	U	780	8200
2,4,5-Trichlorophenol		820	U	820	8200
2,4,6-Trichlorophenol		230	U	230	3300
2,4-Dichlorophenol		190	U	190	3300
2,4-Dimethylphenol		1800	U	1800	8200
2,4-Dinitrophenol		6200	U	6200	6600
2,4-Dinitrotoluene		330	U	330	1700
2,6-Dinitrotoluene		440	U	440	1700
2-Chloronaphthalene		190	U	190	8200
2-Chlorophenol		210	U	210	8200
2-Methylnaphthalene		4800	J ~~D~~	180	8200
2-Methylphenol		360	U	360	8200
2-Nitroaniline		270	U	270	8200
2-Nitrophenol		280	U	280	8200
3,3'-Dichlorobenzidine		920	U	920	3300
3-Nitroaniline		240	U	240	8200
4,6-Dinitro-2-methylphenol		2200	U	2200	6600
4-Bromophenyl phenyl ether		260	U	260	8200
4-Chloro-3-methylphenol		350	U	350	8200
4-Chloroaniline		210	U	210	8200
4-Chlorophenyl phenyl ether		250	U	250	8200
4-Methylphenol		220	U	220	8200
4-Nitroaniline		310	U	310	8200
4-Nitrophenol		4000	U	4000	17000
Acenaphthene		15000	~~D~~	200	8200
Acenaphthylene		210	U	210	8200
Acetophenone		180	U	180	8200
Anthracene		40000	~~D~~	780	8200
Atrazine		370	U	370	3300
Benzaldehyde		630	U	630	8200
Benzo[a]anthracene		38000	~~D~~	690	820
Benzo[a]pyrene		30000	~~D~~	250	820
Benzo[b]fluoranthene		39000	~~D~~	320	820
Benzo[g,h,i]perylene		17000	~~D~~	470	8200
Benzo[k]fluoranthene		13000	~~D~~	360	820
Bis(2-chloroethoxy)methane		260	U	260	8200
Bis(2-chloroethyl)ether		190	U	190	820
Bis(2-ethylhexyl) phthalate		320	U	320	8200
Butyl benzyl phthalate		250	U	250	8200
Caprolactam		590	U	590	8200
Carbazole		10000	~~D~~	200	8200
Chrysene		40000	~~D~~	220	8200
Dibenz(a,h)anthracene		4700	~~D~~	430	820

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-16.5-17.0**

Lab Sample ID: 460-104826-1
Client Matrix: Solid

% Moisture: 20.2

Date Sampled: 11/18/2015 1000
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 20
Analysis Date: 11/25/2015 1627
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337415
Prep Batch: 460-337251

Run Type: DL

Instrument ID: CBNAMS11
Lab File ID: z38942.D
Initial Weight/Volume: 15.0551 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		14000	~~D~~	250	8200
Diethyl phthalate		230	U	230	8200
Dimethyl phthalate		240	U	240	8200
Di-n-butyl phthalate		250	U	250	8200
Di-n-octyl phthalate		420	U	420	8200
Fluoranthene		92000	~~D~~	240	8200
Fluorene		20000	~~D~~	180	8200
Hexachlorobenzene		330	U	330	820
Hexachlorobutadiene		230	U	230	1700
Hexachlorocyclopentadiene		510	U	510	8200
Hexachloroethane		300	U	300	820
Indeno[1,2,3-cd]pyrene		18000	~~D~~	550	820
Isophorone		180	U	180	3300
Naphthalene		4900	J ~~D~~	210	8200
Nitrobenzene		260	U	260	820
N-Nitrosodi-n-propylamine		280	U	280	820
N-Nitrosodiphenylamine		750	U	750	8200
Pentachlorophenol		1000	U	1000	6600
Phenanthrene		140000	~~D~~	220	8200
Phenol		270	U	270	8200
Pyrene		96000	~~D~~	370	8200

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	39	D	10 - 95
2-Fluorobiphenyl	53	D	27 - 84
2-Fluorophenol (Surr)	51	D	21 - 84
Nitrobenzene-d5 (Surr)	54	D	28 - 92
Phenol-d5 (Surr)	53	D	22 - 88
Terphenyl-d14 (Surr)	77	D	16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-18.5-19.0**

Lab Sample ID: 460-104826-2
Client Matrix: Solid

% Moisture: 30.2

Date Sampled: 11/18/2015 1155
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1010
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128332.D
Initial Weight/Volume: 15.0334 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		45	J	40	470
1,2,4,5-Tetrachlorobenzene		35	U	35	470
2,2'-oxybis[1-chloropropane]		19	U	19	470
2,3,4,6-Tetrachlorophenol		44	U	44	470
2,4,5-Trichlorophenol		47	U	47	470
2,4,6-Trichlorophenol		13	U	13	190
2,4-Dichlorophenol		11	U	11	190
2,4-Dimethylphenol		100	U	100	470
2,4-Dinitrophenol		360	U	360	380
2,4-Dinitrotoluene		19	U	19	96
2,6-Dinitrotoluene		25	U	25	96
2-Chloronaphthalene		11	U	11	470
2-Chlorophenol		12	U	12	470
2-Methylnaphthalene		280	J	10	470
2-Methylphenol		21	U	21	470
2-Nitroaniline		16	U	16	470
2-Nitrophenol		16	U	16	470
3,3'-Dichlorobenzidine		53	U J	53	190
3-Nitroaniline		14	U	14	470
4,6-Dinitro-2-methylphenol		130	U J	130	380
4-Bromophenyl phenyl ether		15	U	15	470
4-Chloro-3-methylphenol		20	U	20	470
4-Chloroaniline		12	U	12	470
4-Chlorophenyl phenyl ether		14	U	14	470
4-Methylphenol		13	U	13	470
4-Nitroaniline		18	U	18	470
4-Nitrophenol		230	U	230	960
Acenaphthene		210	J	11	470
Acenaphthylene		12	U	12	470
Acetophenone		10	U	10	470
Anthracene		320	J	45	470
Atrazine		21	U	21	190
Benzaldehyde		36	U	36	470
Benzo[a]anthracene		250		39	47
Benzo[a]pyrene		270		14	47
Benzo[b]fluoranthene		280		18	47
Benzo[g,h,i]perylene		170	J	27	470
Benzo[k]fluoranthene		110		21	47
Bis(2-chloroethoxy)methane		15	U	15	470
Bis(2-chloroethyl)ether		11	U	11	47
Bis(2-ethylhexyl) phthalate		18	U	18	470
Butyl benzyl phthalate		15	U	15	470
Caprolactam		34	U	34	470
Carbazole		47	J	12	470
Chrysene		270	J	13	470
Dibenz(a,h)anthracene		57		25	47

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-18.5-19.0**

Lab Sample ID: 460-104826-2
Client Matrix: Solid

% Moisture: 30.2

Date Sampled: 11/18/2015 1155
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1010
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128332.D
Initial Weight/Volume: 15.0334 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran	14	U	14	470
Diethyl phthalate	13	U	13	470
Dimethyl phthalate	14	U	14	470
Di-n-butyl phthalate	14	U	14	470
Di-n-octyl phthalate	24	U	24	470
Fluoranthene	410	J	14	470
Fluorene	200	J	10	470
Hexachlorobenzene	19	U	19	47
Hexachlorobutadiene	13	U	13	96
Hexachlorocyclopentadiene	29	U	29	470
Hexachloroethane	17	U	17	47
Indeno[1,2,3-cd]pyrene	180		31	47
Isophorone	10	U	10	190
Naphthalene	510		12	470
Nitrobenzene	15	U	15	47
N-Nitrosodi-n-propylamine	16	U	16	47
N-Nitrosodiphenylamine	43	U	43	470
Pentachlorophenol	57	U	57	380
Phenanthrene	2200		13	470
Phenol	15	U	15	470
Pyrene	500		21	470

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	51		10 - 95
2-Fluorobiphenyl	55		27 - 84
2-Fluorophenol (Surr)	51		21 - 84
Nitrobenzene-d5 (Surr)	55		28 - 92
Phenol-d5 (Surr)	53		22 - 88
Terphenyl-d14 (Surr)	60		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-5.0-6.0**

Lab Sample ID: 460-104826-3
Client Matrix: Solid

% Moisture: 9.7

Date Sampled: 11/18/2015 1225
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270D	Analysis Batch:	460-337329	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-337251	Lab File ID:	L128333.D
Dilution:	1.0			Initial Weight/Volume:	15.0231 g
Analysis Date:	11/25/2015 1035			Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1442			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		31	U	31	360
1,2,4,5-Tetrachlorobenzene		27	U	27	360
2,2'-oxybis[1-chloropropane]		15	U	15	360
2,3,4,6-Tetrachlorophenol		34	U	34	360
2,4,5-Trichlorophenol		36	U	36	360
2,4,6-Trichlorophenol		10	U	10	150
2,4-Dichlorophenol		8.6	U	8.6	150
2,4-Dimethylphenol		80	U	80	360
2,4-Dinitrophenol		280	U	280	290
2,4-Dinitrotoluene		14	U	14	74
2,6-Dinitrotoluene		19	U	19	74
2-Chloronaphthalene		8.3	U	8.3	360
2-Chlorophenol		9.3	U	9.3	360
2-Methylnaphthalene		97	J	8.1	360
2-Methylphenol		16	U	16	360
2-Nitroaniline		12	U	12	360
2-Nitrophenol		12	U	12	360
3,3'-Dichlorobenzidine		41	U	41	150
3-Nitroaniline		11	U	11	360
4,6-Dinitro-2-methylphenol		98	U	98	290
4-Bromophenyl phenyl ether		12	U	12	360
4-Chloro-3-methylphenol		16	U	16	360
4-Chloroaniline		9.4	U	9.4	360
4-Chlorophenyl phenyl ether		11	U	11	360
4-Methylphenol		10	U	10	360
4-Nitroaniline		14	U	14	360
4-Nitrophenol		180	U	180	740
Acenaphthene		68	J	8.8	360
Acenaphthylene		45	J	9.4	360
Acetophenone		8.0	U	8.0	360
Anthracene		200	J	35	360
Atrazine		16	U	16	150
Benzaldehyde		28	U	28	360
Benzo[a]anthracene		680		31	36
Benzo[a]pyrene		790		11	36
Benzo[b]fluoranthene		880		14	36
Benzo[g,h,i]perylene		460		21	360
Benzo[k]fluoranthene		370		16	36
Bis(2-chloroethoxy)methane		11	U	11	360
Bis(2-chloroethyl)ether		8.6	U	8.6	36
Bis(2-ethylhexyl) phthalate		1300		14	360
Butyl benzyl phthalate		450		11	360
Caprolactam		26	U	26	360
Carbazole		56	J	9.1	360
Chrysene		710		10	360
Dibenz(a,h)anthracene		170		19	36

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-300-S-5.0-6.0**

Lab Sample ID: 460-104826-3
Client Matrix: Solid

% Moisture: 9.7

Date Sampled: 11/18/2015 1225
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1035
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128333.D
Initial Weight/Volume: 15.0231 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		55	J	11	360
Diethyl phthalate		10	U	10	360
Dimethyl phthalate		11	U	11	360
Di-n-butyl phthalate		11	U	11	360
Di-n-octyl phthalate		19	U	19	360
Fluoranthene		1100		11	360
Fluorene		83	J	8.0	360
Hexachlorobenzene		15	U	15	36
Hexachlorobutadiene		10	U	10	74
Hexachlorocyclopentadiene		23	U	23	360
Hexachloroethane		13	U	13	36
Indeno[1,2,3-cd]pyrene		540		24	36
Isophorone		7.9	U	7.9	150
Naphthalene		290	J	9.3	360
Nitrobenzene		12	U	12	36
N-Nitrosodi-n-propylamine		12	U	12	36
N-Nitrosodiphenylamine		33	U	33	360
Pentachlorophenol		44	U	44	290
Phenanthrene		620		9.7	360
Phenol		12	U	12	360
Pyrene		1000		17	360

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	46		10 - 95
2-Fluorobiphenyl	59		27 - 84
2-Fluorophenol (Surr)	54		21 - 84
Nitrobenzene-d5 (Surr)	63		28 - 92
Phenol-d5 (Surr)	56		22 - 88
Terphenyl-d14 (Surr)	64		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-6.0-7.0**

Lab Sample ID: 460-104826-4
Client Matrix: Solid

% Moisture: 20.5

Date Sampled: 11/18/2015 1255
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1100
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128334.D
Initial Weight/Volume: 15.0513 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl		40	J	35	410
1,2,4,5-Tetrachlorobenzene		31	U	31	410
2,2'-oxybis[1-chloropropane]		17	U	17	410
2,3,4,6-Tetrachlorophenol		39	U	39	410
2,4,5-Trichlorophenol		41	U	41	410
2,4,6-Trichlorophenol		12	U	12	170
2,4-Dichlorophenol		9.8	U	9.8	170
2,4-Dimethylphenol		91	U	91	410
2,4-Dinitrophenol		310	U	310	330
2,4-Dinitrotoluene		16	U	16	84
2,6-Dinitrotoluene		22	U	22	84
2-Chloronaphthalene		9.4	U	9.4	410
2-Chlorophenol		11	U	11	410
2-Methylnaphthalene		220	J	9.2	410
2-Methylphenol		18	U	18	410
2-Nitroaniline		14	U	14	410
2-Nitrophenol		14	U	14	410
3,3'-Dichlorobenzidine		46	U J	46	170
3-Nitroaniline		12	U	12	410
4,6-Dinitro-2-methylphenol		110	U J	110	330
4-Bromophenyl phenyl ether		13	U	13	410
4-Chloro-3-methylphenol		18	U	18	410
4-Chloroaniline		11	U	11	410
4-Chlorophenyl phenyl ether		12	U	12	410
4-Methylphenol		12	J	11	410
4-Nitroaniline		16	U	16	410
4-Nitrophenol		200	U	200	840
Acenaphthene		130	J	10	410
Acenaphthylene		49	J	11	410
Acetophenone		9.0	U	9.0	410
Anthracene		270	J	39	410
Atrazine		18	U	18	170
Benzaldehyde		32	U	32	410
Benzo[a]anthracene		500		35	41
Benzo[a]pyrene		600		13	41
Benzo[b]fluoranthene		600		16	41
Benzo[g,h,i]perylene		330	J	24	410
Benzo[k]fluoranthene		260		18	41
Bis(2-chloroethoxy)methane		13	U	13	410
Bis(2-chloroethyl)ether		9.8	U	9.8	41
Bis(2-ethylhexyl) phthalate		100	J	16	410
Butyl benzyl phthalate		13	U	13	410
Caprolactam		30	U	30	410
Carbazole		43	J	10	410
Chrysene		540		11	410
Dibenz(a,h)anthracene		130		22	41

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-6.0-7.0**

Lab Sample ID: 460-104826-4
Client Matrix: Solid

% Moisture: 20.5

Date Sampled: 11/18/2015 1255
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1100
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128334.D
Initial Weight/Volume: 15.0513 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		70	J	13	410
Diethyl phthalate		12	U	12	410
Dimethyl phthalate		12	U	12	410
Di-n-butyl phthalate		12	U	12	410
Di-n-octyl phthalate		21	U	21	410
Fluoranthene		700		12	410
Fluorene		100	J	9.0	410
Hexachlorobenzene		17	U	17	41
Hexachlorobutadiene		12	U	12	84
Hexachlorocyclopentadiene		26	U	26	410
Hexachloroethane		15	U	15	41
Indeno[1,2,3-cd]pyrene		380		28	41
Isophorone		8.9	U	8.9	170
Naphthalene		400	J	11	410
Nitrobenzene		13	U	13	41
N-Nitrosodi-n-propylamine		14	U	14	41
N-Nitrosodiphenylamine		38	U	38	410
Pentachlorophenol		50	U	50	330
Phenanthrene		610		11	410
Phenol		14	U	14	410
Pyrene		780		19	410

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	50		10 - 95
2-Fluorobiphenyl	62		27 - 84
2-Fluorophenol (Surr)	58		21 - 84
Nitrobenzene-d5 (Surr)	64		28 - 92
Phenol-d5 (Surr)	59		22 - 88
Terphenyl-d14 (Surr)	64		16 - 114

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-17.5-18.0**

Lab Sample ID: 460-104826-5
Client Matrix: Solid

% Moisture: 31.2

Date Sampled: 11/18/2015 1235
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1126
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128335.D
Initial Weight/Volume: 15.0448 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

DryWt Corrected: Y

Analyte	Result (ug/Kg)	Qualifier	MDL	RL
1,1'-Biphenyl	54	J	41	480
1,2,4,5-Tetrachlorobenzene	36	U	36	480
2,2'-oxybis[1-chloropropane]	20	U	20	480
2,3,4,6-Tetrachlorophenol	45	U	45	480
2,4,5-Trichlorophenol	48	U	48	480
2,4,6-Trichlorophenol	14	U	14	190
2,4-Dichlorophenol	11	U	11	190
2,4-Dimethylphenol	110	U	110	480
2,4-Dinitrophenol	360	U	360	390
2,4-Dinitrotoluene	19	U	19	97
2,6-Dinitrotoluene	26	U	26	97
2-Chloronaphthalene	11	U	11	480
2-Chlorophenol	12	U	12	480
2-Methylnaphthalene	200	J	11	480
2-Methylphenol	21	U	21	480
2-Nitroaniline	16	U	16	480
2-Nitrophenol	16	U	16	480
3,3'-Dichlorobenzidine	53	U J	53	190
3-Nitroaniline	14	U	14	480
4,6-Dinitro-2-methylphenol	130	U J	130	390
4-Bromophenyl phenyl ether	15	U	15	480
4-Chloro-3-methylphenol	21	U	21	480
4-Chloroaniline	12	U	12	480
4-Chlorophenyl phenyl ether	14	U	14	480
4-Methylphenol	19	J	13	480
4-Nitroaniline	18	U	18	480
4-Nitrophenol	230	U	230	970
Acenaphthene	140	J	12	480
Acenaphthylene	12	U	12	480
Acetophenone	10	U	10	480
Anthracene	910		46	480
Atrazine	21	U	21	190
Benzaldehyde	37	U	37	480
Benzo[a]anthracene	1300		40	48
Benzo[a]pyrene	880		14	48
Benzo[b]fluoranthene	930		19	48
Benzo[g,h,i]perylene	330	J	28	480
Benzo[k]fluoranthene	370		21	48
Bis(2-chloroethoxy)methane	15	U	15	480
Bis(2-chloroethyl)ether	11	U	11	48
Bis(2-ethylhexyl) phthalate	19	U	19	480
Butyl benzyl phthalate	15	U	15	480
Caprolactam	34	U	34	480
Carbazole	130	J	12	480
Chrysene	1300		13	480
Dibenz(a,h)anthracene	140		25	48

Client: ARCADIS U.S. Inc

Job Number: 460-104826-1

Client Sample ID: **SB-301-S-17.5-18.0**

Lab Sample ID: 460-104826-5
Client Matrix: Solid

% Moisture: 31.2

Date Sampled: 11/18/2015 1235
Date Received: 11/18/2015 1650

8270D Semivolatile Organic Compounds (GC/MS)

Analysis Method: 8270D
Prep Method: 3546
Dilution: 1.0
Analysis Date: 11/25/2015 1126
Prep Date: 11/24/2015 1442

Analysis Batch: 460-337329
Prep Batch: 460-337251

Instrument ID: CBNAMS12
Lab File ID: L128335.D
Initial Weight/Volume: 15.0448 g
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Dibenzofuran		110	J	14	480
Diethyl phthalate		14	U	14	480
Dimethyl phthalate		14	U	14	480
Di-n-butyl phthalate		14	U	14	480
Di-n-octyl phthalate		24	U	24	480
Fluoranthene		2100		14	480
Fluorene		270	J	10	480
Hexachlorobenzene		19	U	19	48
Hexachlorobutadiene		13	U	13	97
Hexachlorocyclopentadiene		30	U	30	480
Hexachloroethane		18	U	18	48
Indeno[1,2,3-cd]pyrene		410		32	48
Isophorone		10	U	10	190
Naphthalene		390	J	12	480
Nitrobenzene		15	U	15	48
N-Nitrosodi-n-propylamine		16	U	16	48
N-Nitrosodiphenylamine		43	U	43	480
Pentachlorophenol		58	U	58	390
Phenanthrene		2800		13	480
Phenol		16	U	16	480
Pyrene		2300		22	480

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol (Surr)	40		10 - 95
2-Fluorobiphenyl	56		27 - 84
2-Fluorophenol (Surr)	52		21 - 84
Nitrobenzene-d5 (Surr)	59		28 - 92
Phenol-d5 (Surr)	53		22 - 88
Terphenyl-d14 (Surr)	61		16 - 114

TestAmerica

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CHAIN OF CUSTODY REQUEST

460-104826 Chain of Custody

Page 1 of 1

Name (for report and Invoice) Loretta Kwong	Samplers Name (Printed) Loretta Kwong	Site/Project Identification Con Edison Bayview
Company Arcadis	P. O. # B0043000.0000	State (Location of site): NJ: ☐ NY: ☒ Other:
Address 1655 Third Avenue, 12th Floor	Analysis Turnaround Time: Standard ☒	Regulatory Program:
City New York State NY	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	LAB USE ONLY Project No:
Phone 415.744.4906 Fax 212.682.9275		Job No: 104826

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Sample Identification	Date	Time	Matrix	No. of Cont.	VOCs 8260	SVOCs 8270	Sample Numbers
SB-300-S-10.5-17.0	11/18/15	1000	S	5	X	X	-1
SB-301-S-18.5-19.0	11/18/15	1155	S	5	X	X	-2
SB-300-S-5.0-16.0	11/18/15	1225	S	5	X	X	-3
SB-301-S-S-17.5-18.0	11/18/15	1235	S	5	X	X	(Lab Use)
SB-301-S-6.0-7.0	11/18/15	1255	S	5	X	X	-4
SB-301-S-17.5-18.0	11/18/15	1235	S	5	X	X	-5
TB-151118	11/18/15	—	W	2	X		-6

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

Soil:
Water:

SHORT HOLD

Special Instructions

Water Metals Filtered (Yes/No)? _____

	Company	Date / Time		Company
Relinquished by 1)	Arcadis	11/18/15 1530	Received by 1)	
Relinquished by 2)		11/18/15 1650	Received by 2)	TAEd 11/18/15 1650
Relinquished by 3)			Received by 3)	
Relinquished by 4)			Received by 4)	

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132). Massachusetts (M-NJ312), North Carolina (No. 578)

IR5 1.4/3.4°C

TAL - 0016 (0814)