

Consolidated Edison Company of New York, Inc. 31-01 20th Avenue Long Island City NY 11105-2048 www.conEd.com

April 8, 2016

### VIA FEDEX

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

#### Re: Supplemental Remedial Investigation Report 550 West 20<sup>th</sup> Street, Tax Block 691, Lots 1, Manhattan, New York W. 18<sup>th</sup> 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 20<sup>th</sup> Street, which is one of the parcels that comprise the West 18<sup>th</sup> 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 20<sup>th</sup> Avenue – Building 136 Long Island City, New York 11105

Subject:

Supplemental Remedial Investigation Report Former W 18<sup>th</sup> Street Gas Works 550 W 20<sup>th</sup> Street New York, New York 11101 NYSDEC Site # V00530

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 18<sup>th</sup> 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 20<sup>th</sup> 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.

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ENVIRONMENT

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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 16<sup>th</sup> and West 20<sup>th</sup> Streets, west of 10<sup>th</sup> Avenue, as well as a small parcel located east of 10<sup>th</sup> Avenue on West 18<sup>th</sup> Street. The Bayview Property is located on the south side of West 20<sup>th</sup> 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 18<sup>th</sup> Street MGP Site, the shore of the Hudson River was located along present-day 10<sup>th</sup> 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 18<sup>th</sup> 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.

<u>Field Observations:</u> 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.

<u>Soil Analytical Results</u>: 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.

<u>Groundwater Analytical Results:</u> 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 18<sup>th</sup> 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 (90<sup>th</sup> 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 90<sup>th</sup> 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 18<sup>th</sup> 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<sup>™</sup> 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.</li>
- 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 20<sup>th</sup> 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 18<sup>th</sup> Street former MGP Site. A summary of the potential impacts is provided below.

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

(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 elevati As noted above, "depth below ground s

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 20<sup>th</sup> 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 20<sup>th</sup> 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 siltyclays. 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 20<sup>th</sup> 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 18<sup>th</sup> 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.

Mr. Neil O'Halloran April 13, 2016

Sincerely,

Arcadis of New York, Inc.

adam Funger

Adam Etringer Project Manager

<sup>Copies:</sup> Loretta Kwong, Arcadis Nancy Gensky, Arcadis

#### Enclosures:

#### Tables

- 1 Soil Boring Depth Information
- 2 Summary of Soil Analytical Results for Volatile Organic Compounds
- 3 Summary of Soil Analytical Results for Semi-Volatile Organic Compounds

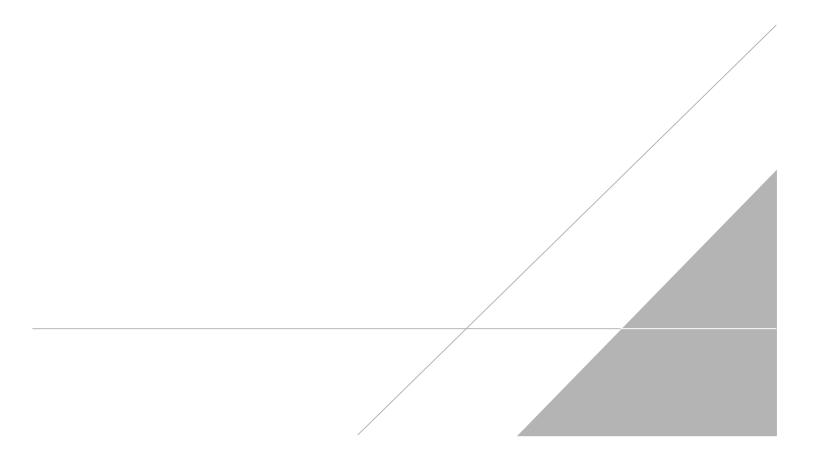
#### Figures

- 1 Historical Site Features
- 2 Soil Boring Location Map
- 3 Cross Section Location Map
- 4 Cross Section A-A'
- 5 Cross Section B-B'

#### Attachments

- A Soil Boring Logs
- B Photo Log
- C Data Usability Summary Reports

## TABLES



Soil Boring	Ground Surface Elevation (ft RMSL)	<b>Total Depth</b> (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. 20 <sup>th</sup> 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 SoilsConsolidated Edison Company of New York, Inc.Former W 18th Street Gas Works550 W 20th Street (Bayview Correctional Facility)

Location ID:	Part 375 Restricted	Part 375 Restricted		SB-300	SB-300	SB-301	SB-301	SB-301	SB-301	SB-302A	SB-303	SB-303	SB-303	SB-304	SB-304	SB-304
Sample Depth(Feet bgs):	Use SCOs Restricted	Use SCOs		5 - 6	16.5 - 17	4.5 - 5	6 - 7	17.5 - 18	18.5 - 19	1.5 - 2	3.25 - 3.75	17.5 - 18	19 - 19.5	4.5 - 5	9 - 9.5	21.5 - 22
Date Collected:	Residential	Groundwater	Units	11/18/15	11/18/15	11/09/15	11/18/15	11/18/15	11/18/15	11/13/15	11/12/15	11/16/15	11/16/15	11/11/15	11/17/15	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 SoilsConsolidated Edison Company of New York, Inc.Former W 18th Street Gas Works550 W 20th Street (Bayview Correctional Facility)

Location ID:	Part 375 Restricted	Part 375 Restricted		SB-305	SB-305	SB-305	SB-306	SB-306	SB-306	SB-307	SB-307	SB-307	SB-308	SB-308	SB-308
Sample Depth(Feet bgs):	Use SCOs Restricted	Use SCOs		4 - 4.5	8.5 - 9	16 - 16.5	4.5 - 5	7.5 - 8	18.5 - 19	4.5 - 5	8.5 - 9	15 - 15.5	4 - 4.5	18 - 18.5	16.5 - 17
Date Collected:	Residential	Groundwater	Units	11/16/15	11/16/15	11/16/15	11/10/15	11/17/15	11/17/15	11/10/15	11/17/15	11/17/15	11/12/15	11/13/15	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.
- All concentrations in units of milligrams per kilogram (mg/kg).
   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.
- Bolding indicates that the sample result exceeds NYSDEC Restricted Use SCO Protection of Groundwater.
   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:				SB-300	SB-300	SB-301	SB-301	SB-301	SB-301	SB-302A	SB-303	SB-303	SB-303	SB-304	SB-304	SB-304
Sample Depth(Feet bgs):	Part 375 Restricted	Part 375 Restricted		5 - 6	16.5 - 17	4.5 - 5	6 - 7	17.5 - 18	18.5 - 19	1.5 - 2	3.25 - 3.75	17.5 - 18	19 - 19.5	4.5 - 5	9 - 9.5	21.5 - 22
	Use SCOs Restricted	Use SCOs														
Date Collected:	Residential	Groundwater	Units	11/18/15	11/18/15	11/09/15	11/18/15	11/18/15	11/18/15	11/13/15	11/12/15	11/16/15	11/16/15	11/11/15	11/17/15	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)	: Part 375 Restricted	Part 375 Restricted		SB-305 4 - 4.5	SB-305 8.5 - 9	SB-305 16 - 16.5	SB-306 4.5 - 5	SB-306 7.5 - 8	SB-306 18.5 - 19	SB-307 4.5 - 5	SB-307 8.5 - 9	SB-307 15 - 15.5	SB-308 4 - 4.5	SB-308 18 - 18.5	SB-308 16.5 - 17
	Use SCOs Restricted-		l lucitor	444645	444645	444645	44/40/45	444745		44/40/45	444745		444045	444045	44/40/45
Date Collected	: Residential	Groundwater	Units	11/16/15	11/16/15	11/16/15	11/10/15	11/17/15	11/17/15	11/10/15	11/17/15	11/17/15	11/12/15	11/13/15	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

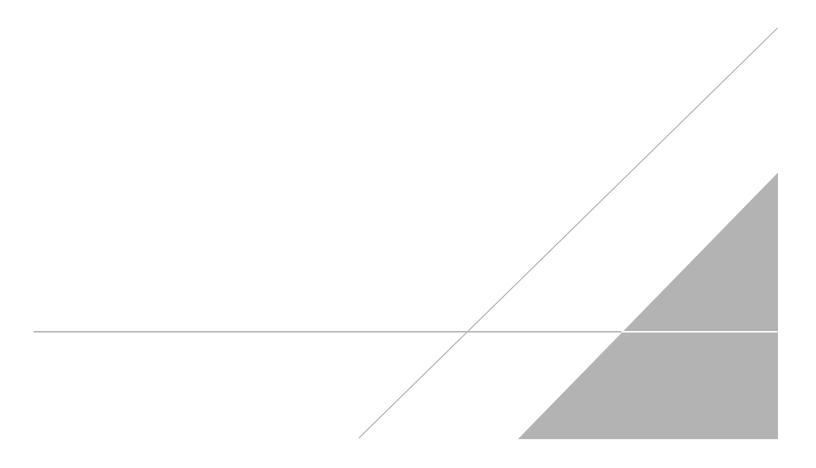
See notes on page 3.

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.
- All concentrations in units of milligrams per kilogram (mg/kg).
   Targeted Compound List of SVOCs analyzed by United States Environmental Protection Agency (USEPA) Method 8270.
- Field duplicate sample results are presented in brackets.
   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.
- Bolding indicates that the sample result exceeds NYSDEC Restricted Use SCO Protection of Groundwater.
   Shading indicates that the sample result exceeds NYSDEC Restricted Use SCO Restricted Residential.

- Only those constituents detected in one or more samples are summarized.
   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



BLOCK ID

LIMITS OF FORMER GAS WORKS

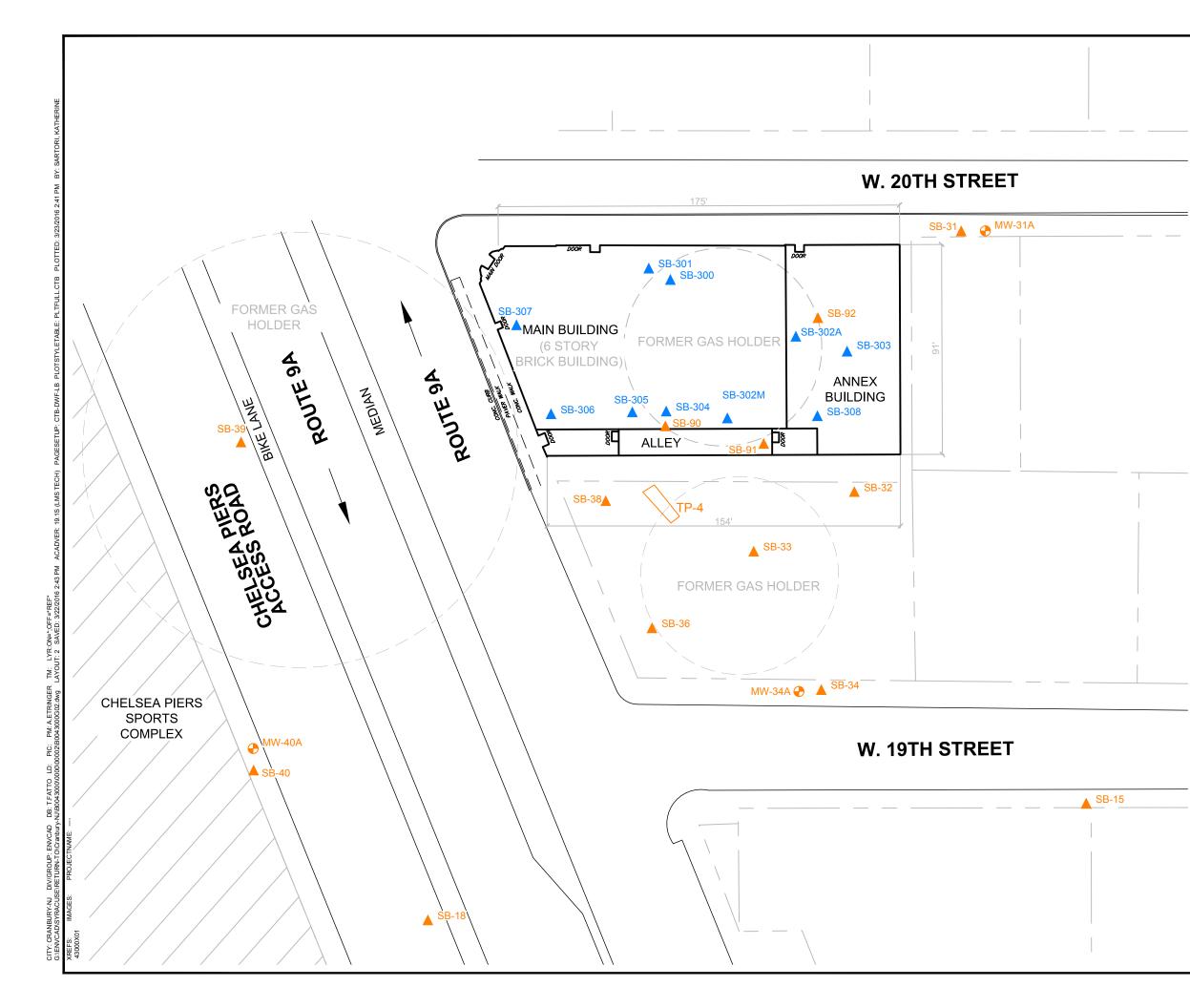


BUILKHEAD HIGH LINE

#### NOTE:

- 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 WOR 550 WEST 20TH STREET NEW YORK, NEW YORK -	RKS
HISTORICAL SITE FEATUR	ES
	FIGURE



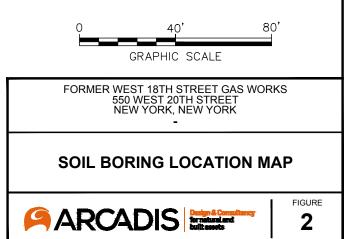


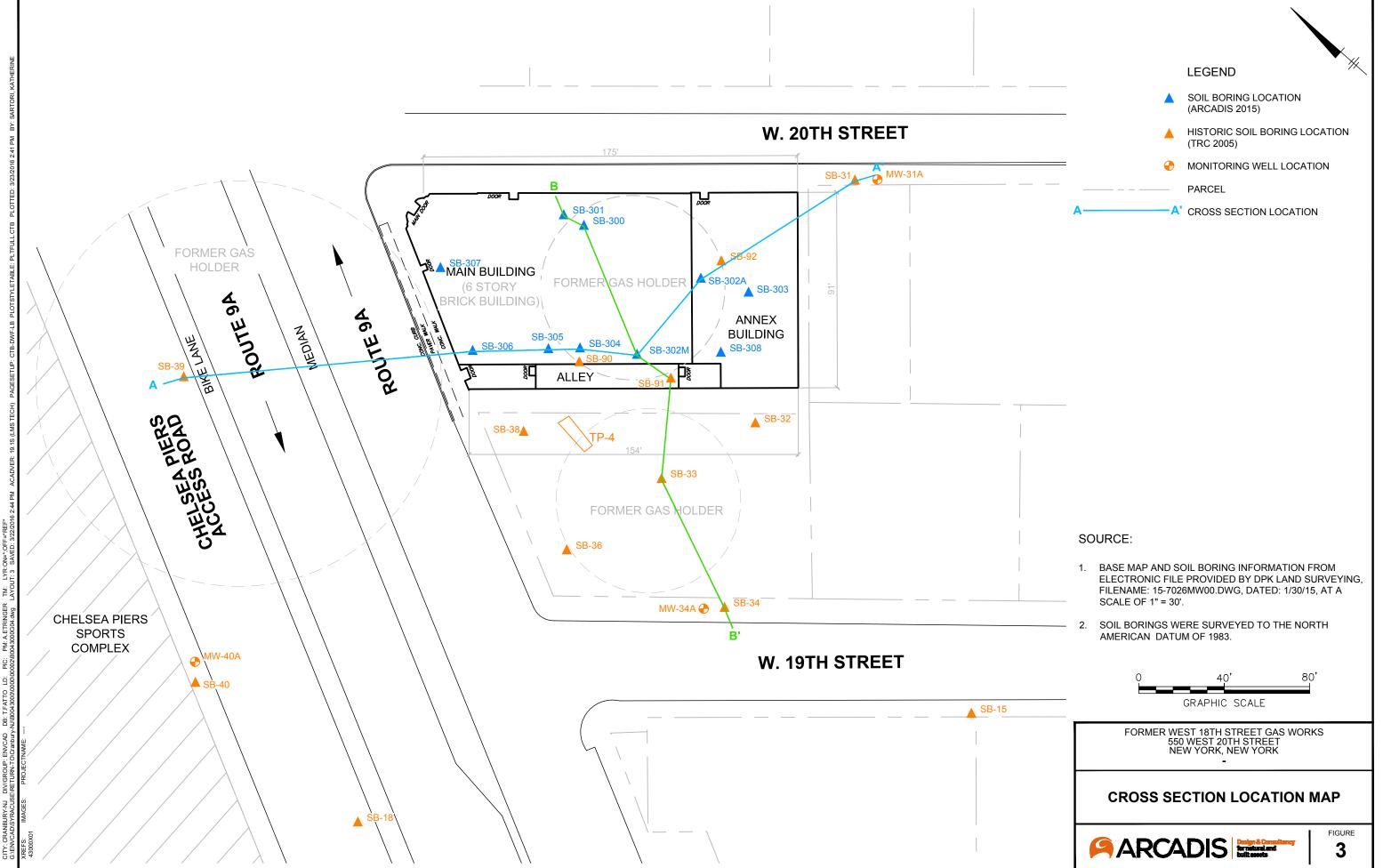
- HISTORIC SOIL BORING LOCATION (TRC 2005)
- MONITORING WELL LOCATION

PARCEL

#### 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'.
- 2. SOIL BORINGS WERE SURVEYED TO THE NORTH AMERICAN DATUM OF 1983.

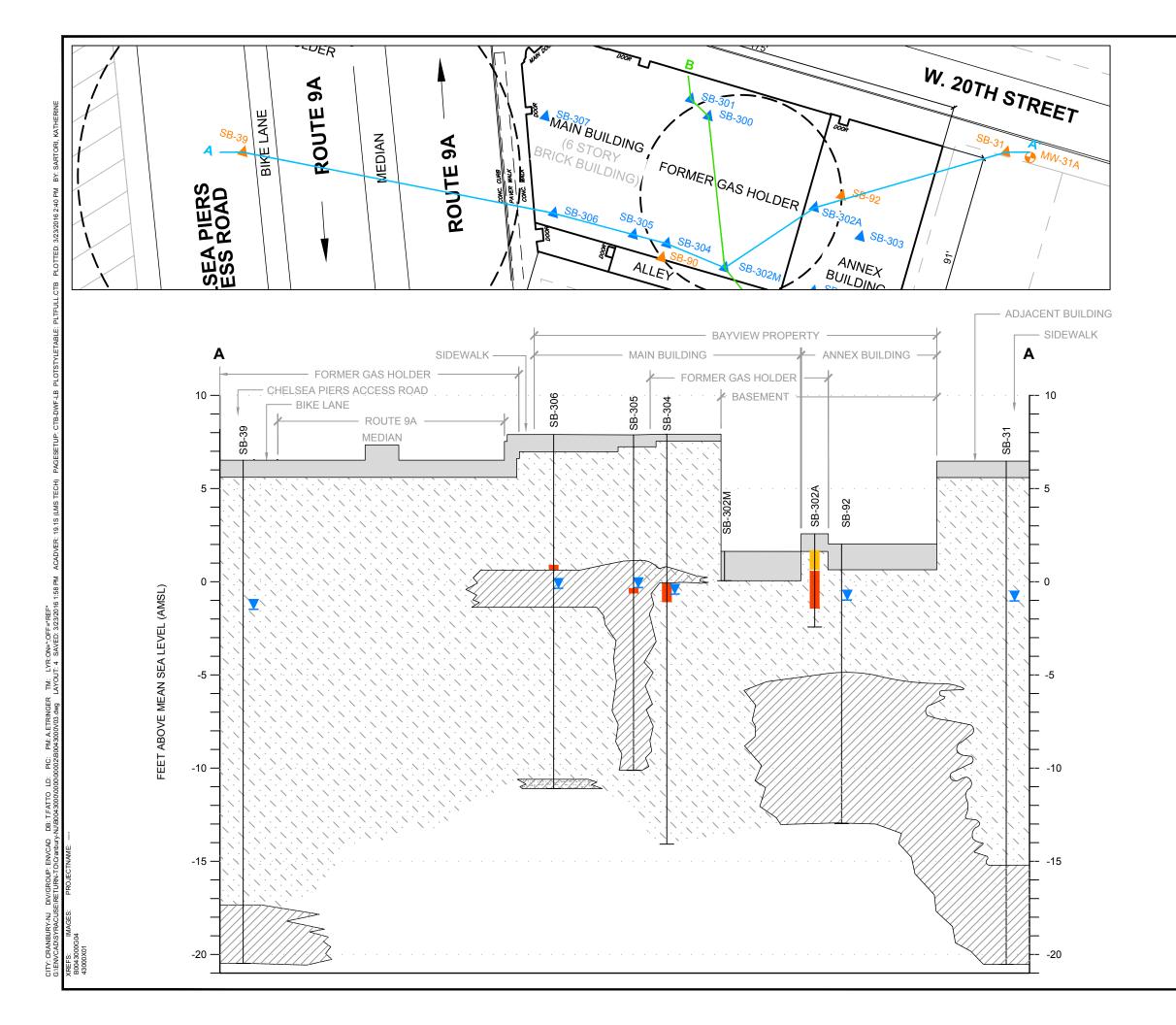


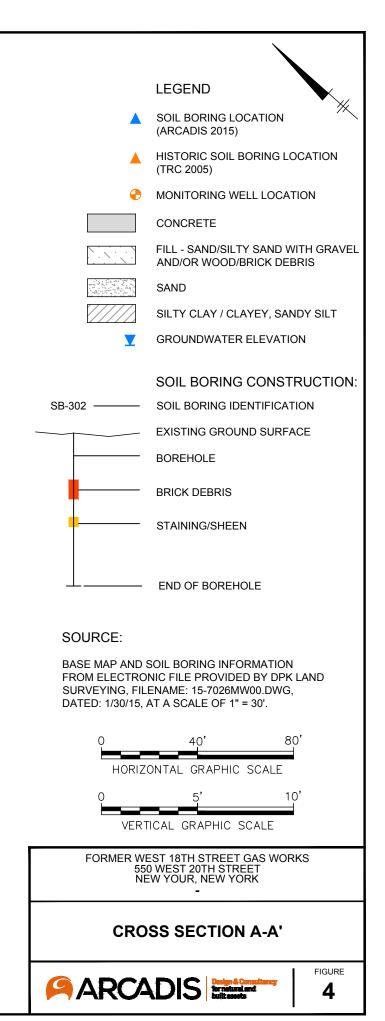


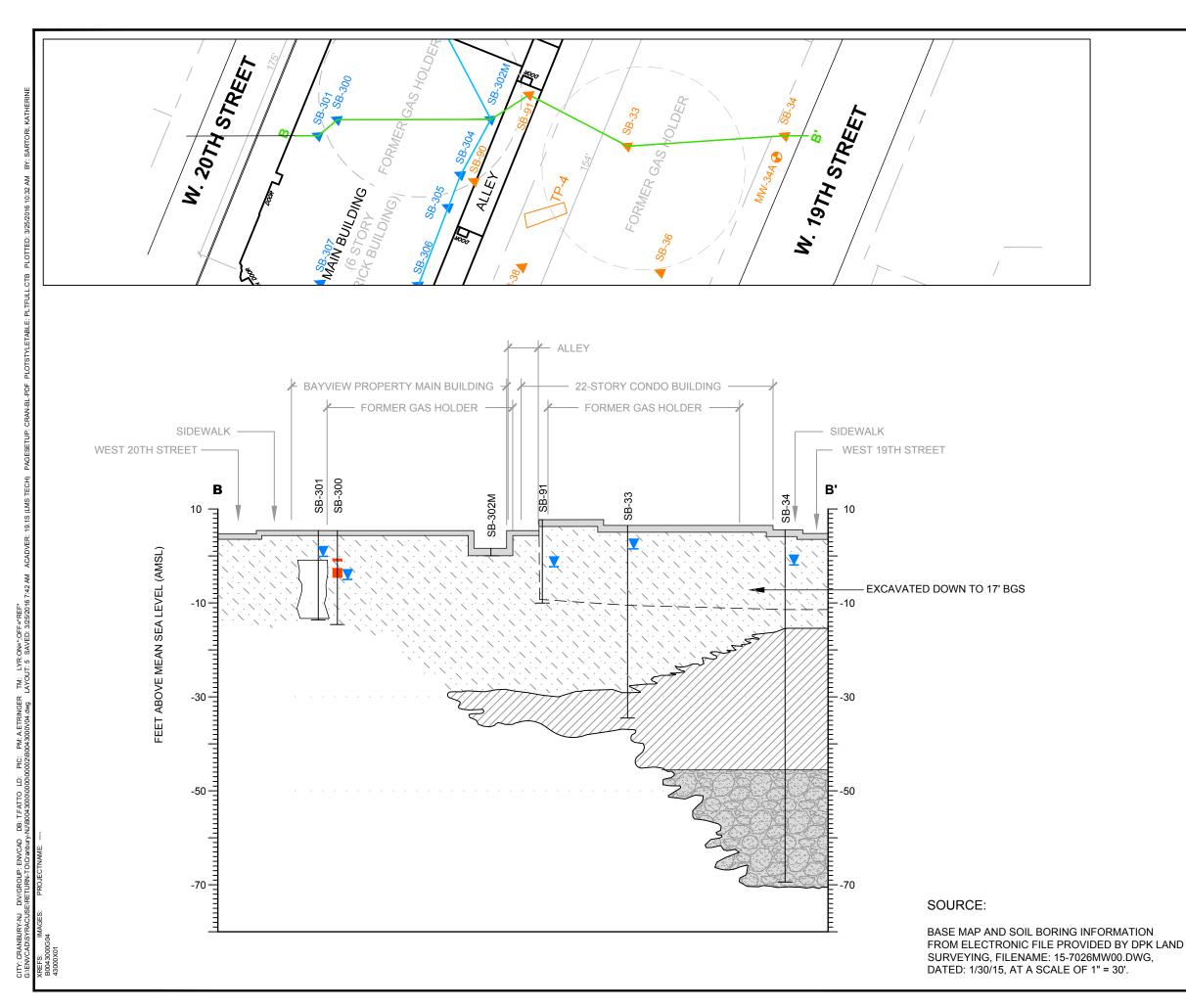
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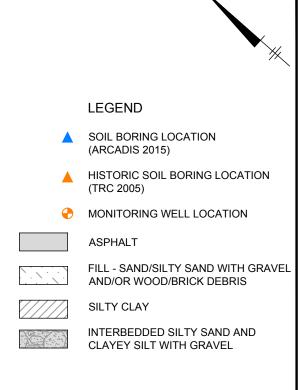
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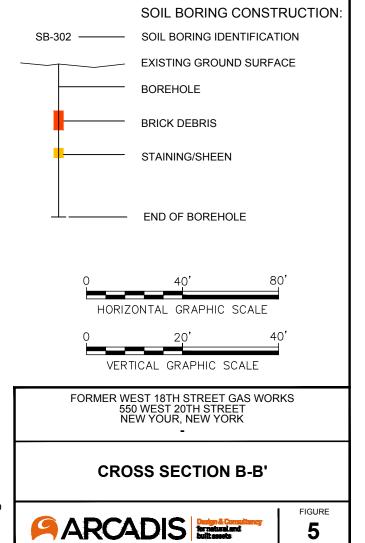
CRANE





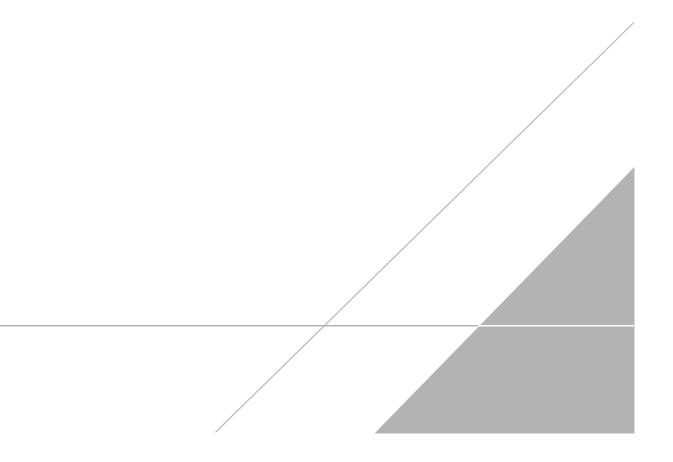






## **ATTACHMENT A**

Soil Boring Logs



Drill Drill Drill Sam	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 fe Surface Elevation: 5.4 Descriptions By: Lore	g ID: <b>SB-300</b> Isolidated Edison Company of New k, Inc. 550 West 20th Street, NY, NY			
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column		Stratigraphic D		Well/Boring Construction		
-					NA NA 0.2 0.4			subangula Brown to	vn SAND, fine to coarse, subangu ar, loose, no odor, moist. dark olive brown (2.5Y 3/3) Claye	ey SILT, little fine Sand and	l Gravel, <10		Topped off with gravel and concrete.
	- - - - -	2	0-5	NA	0.3 0.4 0.3 0.3 0.5 NA 1.0 2.0 0.6 NA	X		Black (2.5 subrounded BRICK DI	angular to subangular; low to med k mottling, moist. SY 2.5/1) Sandy SILT; some Grave ed; low plasticity, odor, black debr EBRIS; little black Gravel, <10 mn	el, 2 to 10 mm dia., subang ris, moist.			
- 10	5 -	3	8-11	2.0	NA NA 0.7 0.6 0.3 NA NA 0.5	-	<ul> <li>НААААА</li> <li>НААААА</li> <li>НААААА</li> <li>НАААААА</li> <li>НАААААА</li> <li>НАААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НААААААА</li> <li>НАААААААА</li> <li>НААААААА</li> <li>НАААААА</li> <li>НАААААА</li> <li>НАААААА</li> <li>НААААА</li> <li>НААААА</li> <li>НААААА</li> <li>НААААА</li> <li>НАААА</li> <li>НАААА</li> <li>НААА</li> <li>НААА</li></ul>	25 mm dia saturated SAND; fin No recove	grayish brown (10YR 3/2) Silty S a., subangular; Brick Debris; medi ie to coarse.	ium dense, slight PHC-like	odor,		Borehole backfilled with neat cement grout to grade.
- 15	-10 -	4	11-14	3.0	0.6 0.7 0.3 0.5 0.6 0.2 0.7 0.8	-		odor, satu Very dark			ngni i i io-iike		
			14-17 CA			D <mark>esign &amp;</mark> or natur uult asse	Consultar al and ets	Rem	Analytical sample	es collected from 5-6	6' and 16.5-17 Is.		sl = mean sea level; NA = Page: 1 of 2

Client: Consolidated Edison Company of New York, Inc. Well/Boring ID: SB-300								ID: <b>SB-300</b>	
	Site Lo	ocatio	n:					Borehole D	epth: 20 feet bgs
			20th S	treet, I	NY, N	Y			
		lber			(mqq	a			
	z	Sample Run Number	Type	eet)	PID Headspace (ppm)	Analytical Sample	Geologic Column		Well/Boring
Ξ	ELEVATION	le Ru	Sample/Int/Type	Recovery (feet)	leads	tical 9	ogic C	Stratigraphic Description	Construction
DEPTH	ELEV	Samp	Samp	Reco	PID F	Analy	Geolo		
	-				0.6 1.0				
F	_				NA NA			No recovery.	
F	-				NA				Borehole backfilled with
ŀ		6	17-20	0.0	NA NA				neat cement grout to grade.
- 20-					NA				
	-15 -							Refusal at 20 feet bgs. End of boring.	
	-								
Ē	-								
F	_								
F	_								
- 25									
ļ	-20 -								
	-								
	-								
ŀ	-								
F	-								
- 30	-25 -								
ŀ	-23 -								
	_								
	-								
[	-								
ŀ	-								
- 35	-30 -								
								Remarks: PHC = petroleum hydrocarbon; bgs = below grour	] nd surface; msl = mean sea level; NA =
Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; not applicable/available; mm = millimeter; dia. = diameter.									
9	A	R	CA	DI	S	Design 8 for natur built ass	<mark>&amp; Consulta</mark> ral and ets	Analytical samples collected from 5-6' and 16.5-1.	7' bgs.
								Boring was hand-cleared to 5 feet bgs.	

Drill Drill Drill Sam	Date Start/Finish: 11/9 - 11/18/2015 Drilling Company: Zebra Technical Service 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: N Borehole Depth: 19 Surface Elevation: 5 Descriptions By: Lo	y <b>ID: SB-301</b> solidated Edison Company of New s, Inc. 50 West 20th Street, NY, NY					
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column		Stratigraphi		Well/Boring Construction				
-	-														
-	5-	1	0-5	NA	NA NA 0.1 0.2 0.3 0.9 0.6 0.5 0.4 0.5	X		moist. Dark gray subangula moist.	TE. ty SAND, fine to coarse; some ish brown (2.5Y 4/2) Clayey S ar to angular; trace Brick Debr .5 feet bgs. Black to dark brow	SILT, little fine Sand and Grav is; no odor, low to medium pl	el, <10 mm dia.,		Topped off with gravel and concrete.		
- 5	o – –	2	5-8	3.0	0.7 0.2 2.6 0.9 0.8 0.7	X		Very dark Brick Deb	C-like odor at 6 feet bgs. gray (2.5Y 3/1) Clayey SILT,		/	-	Borehole		
- 10	-5 -	3	8-11	3.0	0.8 1.3 1.2 1.3 1.3 1.2 0.7	_			vangular to subrounded Grave k debris, possibly from above				backfilled with neat cement grout to grade.		
15	-	4	11-14	3.0	1.1 1.1 1.2 0.9 1.3 1.0 1.0 1.0	-		Little blac	k mottling.						
9	-20       5       14-17       3.0       1.3         Image: Second Second Second Construction Second Secon														

Client: Consolidated Edison Company of Ne	New York, Inc. Well/Boring ID: SB-301					
Site Location:	Borehole De	epth: 19 feet bgs				
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				
6 17-19 2.0 3.9 10.6		Borehole backfilled with neat cement grout to grade.				
	tefusal. End of boring at 19 feet bgs.					
- 35	<b>Remarks:</b> PHC = petroleum hydrocarbon; bgs = below groun NA = not applicable/available; mm = millimeter; dia	id surface; msl = mean sea level; a. = diameter.				
Persign & Consultancy for natural and built assets	Analytical samples collected from 4.5-5', 6-7', 17.5 Boring was hand-cleared to 5 feet bgs.	-18', and 18.5-19' bgs.				

Drill Drill Drill Sam	Date Start/Finish: 11/13/2015 Drilling Company: Zebra Technical Service Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								s Easting: 982206.24 Casing Elevation: NA Client: Cons York			g ID: <b>SB-302A</b> nsolidated Edison Compan k, Inc. 550 West 20th Street, NY,		
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description					Well/Boring Construction	
- - - - - - - - - - - - - - -		1	0-5	0.7	28.1 9.1 0.3 NA NA NA			Clay and BRICK DI	Sandy SILT; some ine to coarse Sand; BRIS. Hard to brea	Gravel, 2 to 45 mm o soft, low plasticity, c k up with dig bar. boring at 5 feet bgs.	dor, wood debris, :	rounded; trace sheen, moist.	B	opped off with ravel and oncrete. orehole ackfilled with eat cement rout to grade.
- 15	-15       -15         Remarks:       PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea leve 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.											a level; 1 of 1		

Drill Drill Drill Sam	Date Start/Finish: 11/12 - 11/16/2015 Drilling Company: Zebra Technical Servic Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								Casing Elevation: NA Client: Cons York				<b>3</b> son Company of New I 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		
-	-											03		
-		1	0-5	NA	NA NA 0.4 0.6 0.4 0.6 0.3 0.4 NA	X		mm to 35 SAME AS	TE. ayey SILT; little fine to coarse Sar mm dia.; soft, no odor, moist. ABOVE. Dark gray, trace wood gray (5Y 5/1) Sandy SILT; little C soft, non-plastic, no odor, wet at 3	debris. Gravel, subangular to subro			Topped off with gravel and concrete.	
- 5	-5 -	2	5-8	2.0	0.0 0.0 0.1 NA NA			<u> </u>		fine Sand; medium plastic	/			
- 10	-	3	8-11	3.0	0.1 0.2 0.1 0.1 0.2 0.3 0.2	-		mm dia.; 1	gray (5Y 5/1) Sandy SILT; little s race Clay; non-plastic to low plas , low plasticity.		Gravel, 2 to 20		Borehole backfilled with neat cement grout to grade.	
-	-10 -	4	11-14	3.0	0.2 0.5 0.1 0.5 0.4 0.5 0.4	-		mm dia.; I	gray (5Y 5/1) Clayey SILT; little f ow to medium plasticity, soft to m ris at 13 feet bgs.					
- 15	-	5	14-17	3.0	0.5 0.8			Rem	Park gray (5Y 4/1) Silty fine to medium SAND, medium dense, subangular to ubrounded, no odor, wet. <b>Remarks:</b> PHC = petroleum hydrocarbon; bgs = below groun NA = not applicable/available; mm = millimeter; di					
	Analytical samples collected from 3.25-3.75', 17.5-18', and 19-19.5' bgs. Boring was hand-cleared to 5 feet bgs.												9.5' bgs.	

Client:	Consolidated	Edison	Company	of New	York, Inc.
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#### Well/Boring ID: SB-303

Borehole Depth: 20 feet bgs

550 West 20th Street, NY, NY PID Headspace (ppm) Sample Run Number Analytical Sample Geologic Column Sample/Int/Type Recovery (feet) Well/Boring ELEVATION Stratigraphic Description Construction DEPTH 2.9 Black (5Y 2.5/1) Clayey SILT, medium plasticity, medium stiff, moist. -15 0.3 Trace shells at 16.5 to 17 feet bgs. 0.3 Very dark gray at 17 feet bgs. (5Y 3/1). 0.2 Borehole backfilled with 1.2 17-20 2.7 neat cement 6 25 Faint coal tar-like odor at 18.5 feet bgs. grout to grade. Coal tar-like odor at 19 feet bgs. Wood debris with trace sheen at 19.25 feet bgs. 33.3 NA No recovery. Refusal at 20 feet bgs. -20 - 25 -25 30 -30 - 35 **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. ARCADIS Design & Consult for natural and built assets Boring was hand-cleared to 5 feet bgs. Project: B0043000.0000.00002 Template: boring\_well geoprobe 2007 analytical.ldfx Page: 2 of 2

Drill Drill Drill Sam	Date Start/Finish: 11/11 - 11/17/2015 Drilling Company: Zebra Technical Service Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								Easting: 982140.89 Casing Elevation: NA York			g ID: SB-304 hsolidated Edisor k, Inc. 550 West 20th S	n Company of New treet, NY, NY			
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column		Stratigraph	well/Boring hic Description Construction						
-																
-		1	0-5	NA	0.1 0.0 0.2 0.1 0.1 0.1 0.2 0.1 0.1			Gravel, 2	vn (10YR 3/3) SAND, fine to	coarse, subangular to subroun n dia. angular to subrounded; E lor, dry.			Topped off with gravel and concrete.			
- 5	-	2	5-8	1.0	NA NA NA 0.5 0.5				above. e brown (2.5Y 3/3) Clayey Sli	LT, medium plasticity; trace fin	e Sand and		Dephate			
- 10	-	3	8-11	1.5	0.5 0.4 0.3 NA NA NA			BRICK ar beige and White (GL <10 mm c	black, wet at 8.5 feet bgs. EY 1 8/N) and gray (GLEY1 lia.; medium dense, no odor, (GLEY 1 4/N) Silty very fine	2-mm to 30 mm dia. angular t 6/N) Silty fine SAND; some G wet. SAND, medium dense, no odo	ravel, angular,	~	Borehole backfilled with neat cement grout to grade.			
- 15	-5 - 4 11-14 3.0 0.5 0.7 4 11-14 3.0 0.5 0.7 0.4 0.1 0.6 0.5								or recovery. 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. .ittle black Sand at 13 feet bgs.							
Proje	5       14-17       3.0       0.6         Figure 1       3.0       0.6       Image: Second sec															

Client:	Consolidated	Edison	Company	of New	York, Inc.
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#### Well/Boring ID: SB-304

Borehole Depth: 22 feet bgs

550 West 20th Street, NY, NY PID Headspace (ppm) Sample Run Number Analytical Sample Geologic Column Sample/Int/Type Recovery (feet) Well/Boring ELEVATION Stratigraphic Description Construction DEPTH 0.7 Very fine to fine SAND. 0.4 0.5 Faint coal tar-like odor at 17 feet bgs. 0.8 -10 0.8 17-20 0.9 6 3.0 Borehole backfilled with 0.8 Very fine grained only at 19 feet bgs. neat cement grout to grade. 0.6 Dark olive gray (5Y 3/2). - 20 0.8 0.8 20-22 2.0 0.9 0.8  $\overline{\vee}$ Refusal at 22 feet bgs. End of boring. -15 25 -20 30 -25 - 35 **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. Design & Consult for natural and built assets ARCADIS Boring was hand-cleared to 5 feet bgs. Project: B0043000.0000.00002 Template: boring\_well geoprobe 2007 analytical.ldfx Page: 2 of 2

Drill Drill Drill Sam	Date Start/Finish: 11/11 - 11/16/2015 Drilling Company: Zebra Technical Servic Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								York			nsolidated E k, Inc.	305 Edison Company of New 0th 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 -													
- <del>-</del> - - -		1	0-4.5	NA	NA 0.4 0.3 0.3 0.3 0.2 0.2 0.2 0.3	X		Brown to	CED CONCRETE. dark yellowish brown (10YR 4/4) SA ad; little Gravel, angular to subangu	AND, fine to coarse, sub lar; little brick debris; no	angular to odor, loose,	к К К	Topped off with gravel and concrete.	
- 5	_	2	4.5-6	1.0	NA NA NA NA NA	_		No recove	dark yellowish brown (10YR 4/4) SA	AND, fine to coarse, sub-	angular to			
-	0- -	3	6-9	1.5	0.6 0.6 0.7	X		dry, . Brown (10 BRICK DI	ed; little Gravel, angular to subangu IYR 4/3) Clayey SILT; little fine San EBRIS, wet. 2.5/1) Clayey SILT; little fine Sand;	d; low plasticity, soft, no	odor, moist.		<ul> <li>Borehole backfilled with neat cement grout to grade.</li> </ul>	
- 10	-	4	9-12	3.0	NA NA 1.7			medium s	d Debris; saturated, soft.					
- -	-5 -	5	12-15	3.0	1.0 1.1 0.8 0.8 1.4			dia., suba	<ol> <li>2.5/1) Sandy SILT, low plasticity; lift ngular to subrounded; trace Wood I</li> <li>2.5/1) Clayey SILT, medium plastic</li> <li>ary.</li> </ol>	Debris; soft, wet.				
	Δ	D	CA	וח	NA 1.3	Design &	Consultar	like odor,	2.5/1) Clayey SILT, medium plastic trace wood debris, moist. arks: PHC = petroleum h not applicable/avai Analytical samples	hydrocarbon; bgs = ilable; mm = millim	= below grour leter; dia. = di	ameter.	msl = mean sea level; NA = bgs.	
Proje	ct: BC		00.000			ouilt ass	ets		Boring was hand-c te: boring_well geoprobe 2 Date3/31/2016 Creat	2007 analytical.ldfx			Page: 1 of 2	

Client: Consolidated Edisor	Company of New York, Inc.
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#### Well/Boring ID: SB-305

Borehole Depth: 18 feet bgs

550 West 20th Street, NY, NY PID Headspace (ppm) Sample Run Number Analytical Sample Geologic Column Sample/Int/Type Recovery (feet) Well/Boring ELEVATION Stratigraphic Description Construction DEPTH 2.0 2.0 15-18 3.0 6 Borehole backfilled with NA neat cement NA grout to grade. 10 Refusal at 18 feet bgs. End of boring. - 20 -15 - 25 -20 30 -25 - 35 Remarks: PHC = petroleum hydrocarbon; bgs = below ground surface; msl = mean sea level; NA = not applicable/available; mm = millimeter; dia. = diameter. Design & Consult for natural and built assets Analytical samples collected from 4.5-5', 8.5-9', and 16-16.5' bgs. ARCADIS Boring was hand-cleared to 5 feet bgs. Project: B0043000.0000.00002

Drill Drill Drill San	Date Start/Finish: 11/10 - 11/17/2015 Drilling Company: Zebra Technical Servic Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								Casing Elevation: NA Client: Cons York				<b>6</b> ison Company of New h Street, NY, NY	
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column		Stratigrap	Well/Boring Stratigraphic Description Construction				
-														
	5 -	1	0-5	NA	NA NA 0.6 0.3 0.2 0.3 0.3 0.5 0.4 NA	×		Dark yello	CONCRETE pieces from ad	jacent concrete slab in boring. ND, fine to coarse, subangular ngular, 2 to 35 mm diameter, lo			Topped off with gravel and concrete.	
-	- 0-, -	2	5-8	2.25	0.7 0.3 0.6 1.2 2.3 1.0	X		Gravel, < plasticity, BRICK DI Very dark	35 mm dia., angular to suba no odor, soft, moist. EBRIS and black angular Gi gray (5Y 3/1) Clayey SILT;	trace Gravel, 2 to 30 mm dia.,	stic to low		Borehole backfilled with neat cement grout to grade.	
- 10	-	3	8-11	2.5	1.2 1.6 NA NA NA NA	-		Slough.	e fine Sand, low to medium plasticity, soft, little black mottling, no odor, wet.					
- 	-5 <b>-</b> -	5	14-17	3.0	NA NA 1.3 1.5 0.7 0.8			faint odor	gray (5Y 3/2) well graded s	fine to fine; little Silt; loose to m SAND, fine to coarse; some Gr	avel, 1 to 10			
9	5       14-17       3.0       0.8       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.       Imm, subangular to subrounded; trace Silt; medium dense, faint odor, wet.         Imm, subangular to subrounded; trace Silt; medium dense; f													
Proje	ct. BC	0430	00.000	0 0000	)2			Templa	te: boring well geop	robe 2007 analytical.ldf	x		Page: 1 of 2	

Client:	Consolidated	Edison	Company	of New	York, Inc.	
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#### Well/Boring ID: SB-306

Borehole Depth: 19 feet bgs

550 West 20th Street, NY, NY PID Headspace (ppm) Sample Run Number Analytical Sample Geologic Column Sample/Int/Type Recovery (feet) Well/Boring ELEVATION Stratigraphic Description Construction DEPTH *.*С. Dark olive gray (5Y 3/2) SAND and GRAVEL, fine to medium, 2 to 15 mm dia., subangular to subrounded, medium dense, wet. 1.1 1.9 Ō, 1.1 Borehole 0.8 P, backfilled with neat cement Fine to coarse. -10 6 17-19 NA 1.8 0. grout to grade. 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. 1.3 <u>⊤</u>., Refusal at 19 feet bgs. End of boring. - 20 -15 25 -20 30 -25 - 35 **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. Design & Consult for natural and built assets ARCADIS Boring was hand-cleared to 5 feet bgs. Project: B0043000.0000.00002 Template: boring\_well geoprobe 2007 analytical.ldfx Page: 2 of 2

Drill Drill Drill Sam	Date Start/Finish: 11/10 - 11/17/2015 Drilling Company: Zebra Technical Servic Driller's Name: Luke Caballeno Drilling Method: HSA/Geoprobe Sampling Method: 3' Acetate Liner Rig Type: Portable Unit Geoprobe Rig								Casing Elevation: NA Client: Cons York				<b>07</b> dison Company of New th Street, NY, NY
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Well/Boring Construction									
-	10 — _												
-	5-	1	0-5	NA	NA NA 0.3 0.2 0.5 0.3 0.3 0.5				GRAVEL. In Sandy SILT, fine to mediu	m, subangular to subrounded; subrounded; soft, low plastici			Topped off with gravel and concrete.
- 5	- - - 0-	2	5-8	0.5	0.3 0.5 0.7 NA NA NA NA	X		mm dia, s ROCK or Black (5Y	ubangular to subrounded; litt CEMENT chunk at 5.25 feet	SILT; some Gravel, fine to med le Clay; low plasticity, soft, no bgs. Obstructed sampler. avel, 2 to 15 mm, angular to su	odor, moist.		Borehole
- 10	_	3	8-11	2.0	NA 4.6 489 870 82.1 NA	X		odor. Little shee	en at 9.0 feet bgs, strong PH0 oden Debris at 9.5 bgs, little		strong PHC-like		backfilled with neat cement grout to grade.
-	-5 -	4	11-14	1.0	NA 29.0 12.6 NA NA NA			subrounde	ed; little Silt and Gravel, 2 to edium dense, no odor, wet.	AND, fine to coarse, subangula 10 mm dia., subangular to sut			
-15       14-16       1.5       NA 54.1 2.1       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.         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 le NA = not applicable/available; mm = millimeter; dia. = diameter.												nsi = mean sea level;	
9	ARCADIS       Design & Consultancy for natural and built assets         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.												
Projo	ot: DC	0430	00.000	0 0000	12			Templa	te: boring, well geopre	obe 2007 analytical.ldf	4		Page: 1 of 1

Drill Drill Drill Sam	ling C ler's I ling N npling	Compa Name Aetho g Meth	sh: 11 any: Z : Luke d: HS, nod: 3 able Ui	Cebra 1 e Caba A/Geo 3' Acet	Fechni alleno probe ate Lir	ner	ervice	S	Easting: 982197.65 Casing Elevation: NA York			nsolidated Edi k, Inc.	g ID: <b>SB-308</b> solidated Edison Company of New , Inc. 50 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			
-	-				NA			CONCRE	TE.				Topped off with gravel and		
-	0-	1	0-5	NA	NA 1.3 1.2 1.2 1.4 1.4 1.3 3.6 5.8	X		mm dia.; Dark gray subround	ayey SILT; little fine Sand and Grave moist, low to medium plasticity, soft, Clayey SILT; little fine Sand and Gr ed; little Glass and Brick Debris from soft, slight odor, little black mottling, 5 feet bgs.	no odor. avel, 5 to 10 mm dia., s 1.5 to 2.5 feet bgs; lov	subangular to v to medium		concrete.		
- 5	-5 -	2	5-8	3.0	0.7 0.6 0.5 0.6 0.6 0.7 0.7	-		Non-plasti Very dark dia., suba	ish brown (2.5Y 4/2) Sandy SILT; litt c, soft, no odor, wet. gray (2.5Y 3/2) Clayey SILT; trace v ngular to subrounded; medium plast to medium Sand, low plasticity.	very fine Sand and Gra	vel, 2 to 50 mm				
- 10 -	_	3	8-11	3.0	0.7 0.9 0.8 0.9 0.9 1.0	_		Medium s	-	CAND: Hitle Convel 2	to 10 mm	-	Borehole backfilled with neat cement grout to grade.		
-	-10 - 4 11-14 3.0 1.0 0.8 1.1								gray (2.5Y 3/1) Sandy SILT and fine ar to subrounded; soft, non-plastic, n gray (2.5Y 3/1) Clayey SILT; trace f ar to subrounded; low to medium pla	o odor, wet.	to 10 mm dia.,				
- 15	-	5	14-17	3.0	0.8 1.1 1.0 1.0				tiff at 14 feet bgs.	udroop the set the	- hol				
9	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.														
Proie	ct <sup>.</sup> B0	0430	00.000	0.000	)2			Templa	te: boring_well geoprobe 20	007 analytical.ldfx	(		Page: 1 of 2		

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

Borehole Depth: 18.5 feet bgs.

550 West 20th Street, NY, NY PID Headspace (ppm) Sample Run Number Analytical Sample Geologic Column Sample/Int/Type Recovery (feet) Well/Boring ELEVATION Stratigraphic Description Construction DEPTH 1.4 -15 1.4 5.3 17-18.5 6 1.5 2.4 Coal tar-like odor at 17.5 feet bgs. 5.8 Refusal at 18.5 feet bgs. End of boring. - 20 -20 - 25 -25 - 30 -30 - 35 **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. ARCADIS Design & Consult for natural and built assets Boring was hand-cleared to 5 feet bgs. Project: B0043000.0000.00002 Template: boring\_well geoprobe 2007 analytical.ldfx Page: 2 of 2 Data File:SB-308.dat Date3/31/2016 Created/Edited by:NPS

-	ORING LOG								BURING NO.: SB-31		
									SHEET 1 OF 2		
							PROJECT NO.	AREA OF SITE			
/18th St MGP SCS/Con Edison 41318-0700-10000 ADDRESS outhern sidewalk on 20th St between 10th and 11th Ave							41318-0700-10000	East of Gas Holder #5			
								ELEVATION/DATUM 6.47/NAVD 88			
DT	LING	CO	NTR	ACTOR			DRILLER Lloyd Adams	TRC INSPECTOR Jessica Elliott			
	LING		3				TYPE/SIZE BIT 4.25" Hollow Stem Auger	<b>START DATE</b> 10/9/2004	END DATE 10/9/2004		
AM	PLEF	R TY	ΈE				HAMMER WEIGHT/DROP	TOTAL DEPTH (feet below ground surface (ft bgs	WATER LEVEL (ft bgs)		
Sp	lit Spo	oon					140 lbs./30"	27'	7.5'		
	ION	S	AMI	PLES			DESCRI	PTION OF SOILS	REMARKS		
	CONSTRUCTION	ER	VERY ET		т	ĸ			(PID, STAINING, ODORS, ETC.)		
WELL	CONS	NUMBER	RECOVERY IN FEET	BLOWS PER 6"	DEPTH	WATER		n - medium c - coarse tr - trace Itl - little sl - slight	N/S = No Staining N/O = No odors		
Τ							0.0'-0.5': CONCRETE				
								SAND, some gravel, brick fragments, wood			
					- 1 -		fibers and sewage		1'-2': N/O, N/S		
									PID = 0.2 ppm max.		
									2'-3': N/O, N/S		
									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		
					- 5 -				PID = 0.1 ppm max.		
					-				5'-7': N/O, N/S		
									PID = 0.1 ppm max.		
							Sample collected: W18STMGP-B	31-7.17.7			
				1	- 7 -		Sample collected: W18STMGP-B	31-78	7'-9': SI sewage odor, N/S		
		1	0.05'	1					PID = 3.5 ppm max.		
				2							
				1							
				1/2.0'	- 9 -		9 0'-13 1': Fill- I t grav f SAND_SI	T, tr m sand, clay, brick fragments and	9'-11': SI sewage odor, N/S		
		2	0.8'				wood fibers.	,,,,	PID = 2.1  ppm max.		
		Ĺ	0.0						1 10 - 2.1 ppm max.		
					- 11 -				441 40h - Ol annua - Cha		
				1					11'-13': SI sewage odor		
		3	0.1'	1					PID = 0.6 ppm max. in shoe		
				2							
				4	- 13 -						
				WOH			13.1'-21.0': Fill-Gray f SAND, tr sil	t, 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 -				15'-17': Burned wood odor, N/S		
		5	0.8'	50/5"					PID = 0.9 ppm max.		
				22	- 17 -				17 10's Runned word adar N/C		
				23					17'-19': Burned wood odor, N/S		
	1	6	1.0'	50					PID = 2.1 ppm max.		

TRC

#### BORING No.: SB-31

	BORING LOG								BORING No.: SB-31		
									SHEET 2 OF 2		
	NAN h St I				ison		PROJECT NO. 41318-0700-10000	AREA OF SITE East of Gas Holder #5			
ADDRESS								ELEVATION/DATUM			
					t betwee	n 10	th and 11th Ave	6.47/NAVD 88			
ADT		5 CO	NIR	ACTOR			DRILLER Lloyd Adams	TRC INSPECTOR Jessica Elliott			
	LINC		6				TYPE/SIZE BIT 4.25" Hollow Stem Auger	START DATE 10/9/2004	END DATE 10/9/2004		
	PLE		PE				HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL (ft bgs)		
2" Sp	lit Sp	oon					140 lbs./30"	(feet below ground surface (ft 27'	: <b>bgs))</b> 7.5'		
	N	S	AMI	PLES			DESCRI	PTION OF SOILS	REMARKS		
	CONSTRUCTION	~	RΥ						(PID, STAINING, ODORS, ETC.)		
WELL	NSTR	NUMBER	RECOVERY IN FEET	BLOWS	DEPTH	WATER	f-fine r	n - medium c - coarse	N/S = No Staining		
ž	<u></u>	ΝN	RE IN F	PER 6"	B	Μ	lt - light dk - dark		N/O = No odors		
				17							
				17	- 19 -				101.041 Duran have had be N/O		
		7	0.6'	17 14					19'-21': Burned wood odor, N/S PID = 1.2 ppm max.		
			0.0	9	1				e = ppmmax.		
				5	$L_{24}$		Sample collected: W18STMGP-B	31-2123			
				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'	WOH/2					PID = 2.4 ppm max.		
		0	2.0								
					- 25 -						
				WOH/2'	- 25 -		Sample collected: W18STMGP-B	31-2527	25'-27': N/O, N/S		
		10	2.0'						PID = 0.0 ppm max.		
					- 27 -		F	O.B @ 27' bgs.			
							L	0.0 @ 27 bgs.			
					- 29 -						
					29						
					- 31 -						
					1						
					- 33 -						
					- 55						
					- 35 -						
					1	l					

#### BORING No.: SB-31

#### BORING No.: MW-31A

BOF	2 IN	٩C	10	)G							SHEET 1 OF 1
JOBN							PROJECT NO.	AREA O	F SITE		SHEET FOF F
			SCS	S/Con Edi	son		41318-0700-10000		as Holder		
ADDR outhe			/alk c	on 20th S	t betweer	n 10th	and 11th Ave	ELEVAT 6.48/NAV	<b>ION/DATI</b> 'D 88	JM	
ADT LIVING CONTRACTOR DRILLER							DRILLER Lloyd Adams	TRC INS Jessica	PECTOR Elliott		
ORILL			3				TYPE/SIZE BIT	START	DATE		END DATE 10/9/2004
SAMP			PE				4.25" Hollow Stem Auger HAMMER WEIGHT/DROP	10/9/200 TOTAL D	EPTH		WATER LEVEL (ft bgs)
" Split	t Spo	oon					140 lbs./30"	(feet belo 14		d surface (ft bgs	<b>))</b> 7.5'
	NO	S	AMI	PLES			DESCRI	PTION C	of Soil	S	REMARKS
	CONSTRUCTION	R	т		-	œ					(PID, STAINING, ODORS, ETC.)
WELL	ONST	IUMBE	RECOVERY IN FEET	BLOWS PER 6"	рертн	WATER		n - medium tr - trace		e sl - slight	N/S = No Staining N/O = No odors
	0	~	u =	FERO		-	0.0'-0.5': CONCRETE	u - uace	iu - iiue	si - siigin	N/O = NO OUDIS
							0.5'-9.0': Fill-Dk brown SILT, f to c	SAND, som	e gravel, bri	ck fragments and	
Ш					- 1 -		wood fibers.				1'-2': N/O, N/S
											PID = 0.2 ppm max.
											2'-3': N/O, N/S
					- 3 -						PID = 0.2 ppm max.
					5						3'-4': N/O, N/S
Ш											PID = 0.3 ppm max.
											4'-5': N/O, N/S
					- 5 -						PID = 0.1 ppm max.
					5						5'-7': N/O, N/S
											PID = 0.1 ppm max.
					- 7 -						
				1			Sample collected: W18STMGP-B	31-78			7'-9': SI sewage odor, N/S
		1	0.05'	1							PID = 3.5 ppm max.
				2							
				1							
				1/2.0'	- 9 -		9.0'-13.1': Fill- Lt gray f SAND, SI	T, tr m sand	and clay, b	rick fragments and	9'-11': SI sewage odor, N/S
		2	0.8'				wood fibers.				PID = 2.1 ppm max.
				1	- 11 -						11'-13': SI sewage odor
		3	0.1'	1							PID = 0.6 ppm max. in shoe
				2							
				4							
					- 13 -						
											14.0': Well set at 14.0' bgs.
											Screen Interval: 14.0'-4.0' bgs.
											Ť
					- 15 -						
											Sand
											Bentonite Chips
					- 17 -						Concrete
							I				Well Screen



BORING LOG								BORING NO.: SB-90		
							PBO JECT NO		SHEET 1 OF 1	
JOB NAME/ CLIENT         PROJECT NO.           Vest 18th St MGP SCS/Con Edison         41318-0700-10000								AREA OF SITE Bayview Correctional Facility		
ADDRESS								ELEVATION/DATUM		
	of fac							7.72/NAVD 88		
DRIL Lerba		s co	NTR	ACTOR			DRILLER Charles Green	TRC INSPECTOR Samuel Monte		
	LING orobe			nit			TYPE/SIZE BIT 3' x 2" macrocore	<b>START DATE</b> 11/4/2005	END DATE 11/4/2005	
SAM		R TY					HAMMER WEIGHT/DROP		WATER LEVEL (ft bgs)	
		_	AM	PLES			DESCRI	PTION OF SOILS	REMARKS	
	UCTI	~	ΞRΥ						(PID, STAINING, ODORS, ETC.)	
WELL	CONSTRUCTION	NUMBER	RECOVERY IN FEET	BLOWS	рертн	WATER		n - medium c - coarse	N/S = No Staining	
3	<u> </u>	ĩ	a n	PER 6"	٥	3	lt - light dk - dark	tr - trace Itl - little sl - slight	N/O = No odors	
							0.0'-0.5': CONCRETE . 0.5'-5.0' c	leared with Hand Auger.		
					- 1 -		0.5'-1.0': Lt brown f SAND, some	c gravel.		
							olo no. El biown ronno, some	o graton	0.5'-1.0': N/O, N/S, dry	
									PID = 2.0 ppm max.	
							1.0'-3.0': Brown f SAND, brick pie	eces. (fill)	1'-3': N/O, N/S, dry	
					- 3 -				PID = 2.8 ppm max.	
					Ĭ		3.0'-5.0': Brown f SAND, some f g	ravel, brick pieces. (fill)	3'-5': N/O, N/S, dry	
									PID = 2.9 ppm max.	
					- 5 -					
					Ĭ		5.0'-6.0': Brown f to c SAND, som	e clay and brick. Concrete in shoe.	5'-6': N/O, N/S, dry	
							Paring complete at C O		PID = 3.4	
							Boring complete at 6.0'.			
					- 7 -					
					1 '					
					- 9 -					
					3					
					- 11 -					
					- 13 -					
					13					
					15					
					15 -					
					- 17 -					
		6	2.0'	1						

#### BORING No.: SB-90

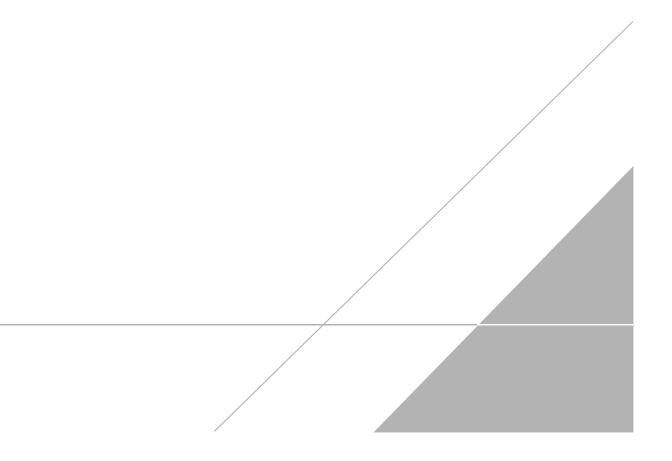
BORING LOG								BORING No.: SB-91 SHEET 1 OF 1			
	NAM						AREA OF SITE				
/est 18th St MGP SCS/Con Edison 41318-0700-10000 ADDRESS								Bayview Correctional Facility ELEVATION/DATUM			
	of fac							ELEVATION/DATOM			
DRIL erba		со	NTR	ACTOR			DRILLER Charles Green	TRC INSPECTOR Samuel Monte			
	LING robe			oit			TYPE/SIZE BIT 3' x 2" macrocore	START DATE 11/4/2005	END DATE 11/4/2005		
	PLEF			int int			HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL (ft bgs)		
/lacro	ocore							(feet below ground surface (ft b 15'	o <b>gs))</b> 8-11'		
	NO	S	AMF	PLES			DESCRIF	PTION OF SOILS	REMARKS		
	RUCT	~	ERY			~			(PID, STAINING, ODORS, ETC.)		
WELL	CONSTRUCTION	NUMBER	RECOVERY IN FEET	BLOWS	рертн	WATER		n - medium c - coarse	N/S = No Staining		
>	0	z	2 ₹	PER 6"		>	It - light dk - dark 0.0'-0.8': CONCRETE . 0.8'-5.0' cl		N/O = No odors		
								-			
					- 1 -		0.8'-2.0': Lt to dk brown f to c SAN	D , 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, se	ome 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, se	ome clay and brick. Brick in shoe.	5.0'-8.0': N/O, N/S, dry		
					- 7 -				PID = 5.8		
					- 9 -		8.0'-11.0': Brown f to c SAND, trac	e f gravel.	5.0'-8.0': Organic odor, N/S, damp/wet		
		2	3'			?			PID = 3.9		
					- 11 -						
							11.0'-15.0': Brown f to c sand.		11.0'-15.0': N/O, N/S, damp/wet		
		3	3'		- 10			water column with Remote Georobe.	PID = 0.0		
		5	5		- 13 -						
					- 15 -						
					- 17 -						

#### BORING No.: SB-91

вс	RI	NG	i L(	OG				BORING No.: SB-92 SHEET 1 OF 1			
					Edicar		PROJECT NO.	AREA OF SITE			
ADD	RES r rooi	s		SCS/Con	Edison		41318-0700-10000	Bayview Correctional Facility ELEVATION/DATUM 2.02/NAVD 88			
DRII Cerba		G CC	ONTF	ACTOR			DRILLER Charles Green	TRC INSPECTOR Samuel Monte			
	LLING probe			init			TYPE/SIZE BIT 3' x 2" macrocore	<b>START DATE</b> 11/4/2005	END DATE 11/4/2005		
	IPLE		(PE				HAMMER WEIGHT/DROP	TOTAL DEPTH (feet below ground surface (ft b 15'	WATER LEVEL (ft bgs) bgs)) 3'		
1001			AM	PLES			DESCRIF	TION OF SOILS	REMARKS		
	CONSTRUCTION	ER	/ERY T		т	ĸ			(PID, STAINING, ODORS, ETC.)		
MELL	CONS <sup>-</sup>	NUMBER	RECOVERY IN FEET	BLOWS PER 6"	рертн	WATER	f - fine m It - light dk - dark	- medium c - coarse tr - trace Itl - little sl - slight	N/S = No Staining N/O = No odors		
							0.0'-1.2': CONCRETE . 1.2'-5.0' cl	eared with Hand Auger.			
					- 1 -		1.2'-2.0': Brown f SAND, some f gr	avel.	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.		
		-			- 5 -		5.0": Dk gray f to c SAND, some f	aravel	5.0': slight odor, N/S, wet		
							o.o . Dir gray no o onino, some r	giavoi.	PID = 5.7  ppm max.		
		1	3'		- 7 -			- ( d	5.0'-8.0': N/O, N/S, wet		
							5.0'-9.0': Dk gray clayey SILT, trace	e i sand.	PID = 5.8		
		-			- 9 -						
		2	3'		- 11 -		9.0'-13.0': Dk gray clayey SILT, tra	ce f sand.	9.0'-13.0': Organic odor, N/S, wet		
									PID = 6.1		
		L			- 13 -						
		1					13.0'-15.0': No recovery		13.0'-15.0': N/O. N/S. wot		
		3	0				13.0-13.0. NO TECOVERY		13.0'-15.0': N/O, N/S, wet PID = 0.0		
					- 15 -						
		1			- 17 -						
		1			1/						
		1									

# **ATTACHMENT B**

Photo Log





ConEdison Former West 18<sup>th</sup> Street Gas Works



5B-300

- 10

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



10, 11

6



ConEdison Former West 18<sup>th</sup> Street Gas Works



Date: 11/18/2015

**Description:** 14 to 17 feet bgs

Location: SB-300



SB-301

Date: 11/18/2015

**Description:** Surface Completion

Location: SB-300

**Date:** 11/18/2015

**Description:** 5 to 8 feet bgs

Location: SB-301



ConEdison Former West 18<sup>th</sup> 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



11/18/2015

Date:

**Description:** 14 to 17 feet bgs

Location: SB-301



ConEdison Former West 18<sup>th</sup> 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)





ConEdison Former West 18<sup>th</sup> 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



5'-> 8'



ConEdison Former West 18<sup>th</sup> 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



ConEdison Former West 18<sup>th</sup> 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



ConEdison Former West 18<sup>th</sup> 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



ConEdison Former West 18<sup>th</sup> Street Gas Works



Date: 11/17/2015

**Description:** 20 to 22 feet bgs

Location: SB-304



SB- 305

3.5' -

76

Date: 11/17/2015

**Description:** Surface completion

Location: SB-304

**Date:** 11/16/2015

**Description:** 3.5 to 6 feet bgs





ConEdison Former West 18<sup>th</sup> 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

SB-2XS $[2' \rightarrow ]5'$ 

Date: 11/16/2015

**Description:** 12 to 15 feet bgs



ConEdison Former West 18<sup>th</sup> Street Gas Works



# Date: 11/16/2015

**Description:** 15 to 18 feet bgs

Location: SB-305



Surface completion

Location: SB-305



Date: 11/17/2015

**Description:** 3 to 8 feet bgs



ConEdison Former West 18<sup>th</sup> Street Gas Works



Date: 11/172015

**Description:** 8 to 11 feet bgs

SB-306

Location:



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



ConEdison Former West 18<sup>th</sup> 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



ConEdison Former West 18<sup>th</sup> 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

 $SB-32F_{14}$ 

Date: 11/17/2015

**Description:** 14 to 16 feet bgs



ConEdison Former West 18<sup>th</sup> 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)

View | HeaderFooter

8 9

10 11 -

. 10



ConEdison Former West 18<sup>th</sup> 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)



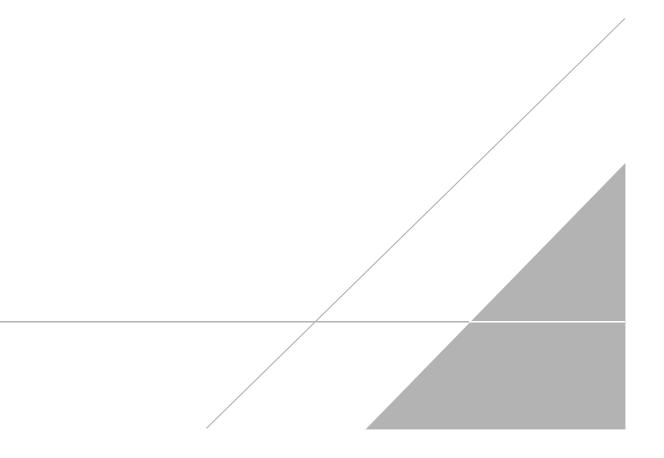
**Date:** 11/13/2015

**Description:** 11 to 14 feet bgs

Location: SB-308

# **ATTACHMENT C**

Data Usability Summary Reports





Imagine the result

## Consolidated Edison Company of New York, Inc.

Bayview - West 18<sup>th</sup> 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 18<sup>th</sup> 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:

		Sample		Parent	Analysis					
SDG	Sample ID	Lab ID	Matrix	CONECTION	Sample	voc	svoc	РСВ	МЕТ	MISC
	SB-301-S-4.5-5.0	460-104360-1	Soil	11/9/2015		Х	Х			
460 104260 1	SB-306-S-4.5-5.0	460-104360-2	Soil	11/10/2015		Х	Х			
460-104360-1	SB-307-S-4.5-5.0	460-104360-3	Soil	11/10/2015		Х	Х			
	TB-151109	460-104360-4	Water	11/9/2015		Х				
460 104424 1	SB-304-S-4.5-5.0	460-104424-1	Soil	11/11/2015		Х	Х			
460-104424-1	TB-151111	460-104424-2	Water	11/11/2015		Х				

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.

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

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.
SVV-846 8260C	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		1,4-Dioxane	17.0%
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-Dichlorobenzene	16.9%
SB-301-S-4.5-5.0	CCV %D	Dichlorodifluoromethane	-24.9%
SB-307-S-4.5-5.0		Carbon disulfide	-21.0%
		Methyl acetate	25.9%
SB-306-S-4.5-5.0	CCV %D	Cyclohexane	30.9%
36-300-3-4.3-3.0		1,1,1-Trichloroethane	21.7%
		Methylcyclohexane	22.6%
		1,1-Dichloroethene	18.4%
		Methyl acetate	16.5%
		Methylene Chloride	16.1%
		cis-1,2-Dichloroethene	
		Chloroform	15.4%
TD 454400		Cyclohexane	
TB-151109 TB-151111	ICV %RSD	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%
		Cyclohexane	21.9%
TB-151109	CCV %D	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	
	RRF <0.05	Non-detect	R	
	KKF <0.05	Detect	J	
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R	
Calibration	KKF <0.01	Detect	J	
	RRF > 0.05 or RRF > $0.01^{1}$	Non-detect	No Action	
	RRF >0.05 OF RRF >0.01	Detect	NO ACTION	
Initial Calibration	%RSD > 15% or a correlation	Non-detect	UJ	
Initial Calibration	coefficient <0.99	Detect	J	
	%D >20% and <90% (increase in	Non-detect	No Action	
	sensitivity)	Detect	J	
Operation size of Calibration	%D >20% and <90% (decrease in	Non-detect	UJ	
Continuing Calibration	sensitivity)	Detect	J	
	9/ D = 009/	Non-detect	R	
	%D >90%	Detect	J	

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	
	1,2,3-Trichlorobenzene			
	1,2,4-Trichlorobenzene			
	1,3-Dichlorobenzene	<ll but="">10%</ll>	<ll but="">10%</ll>	
	1,4-Dichlorobenzene			
SB-307-S-4.5-5.0	trans-1,2-Dichloroethene			
	Carbon disulfide			
	Chlorobenzene	AC	<ll but="">10%</ll>	
	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 (111)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
a the lower control limit (11) but > 10%	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	NO ACIION

### 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	Repo	orted		mance ptable	Not Required	
	No	Yes	No	Yes	Nequireu	
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/I	MS)				
Tier II Validation				1		
Holding times		Х		Х		
Reporting limits (units)		Х		Х		
Blanks						
A. Method blanks		Х		Х		
B. Rinse blanks					Х	
C. Trip blanks		Х		Х		
Laboratory Control Sample (LCS)		Х		Х		
Laboratory Control Sample Duplicate(LCSD)		Х		Х		
LCS/LCSD Precision (RPD)		Х		Х		
Matrix Spike (MS)		Х	Х			
Matrix Spike Duplicate(MSD)		Х	Х			
MS/MSD Precision (RPD)		Х		Х		
Field Duplicate (RPD)					Х	
Surrogate Spike Recoveries		Х		Х		
Dilution Factor		Х		Х		
Moisture Content					Х	
Tier III Validation			•			
System performance and column resolution		Х		Х		
Initial calibration %RSDs		Х	Х			
Continuing calibration RRFs		Х		Х		
Continuing calibration %Ds		Х	Х			
Instrument tune and performance check		Х		Х		
Ion abundance criteria for each instrument used		Х		Х		
Internal standard		Х		Х		
Compound identification and quantitation		•				
A. Reconstructed ion chromatograms		Х		Х		
B. Quantitation Reports		Х		Х		
C. RT of sample compounds within the established RT windows		х		х		
D. Transcription/calculation errors present		Х		Х		

VOCs: SW-846 8260C	Repo	Reported		mance otable	Not Required			
	No	Yes	No	Yes	Roquilou			
GAS CHROMATOGRAPHY/MASS SPECTRO	GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)							
<ul> <li>Reporting limits adjusted to reflect sample dilutions</li> </ul>		х		Х				
%RSD Relative standard deviation								

Percent recovery Relative percent difference Percent difference

%R RPD %D

## SEMI-VOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

## 1. Holding Times

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

Method	Method Matrix Holding Time		Preservation
SW 946 9270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
SW-846 8270D	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
		2,2'-oxybis[1-chloropropane]	-28.0%
		4-Chloroaniline	-34.7%
SB-301-S-4.5-5.0		2-Nitroaniline	-27.1%
SB-306-S-4.5-5.0	CCV %D	4-Nitroaniline	-25.0%
SB-307-S-4.5-5.0		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
	RRF <0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R
Calibration	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
		Detect	NO ACIION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%RSD >90%	Non-detect	R
	///////////////////////////////////////	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	76D >20% (increase in sensitivity)	Detect	J
Continuing Calibration	%D >20% (decrease in sensitivity)	Non-detect	UJ
	%D >20% (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

<sup>1</sup> 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		
	2,3,4,6-Tetrachlorophenol				
	2,4,5-Trichlorophenol				
	2,4-Dimethylphenol		<ll but="">10%</ll>		
	4,6-Dinitro-2-methylphenol				
SB-307-S-4.5-5.0	4-Nitroaniline	<ll but="">10%</ll>			
	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		
	Carbazole	<ll but="">10%</ll>	AC
	N-Nitrosodiphenylamine		
	Fluoranthene		
	Phenanthrene	<10%	<10%
	Pyrene		
	2,4-Dinitrophenol	<10%	<ll but="">10%</ll>

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 (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
a the lower control limit (11) but > 10%	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Parent sample concentration > four times the MS/MSD	Detect	No Action
spiking solution concentration.	Non-detect	No Action

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

%R RPD

Percent recovery Relative percent difference Percent difference

%D

## SAMPLE COMPLIANCE REPORT

## SAMPLE COMPLIANCE REPORT

Sample					Compliancy <sup>1</sup>			/ <sup>1</sup>		Noncompliance
Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	voc	SVOC	РСВ	MET	MISC	
	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
460-104360-1	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:

Juplic Human

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

Lab Sample ID: Client Matrix:	460-104360-1 Solid	% Moisture	e: 24.5			mpled: 11/09/20 ceived: 11/10/20	
	82600	Volatile Organi	c Compound	ds by G	C/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/13/2015 1908 11/11/2015 0058	Analysis Batch: Prep Batch:			Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16506.D 5.23 g 5 mL	
riep Date.							
Analyte	DryWt Corrected: \	Result (u	g/Kg)	Qualifie		RL	
1,1,1-Trichloroetha	ane	0.48		U	0.48	1.3	
1,1,2,2-Tetrachlord	bethane	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-Trichloroetha		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-Trichloroben		0.14		U	0.14	1.3	
1,2,4-Trichloroben		0.41		U	0.41	1.3	
1,2-Dichloropropar		0.22		U	0.22	1.3	
1,3-Dichlorobenze		0.15		U,	0.15	1.3	
1,4-Dichlorobenze		0.16		U.	0.16	1.3	
1,4-Dioxane		8.1		U	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-pentan	one (MIBK)	2.8		Ŭ	2.8	6.3	
Acetone		1.3		U	1.3	6.3	
Benzene		0.25		Ŭ	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 tetrachlorid	te	0.54		U	0.54	1.3	
Chlorobenzene		0.18		Ũ	0.18	1.3	
Chlorobromometha	ane	0.22		Ũ	0.22	1.3	
Chlorodibromomet		0.19		Ũ	0.19	1.3	
Chloroethane	indito	0.44		Ŭ	0.44	1.3	
Chloroform		0.27		Ŭ	0.27	1.3	
Chloromethane		0.48		Ŭ	0.48	1.3	
cis-1,2-Dichloroeth	ene	0.28		Ŭ	0.28	1.3	
cis-1,3-Dichloropro		0.19		U	0.19	1.3	
Cyclohexane		0.58		U	0.58	1.3	
Dichlorobromomet	hane	0.48		U	0.48	1.3	
Dichlorodifluorome		0.41		US	0.41	1.3	
Ethylbenzene		0.23		U	0.23	1.3	
Ethylene Dibromid	e	0.15		Ŭ	0.15	1.3	
Isopropylbenzene		0.22		Ŭ	0.22	1.3	
Methyl acetate		1.1		Ũ	1.1	6.3	
Methyl tert-butyl et	her	0.22		U	0.22	1.3	
Methylcyclohexane		0.63		U	0.63	1.3	
Methylene Chloride		0.41		Ũ	0.41	1.3	
m-Xylene & p-Xyle		0.14		U	0.14	1.3	
o-Xylene		0.20		ũ	0.20	1.3	
Styrene		0.19		Ŭ	0.19	1.3	
Tetrachloroethene		0.35		Ŭ	0.35	1.3	
Toluene		0.24		Ŭ	0.24	1.3	
trans-1,2-Dichloroe	athene	0.49		Ŭ	0.49	1.3	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104360-1 Solid	% Moisture	e: 24.5		npled: 11/09/2015 1015 ceived: 11/10/2015 1740	
	826	OC Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method:	8260C 5035	Analysis Batch: Prep Batch:	460-335182 460-334534	Instrument ID: Lab File ID:	CVOAMS4 D16506 D	
Dilution:	1.0	a spectra		Initial Weight/Volume:	5.23 g	
Analysis Date:	11/13/2015 1908			Final Weight/Volume:	5 mL	
Prep Date:	11/11/2015 0058				21.042	
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Quali	fier MDL	RL	
trans-1,3-Dichlorop	propene	0.13	Ú	0.13	1.3	
Trichloroethene		0.33	U	0.33	1.3	
Trichlorofluoromet	hane	0.43	U	0.43	1.3	
Vinyl chloride		0.49	U	0.49	1.3	
1,2-Dichloroethane	9	0.14	U	0.14	1.3	
1,2-Dichlorobenze		0.18	U	0.18	1.3	
1,2-Dibromo-3-Chl	oropropane	0.60	U	0.60	1.3	
1,1,1,2-Tetrachlord	bethane	0.52	U	0.52	1.3	
Surrogate		%Rec	Quali	fier Acceptan	ce Limits	
1,2-Dichloroethane	e-d4 (Surr)	104		78 - 135		
4-Bromofluorobenzene		96		67 - 126		
Dibromofluorometh	nane (Surr)	101		61 - 149		
Toluene-d8 (Surr)		97		73 - 121		

Client: ARCADIS U.S. Inc

Client Sample ID:	SB-301-S-4.5-5.0				
Lab Sample ID:	460-104360-1			Date Sar	npled: 11/09/2015 10
Client Matrix:	Solid	% Moisture	e: 24.5	Date Rec	ceived: 11/10/2015 17
	826	60C Volatile Organi	c 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 Identi	fied Compounds	Number TIC's F	ound: 10		
Cas Number	Analyte		RT	Est. Result (ug/	Kg) Qualifier
	Unknown		11.30	37	JN
1000152-47-3	trans-Decalin, 2-methyl-		11.78	31	JN
	Unknown		11.95	37	JN
	Unknown		12.43	35	J
	Unknown		12.76	36	J
66660-38-6	cis,trans-2-Ethylbicyclo[4	4.4.0]decane	12.93	40	JN
	Unknown		13.39	45	JN
	Unknown		15.02	69	J
	Unknown		15.32	32	J V
80655-44-3	Decahydro-4,4,8,9,10-pe	entamethylnaphthal	16.13	70	JN

Client: ARCADIS U.S. Inc

Client. ARCADI	0 0.0. mc			505 14	
Client Sample ID:	SB-306-S-4.5-5.0				
Lab Sample ID: Client Matrix:	460-104360-2 Solid	% Moistur	e: 3.5		mpled: 11/10/2015 1100 ceived: 11/10/2015 1740
	826	0C Volatile Organi	c 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	t: Y Result (u	g/Kg) Qualit	fier MDL	RL
1,1,1-Trichloroetha		0.38	U	0.38	1.0
1,1,2,2-Tetrachlord		0.17	U	0.17	1.0
1,1,2-Trichloro-1,2		0.44	U	0.44	1.0
1,1,2-Trichloroetha		0.28	U	0.28	1.0
1,1-Dichloroethane		0.34	Ű	0.34	1.0
1,1-Dichloroethene		0.41	U	0.41	1.0
1,2,3-Trichlorobena		0.11	U	0.11	1.0
1,2,4-Trichloroben		0.32	Ű	0.32	1.0
1,2-Dichloropropar		0.17	U	0.17	1.0
1,3-Dichlorobenzer		0.12	U	0.12	1.0
1,4-Dichlorobenzer		0.13	Lυ	0.13	1.0
1,4-Dioxane		6.4	U 7	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-pentan	one (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 tetrachlorid	le	0.43	U	0.43	1.0
Chlorobenzene	ē	0.14	U	0.14	1.0
Chlorobromometha	ine	0.17	U	0.17	1.0
Chlorodibromomet		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-Dichloroeth	ene	0.22	U	0.22	1.0
cis-1,3-Dichloropro		0.15	U	0.15	1.0
Cyclohexane		0.46	U	0.46	1.0
Dichlorobromomet	nane	0.38	U	0.38	1.0
Dichlorodifluorome		0.32	U	0.32	1.0
Ethylbenzene		0.18	U	0.18	1.0
Ethylene Dibromid	e	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 et	her	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-Xyle		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
		0.19	U	0.19	1.0
Toluene					
Toluene trans-1,2-Dichloroe	thene	0.39	U	0.39	1.0

Client: ARCADIS U.S. Inc

Client Sample ID: Lab Sample ID:	460-104360-2			Date Sar	npled: 11/10/2015 1100
Client Matrix:	Solid	% Moisture	e: 3.5		ceived: 11/10/2015 1740
	826	0C Volatile Organi	c 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			Carry 1951 and 1951 and	
Analyte	DryWt Corrected	t: Y Result (u	g/Kg) Quali	fier MDL	RL
trans-1,3-Dichlorop	propene	0.10	U	0.10	1.0
Trichloroethene		0.26	U	0.26	1.0
Trichlorofluorometh	nane	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-Dichlorobenzei		0.14	U	0.14	1.0
1,2-Dibromo-3-Chl		0.47	U	0.47	1.0
1,1,1,2-Tetrachlord	bethane	0.41	U	0.41	1.0
Surrogate		%Rec	Qualit	fier Acceptan	ce Limits
1,2-Dichloroethane	-d4 (Surr)	118		78 - 135	
4-Bromofluorobenz	ene	96		67 - 126	
Dibromofluorometh	ane (Surr)	120		61 - 149	
Toluene-d8 (Surr)		100		73 - 121	

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104360-2 Solid	% Moistur	e: 3.5		npled: 11/10/2015 1100 ceived: 11/10/2015 1740
	82	60C Volatile Organi	c 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 Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte		RT	Est. Result (ug/	(Kg) Qualifier
	Tentatively Identified Co	ompound		None	Carl Contractor

Client: ARCADIS U.S. Inc

### Job Number: 460-104360-1

Lab Sample ID:	460-104360-3	A/ 14				mpled: 11/10/2015
Client Matrix:	Solid	% Moisture: 20.6				ceived: 11/10/2015
	82600	Volatile Organi	c Compound	ds by G	C/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 (u	a/Ka)	Qualifie	r MDL	RL
1,1,1-Trichloroetha		0.46	0	U	0.46	1.2
1,1,2,2-Tetrachlord		0.21		U	0.21	1.2
1,1,2-Trichloro-1,2		0.53		U	0.53	1.2
1,1,2-Trichloroetha		0.34		Ŭ	0.34	1.2
1,1-Dichloroethane		0.41		Ŭ	0.41	1.2
1,1-Dichloroethene		. 0.50		Ŭ	0.50	1.2
1,2,3-Trichloroben		0.13		UF+ 1		1.2
1,2,4-Trichloroben		0.39		UF1-		1.2
1,2-Dichloropropar		0.21		U	0.33	1.2
1,3-Dichlorobenze		0.15		UFT		1.2
1,4-Dichlorobenze		0.16		UFA	0.16	1.2
1,4-Dioxane		7.8		U)	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-pentan	one (MIBK)	2.7		Ŭ	2.7	6.1
Acetone		1.3		U	1.3	6.1
Benzene		0.24		Ŭ	0.24	1.2
Bromoform		0.16		Ŭ	0.16	1.2
Bromomethane		0.39		Ŭ	0.39	1.2
Carbon disulfide		0.52		UFAS	0.52	1.2
Carbon tetrachloric	te.	0.52		U	0.52	1.2
Chlorobenzene		0.17		UF1	0.17	1.2
Chlorobromometha	200	0.21		U	0.21	1.2
Chlorodibromomet		0.18		U	0.18	1.2
Chloroethane	hane	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-Dichloroeth	ene	0.27		U	0.27	1.2
cis-1,3-Dichloropro		0.18		U	0.18	1.2
Cyclohexane		0.56		Ŭ	0.56	1.2
Dichlorobromometi	hane	0.46		U	0.46	1.2
Dichlorodifluorome		0.39		ŭ J	0.39	1.2
Ethylbenzene		0.22		U	0.22	1.2
Ethylene Dibromide	9	0.15		Ŭ	0.15	1.2
sopropylbenzene		0.21		Ŭ	0.21	1.2
Methyl acetate		1.1		Ŭ	1.1	6.1
Methyl tert-butyl et	her	0.21		ŭ	0.21	1.2
Methylcyclohexane		0.61		Ŭ	0.61	1.2
Methylene Chloride		0.39		Ŭ	0.39	1.2
n-Xylene & p-Xyle		0.13		Ŭ	0.13	1.2
-Xylene		0.19		Ŭ	0.19	1.2
Styrene		0.18		Ŭ	0.18	1.2
Tetrachloroethene		0.34		Ŭ	0.34	1.2
Foluene		0.23		Ŭ,	0.23	1.2
rans-1,2-Dichloroe	thene	0.47		UFAS	0.47	1.2
2-Methyl-2-propand		4.2		U	4.2	12

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104360-3 Solid	% Moisture: 20.6		Date Sampled: 11/10/2015 141 Date Received: 11/10/2015 174		
	8260	C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/13/2015 1438 11/11/2015 0749	Analysis Batch: Prep Batch:	460-335182 460-334615	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16495.D 5.18 g 5 mL	
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qua	lifier MDL	RL	
trans-1,3-Dichloro	and a second	0.12	U U	0.12	1.2	
Trichloroethene		0.32	U	0.32	1.2	
Trichlorofluoromet	hane	0.41	- U	0.41	1.2	
Vinyl chloride		0.47	U	0.47	1.2	
1,2-Dichloroethane	9	0.13	U	0.13	1.2	
1,2-Dichlorobenze		0.17	U F1	- ) 0.17	1.2	
1,2-Dibromo-3-Ch		0.57	U	0.57	1.2	
1,1,1,2-Tetrachlore	bethane	0.50	U	0.50	1.2	
Surrogate		%Rec	Qual	ifier Acceptan	ice Limits	
1,2-Dichloroethane-d4 (Surr)		100		78 - 135		
4-Bromofluoroben	zene	98		67 - 126		
Dibromofluoromet	nane (Surr)	98		61 - 149		
Toluene-d8 (Surr)		97		73 - 121		

## Client: ARCADIS U.S. Inc

<b>Client Sample ID</b>	SB-307-S-4.5-5.0					
Lab Sample ID: Client Matrix:	460-104360-3 Solid	% Moistur	e: 20.6	Date Sampled: 11/10/2015 141 Date Received: 11/10/2015 174		
	8	260C Volatile Organi	c 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 Identi	fied Compounds	Number TIC's F	ound: 1			
Cas Number	Analyte		RT	Est. Result (ug)	/Kg) Qualifier	
71-36-3	n-Butanol		6.70	34	JN	

## Client: ARCADIS U.S. Inc

## **Analytical Data**

Job Number: 460-104360-1

<b>Client Sample ID</b>	: TB-151109				
Lab Sample ID: Client Matrix:	460-104360-4TB Water				mpled: 11/09/2015 000 eceived: 11/10/2015 174
		8260C Volatile Organi	c Compounds by (	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/12/2015 2257 11/12/2015 2257	Analysis Batch: Prep Batch:	460-335020 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	
Analyte		Result (u	g/L) Qualifi	ier MDL	RL
1,1,1-Trichloroetha	ane	0.28	U )	0.28	1.0
1,1,2,2-Tetrachlor		0.19	ŭj	0.19	1.0
1,1,2-Trichloro-1,2		0.34	Ŭ	0.34	1.0
1,1,2-Trichloroetha		0.080	Ŭ 🕽	0.080	1.0
1,1-Dichloroethane		0.24	Ŭ	0.24	1.0
1,1-Dichloroethene		0.34	U 1	0.34	1.0
1,2,3-Trichloroben		0.35	υj	0.35	1.0
1,2,4-Trichloroben		0.33	U J	0.35	1.0
1,2-Dichloropropa		0.18	Ŭ	0.18	1.0
1,3-Dichlorobenze		0.33	Ű	0.33	1.0
1,4-Dichlorobenze		0.33	Ŭ	0.33	1.0
1,4-Dioxane		8.7	Ŭ	8.7	50
2-Butanone (MEK)		2.2	Ŭ	2.2	5.0
2-Hexanone		0.72	U	0.72	5.0
4-Methyl-2-pentan	one (MIRK)	0.63	U V	0.63	5.0
Acetone	one (milbity	1.1	U	1.1	5.0
Benzene		0.090	Ŭ٦	0.090	1.0
Bromoform		0.18	Ŭ J	0.18	1.0
Bromomethane		0.18	Ŭ	0.18	1.0
Carbon disulfide		0.22	Ŭ	0.22	1.0
Carbon tetrachlorid	te	0.33	Ŭ	0.33	1.0
Chlorobenzene		0.24	Ŭ	0.24	1.0
Chlorobromometha	ane	0.30	Ŭ	0.30	1.0
Chlorodibromomet		0.22	Ŭ	0.22	1.0
Chloroethane		0.37	Ŭ	0.37	1.0
Chloroform		0.22	U)	0.22	1.0
Chloromethane		0.22	U	0.22	1.0
cis-1,2-Dichloroeth	ene	0.26	Ū 👃	0.26	1.0
cis-1,3-Dichloropro	pene	0.16	U.	0.16	1.0
Cyclohexane		0.26	U 👃	0.26	1.0
Dichlorobromomet	hane	0.15	U	0.15	1.0
Dichlorodifluorome	thane	0.14	U	0.14	1.0
Ethylbenzene		0.30	U	0.30	1.0
Ethylene Dibromid	e	0.19	U	0.19	1.0
Isopropylbenzene		0.32	ν	0.32	1.0
Methyl acetate		0.58	U	0.58	5.0
Methyl tert-butyl et	her	0.13	U	0.13	1.0
Methylcyclohexane		0.22	U	0.22	1.0
Methylene Chloride		0.21	υŢ	0.21	1.0
m-Xylene & p-Xyle	ne	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 👃	0.25	1.0
trans-1,2-Dichloroe		0.18	U	0.18	1.0
trans-1,3-Dichlorop	propene	0.19	U	0.19	1.0

## Client Sample ID: TB-151109

**TestAmerica Edison** 

## Client: ARCADIS U.S. Inc

Client Sample ID:	TB-151109						
Lab Sample ID: Client Matrix:	460-104360-4TB Water				Date Sampled: 11/09/201 Date Received: 11/10/201		
	82	60C Volatile Organi	c Compou	inds by G	C/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/12/2015 2257 11/12/2015 2257	Analysis Batch: Prep Batch:	460-3350 N/A	020	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume		
Analyte		Result (u	g/L)	Qualifie	er MDL	RL	
Trichloroethene		0.22		U	0.22	1.0	
Trichlorofluoromet	nane	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-Dichlorobenzer		0.22		U	0.22	1.0	
1,2-Dibromo-3-Chl	oropropane	0.23		0,2	0.23	1.0	
Surrogate		%Rec		Qualifie	Accepta	ince Limits	
1,2-Dichloroethane-d4 (Surr)		114		70 - 137			
4-Bromofluorobenzene		106		70 - 131			
Dibromofluorometh	nane (Surr)	114		72 - 136			
Toluene-d8 (Surr)		104			74 - 120		

Client: ARCADIS U.S. Inc

## Job Number: 460-104360-1

Lab Sample ID: Client Matrix:	460-104360-1 Solid	% Moisture	e: 24.5			npled: 11/09/2015 10 ceived: 11/10/2015 17
	8270D \$	Semivolatile Org	anic Compoun	ds (GC/M	S)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/18/2015 0519 11/16/2015 1435	Analysis Batch: Prep Batch:	460-335980 460-335679	Lab F Initial Final	ument ID: File ID: I Weight/Volume: Weight/Volume: tion Volume:	CBNAMS12 L128125.D 15.0111 g 1 mL 1 uL
Analyte	DryWt Corrected: Y	Result (u	a/Ka) Qi	Jalifier	MDL	RL
1,1'-Biphenyl	Dijvit boliceted.	39	J	admiter	37	440
1,2,4,5-Tetrachlor	obenzene	33	Ű		33	440
2,2'-oxybis[1-chlor		18	Ŭ	1	18	440
,3,4,6-Tetrachlor		41	Ŭ	5	41	440
2,4,5-Trichlorophe		44	U		44	440
2,4,6-Trichlorophe		12	U		12	180
2,4-Dichloropheno		10	U		10	180
2,4-Dimethylpheno		96	U		96	440
,4-Dinitrophenol	21	330	U		330	350
.4-Dinitrotoluene		17	Ŭ		17	89
2,6-Dinitrotoluene		23	Ŭ		23	89
2-Chloronaphthalene		9.9			9.9	440
-Chlorophenol		11	UU		11	440
-Methylnaphthale	ne	180	J		9.7	440
-Methylphenol		19	Ŭ		19	440
-Nitroaniline		14	Ū.	1	14	440
-Nitrophenol		15			15	440
3'-Dichlorobenzi	dine	49	U U	1	49	180
-Nitroaniline		13			13	440
,6-Dinitro-2-meth	vlphenol	120	U U		120	350
-Bromophenyl ph		14	U		14	440
-Chloro-3-methyl		19	U		19	440
-Chloroaniline		11	U	7	11	440
-Chlorophenyl ph	enyl ether	13	U		13	440
-Methylphenol		12	U		12	440
-Nitroaniline		17	U	7	17	440
-Nitrophenol		210	U		210	890
cenaphthene		280	J		11	440
cenaphthylene		11	U		11	440
Acetophenone		9.5	U		9.5	440
Anthracene		350	J	6 - Ľ	42	440
Atrazine		19	U	7	19	180
Benzaldehyde		33	U		33	440
Benzo[a]anthracer	ne	510			37	44
Benzo[a]pyrene		580			13	44
enzo[b]fluoranthe		640	- 9.9		17	44
enzo[g,h,i]peryler		360	J		25	440
enzo[k]fluoranthe		300	1. A.		19	44
is(2-chloroethoxy		14	U		14	440
is(2-chloroethyl)e		10	U		10	44
is(2-ethylhexyl) p		17	U		17	440
Butyl benzyl phtha	late	14	U		14	440
Caprolactam		32	U		32	440
Carbazole		11	U		11	440
Chrysene		510			12	440
Dibenz(a,h)anthrac	cene	100			23	44

**TestAmerica Edison** 

Client: ARCADIS U.S. Inc

Client Sample ID: Lab Sample ID: Client Matrix:	: SB-301-S-4.5-5.0 460-104360-1 Solid	% Moisture	e: 24.5		ampled: 11/09/2015 1015 aceived: 11/10/2015 1740
	8270	O Semivolatile Org	anic Compound	s (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:	
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qua	lifier MDL	RL
Dibenzofuran		13	U	13	440
Diethyl phthalate		12	U	12	440
Dimethyl phthalate		13	U	13	440
Di-n-butyl phthalat		13	U	13	440
Di-n-octyl phthalate		22	U	22	440
Fluoranthene		590		13	440
Fluorene		9.5	U	9.5	440
Hexachlorobenzen	e	18	U	18	44
Hexachlorobutadie	ene	12	U	12	89
Hexachlorocyclope	entadiene	27	U	27	440
Hexachloroethane		16	U	16	44
Indeno[1,2,3-cd]py	rene	370		29	44
Isophorone		9.4	U	9.4	180
Naphthalene		280	J	11	440
Nitrobenzene		14	U	14	44
N-Nitrosodi-n-prop	ylamine	15	U	15	44
N-Nitrosodiphenyla	amine	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	Qua	lifier Accepta	nce Limits
2,4,6-Tribromophe	nol (Surr)	45		10 - 95	
2-Fluorobiphenyl	er- er- sant	59		27 - 84	
2-Fluorophenol (Su	urr)	59		21 - 84	
Nitrobenzene-d5 (S		59		28 - 92	
Phenol-d5 (Surr)		58		22 - 88	
Ferphenyl-d14 (Su	rr)	77		16 - 114	

Client: ARCADIS U.S. Inc

					umber: 400-104300-
Client Sample ID:					
Lab Sample ID: Client Matrix:	460-104360-2 Solid	% Moistur	e: 3.5		mpled: 11/10/2015 1100 eceived: 11/10/2015 1740
	8270	D Semivolatile Org	anic 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	t: Y Result (u	g/Kg) Quali	fier MDL	RL
1,1'-Biphenyl	a de la caracita	29	U	29	340
1,2,4,5-Tetrachlord	benzene	25	U	25	340
2,2'-oxybis[1-chlore		14	U	14	340
2,3,4,6-Tetrachloro		32	U J	32	340
2,4,5-Trichloropher		34	Ū	34	340
2,4,6-Trichloropher		9.7	Ŭ	9.7	140
2,4-Dichlorophenol		8.1	Ŭ	8.1	140
2,4-Dimethylpheno		75	Ŭ	75	340
2,4-Dinitrophenol		260	U	260	280
2,4-Dinitrotoluene		14	U	14	69
2,6-Dinitrotoluene		18	Ū	18	69
2-Chloronaphthaler	ne	7.8	Ū	7.8	340
2-Chlorophenol		8.7	Ŭ	8.7	340
2-Methylnaphthaler	ne	7.6	Ū	7.6	340
2-Methylphenol		15	Ŭ	15	340
2-Nitroaniline		11	Ū J	11	340
2-Nitrophenol		12	Ŭ	12	340
3,3'-Dichlorobenzid	ine	38	U J	38	140
3-Nitroaniline		10	Ŭ d	10	340
4,6-Dinitro-2-methy	Iphenol	91	Ŭ	91	280
4-Bromophenyl phe		11	Ŭ	11	340
4-Chloro-3-methylp		15	ŭ	15	340
4-Chloroaniline	,	8.8	Ŭ 👌	8.8	340
4-Chlorophenyl phe	envl ether	10	Ŭ	10	340
4-Methylphenol		9.3	Ŭ,	9.3	340
4-Nitroaniline		13	Ŭ 🛓	13	340
4-Nitrophenol		160	U	160	690
Acenaphthene		8.3	Ŭ	8.3	340
Acenaphthylene		8.8	Ŭ	8.8	340
Acetophenone		7.5	Ũ	7.5	340
Anthracene		33	Ŭ,	33	340
Atrazine		15	Ŭ 💧	15	140
Benzaldehyde		26	U	26	340
Benzo[a]anthracene	9	29	Ŭ	29	34
Benzo[a]pyrene		20	J	10	34
Benzo[b]fluoranther	ne	31	Ĵ	13	34
Benzo[g,h,i]perylen		20	Ŭ	20	340
Benzo[k]fluoranther		15	Ŭ	15	34
Bis(2-chloroethoxy)		11	Ŭ	11	340
Bis(2-chloroethyl)et		8.1	ũ	8.1	34
Bis(2-ethylhexyl) ph		13	Ŭ	13	340
Butyl benzyl phthala		180	J	10	340
Caprolactam		25	Ŭ	25	340
Carbazole		8.5	Ŭ	8.5	340
Chrysene		22	J	9.3	340
Dibenz(a,h)anthrace		18	Ŭ	18	34

# Client: ARCADIS U.S. Inc

# Analytical Data

Job Number: 460-104360-1

Lab Sample ID: Client Matrix:	460-104360-2 Solid	% Moist	ure: 3.5			mpled: 11/10/2015 110 ceived: 11/10/2015 174
	827	0D Semivolatile C	rganic Co	mpounds (C	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/18/2015 0548 11/16/2015 1435	Analysis Batcl Prep Batch:	n: 460-33 460-33		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128126.D 15.0021 g 1 mL 1 uL
Analyte	DryWt Correct	ed: Y Result	(ug/Kg)	Qualifie	m MDL	RL
Dibenzofuran		10		U	10	340
Diethyl phthalate		9.7		U	9.7	340
Dimethyl phthalate	9	9.9		U	9.9	340
Di-n-butyl phthalat	te	10		U	10	340
Di-n-octyl phthalat	e	17		U	17	340
Fluoranthene		30		J	10	340
Fluorene		7.5		U	7.5	340
Hexachlorobenzer	ne	14		U	14	34
Hexachlorobutadie	ene	9.6		U	9.6	69
Hexachlorocyclop	entadiene	21		U	21	340
Hexachloroethane		13		U	13	34
Indeno[1,2,3-cd]py	rene	23		U	23	34
sophorone		7.4		U	7.4	140
Naphthalene		8.7		U	8.7	340
Nitrobenzene		11		U	11	34
N-Nitrosodi-n-prop	ylamine	12		U	12	34
N-Nitrosodiphenyl		31		U	31	340
Pentachloropheno	1	41		U	41	280
Phenanthrene		9.1		U	9.1	340
Phenol		11		U	11	340
<sup>o</sup> yrene		39		J	16	340
Surrogate		%Rec		Qualifie	r Acceptar	nce Limits
2,4,6-Tribromophe	nol (Surr)	50			10 - 95	
2-Fluorobiphenyl		66			27 - 84	
2-Fluorophenol (Si	urr)	70			21 - 84	
Nitrobenzene-d5 (	Surr)	69			28 - 92	
Phenol-d5 (Surr)		67			22 - 88	
Ferphenyl-d14 (Su	irr)	95			16 - 114	

Client: ARCADIS U.S. Inc

#### Job Number: 460-104360-1

Lab Sample ID: Client Matrix:	460-104360-3 Solid	% Moisture	e: 20.6		ampled: 11/ eceived: 11/	
	8270D	Semivolatile Org	anic Compounds	(GC/MS)		
Analysis Method: Prep Method:	8270D 3546	Analysis Batch: Prep Batch:	460-335980 460-335679	Instrument ID: Lab File ID:	CBNAM5 L128123	.D
Dilution:	1.0			Initial Weight/Volume		g
Analysis Date:	11/18/2015 0424			Final Weight/Volume	1 mL	
Prep Date:	11/16/2015 1435			Injection Volume:	1 uL	
nalyte	DryWt Corrected:	Y Result (u	g/Kg) Qual	ifier MDL	RL	
,1'-Biphenyl		35	U	35	410	
2,4,5-Tetrachlord	obenzene	31	U.	31	410	
2'-oxybis[1-chlor		17	U	17	410	
3,4,6-Tetrachlord		39	U F1		410	
4,5-Trichlorophe		41	U F1		410	
4,6-Trichlorophe		12	U	12	170	
4-Dichloropheno		9.8	U	9.8	170	
4-Dimethylphend		91	UF1	. 2 91	410	1.2
4-Dinitrophenol		310	UF1	310	330	R
4-Dinitrotoluene		16	U	16	84	1
6-Dinitrotoluene		22	U	22	84	
-Chloronaphthale	ne	9.4	U	9.4	410	
-Chlorophenol		11	U	11	410	
-Methylnaphthale	ne	63	J	9.2	410	
-Methylphenol		18	U	18	410	
-Nitroaniline		14	U	14	410	
-Nitrophenol		14	U	14	410	
,3'-Dichlorobenzio	dine	46	u 7	46	170	
-Nitroaniline		12	U	12	410	
6-Dinitro-2-methy	ylphenol	110	U F1	110	330	
Bromophenyl ph	enyl ether	13	U	13	410	
-Chloro-3-methylp	phenol	18	U	18	410	
-Chloroaniline		11	UF2	11	410	
-Chlorophenyl ph	enyl ether	12	U	12	410	
-Methylphenol		11	U	11	410	
-Nitroaniline		16	UF1	16	410	
-Nitrophenol		200	U	200	840	
cenaphthene		440	-E1-	10	410	
cenaphthylene		34	J	11	410	
cetophenone		9.0	U	9.0	410	
nthracene		1100	-F4	39	410	
trazine		18	n 7	18	170	
enzaldehyde		32	U	32	410	
enzo[a]anthracer	ie	2600	-Ft )	35	41	
enzo[a]pyrene		2700	F1	13	41	
enzo[b]fluoranthe		3400	FT	16	41	
enzo[g,h,i]peryler		1700	FIU	24	410	
enzo[k]fluoranthe		1500		18	41	
is(2-chloroethoxy		13	U	13	410	
is(2-chloroethyl)e		9.8	U	9.8	41	
is(2-ethylhexyl) p		110	J	16	410	
utyl benzyl phtha	late	41	J	13	410	
aprolactam		30	UFI		410	
arbazole		370	JF1	10	410	
Chrysene		2900	F1	11	410	
Chrysene Dibenz(a,h)anthrac	cene	2900 440	++	22	410	

TestAmerica Edison

Client: ARCADIS U.S. Inc.

## Job Number: 460-104360-1

Lab Sample ID: Client Matrix:	460-104360-3 Solid	% Moist	ure: 20.6			mpled: 11/10/2015 141 ceived: 11/10/2015 174
	827	0D Semivolatile O	rganic Com	pounds (C	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date:	8270D 3546 1.0 11/18/2015 0424	Analysis Batch Prep Batch:	460-3359 460-3356		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CBNAMS12 L128123.D 15.0394 g 1 mL
Prep Date:	11/16/2015 1435				Injection Volume:	1 uL
Analyte	DryWt Correct	ad Y Result	(ug/Kg)	Qualifie	er MDL	RL
Dibenzofuran	Diywit Conect	210	(ug/itg)	J <del>F</del> 1	13	410
Diethyl phthalate		12		U	12	410
Dimethyl phthalate		12		U	12	410
Di-n-butyl phthalat		12		U	12	410
Di-n-octyl phthalat		21		U	21	410
Fluoranthene	e	5400		FAJ	12	410
Fluorene		230		JF1	9.0	410
Hexachlorobenzer	20	17		U	17	410
Hexachlorobutadie		12		U	12	84
Hexachlorocyclop		26		U	26	410
Hexachloroethane		15		Ŭ	15	410
Indeno[1,2,3-cd]py		1800		U	28	41
Isophorone	Telle	8.9		U	8.9	170
Naphthalene		110		J	11	410
Nitrobenzene		13		Ŭ	13	41
N-Nitrosodi-n-prop	vlamine	14		Ŭ	14	41
N-Nitrosodiphenyl		38		UF4		410
Pentachloropheno		50		UFT		330
Phenanthrene		4900		FTS	11	410
Phenol		14		U	14	410
Pyrene		5800		F+ )	19	410
Surrogate		%Rec		Qualifie	er Acceptar	nce Limits
2,4,6-Tribromophe	enol (Surr)	49			10 - 95	
2-Fluorobiphenyl		66			27 - 84	
2-Fluorophenol (S	urr)	66			21 - 84	
Nitrobenzene-d5 (	Surr)	68			28 - 92	
Phenol-d5 (Surr)		64			22 - 88	
Terphenyl-d14 (Su	Irr)	89			16 - 114	

THE LEADER IN ENVIRONMENTAL TESTING	Ĩ	CHAIN OF CUSTODY / ANALYSIS REC	CUSI	202		LI 313			400-104000			of 1
Name (for report and invoice)		Sampler	Samplers Name (Printed)	Printed)			Ster	Strert Contral Son Paulvion	had	view	×	
Company Company		P.O.4		100	1		State (Lo	State (Location of site):	site): NJ:	I: NY:	X	Other:
140		Analysis T	Analysis Turnaround Time			MLYSIS REOL	ANALYSIS REQUESTED (ENTER Y: BELOW TO MOICATE REQUEST)	TX: BELOW TO L	NDICATE REQUE	ត	T	LAB USE ONLY
655 30 A.C., 12th Flar		Standard K	N		F	-			$\vdash$			Project No:
on yurc	State VY	Rush Charg	Rush Charges Authorizod For: 2 Week	d For:		atr						, Job No:
DG Fax	212. OF2. 9275	1 Week Other		1	085	5 57						104360
Sample Identification	<u>^</u> Date	Time	Matrix	No. of. Cont.		015						Sample Numbers
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50-200-5- 45-50	11/10/12	1100	s	S	X							2
\$0-307-S-4.5-5.0 #	11/10/12	1410	S	15	X	ĸ						m
76-151109	11/10/12	1	Ň	4	×							4
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4						-			-		s	
				Π						H0	HC	
Preservation Used: $1 = ICE$ , $2 = HCI$ , $3 = H_2SO_4$ , $4 = 6 = 0.0452$	3 = H <sub>2</sub> SO <sub>4</sub> , 4 = HNO <sub>3</sub> ,	3, 5 = NaOH	н	Soil:							ORT	
				water.		_				1	-1	
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Relinquished by 3)	Company		Da	Date / Time	а Э Э	Received b 3)				Company		
Relinquished by	Company		Da	Date / Time		Received by	A			Company		

11/16/2012

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Client: ARCADIS U.S., Inc

Lab Sample ID: Client Matrix:	460-104424-1 Solid	% Moisture	e: 3.8		ampled: 11/11/2015 11 eceived: 11/11/2015 16
	82600	C Volatile Organi	c Compounds by	GC/MS	1000000
Analysis Method: Prep Method: Dilution: Analysis Date:	5035 1.0 11/13/2015 0908	Analysis Batch: Prep Batch:	460-335072 460-334777	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	
Prep Date:	11/11/2015 1945				
Analyte	DryWt Corrected: \	Y Result (u	g/Kg) Qual	ifier MDL	RL
1,1,1-Trichloroetha	and a second s	0.42	U	0.42	1.1
1,1,2,2-Tetrachlord		0.19	U	0.19	1.1
1,1,2-Trichloro-1,2		0.48	U	0.48	1.1
1,1,2-Trichloroetha		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-Trichloroben		0.12	U	0.12	1.1
1,2,4-Trichloroben		0.35	U	0.35	1.1
1,2-Dichloropropar		0.19	U	0.19	1.1
1,3-Dichlorobenze		0.13	U	0.13	1.1
1,4-Dichlorobenze		0.14	U	0.14	1.1
1,4-Dioxane		7.0	U	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-pentan	one (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 tetrachlorid	de	0.47	U	0.47	1.1
Chlorobenzene		0.15	U	0.15	1.1
Chlorobromometha	ane	0.19	U	0.19	1.1
Chlorodibromomet	thane	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-Dichloroeth		0.24	U	0.24	1.1
cis-1,3-Dichloropro	opene	0.16	U	0.16	1.1
Cyclohexane		0.50	U	0.50	1.1
Dichlorobromomet		0.42	U	0.42	1.1
Dichlorodifluorome	ethane	0.35	U	0.35	1.1
Ethylbenzene		0.20	U	0.20	1.1
Ethylene Dibromid	e	0.13	U	0.13	1.1 1.1
Isopropylbenzene		0.19	U	0.19	5.5
Methyl acetate		0.99	U	0.99 0.19	5.5 1.1
Methyl tert-butyl et		0.19	U U	0.55	1.1
Methylcyclohexane		0.55 0.35	U	0.35	1.1
Methylene Chlorid		0.35	U	0.33	1.1
m-Xylene & p-Xyle	ene	0.12	Ŭ	0.12	1.1
o-Xylene		0.18	U	0.16	1.1
Styrene		0.18	U	0.31	1.1
Tetrachloroethene		0.21	Ű	0.21	1.1
Toluene					
trans-1,2-Dichloroe	othono	0.43	U	0.43	1.1

Client: ARCADIS U.S., Inc

Client Sample ID	SB-304-S-4.5-5.0				
Lab Sample ID: Client Matrix:	460-104424-1 Solid	% Moistur	e: 3.8		mpled: 11/11/2015 1150 ceived: 11/11/2015 1640
	826	0C Volatile Organi	c Compounds t	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	ALC: Nº PERCIP		Initial Weight/Volume:	4.74 g
Analysis Date:	11/13/2015 0908			Final Weight/Volume:	5 mL
Prep Date:	11/11/2015 1945				
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qu	alifier MDL	RL
trans-1,3-Dichlorop	propene	0.11	U	0.11	1.1
Trichloroethene		0.29	U	0.29	1.1
Trichlorofluoromet	hane	0.37	υ	0.37	1.1
Vinyl chloride		0.43	U	0.43	1.1
1,2-Dichloroethane	9	0.12	U	0.12	1.1
1,2-Dichlorobenze	ne	0.15	U	0.15	1.1
1,2-Dibromo-3-Chl	oropropane	0.52	U	0.52	1.1
1,1,1,2-Tetrachloro	pethane	0.45	U	0.45	1.1
Surrogate		%Rec	Qu	alifier Acceptar	nce Limits
1,2-Dichloroethane	e-d4 (Surr)	101		78 - 135	
4-Bromofluorobena	zene	106		67 - 126	
Dibromofluorometh	nane (Surr)	101		61 - 149	
Toluene-d8 (Surr)		106		73 - 121	

Client: ARCADIS U.S., Inc

<b>Client Sample ID</b>	SB-304-S-4.5-5.0				
Lab Sample ID:	460-104424-1	and and			npled: 11/11/2015 1150
Client Matrix:	Solid	% Moistur	e: 3.8	Date Rec	ceived: 11/11/2015 1640
	82	60C Volatile Organi	ic 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 Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte		RT	Est. Result (ug/	(Kg) Qualifier
	Tentatively Identified Co	ompound		None	

Client: ARCADIS U.S., Inc

## Job Number: 460-104424-1

# Client Sample ID: TB-151111

Lab Sample ID:	460-104424-2TB	Date Sampled: 11/11/2015 0000 Date Received: 11/11/2015 1640
Client Matrix:	Water	Date Received: 11/11/2013 1040

		8260C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/13/2015 0834 11/13/2015 0834	Analysis Batch: Prep Batch:	460-335122 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS8 J33296.D 5 mL 5 mL
Apolyto		Result (u	g/L) Quali	fier MDL	RL
Analyte		0.28		0.28	1.0
1,1,1-Trichloroeth 1,1,2,2-Tetrachlor		0.19	U	0.19	1.0
1,1,2-Trichloro-1,2		0.19	U	0.34	1.0
1,1,2-Trichloroeth		0.080	Ŭ 🕽	0.080	1.0
1,1-Dichloroethan		0.000	U	0.24	1.0
1,1-Dichloroethen		0.34	٤u	0.34	1.0
1,2,3-Trichlorober		0.35	U	0.35	1.0
1,2,4-Trichlorober		0.33	U	0.33	1.0
1,2-Dichloropropa		0.18	U	0.18	1.0
1,3-Dichlorobenze		0.33	U	0.33	1.0
1,4-Dichlorobenze		0.33	U	0.33	1.0
1,4-Dioxane	ine	8.7	U	8.7	50
	N N	2.2	U	2.2	5.0
2-Butanone (MEK 2-Hexanone	)	0.72	U	0.72	5.0
4-Methyl-2-pentar	one (MIRK)	0.63	U J	0.63	5.0
Acetone		1.1	U	1.1	5.0
Benzene		0.090	ŭ 👌	0.090	1.0
Bromoform		0.18	U	0.18	1.0
Bromomethane		0.18	Ŭ	0.18	1.0
Carbon disulfide		0.22	Ŭ	0.22	1.0
Carbon tetrachlori	de	0.33	Ŭ	0.33	1.0
Chlorobenzene	ue	0.24	Ŭ	0.24	1.0
Chlorobromometh	ane	0.30	Ŭ	0.30	1.0
Chlorodibromome		0.22	Ŭ	0.22	1.0
Chloroethane	ululu	0.37	Ŭ	0.37	1.0
Chloroform		0.22	Ŭ,	0.22	1.0
Chloromethane		0.22	Ŭ	0.22	1.0
cis-1,2-Dichloroet	hene	0.26	U)	0.26	1.0
cis-1,3-Dichloropre		0.16	U	0.16	1.0
Cyclohexane	opono	0.26	U J	0.26	1.0
Dichlorobromome	thane	0.15	U	0.15	1.0
Dichlorodifluorome		0.14	U	0.14	1.0
Ethylbenzene		0.30	U	0.30	1.0
Ethylene Dibromic	le	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 e	ther	0.13	U	0.13	1.0
Methylcyclohexan		0.22	U	0.22	1.0
Methylene Chlorid		0.21	U 👃	0.21	1.0
m-Xylene & p-Xyle		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	È. Contra de la co	0.12	U	0.12	1.0
Toluene		0.25	U 7	0.25	1.0
trans-1,2-Dichloro	ethene	0.18	U	0.18	1.0
	propene	0.19	U	0.19	1.0

Client: ARCADIS U.S., Inc

#### Job Number: 460-104424-1

Client Sample ID Lab Sample ID: Client Matrix:	: <b>TB-151111</b> 460-104424-2TB Water					mpled: 11/11/20 ceived: 11/11/20	
	8	260C Volatile Organi	ic Compou	nds by G	C/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/13/2015 0834 11/13/2015 0834	Analysis Batch: Prep Batch:	460-3351 N/A	22	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:		
Analyte		Result (u	a/L)	Qualifie	r MDL	RL	
Trichloroethene		0.22	5 /	U	0.22	1.0	
Trichlorofluoromet	hane	0.15		U	0.15	1.0	
Vinyl chloride		0.060		U	0.060	1.0	
1,2-Dichloroethane	e	0.25		U	0.25	1.0	
1,2-Dichlorobenze	ne	0.22		U	0.22	1.0	
1,2-Dibromo-3-Chi	oropropane	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

Client Sample ID:	SB-304-S-4.5-5.0				
Lab Sample ID: Client Matrix:	460-104424-1 Solid	% Moisture	e: 3.8		mpled: 11/11/2015 11 ceived: 11/11/2015 164
	82701	D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution:	8270D 3546 1.0	Analysis Batch: Prep Batch:	460-335884 460-335682	Instrument ID: Lab File ID: Initial Weight/Volume:	CBNAMS11 z38697.D 15.0552 g
Analysis Date: Prep Date:	11/17/2015 1937 11/16/2015 1440			Final Weight/Volume: Injection Volume:	1 mL 1 uL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qual	ifier MDL	RL
1,1'-Biphenyl		29	U	29	340
1,2,4,5-Tetrachloro	benzene	25	U	25	340
2,2'-oxybis[1-chlord		14	U	14	340
2,3,4,6-Tetrachloro		32	Ŭ	32	340
2,4,5-Trichloropher		34	Ŭ	34	340
2,4,6-Trichloropher		9.7	Ŭ	9.7	140
2,4-Dichlorophenol	1 m	8.1	Ŭ	8.1	140
2,4-Dimethylpheno		75	Ŭ	75	340
2,4-Dinitrophenol		260	Ũ	260	280
2,4-Dinitrotoluene		14	U	14	69
2,6-Dinitrotoluene		18	U	18	69
2-Chloronaphthaler	ie i	7.8	Ū	7.8	340
2-Chlorophenol		8.7	Ŭ	8.7	340
2-Methylnaphthaler	ie.	7.6	U	7.6	340
2-Methylphenol		15	U	15	340
2-Nitroaniline		11	U	11	340
2-Nitrophenol		11	Ŭ	11	340
3,3'-Dichlorobenzid	ine	38	Ŭ	38	140
3-Nitroaniline		10	Ŭ	10	340
1,6-Dinitro-2-methy	lphenol	91	Ŭ	91	280
-Bromophenyl phe		11	U	11	340
4-Chloro-3-methylp		15	Ŭ	15	340
1-Chloroaniline		8.8	Ŭ	8.8	340
4-Chlorophenyl phe	nyl ether	10	Ŭ	10	340
4-Methylphenol		9.3	U	9.3	340
-Nitroaniline		13	U	13	340
1-Nitrophenol		160	Ũ	160	690
Acenaphthene		8.3	Ű	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	Ũ	26	340
Benzo[a]anthracene	8	35		29	34
Benzo[a]pyrene		39		10	34
Benzo[b]fluoranther		55		13	34
Benzo[g,h,i]perylene		31	J	20	340
Benzo[k]fluoranther		26	J	15	34
Bis(2-chloroethoxy)	methane	11	U	11	340
Bis(2-chloroethyl)et		8.1	Ú	8.1	34
Bis(2-ethylhexyl) ph		50	J	13	340
Butyl benzyl phthala		11	Ū	11	340
Caprolactam		25	Ŭ	25	340
Carbazole		8.5	U	8.5	340
Chrysene		38	Ĵ	9.3	340

## Client: ARCADIS U.S., Inc

Lab Sample ID: Client Matrix:	460-104424-1 Solid	% Moistur	e: 3.8		mpled: 11/11/2015 1150 ceived: 11/11/2015 1640	
	8270	D Semivolatile Org	janic Compound	s (GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/17/2015 1937 11/16/2015 1440	Analysis Batch: Prep Batch:	460-335884 460-335682	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS11 z38697.D 15.0552 g 1 mL 1 uL	
Analyte	DryWt Correcte	d: Y Result (u	g/Kg) Qua	alifier MDL	RL	
Dibenzofuran		10	U	10	340	
Diethyl phthalate		9.7	U	9.7	340	
Dimethyl phthalate	3	9.9	U -	9.9	340	
Di-n-butyl phthalat	e	10	U	10	340	
Di-n-octyl phthalat	e	17	U	17	340	
Fluoranthene		26	J	10	340	
Fluorene		7.5	U	7.5	340	
Hexachlorobenzer	ne	14	U	14	34	
Hexachlorobutadie	ene	9.6	U	9.6	69	
Hexachlorocyclope	entadiene	21	UJ		340	
Hexachloroethane		13	U	13	34	
ndeno[1,2,3-cd]py	rene	33	J	23	34	
sophorone		7.4	U	7.4	140	
Naphthalene		8.7	U	8.7	340	
Nitrobenzene		11	U	11	34	
N-Nitrosodi-n-prop	ylamine	11	U	11	34	
N-Nitrosodiphenyla	amine	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	Qua	lifier Acceptar	nce Limits	
2,4,6-Tribromophe	nol (Surr)	55		10 - 95		
2-Fluorobiphenyl		66		27 - 84		
2-Fluorophenol (Su		64		21 - 84		
Nitrobenzene-d5 (S	Surr)	72		28 - 92		
Phenol-d5 (Surr)		70		22 - 88	ĩ	
Ferphenyl-d14 (Su	rr)	86		16 - 114		

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# Consolidated Edison Company of New York, Inc.

Bayview - West 18<sup>th</sup> 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 18<sup>th</sup> 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:

				Sample	Parent	Parent Analysis				
SDG	Sample ID	Lab ID	Matrix	Collection Date Sample	voc	svoc	РСВ	MET	MISC	
	SB-308-S-4.0-4.5	460-104542-1	Soil	11/12/2015		Х	Х			
	SB-303-S-3.25-3.75	460-104542-2	Soil	11/12/2015		Х	Х			
460-104542-1	DUP-1-S	460-104542-3	Soil	11/12/2015	SB-308-S- 4.0-4.5	Х	Х			
	TB-151112	460-104542-4	Water	11/12/2015		Х				
	SB-302-S-1.5-2.0	460-104623-1	Soil	11/13/2015		Х	Х			
400 404000 4	SB-308-S-18.0-18.5	460-104623-2	Soil	11/13/2015		Х	Х			
460-104623-1	SB-308-S-16517.0	460-104623-3	Soil	11/13/2015		Х	Х			
	TB-151113	460-104623-4	Water	11/13/2015		Х				

# ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

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		2-Methyl-2-propanol	16.8%
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-16517.0	ICV %RSD	1,2-Dibromo-3-Chloropropane	18.0%
		Chloromethane	-28.5%
		Vinyl chloride	-21.4%
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5 SB-308-S-16517.0		Methyl acetate	-26.9%
	CCV %D	2-Methyl-2-propanol	-22.4%
		1,2-Dichloropropane	-21.1%
		1,1,2,2-Tetrachloroethane	-21.3%
		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%
TB-151112 TB-151113	ICV %RSD	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%
10-131112		Cyclohexane	20.6%
		1,1,2-Trichloro-1,2,2-trifluoroethane	22.8%
		Methyl acetate	-20.5%
TB-151113	CCV %D	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	
	RRF <0.05	Non-detect	R	
	KKF <0.05	Detect	J	
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R	
Calibration	RRF <0.01	Detect	J	
	RRF >0.05 or RRF >0.01 <sup><math>1</math></sup>	Non-detect	No Action	
	RRF >0.05 01 RRF >0.01	Detect	NO ACION	
Initial Calibration	%RSD > 15% or a correlation	Non-detect	UJ	
Initial Calibration	coefficient <0.99	Detect	J	
	%D >20% and <90% (increase in	Non-detect	No Action	
	sensitivity)	Detect	J	
Continuing Colibration	%D >20% and <90% (decrease in	Non-detect	UJ	
Continuing Calibration	sensitivity)	Detect	J	
	9/ D = 009/	Non-detect	R	
	%D >90%	Detect	J	

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%</ll>
SB-302-S-1.5-2.0 SB-308-S-18.0-18.5	Chloromethane	<ll but="">10%</ll>	<ll but="">10%</ll>
SB-308-S-16517.0	Vinyl chloride	AC	<ll but="">10%</ll>

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 (III)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower control limit (11) but a 100(	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
. 10%	Non-detect	R
< 10%	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
	2-Butanone (MEK)	11	13	AC
SB-308-S-4.0-4.5/DUP-1-S	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	Repo	orted	Perfor Acce	mance otable	Not Required
	No	Yes	No	Yes	Nequireu
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)			
Tier II Validation		1	1		1
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Rinse blanks					Х
C. Trip blanks		Х		Х	
Laboratory Control Sample (LCS)		Х	Х		
Laboratory Control Sample Duplicate(LCSD)		Х	Х		
LCS/LCSD Precision (RPD)		Х		Х	
Matrix Spike (MS)					Х
Matrix Spike Duplicate(MSD)					Х
MS/MSD Precision (RPD)					Х
Field Duplicate (RPD)		Х		Х	
Surrogate Spike Recoveries		Х		Х	
Dilution Factor		Х		Х	
Moisture Content					Х
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х	Х		
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		х		х	
D. Transcription/calculation errors present		Х		Х	

VOCs: SW-846 8260C	Repo	orted	Performance Acceptable		Not Required	
	No	Yes	No	Yes	Roquilou	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
<ul> <li>Reporting limits adjusted to reflect sample dilutions</li> </ul>		х		Х		
%RSD Relative standard deviation						

Percent recovery Relative percent difference Percent difference

%R RPD %D

# 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
311-040 82700	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		4-Nitroaniline	-22.8%
SB-302-S-1.5-2.0 SB-308-S-16517.0	CCV %D	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	
	RRF <0.05	Non-detect	R	
	KKF <0.05	Detect	J	
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R	
Calibration	KKF <0.01	Detect	J	
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action	
	RRF >0.05 01 RRF >0.01	Detect	INO ACTION	
	%RSD > 15% or a correlation	Non-detect	UJ	
	coefficient <0.99	Detect	J	
Initial Calibration		Non-detect	R	
	%RSD >90%	Detect	J	
	$0/D \sim 200/$ (increases in consistivity)	Non-detect	No Action	
	%D >20% (increase in sensitivity)	Detect	J	
Continuing Colibration	0/D > 200/ (decreases in constituity)	Non-detect	UJ	
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J	
	%D >90% (increase/decrease in	Non-detect	R	
	sensitivity)	Detect	J	

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	N-Nitrosodiphenylamine	<ll but="">10%</ll>
SB-308-S-16517.0		

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 (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower control limit (LL) but . 400(	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
< 10%	Non-detect	R
< 1070	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
	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
SB-308-S-4.0-4.5/DUP-1-S	Benzo[k]fluoranthene	170	82	AC
3B-306-3-4.0-4.3/DOF-1-3	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	Repo	orted		mance ptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)			•
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Rinse blanks					Х
Laboratory Control Sample (LCS) %R		Х	Х		
Laboratory Control Sample Duplicate(LCSD) %R					Х
LCS/LCSD Precision (RPD)					Х
Matrix Spike (MS) %R					Х
Matrix Spike Duplicate(MSD) %R					Х
MS/MSD Precision (RPD)					Х
Field Duplicate (RPD)		Х	Х		
Surrogate Spike Recoveries		Х		Х	
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х		Х	
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		х		х	
D. Transcription/calculation errors present				Х	
E. Reporting limits adjusted to reflect sample dilutions %RSD Relative standard deviation		Х		х	

%R RPD

Percent recovery Relative percent difference Percent difference

%D

# SAMPLE COMPLIANCE REPORT

## SAMPLE COMPLIANCE REPORT

Sample					Compliancy <sup>1</sup>					Noncompliance
Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	voc	SVOC	РСВ	МЕТ	MISC	
	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
460-104542-1	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
	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
460-104623-1	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-16517.0	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:

Juph c. Hannen

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				mpled: 11/12/2015 1130		
Client Matrix:	Solid	% Moisture	e: 39.7	Date Re	ceived: 11/12/2015 1730		
	8260	C Volatile Organi	c 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	g/Kg) Qual	ifier MDL	RL		
1,1,1-Trichloroetha	ine	0.60	U	0.60	1.6		
1,1,2,2-Tetrachlord		0.27	U	0.27	1.6		
1,1,2-Trichloro-1,2		0.70	U	0.70	1.6		
1,1,2-Trichloroetha		0.44	U	0.44	1.6		
1,1-Dichloroethane		0.54	Ū	0.54	1.6		
1,1-Dichloroethene		0.65	Ŭ	0.65	1.6		
		0.05	U	0.05	1.6		
1,2,3-Trichloroben:				0.17			
1,2,4-Trichloroben:		0.51	U		1.6		
1,2-Dichloropropar		0.27	U	0.27	1.6		
1,3-Dichlorobenzei		0.19	U	0.19	1.6		
1,4-Dichlorobenzer	ne	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-pentan	one (MIBK)	3.5	U	3.5	7.9		
Acetone	2 13 · m 2 · 3	46		1.7	7.9		
Benzene		0.32	U	0.32	1.6		
Bromoform		0.21	U	0.21	1.6		
Bromomethane		0.51	Ŭ	0.51	1.6		
Carbon disulfide		0.70	J	0.68	1.6		
Carbon tetrachloric	ia.	0.68	Ŭ	0.68	1.6		
	ie -		Ŭ	0.22			
Chlorobenzene		0.22			1.6		
Chlorobromometha		0.27	U	0.27	1.6		
Chlorodibromomet	hane	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-Dichloroeth	ene	0.35	U	0.35	1.6		
cis-1,3-Dichloropro	pene	0.24	U	0.24	1.6		
Cyclohexane		0.73	U	0.73	1.6		
Dichlorobromomet	hane	0.60	U	0.60	1.6		
Dichlorodifluorome	thane	0.51	U	0.51	1.6		
Ethylbenzene		0.28	U	0.28	1.6		
Ethylene Dibromid	8	0.19	U	0.19	1.6		
Isopropylbenzene		0.27	U	0.27	1.6		
Methyl acetate		1.4	Ŭ	1.4	7.9		
Methyl tert-butyl et	her	0.27	Ŭ	0.27	1.6		
Methylcyclohexane		0.79	Ŭ	0.79	1.6		
		0.79	U	0.51	1.6		
Methylene Chloride							
m-Xylene & p-Xyle	ne	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		
		0.00	6.1	0.00	4.0		
trans-1,2-Dichloroe 2-Methyl-2-propan		0.62 5.5	U U	0.62	1.6 16		

**TestAmerica Edison** 

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104542-1 Solid	% Moistur	e: 39.7		mpled: 11/12/2015 1130 ceived: 11/12/2015 1730
	826	0C Volatile Organi	c Compounds b	y GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/21/2015 0144 11/12/2015 2128	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16743.D 5.24 g 5 mL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qua	alifier MDL	RL
trans-1,3-Dichlorop	propene	0.16	U	0.16	1.6
Trichloroethene		0.41	U	0.41	1.6
Trichlorofluoromet	nane	0.54	U	0.54	1.6
Vinyl chloride		0.62	U	0.62	1.6
1,2-Dichloroethane	9	0.17	U	0.17	1.6
1,2-Dichlorobenzei		0.22	U	0.22	1.6
1,2-Dibromo-3-Chl		0.74	LU	0.74	1.6
1,1,1,2-Tetrachlord	bethane	0.65	υ	0.65	1.6
Surrogate		%Rec	Qua	lifier Acceptar	nce Limits
1,2-Dichloroethane	e-d4 (Surr)	107		78 - 135	
4-Bromofluorobenz		91		67 - 126	
Dibromofluorometh	nane (Surr)	104		61 - 149	
Toluene-d8 (Surr)		92		73 - 121	

Lab Sample ID: Client Matrix:	460-104542-1 Solid	% Moisture: 39.7		Date Sampled: 11/12/2015 11 Date Received: 11/12/2015 17	
	82	60C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/21/2015 0144 11/12/2015 2128	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16743.D 5.24 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 1		
Cas Number 5989-27-5	Analyte D-Limonene		RT 10.98	Est. Result (ug/ 27	/Kg) Qualifier J N

Job Number: 460-104542-1

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104542-2 Solid	% Moisture	e: 23.2		impled: 11/12/2015 13 eceived: 11/12/2015 17
	82600	Volatile Organi	c Compounds	by GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/21/2015 0208 11/12/2015 2129	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Q	ualifier MDL	RL
1,1,1-Trichloroetha		0.47	U	0.47	1.2
1,1,2,2-Tetrachlord		0.21	Ŭ	0.21	1.2
1,1,2-Trichloro-1,2,		0.55	Ŭ	0.55	1.2
1,1,2-Trichloroetha		0.35	Ŭ	0.35	1.2
1,1-Dichloroethane		0.42	Ŭ	0.42	1.2
1,1-Dichloroethene		0.42	U	0.42	1.2
1,2,3-Trichlorobenz		0.14	U	0.51	1.2
		0.40	U	0.14	1.2
1,2,4-Trichlorobenz 1,2-Dichloropropar		0.21	U	0.40	1.2
1,3-Dichlorobenzer		0.15	U	0.15	1.2
1,4-Dichlorobenzer		0.15	U	0.15	1.2
1,4-Dioxane	le	8.0	U	8.0	25
2-Butanone (MEK)		3.7	J		6.2
2-Hexanone		1.2	U U	0.96 1.2	6.2
	and (MIRK)	2.8	U	2.8	6.2
4-Methyl-2-pentance	Dhe (MIBK)		U		
Acetone Benzene		11 6.3		1.3	6.2
Bromoform		0.16	11	0.25	1.2
		0.40	U	0.16	1.2
Bromomethane			U	0.40	1.2
Carbon disulfide	-	0.54	U	0.54	1.2
Carbon tetrachlorid	le	0.54	U	0.54	1.2
Chlorobenzene		0.17	U	0.17	1.2
Chlorobromometha		0.21 0.19	U	0.21	1.2
Chlorodibromomet	lane		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-Dichloroeth		0.27	U	0.27	1.2
cis-1,3-Dichloropro	pene	0.19 0.57	U	0.19 0.57	1.2 1.2
Cyclohexane Dichlorobromometh	220	0.57	U	0.57	1.2
Dichlorodifluorome		0.47	U	0.40	1.2
		0.24	J	0.40	1.2
Ethylbenzene Ethylene Dibromide		0.24	J U	0.22	1.2
sopropylbenzene	2	0.15	U	0.15	1.2
Methyl acetate		1.1	U	1.1	6.2
Methyl tert-butyl eth	aer.	0.21	U	0.21	1.2
Methylcyclohexane		0.62	U	0.62	1.2
Methylene Chloride		0.40	U	0.62	1.2
n-Xylene & p-Xyler		0.28	J	0.14	1.2
o-Xylene		0.28	J	0.14	1.2
Styrene		0.19	U	0.19	1.2
Tetrachloroethene		0.35	U		
Foluene		0.35	U	0.35 0.24	1.2
rans-1,2-Dichloroe	thene	0.24	U	0.24	1.2
		4.4		- \ 4.4	1.2 12
2-Methyl-2-propand					

# Analytical Data

Lab Sample ID: Client Matrix:	460-104542-2 Solid	% Moistur	re: 23.2	Date Sa Date Re	mpled: 11/12/2015 1350 aceived: 11/12/2015 1730
Applusia	82	60C Volatile Organi	ic Compounds b	V GC/MS	12/2013 1730
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/21/2015 0208 11/12/2015 2129	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16744.D 5.22 g 5 mL
Analyte trans-1,3-Dichlorop Trichloroethene Trichlorofluorometh Vinyl chloride 1,2-Dichloroethane 1,2-Dichlorobenzen ,2-Dibromo-3-Chlo ,1,1,2-Tetrachloroe	ane e	Y Result (ug 0.12 0.32 0.42 0.49 0.14 0.17 0.59 0.51	9/Kg) Quai U U U U U U U U U U U	lifier MDL 0.12 0.32 0.42 0.49 0.14 0.17 0.59 0.51	RL 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2
2-Dichloroethane-c Bromofluorobenze ibromofluoromethai bluene-d8 (Surr)	ne	%Rec 106 93 106 93	Qualif	ier Acceptance 78 - 135 67 - 126 61 - 149 73 - 121	

# Analytical Data

Job Number: 460-104542-1 Client Sample ID: SB-303-S-3.25-3.75 Lab Sample ID: 460-104542-2 Client Matrix: Solid Date Sampled: 11/12/2015 1350 % Moisture: 23.2 Date Received: 11/12/2015 1730 8260C Volatile Organic Compounds by GC/MS Analysis Method: 8260C Analysis Batch: 460-336667 Prep Method: 5035 Instrument ID: Prep Batch: CVOAMS4 Dilution: 460-335070 1.0 Lab File ID: D16744.D Analysis Date: 11/21/2015 0208 Initial Weight/Volume: 5.22 g Prep Date: 11/12/2015 2129 Final Weight/Volume: 5 mL Tentatively Identified Compounds Number TIC's Found: 0 Cas Number Analyte Tentatively Identified Compound RT Est. Result (ug/Kg) Qualifier None

#### Job Number: 460-104542-1

Lab Sample ID: Client Matrix:	460-104542-3 Solid	% Moisture	e: 25.8		ampled: 11/12/2015 ( Received: 11/12/2015 1
	82600	Volatile Organi	c 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
	1.0			Initial Weight/Volum	
	11/21/2015 0232			Final Weight/Volume	
	11/12/2015 2130				S. O'IIIE
Analyte	DryWt Corrected: Y	Result (ug	g/Kg) C	Qualifier MDL	RL
1,1,1-Trichloroethar	ie	0.59	L	0.59	1.6
1,1,2,2-Tetrachloroe	ethane	0.27	L		1.6
1,1,2-Trichloro-1,2,2	2-trifluoroethane	0.69	L	0.69	1.6
1,1,2-Trichloroethan	le	0.44	L	J 0.44	1.6
1,1-Dichloroethane		0.53	L		1.6
1,1-Dichloroethene		0.64	L		1.6
1,2,3-Trichlorobenze	ene	0.17	L		1.6
1,2,4-Trichlorobenze		0.50	L		1.6
1,2-Dichloropropane		0.27	L		1.6
1,3-Dichlorobenzene		0.19	L		1.6
1,4-Dichlorobenzene	e	0.20	L		1.6
1,4-Dioxane		10	L	10	31
2-Butanone (MEK)		13		1.2	7.8
2-Hexanone		1.5	U		7.8
4-Methyl-2-pentanor	ne (MIBK)	3.5	U		7.8
Acetone		49		1.7	7.8
Benzene		0.31	U		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
Chlorobromomethar	ne	0.27	U	0.27	1.6
Chlorodibromometha	ane	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-Dichloroethe		0.34	U		1.6
cis-1,3-Dichloroprop	ene	0.23	U	0.23	1.6
Cyclohexane		0.72	U		1.6
Dichlorobromometha		0.59	U		1.6
Dichlorodifluorometh	nane	0.50	U		1.6
Ethylbenzene		0.28	U		1.6
Ethylene Dibromide		0.19	U		1.6
sopropylbenzene		0.27	U		1.6
Methyl acetate		1.4	U		7.8
Methyl tert-butyl ethe	er	0.27	U		1.6
Methylcyclohexane		0.78	U		1.6
Methylene Chloride		0.50	U		1.6
n-Xylene & p-Xylene	9	0.17	U		1.6
-Xylene		0.25	U		1.6
Styrene		0.23	U		1.6
Tetrachloroethene		0.44	U		1.6
Toluene		0.30	U		1.6
rans-1,2-Dichloroeth		0.61	U	0.61	1.6
-Methyl-2-propanol		5.5	U	- 5.5	16

# Analytical Data

Lab Sample ID: Client Matrix:	460-104542-3 Solid	% Moistur	re: 25.8	Date Sa Date Re	mpled: 11/12/2015 0800 ceived: 11/12/2015 1730
Low Contractor	8:	260C Volatile Organi	ic Compounds by		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/21/2015 0232 11/12/2015 2130	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16745.D 4.31 g 5 mL
Analyte rans-1,3-Dichlorop Frichlorofluorometh /inyl chloride ,2-Dichloroethane ,2-Dichlorobenzen ,2-Dibloromo-3-Chlo ,1,1,2-Tetrachloroe urrogate	e Propropane	0.16 0.41 0.53 0.61 0.17 0.22 0.73 0.64	g/Kg) Quali U U U U U U U U U	fier MDL 0.16 0.41 0.53 0.61 0.17 0.22 0.73 0.64	RL 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6
2-Dichloroethane- Bromofluorobenze bromofluorometha bluene-d8 (Surr)	ne	%Rec 122 106 121 108	Qualifi	er Acceptanc 78 - 135 67 - 126 61 - 149 73 - 121	e Limits

# Analytical Data

Client Sample ID	: DUP-1-S				umber: 460-104542-1
Lab Sample ID: Client Matrix:	460-104542-3 Solid	% Moistur	e: 25.8	Date Sa Date Re	mpled: 11/12/2015 0800 ceived: 11/12/2015 1730
	1.75	8260C Volatile Organi	c Compounds by		
Analysis Method; Prep Method: Dilution: Analysis Date: Prep Date;	8260C 5035 1.0 11/21/2015 0232 11/12/2015 2130	Analysis Batch: Prep Batch:	460-336667 460-335070	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16745.D 4.31 g 5 mL
Centatively Identi	fied Compounds	Number TIC's Fo	ound: 0		
Cas Number	Analyte				
	Tentatively Identified	d Compound	RT	Est. Result (ug/ None	Kg) Qualifier

#### Job Number: 460-104542-1

#### Client: ARCADIS U.S. Inc

Client Sample ID: TB-151112

Client Matrix:	Water				npled: 11/12/2015 000 ceived: 11/12/2015 173
	8	260C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/16/2015 0013 11/16/2015 0013	Analysis Batch: Prep Batch:	460-335511 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS8 J33417.D 5 mL 5 mL
Analyte		Result (u	g/L) Qualit	fier MDL	PI
1,1,1-Trichloroetha	ne	0.28	U	0.28	RL
1,1,2,2-Tetrachloro		0.19	υŢ	0.19	1.0
1,1,2-Trichloro-1,2,		0.34	U	0.34	1.0
1,1,2-Trichloroetha		0.080	Ŭ 🖌	0.080	1.0
1,1-Dichloroethane		0.24	U	0.24	1.0
1,1-Dichloroethene		0.34	L U	0.24	1.0 1.0
1,2,3-Trichlorobenz		0.34	U J	0.34	1.0
1,2,4-Trichlorobenz		0.35	U	0.35	1.0
1,2-Dichloropropan		0.18	U	0.18	1.0
1,3-Dichlorobenzen		0.33	U	0.33	1.0
1,4-Dichlorobenzen		0.33	Ŭ	0.33	1.0
1,4-Dioxane		8.7	Ŭ	8.7	50
2-Butanone (MEK)		2.2	Ŭ	2.2	5.0
2-Hexanone		0.72	U	0.72	5.0
4-Methyl-2-pentano	ne (MIBK)	0.63	U \	0.63	5.0
Acetone		1.1	U	1.1	5.0
Benzene		0.090	υs	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	e	0.33	U	0.33	1.0
Chlorobenzene		0.24	U	0.24	1.0
Chlorobromometha		0.30	U	0.30	1.0
Chlorodibromometh	ane	0.22	U	0.22	1.0
Chloroethane		0.37	U	0.37	1.0
Chloroform		0.22	U	0.22	1.0
Chloromethane	2.2	0.22	U	0.22	1.0
cis-1,2-Dichloroethe		0.26	U 7	0.26	1.0
sis-1,3-Dichloroprop	ene	0.16	U	0.16	1.0
Cyclohexane Dichlorobromometh	200	0.26	n 7	0.26	1.0
Dichlorodifluorometh		0.15	U	0.15	1.0
Ethylbenzene		0.14 0.30	U	0.14	1.0
Ethylene Dibromide		0.30	U	0.30	1.0
sopropylbenzene		0.32	د u د	0.19	1.0
Aethyl acetate		0.58	υJ	0.32 0.58	1.0
Aethyl tert-butyl eth	ər	0.13	Ŭ	0.58	5.0
/lethylcyclohexane	5. · · ·	0.22	U	0.13	1.0 1.0
Aethylene Chloride		0.21	U J	0.22	1.0
n-Xylene & p-Xylen	e	0.28	U	0.28	1.0
-Xylene		0.32	Ű	0.32	1.0
Styrene		0.17	Ŭ	0.17	1.0
etrachloroethene		0.12	Ŭ	0.12	1.0
oluene		0.25	ĽŬ	0.25	1.0
ans-1,2-Dichloroeth		0.18	Ŭ	0.18	1.0
ans-1,3-Dichloropro		0.19	Ŭ	0.19	1.0

#### Analytical Data

Client Sample ID:	TB-151112
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Lab Sample ID:	460-104542-4TB	Date Sampled: 11/12/2015 0000
Client Matrix:	Water	Date Received: 11/12/2015 1730

8260C Volatile Organic	Compounds by	GC/MS
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Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/16/2015 0013 11/16/2015 0013	Analysis Batch: Prep Batch:	460-33551 N/A		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS8 J33417.D 5 mL 5 mL
Analyte Trichloroethene Trichlorofluoromet Vinyl chloride 1,2-Dichloroethane 1,2-Dichlorobenzer 1,2-Dibromo-3-Chl	e ne	Result (u 0.22 0.15 0.060 0.25 0.22 0.23	g/L)	Qualifie U U U U U U U	r MDL 0.22 0.15 0.060 0.25 0.22 0.23	RL 1.0 1.0 1.0 1.0 1.0 1.0 1.0
Surrogate 1,2-Dichloroethane 4-Bromofluorobenz Dibromofluorometh Toluene-d8 (Surr)	ene	%Rec 113 108 114 101		Qualifier	Acceptan 70 - 137 70 - 131 72 - 136 74 - 120	

#### Analytical Data

Job Number: 460-104542-1

Client Sample ID	SB-308-S-4.0-4.5				
Lab Sample ID:	460-104542-1			Date Sa	mpled: 11/12/2015 113
Client Matrix:	Solid	% Moisture	e: 39.7	Date Re	ceived: 11/12/2015 173
	8270D	Semivolatile Org	anic Compounds	(GC/MS)	1. Start 1.
Analysis Method:	8270D	Analysis Batch:	460-335977	Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch: 460-335916		Lab File ID:	x8571.D
Dilution:	1.0			Initial Weight/Volume:	15.0512 g
Analysis Date:	11/18/2015 1111			Final Weight/Volume:	1 mL
Prep Date:	11/17/2015 1524			Injection Volume:	1 uL
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qualit	fier MDL	RL
1,1'-Biphenyl		47	U	47	550
1,2,4,5-Tetrachlord	benzene	41	U	41	550
2,2'-oxybis[1-chlor		22	U	22	550
2,3,4,6-Tetrachlord	phenol	51	U	51	550
2,4,5-Trichlorophe		54	Ŭ	54	550
2,4,6-Trichlorophe		16	Ŭ	16	220
2,4-Dichloropheno		13	Ŭ	13	220
2,4-Dimethylphend		120	Ŭ	120	550
2,4-Dinitrophenol		410	U	410	440
2,4-Dinitrotoluene		22	Ŭ	22	110
2,6-Dinitrotoluene		29	Ŭ		
2-Chloronaphthale	00	12		29	110
2-Chlorophenol	ile -	14	U	12	550
2-Methylnaphthale			U	14	550
	le	200	J	12	550
-Methylphenol		24	U	24	550
2-Nitroaniline		18	U 7	18	550
-Nitrophenol	N	18	U	18	550
3'-Dichlorobenzic	ine	61	U	61	220
3-Nitroaniline		16	U	16	550
,6-Dinitro-2-methy		150	U	150	440
-Bromophenyl phe		17	U	17	550
-Chloro-3-methylp	henol	23	U	23	550
-Chloroaniline		14	U	14	550
-Chlorophenyl phe	enyl ether	16	U	16	550
-Methylphenol		30	J	15	550
-Nitroaniline		21	U	21	550
-Nitrophenol		260	U	260	1100
cenaphthene		170	J	13	550
cenaphthylene		47	Ĵ	14	550
cetophenone		12	Ŭ	12	550
nthracene		560	U U	52	550
trazine		24	U	24	220
lenzaldehyde		73	J	42	550
enzo[a]anthracen	2	640	5	42 46	
enzo[a]pyrene		530	-		55
enzo[b]fluoranthe		500	-	17	55 55
			4	21	55
enzo[g,h,i]perylen		290	Ļ	31	550
enzo[k]fluoranther		170		24	55
is(2-chloroethoxy)		17	U	17	550
is(2-chloroethyl)et		13	U	13	55
is(2-ethylhexyl) ph		21	U	21	550
utyl benzyl phthala	ate	17	U	17	550
aprolactam		39	U	39	550
arbazole		31	J	14	550
hrysene		800		15	550
ibenz(a,h)anthrac	no	150		28	55

#### Analytical Data

#### Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104542-1 Solid	% Moisture	e: 39.7		Sampled: 11/12/2015 1130 Received: 11/12/2015 1730
a . 15-3	827	0D Semivolatile Org	anic Compound	is (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/18/2015 1111 11/17/2015 1524	Analysis Batch: Prep Batch:	460-335977 460-335916	Instrument ID: Lab File ID: Initial Weight/Volum Final Weight/Volum Injection Volume:	
Analyte	DryWt Correcte	d: Y Result (u	a/Ka) Qu	alifier MDL	RL
Dibenzofuran		17	U	17	550
Diethyl phthalate		16	Ŭ	16	550
Dimethyl phthalate		16	Ŭ	16	550
Di-n-butyl phthalat		16	Ŭ	16	550
Di-n-octyl phthalate		28	Ŭ	28	550
Fluoranthene		860	- T	16	550
Fluorene		130	J	12	550
Hexachlorobenzen	e	22	Ũ	22	55
-lexachlorobutadie		15	Ũ	15	110
Hexachlorocyclope	entadiene	34	Ŭ	34	550
-lexachloroethane		20	Ŭ	20	55
ndeno[1,2,3-cd]py	rene	370	1	36	55
sophorone		12	Ū	12	220
Naphthalene		330	J	14	550
Nitrobenzene		17	U	17	55
N-Nitrosodi-n-prop	ylamine	18	U	18	55
N-Nitrosodiphenyla	imine	50	U	50	550
Pentachlorophenol		66	U	66	440
Phenanthrene		3600	1	15	550
Phenol		18	U	18	550
Pyrene		910		25	550
Surrogate		%Rec	Qua	alifier Accept	ance Limits
2,4,6-Tribromopher	nol (Surr)	40		10 - 95	
-Fluorobiphenyl		67		27 - 84	
-Fluorophenol (Su	rr)	54		21 - 84	
Vitrobenzene-d5 (S	Surr)	62		28 - 92	
Phenol-d5 (Surr)		52		22 - 88	
erphenyl-d14 (Su	r)	57		16 - 11	

# Analytical Data

Job Number: 460-104542-1

Lab Sample ID: Client Matrix:	460-104542-2 Solid	% Moisture	: 23.2		mpled: 11/12/2015 1 ceived: 11/12/2015 1
	8270D	Semivolatile Orga	anic Compound	ls (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/20/2015 0316 11/17/2015 1524	Analysis Batch: Prep Batch:	460-336422 460-335916	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS5 x8661.D 15.0441 g 1 mL 1 uL
Analyte	DryWt Corrected:	Y Result (ug	(Ka) Qua	alifier MDL	RL
1,1'-Biphenyl		82	J	37	
1,2,4,5-Tetrachlord	benzene	32			430
2,2'-oxybis[1-chlore		18	U	32	430
2,3,4,6-Tetrachloro			U	18	430
2,4,5-Trichlorophe		40	0	40	430
2,4,6-Trichlorophe		43	U	43	430
2,4-Dichlorophenol		12	U	12	170
2,4-Dimethylpheno		10 94	U	10	170
2,4-Dinitrophenol		320	U	94	430
2,4-Dinitrotoluene		17	U	320	350
2,6-Dinitrotoluene		23	U	17	87
2-Chloronaphthale	ne	9.7	U	23	87
2-Chlorophenol		11	U U	9.7	430
2-Methylnaphthale	ne	260	J	11 9.5	430
2-Methylphenol		19	Ű	9.5 19	430
2-Nitroaniline		14	U	14	430
2-Nitrophenol		14	Ŭ	14	430 430
3,3'-Dichlorobenzid	ine	48	Ŭ	48	170
8-Nitroaniline		13	Ŭ	13	430
,6-Dinitro-2-methy	Iphenol	110	Ŭ	110	350
-Bromophenyl phe		13	Ŭ	13	430
-Chloro-3-methylp		18	Ŭ	18	430
-Chloroaniline		11	Ŭ	11	430
-Chlorophenyl phe	enyl ether	13	Ũ	13	430
-Methylphenol		12	U	12	430
-Nitroaniline		16	Ű )	16	430
-Nitrophenol		210	υí	210	870
cenaphthene		440	- )	10	430
cenaphthylene		110	J	11	430
cetophenone		54	J	9.3	430
nthracene		760		41	430
trazine		19	U	19	170
lenzaldehyde		33	U	33	430
enzo[a]anthracene	9	3900		36	43
enzo[a]pyrene		6600		13	43
enzo[b]fluoranther		6100		17	43
enzo[g,h,i]perylene		6200		25	430
enzo[k]fluoranther		2900		19	43
is(2-chloroethoxy)		13	U	13	430
is(2-chloroethyl)et		10	U	10	43
is(2-ethylhexyl) ph		160	J	17	430
utyl benzyl phthala	ne	17	J	13	430
aprolactam		31	U	31	430
arbazole		240	J	11	430
hrysene		4300		12	430
ibenz(a,h)anthrace		1500		22	43

# Analytical Data

Job Number: 460-104542-1

Dibenzofuran         Add         J         13         430           Diethyl phthalate         12         U         12         430           Dimethyl phthalate         12         U         12         430           Dimethyl phthalate         12         U         12         430           Dimethyl phthalate         13         U         13         430           Din-butyl phthalate         22         U         22         430           Din-butyl phthalate         13         U         13         430           Din-butyl phthalate         22         U         22         430           Din-butyl phthalate         13         U         13         430           Divorente         3700         13         430         14         14           Hexachlorobenzene         17         U         17         43         14           Hexachlorobenzene         17         U         27         430         14         14         14         14         14         14         14         14         14         13         431         14         14         14         14         14         13         13         131         131	Lab Sample ID: Client Matrix:	460-104542-2 Solid	% Moistur	re: 23.2	Date Sa Date Re	mpled: 11/12/2015 13: ceived: 11/12/2015 17:
Prep Method:         3546         Prep Batch:         460-336422         Instrument ID:         CENAMSS           Dilution:         1.0         Lab File ID:         x8661.D         Initial Weight/Volume:         15.0441         g           Analysis Date:         11/20/2015         0316         Final Weight/Volume:         1         null         Initial Weight/Volume:         Initial Weight/Volume:         1		827	0D Semivolatile Org	anic Compounds	s (GC/MS)	
Dibersofuran       240       J       13       430         Diethyl phthalate       12       U       12       430         Dimethyl phthalate       12       U       12       430         Din-butyl phthalate       12       U       12       430         Din-butyl phthalate       13       U       13       430         Din-butyl phthalate       22       U       12       430         Din-butyl phthalate       22       U       13       430         Din-butyl phthalate       22       U       13       430         Din-octyl phthalate       22       U       13       430         Iuoranthene       3700       13       430         Iuoranthene       17       U       17       43         lexachlorobutadiene       12       U       12       87         lexachlorobutadiene       27       U       27       430         lexachlorobutadiene       27       U       16       43         ophorone       9.2       U       13       43         ophorone       9.2       U       14       43         -Nitrosodiphenylamine       14       U	Prep Method: Dilution: Analysis Date:	3546 1.0 11/20/2015 0316			Lab File ID: Initial Weight/Volume: Final Weight/Volume:	x8661.D 15.0441 g 1 mL
Dibersofuran     240     J     13     430       Diethyl phthalate     12     U     12     430       Dimethyl phthalate     12     U     12     430       Din-butyl phthalate     12     U     12     430       Din-butyl phthalate     12     U     12     430       Din-butyl phthalate     12     U     13     430       Din-butyl phthalate     22     U     22     430       Din-butyl phthalate     22     U     22     430       Din-octyl phthalate     22     U     22     430       Divorene     3700     13     430       Hexachlorobenzene     17     U     17     43       texachlorobutadiene     12     U     12     87       texachlorobutadiene     12     U     12     87       texachlorocyclopentadiene     27     U     27     430       texachlorocyclopentadiene     9.2     U     13     43       othonol     9.2     170     14     430       ophorone     9.2     U     14     43       ophorone     9.2     170     14     430       Nitrobenzene     13     U     14	Analyte	DryWt Correcte	ed: Y Result (u		ifier MDI	
Diethyl phthalate       12       U       12       430         Dimethyl phthalate       12       U       12       430         Din-butyl phthalate       13       U       13       430         Din-butyl phthalate       13       U       13       430         Din-butyl phthalate       22       U       22       430         Din-octyl phthalate       22       U       22       430         Din-octyl phthalate       3700       13       430         Iluorene       3700       13       430         Ikexachlorobenzene       17       U       17       43         lexachlorocyclopentadiene       27       U       27       430         lexachlorocyclopentadiene       27       U       27       430         devachlorocyclopentadiene       27       U       27       430         devachlorocyclopentadiene       16       U       16       43         devachlorocyclopentadiene       27       U       92       170         ideno11.2.3-cd]pyrene       6500       29       430       30         ophorone       9.2       U       9.2       170         itrobenzene	Dibenzofuran					
Dimethyl phthalate         12         U         12         430           Din-butyl phthalate         13         U         13         430           Din-butyl phthalate         22         U         22         430           Fluoranthene         3700         13         430           Fluoranthene         310         J         9.3         430           Fluorene         310         J         9.3         430           fexachlorobenzene         17         U         17         43           fexachlorocyclopentadiene         27         U         27         430           fexachlorocythane         6600         29         43           osophorone         9.2         U         9.2         170           laphthalene         2700         11         430           -Nitrosodi-n-propylamine         14         U         14         43           -Nitrosodi-n-propylamine         14         U         14         430           -Nitrosodi-n-propylamine         14         U         14         430           -Nitrosodi-n-propylamine         14         U         14         430           urrogate         %Rec         Qual	Diethyl phthalate					
Din-bulyl phthalate         13         0         12         430           Din-octyl phthalate         22         U         13         430           Din-octyl phthalate         22         U         22         430           Iuoranthene         3700         13         430           Iuoranthene         310         J         9.3         430           Iexachlorobenzene         17         U         17         43           Iexachlorocyclopentadiene         27         U         27         430           Ideno[1,2,3-cd]pyrene         6500         29         43         30           aphthalene         9.2         U         9.2         170           aphthalene         9.2         U         32         30           -Nitrosodi-n-propylamine         14         U         14         430	Dimethyl phthalate					
Di-n-octyl phthalate         Di         13         430           Pluoranthene         3700         13         430           Pluoranthene         3700         13         430           Pluoranthene         310         J         9.3         430           Pluoranthene         310         J         9.3         430           Pluoranthene         17         U         17         43           Pexachlorobutadiene         12         U         12         87           Pexachlorocyclopentadiene         27         U         27         430           Pexachlorocythane         6500         29         43           ophorone         9.2         U         9.2         170           laphthalene         2700         11         430           Itrobenzene         13         U         13         43           Nitrosodiphenylamine         14         U         14         43           Nitrosodiphenylamine         3800         19         430           thenanthrene         2100         11         430           yrene         3800         19         430           yrene         3800         19	Di-n-butyl phthalate					
Filuoranthene     3700     13     430       Pluorene     310     J     9.3     430       dexachlorobenzene     17     U     17     43       dexachlorobutadiene     12     U     12     87       dexachlorocyclopentadiene     27     U     27     430       dexachlorocyclopentadiene     16     16     43       dexachlorocyclopentadiene     27     U     27     430       texachlorocyclopentadiene     9.2     U     9.2     170       laphthalene     2700     11     430       volphorone     9.2     U     9.2     170       laphthalene     2700     11     430       -Nitrosodi-n-propylamine     14     U     14     43       -Nitrosodiphenylamine     3800     19     430       entachlorophenol     52     U     52     350       henanthrene     2100     11     430       urrogate     %Rec     Qualifier     Acceptance Limits       4.6-Tribromophenol (Surr)     21     10 - 95     10       Fluorobiphenyl     67     27 - 84     10       Fluorophenol (Surr)     51     21 - 84     10	)i-n-octyl phthalate					
Horene     310     J     9.3     430       dexachlorobenzene     17     U     17     43       dexachlorobutadiene     12     U     12     87       dexachlorocyclopentadiene     27     U     27     430       dexachlorocyclopentadiene     16     U     16     43       idexachlorocyclopentadiene     9.2     U     9.2     170       laphthalene     2700     11     430       itrobenzene     13     U     13     43       -Nitrosodin-propylamine     13     U     13     43       -Nitrosodiphenylamine     39     U     39     430       entachlorophenol     52     U     9.2     350       henanthrene     2100     11     430       urrogate     %Rec     Qualifier     Acceptance Limits       4.6-Tribromophenol (Surr)     21     10 - 95       Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       robenzene-d5 (Surr)     62     28 - 92				U		430
lexachlorobenzene       17       U       17       430         lexachlorobutadiene       12       U       17       43         lexachlorocyclopentadiene       27       U       17       430         lexachlorocyclopentadiene       27       U       27       430         lexachlorocyclopentadiene       16       U       16       43         lexachloroethane       6500       29       43         sophorone       9.2       U       9.2       170         ideno[1,2,3-cd]pyrene       6500       29       43         sophorone       9.2       U       9.2       170         ideno[-1,-propylamine       13       U       13       43         -Nitrosodiphenylamine       39       U       39       430         entachlorophenol       52       U       52       350         henanthrene       2100       11       430         yrene       3800       19       430         urrogate       %Rec       Qualifier       Acceptance Limits         4.6-Tribromophenol (Surr)       51       21 - 84       54         Fluorophenol (Surr)       51       21 - 84       28 - 92	luorene					
Hexachlorobutadiene       17       43         Hexachlorocyclopentadiene       12       U       12       87         Hexachlorocyclopentadiene       27       U       27       430         Hexachlorocyclopentadiene       16       U       16       43         Hexachloroethane       16       U       16       43         Hexachloroethane       9.2       U       9.2       170         Hexachloroethane       2700       11       430         Hexachloroethane       2700       11       430         Hexachlorophenzene       13       U       13       43         -Nitrosodi-n-propylamine       14       U       14       43         -Nitrosodiphenylamine       39       U       39       430         entachlorophenol       52       U       52       350         henol       14       U       14       430         yrene       3800       19       430         urrogate       %Rec       Qualifier       Acceptance Limits         Fluorophenol (Surr)       51       21 - 84       10 - 95         Fluorophenol (Surr)       51       21 - 84       21 - 84         <	lexachlorobenzene	4				430
lexachlorocyclopentadiene     12     87       lexachlorocethane     16     27     430       ideno[1,2,3-cd]pyrene     6500     29     43       sophorone     9.2     0     9.2     170       laphthalene     2700     11     430       overhorone     9.2     0     9.2     170       laphthalene     2700     11     430       -Nitrosodi-n-propylamine     14     0     14     43       -Nitrosodi-n-propylamine     14     0     39     430       entachlorophenol     52     0     52     350       henol     14     0     14     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4.6-Tribromophenol (Surr)     51     27     84       Fluorophenol (Surr)     51     21     10 - 95       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92						43
lexachloroethane       16       U       16       430         indeno[1,2,3-cd]pyrene       6500       29       43         sophorone       9.2       U       9.2       170         laphthalene       2700       11       430         vitrobenzene       13       U       13       43         -Nitrosodi-n-propylamine       14       U       14       43         -Nitrosodiphenylamine       39       U       39       430         entachlorophenol       52       U       52       350         henanthrene       2100       11       430         urrogate       %Rec       Qualifier       Acceptance Limits         4,6-Tribromophenol (Surr)       21       10 - 95       10 - 95         Fluorobiphenyl       67       27 - 84       10 - 95         Fluorophenol (Surr)       51       21 - 84       21 - 84         trobenzene-d5 (Surr)       62       28 - 92       28 - 92						87
Indeno[1,2,3-cd]pyrene       10       16       43         sophorone       9.2       29       43         laphthalene       9.2       11       430         litrobenzene       13       U       13       43         -Nitrosodi-n-propylamine       14       U       14       43         -Nitrosodiphenylamine       39       U       39       430         -Nitrosodiphenylamine       2100       11       430         henanthrene       2100       11       430         yrene       3800       19       430         urrogate       %Rec       Qualifier       Acceptance Limits         4,6-Tribromophenol (Surr)       21       10 - 95       10 - 95         Fluorobiphenyl       67       27 - 84       10 - 95         Fluorobiphenyl       51       21 - 84       21 - 84         trobenzene-d5 (Surr)       62       28 - 92       28 - 92	exachloroethane	ladicite			27	430
sophorone         9.2         U         9.2         170           laphthalene         2700         11         430           litrobenzene         13         U         13         43           -Nitrosodi-n-propylamine         14         U         14         43           -Nitrosodiphenylamine         39         U         39         430           -Nitrosodiphenylamine         14         U         14         43           -Nitrosodiphenylamine         39         U         39         430           entachlorophenol         52         U         52         350           henanthrene         2100         11         430           yrene         3800         19         430           urrogate         %Rec         Qualifier         Acceptance Limits           4,6-Tribromophenol (Surr)         21         10 - 95         10 - 95           Fluorobiphenyl         67         27 - 84         21 - 84           Fluorophenol (Surr)         51         21 - 84         28 - 92           trobenzene-d5 (Surr)         62         28 - 92         28 - 92		ene		U		43
laphthalene     2700     9.2     170       litrobenzene     13     U     13     43       l-Nitrosodi-n-propylamine     14     U     14     43       -Nitrosodiphenylamine     39     U     39     430       entachlorophenol     52     U     52     350       henanthrene     2100     11     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4,6-Tribromophenol (Surr)     51     10 - 95       Fluorophenol (Surr)     51     21 - 84       robenzene-d5 (Surr)     62     28 - 92		SILE			29	43
litrobenzene       13       11       430         I-Nitrosodi-n-propylamine       14       13       43         -Nitrosodiphenylamine       39       14       430         -Nitrosodiphenylamine       39       14       43         entachlorophenol       52       0       52       350         henanthrene       2100       11       430         henol       14       0       14       430         yrene       3800       11       430         urrogate       %Rec       Qualifier       Acceptance Limits         4,6-Tribromophenol (Surr)       21       10 - 95         Fluorobiphenyl       67       27 - 84         trobenzene-d5 (Surr)       51       21 - 84         henol-d5 (Surr)       62       28 - 92				U	9.2	170
I-Nitrosodi-n-propylamine       13       43         -Nitrosodiphenylamine       39       14       14       43         -Nitrosodiphenylamine       39       14       43         entachlorophenol       52       0       39       430         henanthrene       2100       11       430         henol       14       0       14       430         yrene       3800       19       430         urrogate       %Rec       Qualifier       Acceptance Limits         4,6-Tribromophenol (Surr)       21       10 - 95         Fluorobiphenyl       67       27 - 84         Fluorophenol (Surr)       51       21 - 84         trobenzene-d5 (Surr)       62       28 - 92					11	430
Nitrosodiphenylamine     14     U     14     43       -Nitrosodiphenylamine     39     U     39     430       entachlorophenol     52     U     52     350       henanthrene     2100     11     430       henol     14     U     14     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4,6-Tribromophenol (Surr)     21     10 - 95       Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92		amina			13	43
and accord priority annuce     39     U     39     430       entachlorophenol     52     U     52     350       henanthrene     2100     11     430       henol     14     U     14     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4,6-Tribromophenol (Surr)     21     10 - 95       Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92	Nitrosodiphonylon	amne			14	
benanthrene       52       U       52       350         henanthrene       2100       11       430         henol       14       U       14       430         yrene       3800       19       430         urrogate       %Rec       Qualifier       Acceptance Limits         4,6-Tribromophenol (Surr)       21       10 - 95         Fluorobiphenyl       67       27 - 84         Fluorophenol (Surr)       51       21 - 84         trobenzene-d5 (Surr)       62       28 - 92	entachlorophonol	line			39	
2100     11     430       henol     14     U     14     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4,6-Tribromophenol (Surr)     21     10 - 95       Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92				U	52	
14     U     14     430       yrene     3800     19     430       urrogate     %Rec     Qualifier     Acceptance Limits       4,6-Tribromophenol (Surr)     21     10 - 95       Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92					11	
Wrete380019430urrogate%RecQualifierAcceptance Limits4,6-Tribromophenol (Surr)2110 - 95Fluorobiphenyl6727 - 84Fluorophenol (Surr)5121 - 84trobenzene-d5 (Surr)6228 - 92				U	14	
Value         Qualifier         Acceptance Limits           4,6-Tribromophenol (Surr)         21         10 - 95           Fluorobiphenyl         67         27 - 84           Fluorophenol (Surr)         51         21 - 84           trobenzene-d5 (Surr)         62         28 - 92	rene		3800			
4,6-Tribromophenol (Surr)     21     Acceptance Limits       Fluorobiphenyl     67     10 - 95       Fluorophenol (Surr)     51     27 - 84       trobenzene-d5 (Surr)     62     28 - 92	urrogate		%Pac	0		
Fluorobiphenyl     67     27 - 84       Fluorophenol (Surr)     51     21 - 84       trobenzene-d5 (Surr)     62     28 - 92	4,6-Tribromophene	ol (Surr)		Qualifi	riscopicito	e Limits
Fluorophenol (Surr)     27 - 84       trobenzene-d5 (Surr)     51       21 - 84       penol-d5 (Surr)     62       28 - 92	Fluorobiphenyl					
trobenzene-d5 (Surr) 62 21 - 84 penol-d5 (Surr) 62 28 - 92	Fluorophenol (Sur					
nenol-d5 (Surr) 28 - 92	trobenzene-d5 (Su	(rr)				
	enol-d5 (Surr)					
erphenyl-d14 (Surr) 73 22 - 88			55		22 - 88	

#### Analytical Data

Job Number: 460-104542-1

Lab Sample ID:	460-104542-3				
Client Matrix:	Solid	% Moisture	25.8	Date Sa Date Re	mpled: 11/12/2015 080 ceived: 11/12/2015 173
	8270D	Semivolatile Orga	anic Compounds		
Analysis Method:	8270D	Analysis Batch:	460-336422		
Prep Method:	3546	Prep Batch:	460-335916	Instrument ID:	CBNAMS5
Dilution:	1.0	rop Baton.	400-555916	Lab File ID:	x8648.D
Analysis Date:	11/19/2015 2051			Initial Weight/Volume:	15.0347 g
Prep Date:	11/17/2015 1524			Final Weight/Volume:	1 mL
	11/1/2015 1524			Injection Volume:	1 uL
Analyte	DryWt Corrected: Y	Result (ug	/Kg) Qual	ifier MDI	4 C.
1,1'-Biphenyl		38			RL
1,2,4,5-Tetrachloro	benzene	33	U	38	440
2,2'-oxybis[1-chlord	propane)	18	U	33	440
2,3,4,6-Tetrachloro	phenol	42	U	18	440
2,4,5-Trichlorophen	ol	42	U	42	440
2,4,6-Trichlorophen	ol		U	44	440
2,4-Dichlorophenol		13	U	13	180
2,4-Dimethylphenol		10	U	10	180
2,4-Dinitrophenol		98	U	98	440
2,4-Dinitrotoluene		340	U	340	360
2,6-Dinitrotoluene		18	U	18	90
2-Chloronaphthalen	2	24	U	24	90
2-Chlorophenol		10	U	10	440
-Methylnaphthalen		11	U	11	440
-Methylphenol	3	100	J	9.8	
-Nitroaniline		19	U	19	440
-Nitrophenol		15	U	15	440
,3'-Dichlorobenzidir		15	U	15	440
-Nitroaniline	le	50	U	50	440
		13	ŭ	13	180
6-Dinitro-2-methylp	henol	120	ŭ		440
Bromophenyl phen	yl ether	14	Ŭ	120	360
Chloro-3-methylph	enol	19	Ŭ	14	440
Chloroaniline		11	Ŭ	19	440
Chlorophenyl phen	yl ether	13	U	11	440
Methylphenol		12	U	13	440
Nitroaniline		17		12	440
Nitrophenol		210	U )	17	440
cenaphthene		94	0 <b>]</b>	210	900
enaphthylene		16	J	11	440
etophenone		9.7	J	11	440
thracene		180	U	9.7	440
razine		20	J	42	440
nzaldehyde			U	20	180
nzo[a]anthracene		48	J	34	440
nzo[a]pyrene		230	1	37	44
nzo[b]fluoranthene		170	1	13	44
nzo[g,h,i]perylene		210	1	17	44
nzo[k]fluoranthene		100	J	26	440
(2-chloroethoxy)me	thane	82		19	44
(2-chloroethyl)ether		14	U	14	440
(2-ethylhexyl) phtha	late	10	U	10	44
yl benzyl phthalate	nate	200	J	17	440
prolactam		14	U	14	440
bazole		32	U	32	
ysene		12	J	11	440
enz(a,h)anthracene		240	J	12	440 440
		50			

### Analytical Data

Lab Sample ID: Client Matrix:	460-104542-3 Solid	% Moistur	re: 25,8	Date Sa Date Re	mpled: 11/12/2015 08 ceived: 11/12/2015 17
	827	0D Semivolatile Org	anic Compounds		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/19/2015 2051 11/17/2015 1524	Analysis Batch: Prep Batch:	460-336422 460-335916	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS5 x8648.D 15.0347 g 1 mL 1 uL
Analyte Dibenzofuran	DryWt Correcte	d: Y Result (ug	g/Kg) Qual	ifier MDL	
		23	J	13	RL
Diethyl phthalate		13	Ŭ	13	440
Dimethyl phthalate Di-n-butyl phthalate		13	Ŭ	13	440
Di-n-octyl phthalate		13	Ŭ	13	440
Fluoranthene		23	Ŭ	23	440
Fluorene		300	J	13	440
Hexachlorobenzene		68	Ĵ	9.7	440
Hexachlorobutadien		18	Ŭ	18	440
lexachioroputadien	e	13	ŭ	13	44
lexachlorocycloper lexachloroethane	Itadiene	28	Ŭ	28	90
		16	Ŭ	16	440
ndeno[1,2,3-cd]pyre sophorone	ene	110		30	44
laphthalene		9.5	5	9.5	44
litrobenzene		160	J	9.5	180
		14	Ŭ	14	440
-Nitrosodi-n-propyla -Nitrosodiphenylam	amine	15	Ŭ	15	44
entachlorophenol	line	40	Ŭ	40	44
henanthrene		54	Ŭ	40 54	440
henol		990	1	12	360
rene		15	ũ	12	440
yrone		460	2	20	440
urrogate		5.5.		20	440
4,6-Tribromopheno	(Currel)	%Rec	Qualifie	Acceptance	Limite
Fluorobiphenyl	(ouir)	37		10 - 95	LITTICS
Fluorophenol (Surr)		51		27 - 84	
robenzene-d5 (Sur	r)	46		21 - 84	
enol-d5 (Surr)	0	53		28 - 92	
rphenyl-d14 (Sure)		43			
rphenyl-d14 (Surr)		70		22 - 88 16 - 114	

THE LEADER IN ENVIRONMENTAL TESTING Name (for report and invoice)	СНА	CHAIN OF CUSTODY //	CUST(	DDY /	5 /	04542 Cha	460-104542 Chain of Custody Site/Project Identification	ie: (732) 549-3900 Fax: (732) 549-3679 Page of
Company Fuch M		12	car	King	5		Confect Identification	Bannew
Address	-	4 . O	1200 (3000,0000	0,00	g,	7100	State (Location of site): NJ:	NY: NY: Other:
35 3d Avenue, 121		Analysis Turnaround Time	naround Tim		ANAL	VSIS REQUEST	ANALYSIS REQUESTED (ENTER "X: BELOW TO INDICATE REQUEST)	
NEWYOR	4.4	Rush Charges Aut	orfzeo	For:				
415.744.4900 Fax 212.682.9275	547b	1 Week		8200	5 82			_
Sample Identification	Date		Matrix N			_		
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24.6-32.6-5-60	-	0361	5	nk	XX	1		-
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Preservation Used: $1 = ICE$ , $2 = HCi$ , $3 = r_{2} \Rightarrow \cup_{4}$ , $4 = HNO_{3}$ 6 = Other, $7 = Other$		5 = NaOH	W	Soil:				
Special Instructions					Ē	+		
P P	5	ct (	U12151 153	で い で よ て	Received by	ed by	800 Male	Company A
~ t	A	4/10	H/IT	17/200	Receiv 2)	ed by	Comp	NAL CI
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Relinquished by Company		+	Date / Time	ime -	3) Received hu	ed by		
4)		-		-	4	ou uy	Cor	Company

#### Analytical Data

Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-1 Solid	% Moistur	e: 28.1		ampled: 11/13/2 eceived: 11/13/2	
	82600	Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0919 11/14/2015 0745	Analysis Batch: Prep Batch:	460-337315 460-335371	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:		
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qua	lifer MDI	D.	
1,1,1-Trichloroetha		make an and the second s			RL	
1,1,2,2-Tetrachloro		0.53	U	0.53	1.4	
		0.24	U J	0.24	1.4	
1,1,2-Trichloro-1,2,		0.62	U	0.62	1.4	
1,1,2-Trichloroetha		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-Trichlorobenz		0.15	U	0.15	1.4	
1,2,4-Trichlorobenz		0.45	U	0.45	1.4	
1,2-Dichloropropan		0.24	U 7	0.24	1.4	
1,3-Dichlorobenzer		0.17	U	0.17	1.4	
,4-Dichlorobenzer	16	0.18	U	0.18	1.4	
,4-Dioxane		8.9	U	8.9	28	
P-Butanone (MEK) P-Hexanone		8.4		1.1	7.0	
		1.3	U	1.3	7.0	
-Methyl-2-pentanc	ne (MIBK)	3.1	U	3.1	7.0	
Benzene		21		1.5	7.0	
Bromoform		1.3	J	0.28	1.4	
Bromomethane		0.18	U	0.18	1.4	
Carbon disulfide		0.45	U	0.45	1.4	
arbon tetrachlorid	9	0.75	J	0.60	1.4	
hlorobenzene	6	0.60 0.20	U	0.60	1.4	
hlorobromometha	ne	0.20	U	0.20	1.4	
hlorodibromometh		0.24	U U	0.24	1.4	
hloroethane		0.49	U	0.21	1.4	
hloroform		0.29	Ŭ	0.49	1.4	
hloromethane		0.53	Ŭ+)	0.29 0.53	1.4	
is-1,2-Dichloroethe	ene	0.31	Ŭ	0.31	1.4 1.4	
is-1,3-Dichloroprop		0.21	Ŭ	0.21	1.4	
yclohexane		0.91	J	0.64	1.4	
ichlorobromometh	ane	0.53	Ŭ	0.53	1.4	
ichlorodifluoromet		0.45	Ŭ	0.45	1.4	
thylbenzene		0.25	Ŭ	0.25	1.4	
thylene Dibromide		0.17	Ŭ	0.17	1.4	
opropylbenzene		0.99	J	0.24	1.4	
lethyl acetate		1.3	Ŭ 🔪	1.3	7.0	
ethyl tert-butyl eth	er	0.24	Ŭ	0.24	1.4	
ethylcyclohexane		5.5		0.70	1.4	
ethylene Chloride		0.45	U	0.45	1.4	
-Xylene & p-Xylen	e	0.41	J	0.15	1.4	
Xylene		0.33	Ĵ	0.22	1.4	
tyrene		0.21	Ŭ	0.21	1.4	
etrachloroethene		0.39	Ŭ	0.39	1.4	
oluene		0.46	J	0.27	1.4	
ans-1,2-Dichloroetl	nene	0.55	Ŭ	0.55	1.4	
Methyl-2-propanol		4.9	Ŭ J	4.9	14	

#### Client: ARCADIS U.S. Inc

**TestAmerica Edison** 

Lab Sample ID: Client Matrix:	460-104623-1 Solid	% Moistur	e: 28.1			npled: 11/13/2015 105 ceived: 11/13/2015 175
2010	8260	C Volatile Organi	c Compounds b	y GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0919 11/14/2015 0745	Analysis Batch: Prep Batch:	460-337315 460-335371			CVOAMS4 D16932.D 4.97 g 5 mL
Analyte	DryWt Corrected:	Y Result (u	a/Ka) Qua	alifier M	MDL	RL
trans-1,3-Dichloro	rans-1,3-Dichloropropene		U	(	0.14	1.4
Trichloroethene		0.36	U		0.36	1.4
Trichlorofluoromet	hane	0.48	U	(	.48	1.4
Vinyl chloride		0.55	U*	5 0	.55	1.4
1,2-Dichloroethane		0.15	Ŭ	(	).15	1.4
1,2-Dichlorobenze		0.20	U .	(	.20	1.4
1,2-Dibromo-3-Chl		0.66	U	) (	.66	1.4
1,1,1,2-Tetrachloro	bethane	0.57	U	C	0.57	1.4
Surrogate		%Rec	Qua	alifier	Acceptan	ce Limits
1,2-Dichloroethane	e-d4 (Surr)	94			78 - 135	
4-Bromofluorobenz		106			67 - 126	
Dibromofluorometh	nane (Surr)	96			61 - 149	
Toluene-d8 (Surr)		95			73 - 121	

# Analytical Data

Lab Sample ID: Client Matrix:	460-104623-1 Solid	% Moistur	re: 28.1	Date Sa Date Re	mpled: 11/13/2015 105 ceived: 11/13/2015 175
Analusia Berry	82	60C Volatile Organ	ic Compounds by	GC/MS	10100. 11/10/2013 1/5
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0919 11/14/2015 0745	Analysis Batch: Prep Batch:	460-337315 460-335371	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16932.D 4.97 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's Fo			
Cas Number	Analyte	indiniber fie S Fe	ound: 10		
1678-93-9 193-02-7 000152-47-3 27-53-7	Cyclohexane, butyl- Naphthalene, decahydro Unknown Unknown Unknown trans-Decalin, 2-methyl-		RT 10.94 11.30 11.42 11.48 11.68 11.78	Est. Result (ug/l 120 190 130 140 140	Kg) Qualifier JN JN J√ J√ J√ J√
958-76-1 7059-48-2	Benzene, 1,2,3,5-tetrame Naphthalene, decahydro- 1H-Indene, 2,3-dihydro-1 Unknown	2-methyl-	11.78 11.89 11.95 12.78 12.87	300 120 190 230 170	И И И С И С

#### Analytical Data

Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-2 Solid	% Moisture	e: 37.9		ampled: 11/13/2015 14 eceived: 11/13/2015 17
	8260	C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0944 11/14/2015 0746	Analysis Batch: Prep Batch:	460-337315 460-335371	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	
Analyte	DryWt Corrected: 1	Y Result (ug	g/Kg) Qua	lifier MDL	RL
1,1,1-Trichloroetha		0.70	U	0.70	1.8
1,1,2,2-Tetrachlord	bethane	0.31	Ŭ \	0.31	
1,1,2-Trichloro-1,2	2-trifluoroethane	0.81	Ŭ I	0.81	1.8
1,1,2-Trichloroetha		0.51	Ŭ		1.8
1,1-Dichloroethane		0.63	U	0.51	1.8
1,1-Dichloroethene		0.75	U	0.63	1.8
1,2,3-Trichloroben		0.20	U	0.75	1.8
1,2,4-Trichlorobena		0.59	U	0.20	1.8
,2-Dichloropropar		0.31	U )	0.59	1.8
.3-Dichlorobenzer		0.22	Ŭ <sup>3</sup>	0.31	1.8
,4-Dichlorobenzer		0.24	U	0.22 0.24	1.8
,4-Dioxane		12	U		1.8
-Butanone (MEK)		12	U	12	37
-Hexanone		1.7	U	1.4	9.2
-Methyl-2-pentanc	one (MIBK)	4.1	U	1.7	9.2
cetone		32	0	4.1	9.2
Benzene		28		1.9	9.2
Bromoform		0.24	U	0.37	1.8
romomethane		0.59	U	0.24	1.8
arbon disulfide		0.79	Ŭ	0.59	1.8
arbon tetrachlorid	8	0.79	Ŭ	0.79	1.8
hlorobenzene		0.26	U	0.79	1.8
hlorobromometha	ne	0.31	Ŭ	0.26 0.31	1.8
hlorodibromometh	ane	0.28	Ŭ	0.31	1.8
hloroethane		0.64	Ŭ		1.8
hloroform		0.39	Ŭ	0.64	1.8
hloromethane		0.70	U~\	0.39	1.8
s-1,2-Dichloroethe	ene	0.40	U	0.70 0.40	1.8
s-1,3-Dichloroprop		0.28	Ŭ	0.28	1.8
yclohexane		0.85	Ŭ	0.85	1.8
ichlorobromometh		0.70	Ŭ	0.70	1.8
ichlorodifluoromet	nane	0.59	Ŭ	0.59	1.8
thylbenzene		160	0	0.33	1.8
thylene Dibromide		0.22	U	0.22	1.8 1.8
opropylbenzene		130	0	0.31	1.8
ethyl acetate		1.7	υJ	1.7	9.2
ethyl tert-butyl eth	er	0.31	Ŭ	0.31	1.8
ethylcyclohexane		0.92	Ŭ	0.92	1.8
ethylene Chloride		0.59	Ŭ	0.59	1.8
-Xylene & p-Xylen	Э	220	0	0.20	1.8
Xylene		180		0.29	1.8
yrene		0.28	U	0.28	1.8
etrachloroethene		0.51	Ŭ	0.51	1.8
oluene		9.7		0.35	1.8
ins-1,2-Dichloroeth	nene	0.72	U	0.72	1.8
Methyl-2-propanol		6.4	ŭ 1	6.4	18

Client Sample ID	SB-308-S-18.0-18.5				
Lab Sample ID: Client Matrix:	460-104623-2 Solid	% Moisture	e: 37.9		npled: 11/13/2015 1455 ceived: 11/13/2015 1750
	3010		9, 37,9	Date Net	ceived. 11/10/2013 1730
	8260	C Volatile Organi	c 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 (u	g/Kg) Qua	lifier MDL	RL
trans-1,3-Dichloro	rans-1,3-Dichloropropene		U	0.18	1.8
Trichloroethene		0.48	U	0.48	1.8
Trichlorofluoromet	hane	0.63	U	0.63	1.8
Vinyl chloride		0.72	U+-		1.8
1,2-Dichloroethane	e	0.20	υ	0.20	1.8
1,2-Dichlorobenze	ne	0.26	U.	0.26	1.8
1,2-Dibromo-3-Ch	loropropane	0.86	U 7		1.8
1,1,1,2-Tetrachlor	pethane	0.75	U	0.75	1.8
Surrogate		%Rec	Qua	lifier Acceptar	nce Limits
1,2-Dichloroethane	e-d4 (Surr)	106		78 - 135	
4-Bromofluoroben	zene	120		67 - 126	
Dibromofluoromet	hane (Surr)	105		61 - 149	
Toluene-d8 (Surr)		104		73 - 121	

#### Analytical Data

Client Sample ID						
Lab Sample ID: Client Matrix:	460-104623-2 Solid	% Moistur				11/13/2015 14
enerit matrix.	Solid	76 WOIStur	e: 37.9	Date Re	ceived:	11/13/2015 17
	826	0C Volatile Organi	c Compounds by	GC/MS		
Analysis Method:	8260C	Analysis Batch:	460-337315	Instrument ID:	CVO	AMS4
Prep Method:	5035	Prep Batch:	460-335371	Lab File ID:	D169	33.D
Dilution:	1.0			Initial Weight/Volume:	4.38	a
Analysis Date:	11/25/2015 0944			Final Weight/Volume:	5 ml	-
Prep Date:	11/14/2015 0746			Contraction of the second s		
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10			
Cas Number	Analyte		RT	Est. Result (ug.	(Ka)	Qualifier
520-14-4	Benzene, 1-ethyl-3-meth	yl-	10.47	740		JN
95-63-6	Benzene, 1,2,4-trimethyl		10.81	240		JN
535-77-3	Benzene, 1-methyl-3-(1-	nethylethyl)-	10.99	980		JN
526-73-8	Benzene, 1,2,3-trimethyl-		11.12	160		JN
141-93-5	Benzene, 1,3-diethyl-		11.23	290		JN
196-11-7	Indane		11.26	110		JN
1218-48-8	Benzene, 1-ethyl-4-(1-me	ethylethyl)-	11.66	380		JN
91-20-3	Naphthalene		13.01	2200		JN
91-57-6	Naphthalene, 2-methyl-		14.49	1300		JN
0-12-0	Naphthalene, 1-methyl-		14.80	690		JN

#### Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-3 Solid	% Moisture	% Moisture: 30.6			Date Sampled: 11/13/2015 150 Date Received: 11/13/2015 175	
	82600	Volatile Organi	c Compounds	s by GC/M	S		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0726 11/14/2015 0747	Analysis Batch: Prep Batch:	460-337315 460-335371	Lab Initia	rument ID: File ID: al Weight/Volume: al Weight/Volume:	CVOAMS4 D16931.D 5.25 g 5 mL	
Analyte	DryWt Corrected: Y	Popult (u		Qualifier	MDI	DI	
the state of the s		•	0 0/		MDL	RL	
1,1,1-Trichloroetha		0.52		U	0.52	1.4	
1,1,2,2-Tetrachlord		0.23		07	0.23	1.4	
1,1,2-Trichloro-1,2		0.60		U	0.60	1.4	
1,1,2-Trichloroetha		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-Trichloroben:		0.15		U	0.15	1.4	
1,2,4-Trichlorobenz		0.44		U	0.44	1.4	
1,2-Dichloropropar		0.23		n 7	0.23	1.4	
1,3-Dichlorobenzer		0.16		U	0.16	1.4	
1,4-Dichlorobenzer	ne	0.18		U	0.18	1.4	
1,4-Dioxane		8.8	L	U	8.8	27	
2-Butanone (MEK)		12		1	1.1	6.9	
2-Hexanone		1.3		U	1.3	6.9	
4-Methyl-2-pentance	one (MIBK)	3.0	L	J.	3.0	6.9	
Acetone		34			1.5	6.9	
Benzene		1.6			0.27	1.4	
Bromoform		0.18	L		0.18	1.4	
Bromomethane		0.44	L		0.44	1.4	
Carbon disulfide		0.59	L		0.59	1.4	
Carbon tetrachlorid	le	0.59	L		0.59	1.4	
Chlorobenzene		0.19	L		0.19	1.4	
Chlorobromometha		0.23	L		0.23	1.4	
Chlorodibromomet	hane	0.21	L		0.21	1.4	
Chloroethane		0.48	L		0.48	1.4	
Chloroform		0.29	L		0.29	1.4	
Chloromethane		0.52		1-2	0.52	1.4	
cis-1,2-Dichloroeth		0.30	L		0.30	1.4	
cis-1,3-Dichloropro	pene	0.21	L		0.21	1.4	
Cyclohexane		0.63	L		0.63	1.4	
Dichlorobromometh		0.52	L		0.52	1.4	
Dichlorodifluorome	thane	0.44	U		0.44	1.4	
Ethylbenzene	6	1.0	J		0.25	1.4	
Ethylene Dibromide	3	0.16	U	i.	0.16	1.4	
sopropylbenzene		8.8		1	0.23	1.4	
Methyl acetate		1.2		17	1.2	6.9	
Methyl tert-butyl eth		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-Xyler	le	0.99	J	f. T	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	46	0.39	J		0.26	1.4	
rans-1,2-Dichloroe 2-Methyl-2-propanc		0.54 4.8	U	ر د ر	0.54 4.8	1.4	
		A Q		1.1.1	18	14	

# Analytical Data

Client Sample I	D: SB-308-S-16517.0	0			lumber: 460-104623-
Lab Sample ID: Client Matrix:	460-104623-3 Solid	% Moistu	e: 30.6	Date Sa	impled: 11/13/2015 150
Anal	8	260C Volatile Organ	c Compounds by		eceived: 11/13/2015 175
Analysis Method:	8260C	Applust D		GC/MS	
Prep Method: Dilution: Analysis Date: Prep Date:	5035 1.0 11/25/2015 0726 11/14/2015 0747	Analysis Batch: Prep Batch:	460-337315 460-335371	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16931.D 5.25 g 5 mL
Analyte	DryWt Correcte				
trans-1,3-Dichlorop	propene	d: Y Result (ug	/Kg) Qualifie	er MD	
Irichloroethene		0.14	U	WIDE	RL
Trichlorofluorometh	ane	0.36	Ŭ	0.14	1.4
Vinyl chloride		0.47	Ŭ	0.36	1.4
1,2-Dichloroethane		0.54	1-J	0.47	1.4
1,2-Dichlorobenzen	e	0.15	Ŭ	0.54	1.4
1,2-Dibromo-3-Chlo	ropropago	0.19	Ŭ	0.15	1.4
1,1,1,2-Tetrachloroe	thane	0.64	U J	0.19	1.4
		0.56	ũ 🎝	0.64	1.4
Surrogate			0	0.56	1.4
2-Dichloroethane-	A (Sure)	%Rec	Qualifier		
-Bromofluorobenze	no	99	Quaimer	Acceptance	e Limits
Dibromofluorometha	ne (Sum)	107		78 - 135	
oluene-d8 (Surr)		99		67 - 126	
(===/)		92		61 - 149	
				73 - 121	

# Analytical Data

Lab Sample ID: Client Matrix:	2: SB-308-S-16517.0 460-104623-3 Solid	% Moistur	re: 30.6	Date Sa Date Re	mpled: 11/13/2015 1 ceived: 11/13/2015 1
Applusie Maria	82	60C Volatile Organi	ic Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0726 11/14/2015 0747	Analysis Batch: Prep Batch:	460-337315 460-335371	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16931.D 5.25 g 5 mL
<b>Fentatively Identi</b> Cas Number		Number TIC's Fo	ound: 9		
000142-17-5 5-63-6 35-77-3 26-73-8 920-99-4 1-20-3 I-57-6	Analyte Bicyclo[3.1.0]hexane, 1,5 Benzene, 1,2,4-trimethyl- Benzene, 1-methyl-3-(1-r Benzene, 1,2,3-trimethyl- Indane Benzene, 1-ethyl-3-(1-me Naphthalene Naphthalene, 2-methyl- Naphthalene, 1-methyl-	nethylethyl)-	RT 8.67 10.81 10.99 11.12 11.27 11.66 13.01 14.49 14.80	Est. Result (ug/ 8.7 10 24 8.8 9.1 22 38 11 26	Kg) Qualifier JN JN JN JN JN JN JN JN JN JN JN JN JN

### Analytical Data

Job Number: 460-104623-1

Client Sample ID:	TB-151113
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Lab Sample ID:	460-104623-4TB
Client Matrix:	Water

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

		8260C Volatile Organ	ic Compounds by	GC/MS	
Analysis Method:	8260C	Analysis Batch:	460-335703		
Prep Method:	5030C	Prep Batch:	N/A	Instrument ID:	CVOAMS8
Dilution:	1.0	riop batch.	N/A	Lab File ID:	J33462 D
Analysis Date:	11/16/2015 2040			Initial Weight/Volume:	5 mL
Prep Date:	11/16/2015 2040			Final Weight/Volume:	5 mL
Analyte		Dec. # (	<i>u</i> x		
1,1,1-Trichloroetha	ane	Result (u		fier MDL	RL
1,1,2,2-Tetrachlord	oethane	0.28	U J U J	0.28	1.0
1,1,2-Trichloro-1,2	.2-trifluoroethane	0.19	U ]	0.19	1.0
1,1,2-Trichloroetha	ane	0.34	U	0.34	1.0
1,1-Dichloroethane	9	0.080 0.24	U ]	0.080	1.0
1,1-Dichloroethene	9	0.24	U	0.24	1.0
1,2,3-Trichloroben:	zene	0.34	U 7	0.34	1.0
1,2,4-Trichloroben;	zene	0.35	U 7	0.35	1.0
1,2-Dichloropropan	ie	0.27	U	0.27	1.0
1,3-Dichlorobenzer	ne	0.33	U	0.18	1.0
1,4-Dichlorobenzer	ne	0.33	U	0.33	1.0
1,4-Dioxane		8.7	U	0.33	1.0
2-Butanone (MEK)		2.2	U	8.7	50
2-Hexanone		0.72	U	2.2	5.0
4-Methyl-2-pentano	ne (MIBK)	0.63	U	0.72	5.0
Acetone	2.12.04	1.1	U ]	0.63	5.0
Benzene		0.090	U	1.1	5.0
Bromoform		0.18	U 7	0.090	1.0
Bromomethane		0.18	U	0.18	1.0
Carbon disulfide		0.22	U	0.18	1.0
Carbon tetrachloride	9	0.33	U	0.22	1.0
Chlorobenzene		0.24	U	0.33	1.0
Chlorobromomethar	ne	0.30	U U	0.24	1.0
Chlorodibromometha	ane	0.22		0.30	1.0
Chloroethane		0.37	U	0.22	1.0
Chloroform		0.22	U L	0.37	1.0
Chloromethane		0.22		0.22	1.0
cis-1,2-Dichloroether	ne	0.26	U U	0.22	1.0
cis-1,3-Dichloroprope	ene	0.16	U J	0.26	1.0
Cyclohexane		0.26	Ŭ )	0.16	1.0
Dichlorobromometha	ne	0.15	U	0.26	1.0
Dichlorodifluorometh	ane	0.14	Ŭ	0.15	1.0
Ethylbenzene		0.30	Ŭ	0.14	1.0
Ethylene Dibromide		0.19	Ŭ	0.30	1.0
Isopropylbenzene		0.32	LŪ	0.19	1.0
Methyl acetate		0.58	ŭ	0.32	1.0
Methyl tert-butyl ethe	r	0.13	ŭ	0.58	5.0
Methylcyclohexane		0.22	Ŭ	0.13	1.0
Methylene Chloride		0.21	Ŭ 🖌	0.22	1.0
m-Xylene & p-Xylene		0.28	Ŭ	0.21	1.0
o-Xylene		0.32	Ŭ	0.32	1.0
Styrene		0.17	Ŭ	0.32	1.0
Tetrachloroethene Toluene		0.12	Ŭ	0.12	1.0
		0.25	ŭ 7	0.12	1.0
trans-1,2-Dichloroethe	ene	0.18	Ŭ J	0.18	1.0
trans-1,3-Dichloroprop	bene	0.19	Ŭ	0.19	1.0
TestAmerica Edison				0.10	1.0
esternerica Edison		Page 21 o	f 808		

### Analytical Data

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 Organi	ic Compound	s by GC/	MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/16/2015 2040 11/16/2015 2040	Analysis Batch: Prep Batch:	460-335703 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:		CVOAMS8 J33462.D 5 mL 5 mL
Analyte Trichloroethene Trichlorofluoromet Vinyl chloride 1,2-Dichloroethane 1,2-Dichlorobenze 1,2-Dichlorobenze 1,2-Dibromo-3-Chl	a ne	Result (u 0.22 0.15 0.060 0.25 0.22 0.23	l	J	MDL 0.22 0.15 0.060 0.25 0.22 0.23	RL 1.0 1.0 1.0 1.0 1.0
Surrogate 1,2-Dichloroethane 4-Bromofluorobenz Dibromofluorometh Toluene-d8 (Surr)	ene	%Rec 113 106 116 99		Qualifier	Acceptand 70 - 137 70 - 131 72 - 136 74 - 120	1.0 ce Limits

#### Analytical Data

Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-1 Solid	% Moistur	e: 28.1		Date Sampled: 11/13/2015 105 Date Received: 11/13/2015 175		
	8270	D Semivolatile Org	anic Compound	s (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/19/2015 2251 11/18/2015 1356	Analysis Batch: Prep Batch:	460-336422 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:	J		
Analyte	DryWt Corrected	Y Result (u	a/Ka) Qua	lifier MDL	DI		
1,1'-Biphenyl		39	uua U	and the second sec	RL		
1,2,4,5-Tetrachlord	benzene			39	460		
2,2'-oxybis[1-chlore		34	U	34	460		
2,3,4,6-Tetrachlord	ppiopariej	19	U	19	460		
2,4,5-Trichloropher		43	U	43	460		
		46	U	46	460		
2,4,6-Trichloropher		13	U	13	180		
4-Dichlorophenol		11	U	11	180		
4-Dimethylpheno	1	100	U	100	460		
4-Dinitrophenol		350	U	350	370		
4-Dinitrotoluene		18	U	18	93		
,6-Dinitrotoluene		24	U	24	93		
-Chloronaphthaler	ne	10	U	10	460		
-Chlorophenol		12	U	12	460		
-Methylnaphthaler	ne	820		10	460		
-Methylphenol		20	U	20	460		
-Nitroaniline		15	U	15	460		
-Nitrophenol		15	U	15	460		
,3'-Dichlorobenzid	ine	51	U	51	180		
-Nitroaniline		14	U	14	460		
6-Dinitro-2-methy	lphenol	120	U	120	370		
-Bromophenyl phe		14	ŭ	14	460		
-Chloro-3-methylp		20	Ŭ	20	460		
-Chloroaniline		12	Ŭ	12			
-Chlorophenyl phe	nyl ether	14	Ŭ	14	460		
-Methylphenol		13	Ŭ.	13	460		
-Nitroaniline		17	ĻŬ	17	460		
Nitrophenol		220	Ľυ	220	460		
cenaphthene		600	0 1	11	930		
cenaphthylene		12	U	12	460		
cetophenone		16	J	10	460		
nthracene		620	5		460		
trazine		20	U	44 20	460		
enzaldehyde		35	Ŭ		180		
enzo[a]anthracene		2400	U	35	460		
enzo[a]pyrene		2900		38	46		
enzo[b]fluoranthen	0	3000		14	46		
enzo[g,h,i]perylene		2700		18	46		
enzo[k]fluoranthen		1200		26	460		
s(2-chloroethoxy)r				20	46		
s(2-chloroethyl)eth	horidito	14	U	14	460		
s(2-ethylhexyl) phi		11	U	11	46		
		430	J	18	460		
utyl benzyl phthala	le	14	U	14	460		
aprolactam		33	U	33	460		
arbazole		11	U	11	460		
nrysene		2500		13	460		
benz(a,h)anthrace		570		24			

# Analytical Data

Lab Sample ID: 460-104623-1 Client Matrix: Solid		% Moisture: 28.1			Date Sampled: 11/13/2015 105 Date Received: 11/13/2015 175		
1225	8270	D Semivolatile Org	anic Compound	ls (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/19/2015 2251 11/18/2015 1356	Analysis Batch: Prep Batch:	460-336422 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:			
Analyte	DryWt Corrected	d: Y Result (ug	a/Ka) Qua	alifier MDL	RL		
Dibenzofuran Diethyl phthalate Dimethyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzen Hexachlorobenzen Hexachlorocyclope Hexachlorocyclope Hexachlorocyclope Nexachlorocyclope Hexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Hexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlorocyclope Nexachlope Nexachlorocyclo	e e ne intadiene rene vlamine	14 13 13 14 23 2900 820 19 13 29 17 2400 9.9 650 14 15 42 56 3700 15		14 13 13 14 23 14 10 19 13 29 17 31 29 17 31 9.9 12 14 15 42 56 12	460 460 460 460 460 460 46 93 460 46 46 46 46 46 46 46 46 46 46 46 46 46		
Pyrene		3000	U	15 21	460 460		
Surrogate 2,4,6-Tribromopher 2-Fluorobiphenyl 2-Fluorophenol (Sur Vitrobenzene-d5 (S 2/henol-d5 (Surr) 7erphenyl-d14 (Surr)	rr) urr)	%Rec 57 72 57 65 58 77	Qua	ifier Acceptar 10 - 95 27 - 84 21 - 84 28 - 92 22 - 88 16 - 114	nce Limits		

#### Analytical Data

Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-2 Solid	% Moisture			e Sampled: 11/13/2015 145 e Received: 11/13/2015 175	
	8270D	Semivolatile Orga	anic Compounds	s (GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 2.0 11/20/2015 1345 11/18/2015 1356	Analysis Batch: Prep Batch:	460-336494 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:	CBNAMS11 z38828.D 15.0167 g 1 mL 1 uL	
Analyte	DryWt Corrected:	Y Result (ug		lifer MDI		
1,1'-Biphenyl	Drywit Confected.				RL	
	honzono	550	J	91	1100	
1,2,4,5-Tetrachloro		79	U	79	1100	
2,2'-oxybis[1-chlord		44	U	44	1100	
2,3,4,6-Tetrachloro		100	U	100	1100	
2,4,5-Trichloropher		110	U	110	1100	
2,4,6-Trichloropher		30	U	30	430	
2,4-Dichlorophenol		25	U	25	430	
2,4-Dimethylpheno	1	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-Chloronaphthaler	ne	24	U	24	1100	
2-Chlorophenol		27	U	27	1100	
2-Methylnaphthaler	ne	6600		23	1100	
2-Methylphenol		46	U	46	1100	
2-Nitroaniline		35	U	35	1100	
2-Nitrophenol		36	U	36	1100	
3,3'-Dichlorobenzid	ine	120	U	120	430	
3-Nitroaniline	n i na ini	32	U	32	1100	
4,6-Dinitro-2-methy		280	U	280	860	
4-Bromophenyl phe		33	U	33	1100	
4-Chloro-3-methylp	henol	46	U	46	1100	
4-Chloroaniline		27	U	27	1100	
-Chlorophenyl phe	enyl ether	32	U	32	1100	
1-Methylphenol		29	U	29	1100	
I-Nitroaniline		40	U	40	1100	
I-Nitrophenol		510	U	510	2200	
Acenaphthene		1400		26	1100	
Acenaphthylene		27	U	27	1100	
Acetophenone Anthracene		23	U	23	1100	
Atrazine		1400		100	1100	
Benzaldehyde		47	U	47	430	
Benzo[a]anthracene		81 220	U	81	1100	
enzo[a]pyrene		86		89	110	
enzo[b]fluoranthen	28	42	J U	32	110	
enzo[g,h,i]perylene		61		42	110	
enzo[k]fluoranthen		46	U	61	1100	
is(2-chloroethoxy)r		33	U U	46	110	
is(2-chloroethyl)eth		25	U	33	1100	
is(2-ethylhexyl) phi		42		25	110	
utyl benzyl phthala		33	U U	42	1100	
aprolactam		77		33	1100	
arbazole		110	U	77	1100	
hrysene		290	J	26	1100	
		290	J	29	1100	
benz(a,h)anthrace	ne	55	Ŭ	55	110	

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### Analytical Data

Lab Sample ID: Client Matrix:	460-104623-2 Solid	% Moistur	e: 37.9		ampled: 11/13/2015 1455 eceived: 11/13/2015 1750
1. And	827	0D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date:	8270D 3546 2.0 11/20/2015 1345	Analysis Batch: Prep Batch:	460-336494 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	J
Prep Date:	11/18/2015 1356			Injection Volume:	1 mL 1 uL
Analyte	DryWt Correcte	d: Y Result (u	g/Kg) Qual	ifier 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	9	54	U	54	1100
luoranthene		590	J	32	1100
luorene		1500		23	1100
Hexachlorobenzen		43	U	43	110
-lexachlorobutadie	ne	30	Ŭ	30	220
Hexachlorocyclope	ntadiene	66	Ŭ	66	1100
lexachloroethane		39	U	39	110
ndeno[1,2,3-cd]pyr	rene	71	U	71	110
sophorone		23	Ŭ	23	430
aphthalene		4200		27	1100
litrobenzene		33	Ú	33	110
I-Nitrosodi-n-propy	lamine	36	Ŭ	36	110
I-Nitrosodiphenyla	mine	97	Ū 😁.	97	1100
entachlorophenol		130	U	130	860
henanthrene		15000		28	1100
henol		35	U	35	1100
yrene		720	J	48	1100
urrogate		%Rec	Qualif	ier Acceptar	ice Limits
,4,6-Tribromophen	ol (Surr)	33		10 - 95	
-Fluorobiphenyl		60		27 - 84	
-Fluorophenol (Su	rr)	53		21 - 84	
litrobenzene-d5 (S	urr)	59		28 - 92	
henol-d5 (Surr)	17	52		22 - 88	
erphenyl-d14 (Sur	r)	62		16 - 114	

#### Analytical Data

Job Number: 460-104623-1

Lab Sample ID: Client Matrix:	460-104623-3 Solid		Date Sampled: 11/13/2015 150 Date Received: 11/13/2015 1750			
	8270D	Semivolatile Org	anic Compound	ls (GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/19/2015 2315 11/18/2015 1356	Analysis Batch: Prep Batch:	460-336422 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	Ũ	
Analyte	DryWt Corrected: '	Y Result (u	a/Ka) Ou	alifier MDL	DI	
1,1'-Biphenyl	Diywi conceled.	41			RL	
1,2,4,5-Tetrachlord	hanzana		U	41	470	
2,2'-oxybis[1-chlor		35	U	35	470	
		20	U	20	470	
2,3,4,6-Tetrachloro		45	U	45	470	
2,4,5-Trichlorophenol 2,4,6-Trichlorophenol		47	U	47	470	
		14	U	14	190	
2,4-Dichloropheno		11	U	11	190	
2,4-Dimethylphenc	bl.	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-Methylnaphthale	ne	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-methy	Iphenol	130	U	130	380	
4-Bromophenyl phe		15	U	15	470	
4-Chloro-3-methylp	henol	20	U	20	470	
4-Chloroaniline		12	U	12	470	
4-Chlorophenyl phe	enyl ether	14	U	14	470	
4-Methylphenol	- COM 10	13	U,	13	470	
4-Nitroaniline		18	υJ	18	470	
4-Nitrophenol		230	U J	230	960	
Acenaphthene		200	J	12	470	
Acenaphthylene		33	Ĵ	12	470	
Acetophenone		10	Ŭ	10	470	
Anthracene		200	Ĵ	45	470	
Atrazine		21	Ŭ	21	190	
Benzaldehyde		36	Ŭ	36	470	
Benzo[a]anthracen	e	210	0	40	470	
Benzo[a]pyrene		190		14	47	
Benzo[b]fluoranthe	ne	200		19	47	
Benzo[g,h,i]perylen		160	J	27		
3enzo[g,n,i]perylene 3enzo[k]fluoranthene		80	5	21	470 47	
3enzo[k]fluoranthene 3is(2-chloroethoxy)methane		15	U	15		
Bis(2-chloroethyl)et		13	Ŭ	15	470	
Bis(2-ethylhexyl) ph		55			47	
Butyl benzyl phthala		15	J	19	470	
aprolactam		34	U	15	470	
Carbazole			U	34	470	
hrysene		36	J	12	470	
	222	250	J	13	470	
Dibenz(a,h)anthrace		63		25	47	
and a second second						

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# Analytical Data

Client Sample ID:	SB-308-S-16517.0				
Lab Sample ID:	460-104623-3				
Office and the second	100-104023-3				

Client Matrix:	460-104623-3 Solid	% Moistur		Date	Sampled: 11/13/2015 150 Received: 11/13/2015 175	
Analysis Method:	82 8270D	70D Semivolatile Org	anic Compound	GC/MS)	10001ved. 11/13/2015 175	
Prep Method: Dilution: Analysis Date: Prep Date: Analyte	3546 1.0 11/19/2015 2315 11/18/2015 1356	Analysis Batch: Prep Batch:	460-336422 460-336142	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	CBNAMS5 x8654.D 15.0224 g 1 mL 1 uL	
Dibenzofuran	DryWt Correcte	ed: Y Result (ug	(Ka)			
Diethyl phthalate		14		fier MDL	RL	
Dimethyl phthalate		14	U	14		
Di-n-butyl phthalate		14	U	14	470	
Di-n-octyl phthalate		14	U	14	470	
Fluoranthene		24	U	14	470	
Fluorene		280	U	24	470	
Hexachlorobenzene		100	J	14	470	
Hexachlorab		19	J	10	470	
Hexachlorobutadiene	9		U	19	470	
Hexachlorocyclopent	adiene	13	U	13	47	
Hexachloroethane		30	U	30	96	
Indeno[1,2,3-cd]pyrer	ne	17	U	17	470	
Isophorone		120		32	47	
Naphthalene		10	U	10	47	
Nitrobenzene		540			190	
N-Nitrosodi-n-propylar	mine	15	U	12	470	
N-INITOSODIDhenvlami	ne	16	U	15	47	
Pentachlorophenol		43	U-1	16	47	
Phenanthrene		58	Ŭ	43	470	
Phenol		1200		58	380	
Pyrene		16	U	13	470	
		440	J	16	470	
Surrogate			J	22	470	
,4,6-Tribromophenol (	Sture	%Rec	Out			
-Fluorobiphenyl	Sull)	51	Qualifier	Acceptance	Limite	
Fluorophenol (Surr)		69		10 - 95	Linns	
itrobenzene-d5 (Surr)		59		27 - 84		
nenol-d5 (Surr)		67		21 - 84		
erphenyl-d14 (Surr)		62	28 - 92			
(ourr)		88	22 - 88			
		00		16 - 114		

	IDESTANCE IN ENVIRONMENTAL TESTING         THE LEADER IN ENVIRONMENTAL TESTING         Name (for report and involve)         Company         Address         UGGS 3VB. INVERTIL TESTING         Address         UGGS 3VB. INVERTIL TESTING         Address         UGGS 3VB. INVERTIL TESTING         Neuving         Name (for report and involve)         Address         UGGS 3VB. INVERTIL TESTING         Neuving         Neuving         Neuving         Neuving         Neuving         State         M         MULVIC         State         M         MULVIC         State         Multiplic         Multiplic         State         Multiplic         State         Multiplic         Multiplic         Multislic         Stat
$(11/12)(C   164) = \frac{100}{100} = \frac{100}{10$	HAIN OF CUSTODY / AN       Samplers Name (Printed)       Samplers Name (Printed)       DVCRIV       DVCRIV       P. 0. #       DVCRIV       Analysis Turnaround Time       Standard [X]       Nush Charges Authorized For:       2 Week       1 Wook       1 Wook       2 Week       1 Wook       2 Week       1 Wook       2 Wook       1 Wook       2 Wook       1 Wook       2 Wook       2 Wook       2 Wook       3 Wook       2 Wook       2 Wook       3 Wook       2 S S S S X X       2 S S X X       2 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X       3 S S X X
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11/27/2015



Imagine the result

Consolidated Edison Company of New York, Inc.

Bayview - West 18<sup>th</sup> 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 18<sup>th</sup> 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	РСВ	MET	MISC
460-104720-1	SB-303-S-17.5-18.0	460-104720-1	Soil	11/16/2015		Х	Х			
	SB-303-S-19.0-19.5	460-104720-2	Soil	11/16/2015		Х	Х			
	SB-305-S-4.0-4.5	460-104720-3	Soil	11/16/2015		Х	Х			
	SB-305-S-8.5-9.0	460-104720-4	Soil	11/16/2015		Х	Х			
	SB-305-S-16.0-16.5	460-104720-5	Soil	11/16/2015		Х	Х			
	TB-151116	460-104720-6	Water	11/16/2015		Х				

# ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

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		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
		Acetone	17.5%
SB-303-S-17.5-18.0	ICV %RSD	2-Methyl-2-propanol	18.8%
		m-Xylene & p-Xylene	15.4%
SB-303-S-19.0-19.5	ICV %RSD	2-Methyl-2-propanol	16.8%
SB-305-S-4.0-4.5		1,2-Dibromo-3-Chloropropane	18.0%
SB-305-S-8.5-9.0 SB-305-S-16.0-16.5	CCV %D	Acetone	-28.5%
38-303-3-10.0-10.3		1,4-Dioxane	21.1%
		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%
	ICV %RSD	1,1,1-Trichloroethane	17.5%
TB-151116		Benzene	18.7%
10-131110		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%
		1,1,2-Trichloro-1,2,2-trifluoroethane	23.9%
	CCV %D	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	RRF <0.05	Non-detect	R
Calibration	KKF <0.05	Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
	RRF <0.01 <sup>1</sup>	Non-detect	R
	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF >0.05 OF RRF >0.01	Detect	NO ACTION
Initial Calibration	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%D >20% and <90% (increase in	Non-detect	No Action
	sensitivity)	Detect	J
Continuing Colibration	%D >20% and <90% (decrease in	Non-detect	UJ
Continuing Calibration	sensitivity)	Detect	J
	9/ D - 009/	Non-detect	R
	%D >90%	Detect	J

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			
	Chloromethane	AC		
	Vinyl chloride	AC	> UL	
	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 (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
the lower control limit (11) but a 100(	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
. 400/	Non-detect	R
< 10%	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
CD 202 C 17 E 18 0	Chloromethane
SB-303-S-17.5-18.0	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
> OL	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	Repo	orted		mance ptable	Not Required		
	No	Yes	No	Yes	Nequirea		
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)							
Tier II Validation							
Holding times		Х		Х			
Reporting limits (units)		Х		Х			
Blanks		•	•	•			
A. Method blanks		Х		Х			
B. Rinse blanks					Х		
C. Trip blanks		Х		Х			
Laboratory Control Sample (LCS)		Х		Х			
Laboratory Control Sample Duplicate(LCSD)		Х	Х				
LCS/LCSD Precision (RPD)		Х	Х				
Matrix Spike (MS)					Х		
Matrix Spike Duplicate(MSD)					Х		
MS/MSD Precision (RPD)					Х		
Field Duplicate (RPD)					Х		
Surrogate Spike Recoveries		Х		Х			
Dilution Factor		Х		Х			
Moisture Content					Х		
Tier III Validation							
System performance and column resolution		Х		Х			
Initial calibration %RSDs		Х	Х				
Continuing calibration RRFs		Х		Х			
Continuing calibration %Ds		Х	Х				
Instrument tune and performance check		Х		Х			
Ion abundance criteria for each instrument used		Х		Х			
Internal standard		Х		Х			
Compound identification and quantitation			•	•	•		
A. Reconstructed ion chromatograms		Х		Х			
B. Quantitation Reports		Х		Х			
C. RT of sample compounds within the established RT windows		х		х			
D. Transcription/calculation errors present		Х		Х			

VOCs: SW-846 8260C	Repo	Reported		mance otable	Not Required		
	No	Yes	No	Yes	noquirou		
GAS CHROMATOGRAPHY/MASS SPECTROM	GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
E. Reporting limits adjusted to reflect X X X							
%RSD Relative standard deviation							

Percent recovery Relative percent difference Percent difference

%R RPD %D

# 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
Water		7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
SW-846 8270D	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		3,3'-Dichlorobenzidine	15.4%
SB-303-S-19.0-19.5 SB-305-S-4.0-4.5	ICV %RSD	4,6-Dinitro-2-methylphenol	15.2%
SB-305-S-8.5-9.0		Hexachlorocyclopentadiene	17.0%
SB-305-S-16.0-16.5	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
	RRF <0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing Calibration	RRF <0.01 <sup>1</sup>	Non-detect	R
	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF 20.03 01 RRF 20.01	Detect	NO ACIION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%RSD >90%	Non-detect	R
	%K3D >90 %	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	%D >20% (Increase in sensitivity)	Detect	J
Continuing Colibration	% D > 20% (decrease in consitivity)	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

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
	Phenol-d5	
	2-Fluorophenol	
SR 202 S 40 0 40 5	2,4,6-Tribromophenol	
SB-303-S-19.0-19.5	Nitrobenzene-d5	D
	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
> OL	Detect	J
< LL but > 10%	Non-detect	UJ
< LL Dut > 10%	Detect	J
< 10%	Non-detect	R
< 10%	Detect	J
Surrogates diluted below the calibration curve due to the	Non-detect	I <sup>1</sup>
high concentration of a target compounds	Detect	J

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-16517.0	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 (III.)	Non-detect	No Action
> the upper control limit (UL)	Detect	J
a the lower control limit (11) but > 10%	Non-detect	UJ
< the lower control limit (LL) but > 10%	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	Repo	orted		mance ptable	Not
	No	Yes	No	Yes	Required
GAS CHROMATOGRAPHY/MASS SPECTROME	ETRY (GC/	MS)			
Tier II Validation					
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Rinse blanks					Х
Laboratory Control Sample (LCS) %R		Х	Х		
Laboratory Control Sample Duplicate(LCSD) %R					Х
LCS/LCSD Precision (RPD)					Х
Matrix Spike (MS) %R					Х
Matrix Spike Duplicate(MSD) %R					Х
MS/MSD Precision (RPD)					Х
Field Duplicate (RPD)					Х
Surrogate Spike Recoveries		Х	Х		
Dilution Factor		Х		Х	
Moisture Content		Х		Х	
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х	Х		
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		х		х	
D. Transcription/calculation errors present				Х	
E. Reporting limits adjusted to reflect sample dilutions %RSD Relative standard deviation		Х		х	

%R RPD

Percent recovery Relative percent difference Percent difference

%D

# SAMPLE COMPLIANCE REPORT

# SAMPLE COMPLIANCE REPORT

Sample					Compliancy <sup>1</sup>			y <sup>1</sup>		Noncompliance
Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	voc	SVOC	РСВ	МЕТ	MISC	
	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
460-104720-1	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:

Juph c. Human

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

Lab Sample ID: Client Matrix:	460-104720-1 Solid	% Moisture	e: 36.6		mpled: 11/16/2015 10 ceived: 11/16/2015 16
		0C Volatile Organi			and the state of the second
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	riep baten.	400-000101	Initial Weight/Volume:	
	11/25/2015 0831				
Analysis Date: Prep Date:	11/17/2015 0730			Final Weight/Volume:	5 mL
Analyte	DryWt Corrected	Y Result (ug	g/Kg) Qualit	fier MDL	RL
1,1,1,2-Tetrachlord	bethane	0.73	U	0.73	1.8
1,1,1-Trichloroetha		0.68	Ū	0.68	1.8
1,2,2-Tetrachlord		0.30	Ũ	0.30	1.8
1,1,2-Trichloro-1,2		0.78	Ū	0.78	1.8
1,1,2-Trichloroetha		0.50	Ũ	0.50	1.8
1,1-Dichloroethane		0.61	Ŭ	0.61	1.8
1,1-Dichloroethene		0.73	Ŭ	0.73	1.8
1,2,3-Trichloroben		0.20	Ŭ	0.20	1.8
,2,4-Trichloroben		0.57	Ű	0.57	1.8
2-Dibromo-3-Chl		0.84	Ŭ	0.84	1.8
,2-Dichlorobenze		0.25	Ŭ	0.25	1.8
,2-Dichloroethane		0.20	Ŭ	0.20	1.8
2-Dichloropropar		0.30	Ŭ	0.30	1.8
3-Dichlorobenze		0.21	Ŭ	0.21	1.8
		0.23	Ŭ	0.23	1.8
1,4-Dichlorobenzene 1,4-Dioxane		11	Ŭ	11	36
2-Butanone (MEK)		13	U	1.4	
-Hexanone		1.7	U		8.9
-Methyl-2-propan	al	6.2	U J	1.7	8.9
		4.0		6.2	18
-Methyl-2-pentan			U	4.0	8.9
cetone		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	0*	0.57	1.8
Carbon disulfide		1.7	J	0.77	1.8
Carbon tetrachloric	le	0.77	U	0.77	1.8
Chlorobenzene		0.25	U	0.25	1.8
Chlorobromometha		0.30	U	0.30	1.8
Chlorodibromomet	nane	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≁7	0.68	1.8
is-1,2-Dichloroeth		0.39	U	0.39	1.8
is-1,3-Dichloropro	pene	0.27	U	0.27	1.8
cyclohexane	Call I	0.82	U	0.82	1.8
ichlorobromometl		0.68	U	0.68	1.8
ichlorodifluorome	thane	0.57	U	0.57	1.8
thylbenzene		6.1		0.32	1.8
thylene Dibromide	9	0.21	U*	0.21	1.8
opropylbenzene		19		0.30	1.8
lethyl acetate		1.6	U	1.6	8.9
lethyl tert-butyl eth		0.30	U	0.30	1.8
lethylcyclohexane		0.89	U	0.89	1.8
Aethylene Chloride		0.57	Ų	0.57	1.8
n-Xylene & p-Xylei	ne	3.1	7	0.20	1.8
-Xylene		23		0.28	1.8

Client: ARCADIS U.S. Inc

Client Sample ID:	SB-303-S-17.5-18.0					
Lab Sample ID: Client Matrix:	460-104720-1 Solid	% Moistur	e: 36.6			npled: 11/16/2015 1040 ceived: 11/16/2015 1620
	8260	C Volatile Organi	c Compound	s by GC/	MS	-
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0831 11/17/2015 0730	Analysis Batch: Prep Batch:	460-337310 460-335797	La Ini	strument ID: ab File ID: itial Weight/Volume: nal Weight/Volume:	CVOAMS9 K47339.D 4.43 g 5 mL
Analyte	DryWt Corrected:	Y Result (u	q/Kq) (	Qualifier	MDL	RL
Styrene		0.27		Ū	0.27	1.8
Tetrachloroethene		0.50		U	0.50	1.8
Toluene		0.40		J	0.34	1.8
trans-1,2-Dichloroe	thene	0.69	1	U	0.69	1.8
trans-1,3-Dichlorop	ropene	0.18	1	Ú	0.18	1.8
Trichloroethene		0.46	l	J	0.46	1.8
Trichlorofluorometh	ane	0.61	ι	U .	0.61	1.8
Vinyl chloride		0.69	ι	n=7	0.69	1.8
Surrogate		%Rec	(	Qualifier	Acceptan	ce Limits
1,2-Dichloroethane	-d4 (Surr)	107			78 - 135	
4-Bromofluorobenz	ene	103			67 - 126	
Dibromofluorometh	ane (Surr)	110			61 - 149	
Toluene-d8 (Surr)		99			73 - 121	

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-1 Solid	% Moistur	e: 36.6		npled: 11/16/2015 1040 ceived: 11/16/2015 1620
5	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/25/2015 0831 11/17/2015 0730	Analysis Batch: Prep Batch:	460-337310 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47339.D 4.43 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10		
Cas Number	Analyte		RT	Est. Result (ug	(Kg) Qualifier
1528-22-9	Cyclobutane, (1-methyle	thylidene)-	6.58	11	JN
2808-76-6	1,3-Dimethyl-1-cyclohexe	ene	8.01	16	JN
611-14-3	Benzene, 1-ethyl-2-meth	yl-	10.66	12	JN
95-63-6	Benzene, 1,2,4-trimethyl-		10.79	22	JN
99-87-6	Benzene, 1-methyl-4-(1-i	methylethyl)-	10.96	100	JN
526-73-8	Benzene, 1,2,3-trimethyl-		11.08	31	JN
496-11-7	Indane		11.21	22	JN
	Unknown		11.55	35	JN
91-20-3	Naphthalene		12.47	42	JN
90-12-0	Naphthalene, 1-methyl-		13.47	25	JN

Client: ARCADIS U.S. Inc

### Job Number: 460-104720-1

Lab Sample ID: Client Matrix:	460-104720-2 Solid	% Moisture	: 38.0		mpled: 11/16/2015 ceived: 11/16/2015
	82600	Volatile Organic	Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution:	8260C 5035 1.0	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume:	CVOAMS4 D16995.D 4.24 g
Analysis Date: Prep Date:	11/26/2015 1201 11/17/2015 0731			Final Weight/Volume:	
Analyte	DryWt Corrected: Y				RL
1,1,1,2-Tetrachlord	bethane	0.78	U	0.78	1.9
,1,1-Trichloroetha		0.72	U	0.72	1.9
,1,2,2-Tetrachlord	bethane	0.32	U	0.32	1.9
,1,2-Trichloro-1,2		0.84	U	0.84	1.9
,1,2-Trichloroetha		0.53	U	0.53	1.9
,1-Dichloroethane		0.65	U	0.65	1.9
1,1-Dichloroethene		0.78	Ŭ	0.78	1.9
1,2,3-Trichlorobenz		0.21	Ŭ	0.21	1.9
,2,4-Trichlorobena		0.61	Ŭ	0.61	1.9
2-Dibromo-3-Chl		0.89	Ŭ 🔰	0.89	1.9
2-Dichlorobenzer		0.27	Ŭ 1	0.27	1.9
,2-Dichloroethane		0.21	Ŭ	0.21	1.9
,2-Dichloropropan		0.32	Ŭ	0.32	1.9
,3-Dichlorobenzer		0.23	Ŭ	0.23	1.9
,4-Dichlorobenzer		0.25	Ŭ	0.25	1.9
,4-Dioxane		12	Ŭ	12	38
Butanone (MEK)		41	U	1.5	9.5
-Hexanone		1.8	U	1.8	9.5
-Methyl-2-propand	ol	6.6	ŭ 🕽	6.6	19
-Methyl-2-propant		4.2		4.2	9.5
cetone		130	1	2.0	9.5
lenzene		3.4		0.38	1.9
Bromoform		0.25	U	0.25	1.9
Bromomethane		0.61	Ŭ	0.61	1.9
Carbon disulfide		2.3	0	0.82	1.9
arbon tetrachlorid	le	0.82	U	0.82	1.9
Chlorobenzene		0.27	Ŭ	0.27	1.9
Chlorobromometha	ane	0.32	Ŭ	0.32	1.9
Chlorodibromometi		0.29	Ŭ	0.29	1.9
chloroethane		0.67	Ŭ	0.67	1.9
Chloroform		0.40	Ŭ	0.40	1.9
Chloromethane		0.72	Ŭ	0.72	1.9
is-1,2-Dichloroeth	ene	0.42	Ŭ	0.42	1.9
is-1,3-Dichloropro		0.29	Ŭ	0.29	1.9
cyclohexane	F /	0.87	Ŭ	0.87	1.9
ichlorobromometh	nane	0.72	Ŭ	0.72	1.9
ichlorodifluorome		0.61	Ŭ	0.61	1.9
thylbenzene		84	, e	0.34	1.9
thylene Dibromide	2	0.23	U	0.23	1.9
opropylbenzene	<del>.</del>	110	0	0.32	1.9
lethyl acetate		1.7	U	1.7	9.5
lethyl tert-butyl eth	her	0.32	Ŭ	0.32	1.9
and the second		0.95	U	0.95	1.9
lethylcyclohexane lethylene Chloride		4.1	0	0.95	
ieuryiene Unionde					1.9
	00	80		0.21	10
-Xylene & p-Xyler -Xylene	ne	82 99		0.21 0.30	1.9 1.9

# Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-2 Solid	% Moistur	e: 38.0		npled: 11/16/2015 105 ceived: 11/16/2015 162
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1201 11/17/2015 0731	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16995.D 4.24 g 5 mL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Quali	fier MDL	RL
Styrene		0.29	Ŭ	0.29	1.9
Tetrachloroethene		0.53	U	0.53	1.9
Toluene		7.5		0.36	1.9
trans-1,2-Dichloro	ethene	0.74	U	0.74	1.9
trans-1,3-Dichloro	propene	0.19	U	0.19	1.9
Trichloroethene		0.49	U	0.49	1.9
Trichlorofluoromet	hane	0.65	U	0.65	1.9
Vinyl chloride		0.74	U	0.74	1.9
Surrogate		%Rec	Quali	fier Acceptar	ice Limits
1,2-Dichloroethane	e-d4 (Surr)	108		78 - 135	
4-Bromofluoroben:	zene	106		67 - 126	
Dibromofluorometl	hane (Surr)	106		61 - 149	
Toluene-d8 (Surr)		101		73 - 121	

### Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-2 Solid	% Moisture	e: 38.0		npled: 11/16/2015 10 ceived: 11/16/2015 10
	826	0C Volatile Organi	c 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 Identi	fied Compounds	Number TIC's F	ound: 10		
Cas Number	Analyte		RT	Est. Result (ug/	Kg) Qualifier
1000142-17-5	Bicyclo[3.1.0]hexane, 1,5	5-dimethyl-	8.67	77	JN
620-14-4	Benzene, 1-ethyl-3-meth	yl-	10.47	190	JN
95-63-6	Benzene, 1,2,4-trimethyl		10.81	92	JN
99-87-6	Benzene, 1-methyl-4-(1-	methylethyl)-	10.99	470	JN
141-93-5	Benzene, 1,3-diethyl-		11.23	130	JN
496-11-7	Indane		11.27	81	JN
4218-48-8	Benzene, 1-ethyl-4-(1-m	ethylethyl)-	11.66	210	JN
91-20-3	Naphthalene		13.01	460	JN
91-57-6	Naphthalene, 2-methyl-		14.50	410	JN
90-12-0	Naphthalene, 1-methyl-		14.81	270	JN

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-3 Solid	% Moisture	: 3.0		mpled: 11/16/2015 1 ceived: 11/16/2015 1
	82600	C Volatile Organie	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1047 11/17/2015 0732	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	
Analyte	DryWt Corrected: \	Y Result (ug	g/Kg) Qualif	fier MDL	RL
1,1,1,2-Tetrachlord	bethane	0.62	U	0.62	1.5
1,1,1-Trichloroetha		0.57	U	0.57	1.5
1,1,2,2-Tetrachlord		0.26	Ŭ	0.26	1.5
1,1,2-Trichloro-1,2		0.66	U	0.66	1.5
1,1,2-Trichloroetha		0.42	Ũ	0.42	1.5
1,1-Dichloroethane		0.51	Ŭ	0.51	1.5
1,1-Dichloroethene		0.62	Ŭ	0.62	1.5
1,2,3-Trichloroben		0.17	Ŭ	0.17	1.5
1,2,4-Trichloroben		0.48	Ŭ	0.48	1.5
1,2-Dibromo-3-Ch		0.71	ŭJ	0.71	1.5
1,2-Dichlorobenze		0.21	Ŭ	0.21	1.5
1,2-Dichloroethane		0.17	Ŭ	0.17	1.5
1,2-Dichloropropa		0.26	Ŭ	0.26	1.5
1,3-Dichlorobenze		0.18	Ŭ	0.18	1.5
1,4-Dichlorobenze		0.20	Ŭ	0.20	1.5
1,4-Dioxane	ile -	9.6	Ŭ	9.6	30
2-Butanone (MEK)		1.2	Ŭ	1.2	7.5
2-Hexanone		1.4	Ŭ	1.4	7.5
2-Methyl-2-propan	ol	5.2	ŭ 🛓	5.2	15
4-Methyl-2-pentan		3.3		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	0.48	1.5
Carbon tetrachlorid	de.	0.65	U	0.65	1.5
Chlorobenzene	le l	0.21	U	0.21	1.5
Chlorobromometha		0.26	U	0.21	1.5
Chlorodibromomet		0.23	U	0.23	1.5
Chloroethane	nane	0.53	U	0.53	1.5
Chloroform		0.32	U	0.32	1.5
Chloromethane		0.57	U	0.57	1.5
		0.33	U	0.33	1.5
cis-1,2-Dichloroeth cis-1,3-Dichloropro		0.33	U	0.23	1.5
	perie	0.69	U	0.23	1.5
Cyclohexane Dichlorobromomet	hane	0.57	U	0.57	1.5
Dichlorodifluorome		0.48	U	0.57	1.5
		0.48	U	0.48	1.5
Ethylbenzene Ethylene Dibromid	0	0.18	U	0.27	1.5
	C	0.18	U	0.18	1.5
Isopropylbenzene Methyl acetate		1.4	Ŭ	1.4	7.5
Compared and the second state of the second state of the	hor	0.26	U	0.26	1.5
Methyl tert-butyl et		0.26	U	0.26	
Methylcyclohexane			U		1.5
Methylene Chloride		0.48		0.48	1.5
m-Xylene & p-Xyle		0.17	U	0.17	1.5
o-Xylene		0.24	U	0.24	1.5
			27.2222		10 10 10 10 10 10 10 10 10 10 10 10 10 1

### Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-3 Solid	% Moistur	e: 3.0		npled: 11/16/2015 1420 ceived: 11/16/2015 1620
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1047 11/17/2015 0732	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16992.D 3.43 g 5 mL
Analyte	DryWt Corrected	I: Y Result (u	q/Kq) Quali	fier 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-Dichloroe		0.59	U	0.59	1.5
trans-1,3-Dichlorop	propene	0.15	U	0.15	1.5
Trichloroethene		0.39	U	0.39	1.5
Trichlorofluoromet	hane	0.51	U	0.51	1.5
Vinyl chloride		0.59	U	0.59	1.5
Surrogate		%Rec	Qualit	fier Acceptan	ice Limits
1,2-Dichloroethane	e-d4 (Surr)	97		78 - 135	
4-Bromofluorobenz	zene	98		67 - 126	
Dibromofluorometh	nane (Surr)	99		61 - 149	
Toluene-d8 (Surr)		97		73 - 121	

### Client: ARCADIS U.S. Inc.

Client Sample ID:	SB-305-S-4.0-4.5				
Lab Sample ID: Client Matrix:	460-104720-3 Solid	% Moistur	e: 3.0		npled: 11/16/2015 1420 ceived: 11/16/2015 1620
	82	60C Volatile Organi	ic Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1047 11/17/2015 0732	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16992.D 3.43 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte		RT	Est. Result (ug/	'Kg) Qualifier
	Tentatively Identified Co	ompound		None	

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-4 Solid	% Moisture	e: 21.7			npled: 11/16/2015 ceived: 11/16/2015
	82600	Volatile Organi	c Compounds	by GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1112 11/17/2015 0733	Analysis Batch: Prep Batch:	460-337504 460-335797			CVOAMS4 D16993.D 4.55 g 5 mL
Analyte	DryWt Corrected: Y	Result (u	a/Ka) Q	ualifier	MDL	RL
1,1,1,2-Tetrachlord	and the second	0.58	U		0.58	1.4
1,1,1-Trichloroetha		0.53	Ŭ		0.53	1.4
1,2,2-Tetrachlor		0.24	Ŭ		0.24	1.4
1,1,2-Trichloro-1,2		0.62	U		0.62	1.4
		0.39	Ŭ			1.4
1,2-Trichloroetha			U		0.39	1.4
,1-Dichloroethane		0.48			0.48	
,1-Dichloroethene		0.58	U		0.58	1.4
,2,3-Trichloroben		0.15	U		0.15	1.4
,2,4-Trichloroben		0.45			0.45	1.4
,2-Dibromo-3-Chl		0.66		-	0.66	1.4
,2-Dichlorobenze		0.20	U		0.20	1.4
,2-Dichloroethane		0.15	U		0.15	1.4
2-Dichloropropar		0.24	U		0.24	1.4
,3-Dichlorobenze		0.17	U		0.17	1.4
,4-Dichlorobenze	ne	0.18	U		D.18	1.4
,4-Dioxane		9.0	U		9.0	28
-Butanone (MEK)		15	11		1.1	7.0
-Hexanone		1.3	U		1.3	7.0
-Methyl-2-propan		4.9	U		4.9	14
-Methyl-2-pentan	one (MIBK)	3.1	U L		3.1	7.0
Acetone		40			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
arbon disulfide		1.3	J		0.60	1.4
Carbon tetrachlorid	le	0.60	U		0.60	1.4
Chlorobenzene		0.20	U		0.20	1.4
Chlorobromometha		0.24	U		0.24	1.4
Chlorodibromomet	hane	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
is-1,2-Dichloroeth		0.31	U		0.31	1.4
is-1,3-Dichloropro	pene	0.21	U		0.21	1.4
Cyclohexane		0.65	U		0.65	1.4
Dichlorobromomet		0.53	U		0.53	1.4
Dichlorodifluorome	mane	0.45	U		0.45	1.4
thylbenzene		0.48	J		0.25	1.4
thylene Dibromid	B	0.17	U		0.17	1.4
sopropylbenzene		0.24	U		0.24	1.4
Aethyl acetate		1.3	U		1.3	7.0
Aethyl tert-butyl et		0.24	U		0.24	1.4
Aethylcyclohexane		0.70	U		0.70	1.4
Aethylene Chloride		0.45	U		0.45	1.4
n-Xylene & p-Xyle	ne	0.51	J		0,15	1.4
-Xylene		0.22	U	C	0.22	1.4

Client: ARCADIS U.S. Inc

Client Sample ID:	SB-305-S-8.5-9.0					
Lab Sample ID: Client Matrix:	460-104720-4 Solid	% Moisture: 21.7		Date Sampled: 11/16/2015 15 Date Received: 11/16/2015 16		
	820	60C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1112 11/17/2015 0733	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16993.D 4.55 g 5 mL	
Analyte	DryWt Corrected	d: Y Result (u	g/Kg) Qua	lifier 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-Dichloroe	thene	0.55	U	0.55	1.4	
trans-1,3-Dichlorop	propene	0.14	U	0.14	1.4	
Trichloroethene		0.36	U	0.36	1.4	
Trichlorofluorometh	nane	0.48	U	0.48	1.4	
Vinyl chloride		0.55	υ	0.55	1.4	
Surrogate		%Rec	Qua	lifier Acceptar	nce Limits	
1,2-Dichloroethane	-d4 (Surr)	97		78 - 135		
4-Bromofluorobenz	ene	98		67 - 126		
Dibromofluorometh	ane (Surr)	100		61 - 149		
Toluene-d8 (Surr)		95		73 - 121		

# Client: ARCADIS U.S. Inc

Client Sample ID Lab Sample ID: Client Matrix:	SB-305-S-8.5-9.0 460-104720-4 Solid	% Moistur	e: 21.7		10 C 10 C 10 C 10 C	16/2015 1500 16/2015 1620
	82	260C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1112 11/17/2015 0733	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS D16993.1 4.55 g 5 mL	
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0			
Cas Number	Analyte Tentatively Identified C	ompound	RT	Est. Result (ug. None	/Kg)	Qualifier

# Client: ARCADIS U.S. Inc

# Analytical Data

Job Number: 460-104720-1

Lab Sample ID: Client Matrix:	460-104720-5 Solid	% Moisture	32.7		mpled: 11/16/2015 ceived: 11/16/2015
	82600	C Volatile Organio	Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1136 11/17/2015 0734	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	•
Analyte	DryWt Corrected: '	Y Result (ug	y/Kg) Qualif	ier MDL	RL
1,1,1,2-Tetrachlord		0.63	U	0.63	1.5
1,1,1-Trichloroetha		0.59	Ŭ	0.59	1.5
1,1,2,2-Tetrachlor		0.26	Ŭ	0.26	1.5
1,1,2-Trichloro-1,2		0.68	U	0.68	1.5
1,1,2-Trichloroetha		0.43	Ű	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-Trichloroben		0.17	U	0.17	1.5
1,2,4-Trichloroben		0.49	U	0.49	1.5
1,2-Dibromo-3-Chl		0.72	U _	0.72	1.5
1,2-Dichlorobenze		0.22	U	0.22	1.5
1,2-Dichloroethane		0.17	U	0.17	1.5
1,2-Dichloropropar		0.26	U	0.26	1.5
1,3-Dichlorobenze		0.18	U	0.18	1.5
1,4-Dichlorobenze	ne	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-propan	ol	5.4	U 🔰	5.4	15
4-Methyl-2-pentan	one (MIBK)	3.4	U	3.4	7.7
Acetone		51	4	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 tetrachloric	le	0.66	U	0.66	1.5
Chlorobenzene		0.22	Ŭ	0.22	1.5
Chlorobromometha	ane	0.26	Ŭ	0.26	1.5
Chlorodibromomet		0.23	Ŭ	0.23	1.5
Chloroethane		0.54	Ŭ	0.54	1.5
Chloroform		0.32	Ū	0.32	1.5
Chloromethane		0.59	Ŭ	0.59	1.5
cis-1,2-Dichloroeth	ene	0.34	Ŭ	0.34	1.5
cis-1,3-Dichloropro		0.23	Ŭ	0.23	1.5
Cyclohexane	F	0.71	Ŭ	0.71	1.5
Dichlorobromomet	hane	0.59	U	0.59	1.5
Dichlorodifluorome		0.49	Ŭ	0.49	1.5
Ethylbenzene		8.1	U	0.28	1.5
thylene Dibromide	2	0.18	U	0.28	1.5
sopropylbenzene		5.9	U	0.18	1.5
			11		
Aethyl acetate	hor	1.4	U U	1.4	7.7
Aethyl tert-butyl et		0.26		0.26	1.5
Aethylcyclohexane		0.77	U	0.77	1.5
Aethylene Chloride		0.49	U	0.49	1.5
n-Xylene & p-Xyle	ne	13		0.17	1.5
-Xylene		14		0.25	1.5

# Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104720-5 Solid	% Moistur	e: 32.7		mpled: 11/16/2015 1510 ceived: 11/16/2015 1620
	8260	C Volatile Organi	c Compounds b	V GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/26/2015 1136 11/17/2015 0734	Analysis Batch: Prep Batch:	460-337504 460-335797	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D16994.D 4.82 g 5 mL
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qua	alifier 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-Dichloroe	ethene	0.60	U	0.60	1.5
trans-1,3-Dichlorop	propene	0.15	U	0.15	1.5
Trichloroethene		0.40	U	0.40	1.5
Trichlorofluorometh	nane	0.52	U	0.52	1.5
Vinyl chloride		0.60	U	0.60	1.5
Surrogate		%Rec	Qua	lifier Acceptan	ce Limits
1,2-Dichloroethane	-d4 (Surr)	102		78 - 135	
4-Bromofluorobenz		97		67 - 126	
Dibromofluorometh	ane (Surr)	99		61 - 149	
Toluene-d8 (Surr)		94		73 - 121	

Client: ARCADIS U.S. Inc

Client Sample ID Lab Sample ID:	: SB-305-S-16.0-16.5 460-104720-5			Data Car	aniad: 11/16/2015
Client Matrix:	Solid	% Moisture	e: 32.7		npled: 11/16/2015 eived: 11/16/2015
	826	OC Volatile Organi	c 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 Ident	ified Compounds	Number TIC's F	ound: 8		
Cas Number	Analyte		RT	Est. Result (ug/	Kg) Qualifier
108-67-8	Benzene, 1,3,5-trimethyl-		10.54		JN
100 01 0			10.81	13	JN
	Benzene, 1,2,4-trimethyl-		10.01		
95-63-6	Benzene, 1,2,4-trimethyl- Indane		11.27		JN
95-63-6 496-11-7				42	J N J N
95-63-6 496-11-7 4218-48-8	Indane	ethylethyl)-	11.27	42 21	
95-63-6 496-11-7 4218-48-8 824-22-6 91-20-3	Indane Benzene, 1-ethyl-4-(1-me	ethylethyl)-	11.27 11.67	42 21 12	JN
95-63-6 496-11-7 4218-48-8 824-22-6	Indane Benzene, 1-ethyl-4-(1-me 1H-Indene, 2,3-dihydro-4	ethylethyl)-	11.27 11.67 12.33	42 21 12 85	J N J N

Client: ARCADIS U.S. Inc.

#### 그는 한 안길 감지 못한 것

	8260C Volatile Organic Compo	unde by GC/MS
Client Matrix:	Water	Date Received: 11/16/2015 1620
Lab Sample ID:	460-104720-6	Date Sampled: 11/16/2015 0000
Client Sample ID:	TB-151116	

Analysis Method:	8260C	Analysis Batch:	460-335929	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J33519.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	11/17/2015 2157			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 2157				
Analyte		Result (ug			RL
,1,1-Trichloroethane		0.28	U	0.28	1.0
,1,2,2-Tetrachloroethane		0.19	U 🕽	0.19	1.0
,1,2-Trichloro-1,2,2-trifluoroethane		0.34	U	0.34	1.0
1,2-Trichloroethane		0.080	U	0.080	1.0
1-Dichloroethane		0.24	U	0.24	1.0
1-Dichloroethene		0.34	U	0.34	1.0
2,3-Trichlorobenzene		0.35	U	0.35	1.0
2,4-Trichlorobenzene		0.27	U	0.27	1.0
2-Dibromo-3-Chloropropane		0.23	U	0.23	1.0
,2-Dichlorobenzene		0.22	U	0.22	1.0
2-Dichloroethane		0.25	U	0.25	1.0
2-Dichloropropane		0.18	U	0.18	1.0
,3-Dichlorobenzene		0.33	U	0.33	1.0
4-Dichlorobenzene		0.33	U	0.33	1.0
4-Dioxane		8.7	U	8.7	50
-Butanone (MEK)		2.2	U	2.2	5.0
-Hexanone		0.72	U	0.72	5.0
-Methyl-2-pentanone (MIBK)		0.63	U 🕽	0.63	5.0
cetone		1.1	U	1.1	5.0
enzene		0.090	U	0.090	1.0
romoform		0.18	U	0.18	1.0
romomethane		0.18	U	0.18	1.0
arbon disulfide		0.22	U	0.22	1.0
arbon tetrachloride		0.33	U	0.33	1.0
hlorobenzene		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 7	0.22	1.0
Chloromethane		0.22	U	0.22	1.0
is-1,2-Dichloroethene		0.26	U 🕽	0.26	1.0
is-1,3-Dichloropropene		0.16	U	0.16	1.0
Cyclohexane		0.26	U 7	0.26	1.0
Dichlorobromomethane		0.15	U	0.15	1.0
Dichlorodifluoromethane		0.14	U	0.14	1.0
thylbenzene		0.30	U	0.30	1.0
thylene Dibromide		0.19	U	0.19	1.0
sopropylbenzene		0.32	U	0.32	1.0
Nethyl acetate		0.58	n 7	0.58	5.0
Nethyl tert-butyl ether		0.13	U	0.13	1.0
Methylcyclohexane		0.22	U	0.22	1.0
Methylene Chloride		0.21	υJ	0.21	1.0
n-Xylene & p-Xylene		0.28	U	0.28	1.0
-Xylene		0.32	U	0.32	1.0
Styrene		0.17	U	0.17	1.0
etrachloroethen	e	0.12	U	0.12	1.0

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: TB-151116

Lab Sample ID: Client Matrix:	460-104720-6 Water				mpled: 11/16/2015 0000 ceived: 11/16/2015 1620
1		8260C Volatile Organi	ic Compounds b	y GC/MS	
Analysis Method:	8260C	Analysis Batch:	460-335929	Instrument ID:	CVOAMS8
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J33519.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	11/17/2015 2157			Final Weight/Volume:	5 mL
Prep Date:	11/17/2015 2157				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Toluene	0.25	U J	0.25	1.0
trans-1,2-Dichloroethene	0.18	υŤ	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	Accepta	nce 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	

## Job Number: 460-104720-1

#### Client Sample ID: SB-303-S-17.5-18.0

Lab Sample ID: Client Matrix:	460-104720-1 Solid	% Moisture	36.6		ampled: 11/16/2015 104 eceived: 11/16/2015 162
	8270D	Semivolatile Org	anic Compounds	s (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/20/2015 2310 11/18/2015 1348	Analysis Batch: Prep Batch:	460-336628 460-336140	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	
Analyte	DryWt Corrected: `	Y Result (ug	g/Kg) Qua	lifier MDL	RL
1,1'-Biphenyl	Bijin conceau	44	U	44	520
1,2,4,5-Tetrachlord	benzene	39	Ŭ	39	520
2,2'-oxybis[1-chlor		21	Ŭ	21	520
2,3,4,6-Tetrachlor		49	Ŭ	49	520
		52	U	52	520
2,4,5-Trichlorophe				15	
2,4,6-Trichlorophe		15 12	U	15	210 210
2,4-Dichloropheno			U		
2,4-Dimethylphend	10	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-Chloronaphthale	ne	12	U	12	520
2-Chlorophenol		13	U	13	520
2-Methylnaphthale	ne	120	J	11	520
2-Methylphenol		23	U	23	520
2-Nitroaniline		17	U	17	520
2-Nitrophenol		17	U,	17	520
3,3'-Dichlorobenzie	dine	58	U	58	210
3-Nitroaniline		15	U.	15	520
4,6-Dinitro-2-meth	ylphenol	140	U	140	420
4-Bromophenyl ph		16	U	16	520
4-Chloro-3-methyl		22	U	22	520
4-Chloroaniline		13	U	13	520
4-Chlorophenyl ph	envl ether	16	U	16	520
4-Methylphenol	-1011 - 10121	39	J	14	520
4-Nitroaniline		20	U	20	520
4-Nitrophenol		250	U	250	1100
Acenaphthene		91	J	13	520
Acenaphthylene		25	Ĵ	13	520
Acetophenone		11	Ŭ	11	520
Anthracene		230	J	49	520
Atrazine		23	Ŭ	23	210
Benzaldehyde		40	Ŭ	40	520
and the second of the second sec		440	U	43	52
Benzo[a]anthracer	le	380		16	52
Benzo[a]pyrene		440		20	52
Benzo[b]fluoranthe					520
Benzo[g,h,i]peryle		200	ſ	30 23	520
Benzo[k]fluoranthe		190			
Bis(2-chloroethoxy		16	U	16	520
Bis(2-chloroethyl)e		12	U	12	52
Bis(2-ethylhexyl) p		20	U	20	520
Butyl benzyl phtha	late	16	U	16	520
Caprolactam		37	U	37	520
Carbazole		13	U	13	520
Chrysene		480	J	14	520
Dibenz(a,h)anthrac	cono	80		27	52

# Analytical Data

#### Client: ARCADIS U.S. Inc

#### Job Number: 460-104720-1

Lab Sample ID: Client Matrix:	460-104720-1 Solid	% Moisture	e: 36.6			mpled: 11/16/2019 ceived: 11/16/2019
	8270	D Semivolatile Org	anic Compoun	ds (GC/M	S)	
Analysis Method:	8270D	Analysis Batch:	460-336628	Instru	iment ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab F	ile ID:	L128196.D
Dilution:	1.0			Initial	Weight/Volume:	15.0211 g
Analysis Date:	11/20/2015 2310				Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348				ion Volume:	1 uL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qu	alifier	MDL	RL
Dibenzofuran		44	J		16	520
Diethyl phthalate		15	Ŭ		15	520
Dimethyl phthalate		15	U		15	520
Di-n-butyl phthalat	e	16	U		16	520
Di-n-octyl phthalate		26	Ū		26	520
Fluoranthene		490	J		15	520
Fluorene		86	J		11	520
Hexachlorobenzen	e	21	U		21	52
Hexachlorobutadie	ne	15	U		15	110
Hexachlorocyclope	entadiene	32	U*	-1	32	520
Hexachloroethane		19	U	~	19	52
Indeno[1,2,3-cd]py	rene	220			35	52
Isophorone		11	U		11	210
Naphthalene		480	J		13	520
Nitrobenzene		16	U		16	52
N-Nitrosodi-n-prop		17	U		17	52
N-Nitrosodiphenyla		47	U		47	520
Pentachlorophenol		63	U		63	420
Phenanthrene		590			14	520
Phenol		17	U		17	520
Pyrene		690			24	520
Surrogate		%Rec	Qu	alifier	Acceptan	ce Limits
2,4,6-Tribromopher	nol (Surr)	40			10 - 95	
2-Fluorobiphenyl		45			27 - 84	
2-Fluorophenol (Su		43			21 - 84	
Nitrobenzene-d5 (S	Surr)	46			28 - 92	
Phenol-d5 (Surr)		44			22 - 88	

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: SB-303-S-19.0-19.5

Lab Sample ID: Client Matrix:	460-104720-2 Solid	% Moistur	e: 38.0		mpled: 11/16/2015 105 eceived: 11/16/2015 162
	827	0D Semivolatile Org	anic 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	rop Baton.	400 000140	Initial Weight/Volume:	
Analysis Date:	11/20/2015 2035	Run Type:	DL		
Prep Date:	11/18/2015 1348	Run Type.	DL	Final Weight/Volume: Injection Volume:	1 mL 1 uL
				injection volume.	1 UL
Analyte	DryWt Correcte			ifier MDL	RL
1,1'-Biphenyl	Sec. Sec.	820	JĐ	450	5300
1,2,4,5-Tetrachlord		400	U	400	5300
2,2'-oxybis[1-chlor		220	U	220	5300
2,3,4,6-Tetrachloro		500	U	500	5300
2,4,5-Trichlorophe	nol	530	U	530	5300
2,4,6-Trichlorophe	nol	150	U	150	2100
2,4-Dichloropheno		130	Ū	130	2100
2,4-Dimethylphend		1200	U	1200	5300
2,4-Dinitrophenol		4000	Ŭ	4000	4300
2,4-Dinitrotoluene		210	Ŭ	210	1100
2,6-Dinitrotoluene		280	Ŭ	280	1100
2-Chloronaphthale	ne	120	Ŭ,	120	
2-Chlorophenol	ile i	140	U 🗸		5300
2-Methylnaphthale	20	9600		140	5300
2-Methylphenol	ne		- <del>D</del> 7	120	5300
		230	U	230	5300
2-Nitroaniline		180	U	180	5300
2-Nitrophenol	()	180	U	180	5300
3,3'-Dichlorobenzic	line	590	U	590	2100
3-Nitroaniline		160	U	160	5300
4,6-Dinitro-2-methy		1400	U	1400	4300
4-Bromophenyl phe		170	U	170	5300
1-Chloro-3-methylp	phenol	230	U	230	5300
1-Chloroaniline		140	U	140	5300
1-Chlorophenyl phe	enyl ether	160	U	160	5300
I-Methylphenol		140	U	140	5300
-Nitroaniline		200	U	200	5300
I-Nitrophenol		2600	UV	2600	11000
Acenaphthene		2500	J Ð-	130	5300
Acenaphthylene		140	U	140	5300
Acetophenone		120	υj	120	5300
Anthracene		7000	Đ-	510	5300
trazine		240	U	240	2100
Benzaldehyde		410	Ŭ.	410	5300
Benzo[a]anthracen	e	4100	Đ.	440	530
enzo[a]pyrene		2300	D 3	160	530
Benzo[b]fluoranthe	ne	2800	-D-U	210	530
Benzo[g,h,i]perylen		830	1 Đ-	310	5300
enzo[k]fluoranthei		1100	-Di j	230	530
is(2-chloroethoxy)		170	U,	170	
lis(2-chloroethyl)et		130	U	130	5300
Bis(2-ethylhexyl) ph		210			530
Butyl benzyl phthala			U	210	5300
	ale	160	U	160	5300
Caprolactam		380	U 🗸	380	5300
arbazole		340	JD	130	5300
Chrysene	2.22	5000	J D-	140	5300
benz(a,h)anthrac	ene	440	JD	280	530

# Analytical Data

#### Client: ARCADIS U.S. Inc

#### Job Number: 460-104720-1

Lab Sample ID: Client Matrix:	460-104720-2 Solid	% Moistur	e: 38.0			npled: 11/16/2015 1050 ceived: 11/16/2015 1620
	8270	D Semivolatile Org	janic Compoun	ds (GC/N	ns)	
Analysis Method:	8270D	Analysis Batch:	460-336628	Inst	rument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-336140	Lab	File ID:	L128190.D
Dilution:	10			Initia	al Weight/Volume:	15.0332 g
Analysis Date:	11/20/2015 2035	Run Type:	DL		Weight/Volume:	1 mL
Prep Date:	11/18/2015 1348				ction Volume:	1 uL
Analyte	DryWt Corrected	d: Y Result (u	g/Kg) Qu	alifier	MDL	RL
Dibenzofuran		1100	JI		160	5300
Diethyl phthalate		150	U		150	5300
Dimethyl phthalate	•	150	U		150	5300
Di-n-butyl phthalat		160	U		160	5300
Di-n-octyl phthalate	e	270	U	1	270	5300
Fluoranthene		5700	Đ		160	5300
Fluorene		4300	JE		120	5300
Hexachlorobenzer	ne	220	U	1	220	530
Hexachlorobutadie	ene	150	U	7	150	1100
Hexachlorocyclope	entadiene	330 U+		+	330	5300
Hexachloroethane		190	U	J	190	530
Indeno[1,2,3-cd]py	rene	1000	-D	1	350	530
Isophorone		110		ī	110	2100
Naphthalene		4600	JE	5	140	5300
Nitrobenzene		170	U	N.	170	530
N-Nitrosodi-n-prop	ylamine	180	U	1	180	530
N-Nitrosodiphenyla	amine	480	U		480	5300
Pentachlorophenol		640	U		640	4300
Phenanthrene		45000	-D-	N.	140	5300
Phenol		170	U	-	170	5300
Pyrene		10000	-D-		240	5300
Surrogate		%Rec	Qu	alifier	Acceptan	ce Limits
2,4,6-Tribromophe	nol (Surr)	4	D	<	10 - 95	
2-Fluorobiphenyl		54	D		27 - 84	
2-Fluorophenol (Su		52	D		21 - 84	
Nitrobenzene-d5 (S	Surr)	53	D		28 - 92	
Phenol-d5 (Surr)		53	D		22 - 88	
Terphenyl-d14 (Su	rr)	68	D		16 - 114	

#### **Analytical Data**

#### Client: ARCADIS U.S. Inc

# Job Number: 460-104720-1

<b>Client Sample ID</b>	: SB-305-S-4.0-4.5				
Lab Sample ID:	460-104720-3			Date Sa	mpled: 11/16/2015 1420
Client Matrix:	Solid	% Moisture	e; 3.0	Date Re	ceived: 11/16/2015 1620
	8270D	Semivolatile Org	anic Compoun	ds (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 (u	a/Ka) Qi	ualifier MDL	RL
1,1'-Biphenyl	and the second second	29	U	29	340
1,2,4,5-Tetrachlor	obenzene	25	Ũ	25	340
2,2'-oxybis[1-chlor	opropane]	14	U	14	340
2,3,4,6-Tetrachlor	ophenol	32	U	32	340
2,4,5-Trichlorophe	enol	34	U	34	340
2,4,6-Trichlorophe	enol	9.7	U	9.7	140
2,4-Dichlorophenc	bl	8.0	U	8.0	140
2,4-Dimethylphene	l	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-Chloronaphthale	ene	7.7	U	7.7	340
2-Chlorophenol		8.7	U	8.7	340
2-Methylnaphthale	ene	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'-Dichlorobenzi	dine	38	U	38	140

U

U

U

U

U

U

U

U

10

91

11

15

8.8

10

9.3

13

160

8.2

8.8

7.4

32

15

26

28

10

13

20

15

11

8.0

13

11

25

8.4

9.3

18

340

270

340

340

340

340

340

340

690

340

340

340

340

140

340

34

34

34

340

34

340

340

340

340

340

340

34

34

4-Nitrophenol	160	U	
Acenaphthene	8.2	U	
Acenaphthylene	11	J	
Acetophenone	7.4	U	
Anthracene	43	J	
Atrazine	15	U	
Benzaldehyde	26	U	
Benzo[a]anthracene	240		
Benzo[a]pyrene	170		
Benzo[b]fluoranthene	300		
Benzo[g,h,i]perylene	130	J	
Benzo[k]fluoranthene	110		
Bis(2-chloroethoxy)methane	11	U	
Bis(2-chloroethyl)ether	8.0	U	
Bis(2-ethylhexyl) phthalate	860		
Butyl benzyl phthalate	330	J	
Caprolactam	25	U	
Carbazole	14	J	
Chrysene	270	J	
Dibenz(a,h)anthracene	45		

10

91

11

15

8.8

10

9.3

13

3-Nitroaniline

4-Chloroaniline

4-Methylphenol

4-Nitroaniline

4,6-Dinitro-2-methylphenol

4-Chloro-3-methylphenol

4-Bromophenyl phenyl ether

4-Chlorophenyl phenyl ether

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: SB-305-S-4.0-4.5

Lab Sample ID: Client Matrix:	460-104720-3 Solid	% Moistur	e: 3.0		Sampled: 11/16/2015 1420 Received: 11/16/2015 1620
	827	0D Semivolatile Org	anic Compoun	ds (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/20/2015 2152 11/18/2015 1348	Analysis Batch: Prep Batch:	460-336628 460-336140	Instrument ID: Lab File ID: Initial Weight/Volun Final Weight/Volun Injection Volume:	
Analyte	DryWt Correcte	ed: Y Result (u	a/Ka) Q	ualifier MDL	RL
Dibenzofuran	2.97.400.000	10	U U	10	340
Diethyl phthalate		9.7	U	9.7	340
Dimethyl phthalate		9.9	Ŭ	9.9	340
Di-n-butyl phthalat		10	Ŭ	10	340
Di-n-octyl phthalat		17	Ŭ	17	340
Fluoranthene		410	U	10	340
Fluorene		7.4	U	7.4	340
Hexachlorobenzer	e	14	Ŭ	14	34
Hexachlorobutadie		9.6	Ŭ	9.6	69
Hexachlorocyclope		21	Ŭ		340
Hexachloroethane		12	Ŭ	12	34
Indeno[1,2,3-cd]py		140		23	34
Isophorone		7.3	U	7.3	140
Naphthalene		11	J	8.7	340
Nitrobenzene		11	U	11	34
N-Nitrosodi-n-prop	ylamine	11	U	11	34
N-Nitrosodiphenyla	amine	31	U	31	340
Pentachloropheno		41	U	41	270
Phenanthrene		310	J	9.1	340
Phenol		11	U	11	340
Pyrene		460		15	340
Surrogate		%Rec	Qu	alifier Accep	tance Limits
2,4,6-Tribromophe	nol (Surr)	30		10 - 9	5
2-Fluorobiphenyl		62		27 - 8	
2-Fluorophenol (Su		51		21 - 8	4
Nitrobenzene-d5 (S	Surr)	65		28 - 9	
Phenol-d5 (Surr)		58		22 - 8	
Terphenyl-d14 (Su	rr)	86		16 - 1	14

#### **Client Sample ID:** SB-305-S-8.5-9.0

Lab Sample ID: Client Matrix:	460-104720-4 Solid	% Moistur	re: 21.7		npled: 11/16/2015 150 ceived: 11/16/2015 162
	82	70D Semivolatile Org	ganic 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	Cop Servers		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
				njedion volume.	I UL
Analyte	DryWt Correct				RL
1,1'-Biphenyl		110	J	72	840
1,2,4,5-Tetrachlord		63	U	63	840
2,2'-oxybis[1-chlor		35	U	35	840
2,3,4,6-Tetrachlord		79	U	79	840
2,4,5-Trichlorophe		84	U	84	840
2,4,6-Trichlorophe		24	U	24	340
2,4-Dichloropheno		20	U	20	340
2,4-Dimethylphenc	bl	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-Chloronaphthale	ne	19	U	19	840
2-Chlorophenol		21	U	21	840
2-Methylnaphthale	ne	380	J	19	840
2-Methylphenol		37	U	37	840
2-Nitroaniline		28	U	28	840
2-Nitrophenol		28	U	28	840
3,3'-Dichlorobenzio	dine	94	υs	94	340
3-Nitroaniline		25	U	25	840
4,6-Dinitro-2-methy	lphenol	220	U \	220	680
4-Bromophenyl phe	enyl ether	26	υ 🗂	26	840
4-Chloro-3-methylp		36	U	36	840
4-Chloroaniline		22	U	22	840
4-Chlorophenyl phe	enyl 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	Ĵ	20	840
Acenaphthylene		150	J	22	840
Acetophenone		38	J	18	840
Anthracene		1700		80	840
Atrazine		37	U	37	340
Benzaldehyde		64	Ŭ	64	840
Benzo[a]anthracen	e	6900		70	84
Benzo[a]pyrene	2	10000		25	84
Benzo[b]fluoranthe	ne	10000		33	84
Benzo[g,h,i]perylen		7500		48	840
Benzo[k]fluoranthei		4600		37	84
Bis(2-chloroethoxy)		26	U	26	840
Bis(2-chloroethyl)et		20	U	20	84
Bis(2-ethylhexyl) ph		510	J	33	840
Butyl benzyl phthal		26	Ű	26	840
Caprolactam		61	U	61	840
Carbazole		600	J	21	840
Chrysene		7300	5	23	840
)ibenz(a,h)anthrac	ene	2100		44	84
(a)iiyaiitiiido		2100		44	04
estAmerica Edis	on	Page 3	7 of 839		11/27/201

# **Analytical Data**

Job Number: 460-104720-1

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**TestAmerica Edison** 

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: SB-305-S-8.5-9.0

Lab Sample ID: Client Matrix:	460-104720-4 Solid	% Moistur	e: 21.7			mpled: 11/16/2015 150 ceived: 11/16/2015 162
	82700	Semivolatile Org	anic Compo	unds (C	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 2.0 11/20/2015 2244 11/18/2015 1348	Analysis Batch: Prep Batch:	460-336628 460-336140		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128195.D 15.0424 g 1 mL 1 uL
Analyte	DryWt Corrected:	Y Result (u	g/Kg)	Qualifie	er MDL	RL
Dibenzofuran		460		J	25	840
Diethyl phthalate		24		Ŭ	24	840
Dimethyl phthalate		24		Ũ	24	840
Di-n-butyl phthalate		25		U	25	840
Di-n-octyl phthalate		43		Ŭ	43	840
Fluoranthene		7600		÷	25	840
Fluorene		670		J	18	840
Hexachlorobenzen	e	34		U	34	84
Hexachlorobutadie	ne	24		U	24	170
Hexachlorocyclope	entadiene	52		U-1	52	840
Hexachloroethane		31		Ŭ Š	31	84
ndeno[1,2,3-cd]py	rene	8900			56	84
sophorone		18		U	18	340
Naphthalene		1800			21	840
Vitrobenzene		26	1	U	26	84
N-Nitrosodi-n-prop	ylamine	28		J	28	84
N-Nitrosodiphenyla		76		J	76	840
Pentachlorophenol		100		J	100	680
Phenanthrene		4400			22	840
Phenol		27	L.	J	27	840
Pyrene		9100			38	840
Surrogate		%Rec	C	Qualifie	r Acceptan	ice Limits
2,4,6-Tribromopher	nol (Surr)	29			10 - 95	
2-Fluorobiphenyl		65			27 - 84	
-Fluorophenol (Su		58			21 - 84	
litrobenzene-d5 (S	Surr)	63			28 - 92	
Phenol-d5 (Surr)		62			22 - 88	
Ferphenyl-d14 (Sur	rr)	76			16 - 114	

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: SB-305-S-16.0-16.5

Lab Sample ID: Client Matrix:	460-104720-5 Solid	% Moisture	e: 32.7		mpled: 11/16/2015 151 ceived: 11/16/2015 162
	827	0D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/20/2015 2336 11/18/2015 1348	Analysis Batch: Prep Batch:	460-336628 460-336140	Instrument ID: Lab File ID; Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128197.D 15.119 g 1 mL 1 uL
Analyte	DryWt Correcte	ed: Y Result (u	g/Kg) Qual	ifier MDL	RL
1,1'-Biphenyl		170		42	
1,2,4,5-Tetrachlord	benzene	36	J U	36	490
2,2'-oxybis[1-chlore		20			490
2,3,4,6-Tetrachlord			U	20	490
2,4,5-Trichlorophe		46 48	U	46	490
			0	48	490
2,4,6-Trichlorophere 2,4-Dichloropheno		14	U	14	200
		11	U	11	200
2,4-Dimethylpheno		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-Chloronaphthale	ne	11	U	11	490
2-Chlorophenol		12	U	12	490
2-Methylnaphthale	ne	630		11	490
2-Methylphenol		21	U	21	490
2-Nitroaniline		16	U	16	490
2-Nitrophenol	ter.	16	U	16	490
3,3'-Dichlorobenzic	line	54	U 7	54	200
3-Nitroaniline	P. 4	14	U	14	490
4,6-Dinitro-2-methy		130	0	130	390
4-Bromophenyl phe		15	U	15	490
4-Chloro-3-methylp	nenol	21	U	21	490
4-Chloroaniline	and an end	13	U	13	490
4-Chlorophenyl phe	enyi 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	5.	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]anthracen	э	530		41	49
Benzo[a]pyrene		460		15	49
Benzo[b]fluoranthe		510		19	49
Benzo[g,h,i]perylen		280	J	28	490
Benzo[k]fluoranther		210		21	49
Bis(2-chloroethoxy)		15	U	15	490
Bis(2-chloroethyl)et		11	U	11	49
Bis(2-ethylhexyl) ph		140	J	19	490
Butyl benzyl phthala	ate	15	U	15	490
Caprolactam		35	U	35	490
Carbazole		230	J	12	490
Chrysene		560		13	490
Dibenz(a,h)anthrace	ene	110		25	49

# Analytical Data

Job Number: 460-104720-1

#### Client Sample ID: SB-305-S-16.0-16.5

Lab Sample ID: Client Matrix:	460-104720-5 Solid	% Moistur	e: 32.7		ampled: 11/16/2015 151 Received: 11/16/2015 162
	8270	D Semivolatile Org	ganic Compound	s (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/20/2015 2336 11/18/2015 1348	Analysis Batch: Prep Batch:	460-336628 460-336140	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	
Analyte	DryWt Corrected	d: Y Result (u	iq/Kq) Qua	lifier MDL	RL
Dibenzofuran	and a starting	290	J J	15	490
Diethyl phthalate		14	Ŭ	14	490
Dimethyl phthalate		14	Ŭ	14	490
Di-n-butyl phthalat		15	Ŭ	15	490
Di-n-octyl phthalat		25	Ŭ	25	490
Fluoranthene		780		14	490
Fluorene		590		11	490
Hexachlorobenzer	le	20	U	20	49
Hexachlorobutadie	ene	14	U	14	99
Hexachlorocyclope	entadiene	30	U+-	30	490
Hexachloroethane		18	Ŭ	18	49
ndeno[1,2,3-cd]py	rene	300		32	49
sophorone		10	U	10	200
Naphthalene		1800		12	490
Nitrobenzene		15	U	15	49
N-Nitrosodi-n-prop	ylamine	16	U	16	49
N-Nitrosodiphenyla		44	U	44	490
Pentachlorophenol		59	U	59	390
henanthrene		2300		13	490
Phenol		16	U	16	490
Pyrene		1100		22	490
Surrogate		%Rec	Qual	ifier Accepta	ance Limits
4,6-Tribromopher	nol (Surr)	43		10 - 95	
-Fluorobiphenyl		66		27 - 84	
-Fluorophenol (Su		59		21 - 84	
Vitrobenzene-d5 (S	Surr)	67		28 - 92	
Phenol-d5 (Surr)		61		22 - 88	
erphenyl-d14 (Su	rr)	82		16 - 114	

Water Metals Filtered (Yes/No)?	Received by 1) Received by 2) Regulated by 3)	Date / Time			in	Relinquished by
Water Metals Filtered (Yesh		Time				
Water Metals Filtered (Yes/No)?		1100	udit.	Ш	) any	1
			sindire		Arcedus	X
			Date		Janv	Relinquished by a Company
		Soil: Water:		9, 5 = NaOH	) <sub>4</sub> , 4 = HNO <sub>3</sub> , = Other	Preservation Used: 1 = ICE, HOLD =
					H	SHORT
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	X	X	S	UN	ullight	2-31-305-5- 10=0 -10-5
1.2	*	XiX	2	1500	Hallin	
	X	5 X	S	och1	11/10/15	S'H-0'H-S-906-8
	- X	X	S	1050	liliolis	
	X	5 5		chal	Wiplis	1-1
Sample		Cont.	Matrix N	Time	Date	Sample Identification
104720	\$ 82			1 Week Other	212.1032.0275	IOL Fax
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Site/Project Identification		Samplers Name (Printed)	OVCHT	Sampler		Livota (40000)
Page 1 of 1		CHAIN OF CUSTODY / ANA	CUSTO	ANN OF	CH	THE LEADER IN ENVIRONMENTAL TESTING
w Jersey 08817 2) 549-3900 Fax: (732) 549-3679						<b>TestAmerica</b>



Imagine the result

Consolidated Edison Company of New York, Inc.

Bayview - West 18<sup>th</sup> 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 18<sup>th</sup> 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:

				Sample	Parent		ŀ	Analys	is	
SDG	Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	РСВ	MET	MISC
	SB-304-S-9.0-9.5	460-104781-1	Soil	11/17/2015		Х	Х			
	SB-304-S-21.5-22.0	460-104781-2	Soil	11/17/2015		Х	Х			
	SB-306-S-7.5-8.0	460-104781-3	Soil	11/17/2015		Х	Х			
	SB-306-S-18.5-19.0	460-104781-4	Soil	11/17/2015		Х	Х			
460-104781-1	SB-307-S-8.5-9.0	460-104781-5	Soil	11/17/2015		Х	Х			
	SB-307-S-15.0-15.5	460-104781-6	Soil	11/17/2015		Х	Х			
	DUP-2-S	460-104781-7	Soil	11/17/2015	SB-306-S- 18.5-19.0	Х	Х			
	TB-151117	460-104781-8	Water	11/17/2015		Х				

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.

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

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-7.5-8.0	ICV %RSD	2-Methyl-2-propanol	16.8%
SB-306-S-18.5-19.0 SB-307-S-8.5-9.0 SB-307-S-15.0-15.5 DUP-2-S		1,2-Dibromo-3-Chloropropane	18.0%
SB-304-S-9.0-9.5		2-Butanone (MEK)	-21.4%
SB-304-S-21.5-22.0 SB-306-S-7.5-8.0		1,4-Dioxane	-22.1%
SB-306-S-18.5-19.0	CCV %D	trans-1,3-Dichloropropene	-22.4%
SB-307-S-8.5-9.0 DUP-2-S		1,1,2-Trichloroethane	-20.2%
		Vinyl chloride	-21.9%
SB-307-S-15.0-15.5	CCV %D	Acetone	-28.1%
		Methyl acetate	22.1%
	ICV %RSD	Acetone	15.5%
TB-151117		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
	RRF <0.05	Non-detect	R
	KKF <0.05	Detect	J
Initial and Continuing Calibration	RRF <0.01 <sup>1</sup>	Non-detect	R
	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF >0.05 01 RRF >0.01	Detect	NO ACIION
Initial Calibration	%RSD > 15% or a correlation	Non-detect	UJ
	coefficient <0.99	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	Non-detect	UJ
	sensitivity)	Detect	J
	% D > 0.0%	Non-detect	R
	%D >90%	Detect	J

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%</ll>	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 (11) but a 100/	Non-detect	UJ
< the lower control limit (LL) but > 10%	Detect	J
. 100/	Non-detect	R
< 10%	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
3D-300-3-18.3-19.0/DUF-2-3	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	Repo	orted	Perfor Acce	mance otable	Not Required
	No	Yes	No	Yes	Nequireu
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)			
Tier II Validation		1	1		1
Holding times		Х		Х	
Reporting limits (units)		Х		Х	
Blanks					
A. Method blanks		Х		Х	
B. Rinse blanks					Х
C. Trip blanks		Х		Х	
Laboratory Control Sample (LCS)		Х	Х		
Laboratory Control Sample Duplicate(LCSD)		Х		Х	
LCS/LCSD Precision (RPD)		Х		Х	
Matrix Spike (MS)					Х
Matrix Spike Duplicate(MSD)					Х
MS/MSD Precision (RPD)					Х
Field Duplicate (RPD)		Х	Х		
Surrogate Spike Recoveries		Х		Х	
Dilution Factor		Х		Х	
Moisture Content					Х
Tier III Validation					
System performance and column resolution		Х		Х	
Initial calibration %RSDs		Х	Х		
Continuing calibration RRFs		Х		Х	
Continuing calibration %Ds		Х	Х		
Instrument tune and performance check		Х		Х	
Ion abundance criteria for each instrument used		Х		Х	
Internal standard		Х		Х	
Compound identification and quantitation		•	•	•	•
A. Reconstructed ion chromatograms		Х		Х	
B. Quantitation Reports		Х		Х	
C. RT of sample compounds within the established RT windows		х		х	
D. Transcription/calculation errors present		Х		Х	

VOCs: SW-846 8260C		orted	Performance Acceptable		Not Required	
	No	Yes	No	Yes	Roquiou	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
<ul> <li>Reporting limits adjusted to reflect sample dilutions</li> </ul>		Х		Х		
%RSD Relative standard deviation						

Percent recovery Relative percent difference Percent difference

%R RPD %D

# 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
311-040 82700	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
	RRF <0.05	Non-detect	R
	KKF <0.05	Detect	J
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R
Calibration	KKF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF 20.03 01 RRF 20.01	Detect	NO ACTION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%RSD >90%	Non-detect	R
	%K3D >90 %	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	/// //////////////////////////////////	Detect	J
Continuing Colibration	% D > 20% (decrease in consitivity)	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

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
	2,3,4,6-Tetrachlorophenol		
	2,4,5-Trichlorophenol		
	4,6-Dinitro-2-methylphenol		
	Benzo[a]anthracene		<ll but="">10%</ll>
	Fluoranthene		
SB-304-S-21.5-22.0	Fluorene	<ll but="">10%</ll>	
	N-Nitrosodiphenylamine		
	Pentachlorophenol		
	Phenanthrene		
	Pyrene		

Sample Locations	Compound	MS Recovery	MSD Recovery
	1,1'-Biphenyl		
	2,4,6-Trichlorophenol		
	2,4-Dichlorophenol		
	2-Nitrophenol	<ll but="">10%</ll>	AC
	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 (11) but > 10%	Non-detect	UJ
< the lower control limit (LL) but > 10%	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
	4-Methylphenol	22 J	400 U	
	Bis(2-ethylhexyl) phthalate	130 J	77 J	
	Butyl benzyl phthalate	22 J	400 U	
SB-306-S-18.5-19.0/DUP-2-S	Fluoranthene	22 J	400 U	AC
	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	Repo	orted		mance otable	Not	
	No	Yes	No	Yes	Required	
GAS CHROMATOGRAPHY/MASS SPECTROME	TRY (GC/	MS)	-	·		
Tier II Validation						
Holding times		Х		Х		
Reporting limits (units)		Х		Х		
Blanks			-	•		
A. Method blanks		Х		Х		
B. Rinse blanks					Х	
Laboratory Control Sample (LCS) %R		Х	Х			
Laboratory Control Sample Duplicate(LCSD) %R					х	
LCS/LCSD Precision (RPD)					Х	
Matrix Spike (MS) %R		Х	Х			
Matrix Spike Duplicate(MSD) %R		Х	Х			
MS/MSD Precision (RPD)		Х		Х		
Field Duplicate (RPD)		Х		Х		
Surrogate Spike Recoveries		Х		Х		
Dilution Factor		Х		Х		
Moisture Content		Х		Х		
Tier III Validation						
System performance and column resolution		Х		Х		
Initial calibration %RSDs		Х	Х			
Continuing calibration RRFs		Х		Х		
Continuing calibration %Ds		Х	Х			
Instrument tune and performance check		Х		Х		
Ion abundance criteria for each instrument used		Х		Х		
Internal standard		Х		Х		
Compound identification and quantitation						
A. Reconstructed ion chromatograms		Х		Х		
B. Quantitation Reports		Х		Х		
C. RT of sample compounds within the established RT windows		х		х		
D. Transcription/calculation errors present				Х		
<ul> <li>E. Reporting limits adjusted to reflect sample dilutions</li> <li>%RSD Relative standard deviation</li> </ul>		Х		х		

%R RPD

Percent recovery Relative percent difference Percent difference

%D

# SAMPLE COMPLIANCE REPORT

# SAMPLE COMPLIANCE REPORT

Sample					Compliancy <sup>1</sup>					Noncompliance
Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	voc	SVOC	РСВ	MET	MISC	
	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
460-104781-1	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:

Juph c. Human

DATE: January 7, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

# CHAIN OF CUSTODY/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

# **Analytical Data**

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moisture	e: 13.5		ampled: 11/17/2015 10 eceived: 11/17/2015 16				
8260C Volatile Organic Compounds by GC/MS									
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	hod: 5035 Prep Batch: 460-336137 1.0 Date: 11/27/2015 1538		Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume						
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qu	alifier MDL	RL				
1,1,1,2-Tetrachlord		0.42	U	0.42	1.0				
1,1,1-Trichloroetha		0.39	U	0.39	1.0				
1,1,2,2-Tetrachlord		0.17	U	0.39	1.0				
1,1,2-Trichloro-1,2		0.45	U,	0.45	1.0				
1,1,2-Trichloroetha		0.29	Ŭ	0.29	1.0				
1,1-Dichloroethane		0.35	U	0.35	1.0				
1,1-Dichloroethene		0.42	U	0.35	1.0				
1,2,3-Trichloroben		0.42	U	0.42					
1,2,4-Trichloroben		0.33	U.	0.33	1.0				
1,2-Dibromo-3-Chl		0.48	U L		1.0				
1,2-Dichlorobenze		0.48	U U	0.48	1.0				
1,2-Dichloroethane		0.14	U	0.14 0.11	1.0				
1,2-Dichloropropar		0.17	U		1.0				
1,3-Dichlorobenze		0.12		0.17	1.0				
1,4-Dichlorobenze		0.12	U	0.12	1.0				
1,4-Dioxane	ne -	6.5	U LU	0.13	1.0				
2-Butanone (MEK)		0.79		6.5	20				
2-Hexanone		0.96	n 7	0.79	5.1				
2-Methyl-2-propan	al		U	0.96	5.1				
4-Methyl-2-propan		3.6	U		10				
		2.3	U	2.3	5.1				
Acetone Benzene		5.0	J	1.1	5.1				
		0.20	U	0.20	1.0				
Bromoform		0.13	U	0.13	1.0				
Bromomethane Carbon disulfide		0.33	U	0.33	1.0				
Carbon disunde	10	0.85	J	0.44	1.0				
		0.44	U	0.44	1.0				
Chlorobenzene	200	0.14	U	0.14	1.0				
Chlorobromometha Chlorodibromomet		0.17	U	0.17	1.0				
Chloroethane	nane	0.15	U	0.15	1.0				
Chloroform		0.36	U	0.36	1.0				
Chloromethane		0.22	U	0.22	1.0				
cis-1,2-Dichloroeth	000	0.39	U	0.39	1.0				
		0.23	U	0.23	1.0				
cis-1,3-Dichloropro Cyclohexane	pene	0.15 0.47	U	0.15	1.0				
Dichlorobromometh	220	0.47	UU	0.47	1.0				
Dichlorodifluorome		0.33		0.39	1.0				
Ethylbenzene	unano	0.33	U U	0.33	1.0				
Ethylene Dibromide	2	0.18	U	0.18	1.0				
sopropylbenzene		0.12	U	0.12	1.0				
Methyl acetate		0.92	Ŭ	0.17	1.0				
Methyl tert-butyl eti	ber			0.92	5.1				
Methylcyclohexane		0.17	U	0.17	1.0				
Methylene Chloride		0.51	U	0.51	1.0				
		0.33	U	0.33	1.0				
n-Xylene & p-Xyler		0.11	U	0.11	1.0				
o-Xylene		0.16	U	0.16	1.0				

# Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moisture: 13.5		Date Sampled: 11/17/2015 103 Date Received: 11/17/2015 163		
	8260	C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1538 11/18/2015 1342	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17015.D 5.64 g 5 mL	
Analyte	DryWt Corrected:	Y Result (u	a/Ka) Quali	fier 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	υ 7	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	Qualit	fier Acceptan	ce Limits	
1,2-Dichloroethane-d4 (Surr)		107	107		78 - 135	
4-Bromofluorobenzene		88		67 - 126		
Dibromofluoromethane (Surr)		106		61 - 149		
Toluene-d8 (Surr)		99	99		73 - 121	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moisture	e: 13.5			11/17/2015 1030 11/17/2015 1630
	82	60C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1538 11/18/2015 1342	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOA D1701 5.64 5 mL	5.D g
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0			
Cas Number	Analyte Tentatively Identified Co	ompound	RT	Est. Result (ug/ None	Kg)	Qualifier

## Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

#### Client Sample ID: SB-304-S-21.5-22.0

Lab Sample ID: Client Matrix:	460-104781-2 Solid	%	Moisture: 25.2		ate Sampled: 11/17/2015 10 ate Received: 11/17/2015 10
		8260C Volatile	Organic Compound	s by GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1602 11/18/2015 1343	Analysis Prep Bat		Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo	
Analyte	DryWt Corre	cted: Y R	esult (ug/Kg)	Qualifier MDL	RL
1,1,1,2-Tetrachlord				J 0.54	1.3
1,1,1-Trichloroetha				J 0.50	1.3
1,1,2,2-Tetrachlord				J 0.22	1.3
1,1,2-Trichloro-1,2				J 0.58	1.3
,1,2-Trichloroetha				0.37	
1,1-Dichloroethane			45 U		1.3
1,1-Dichloroethene					1.3
1,2,3-Trichloroben				J 0.54	1.3
				J 0.15	1.3
1,2,4-Trichloroben				0.42	1.3
1,2-Dibromo-3-Chl				0.62	1.3
1,2-Dichlorobenze				J 0.18	1.3
1,2-Dichloroethane			15 L		1.3
,2-Dichloropropar			22 l		1.3
3-Dichlorobenzer			16 L		1.3
,4-Dichlorobenzer	ne		17 L		1.3
I,4-Dioxane		8.		J) 8.4	26
2-Butanone (MEK)		1.			6.6
-Hexanone		1.			6.6
-Methyl-2-propan		4.			13
I-Methyl-2-pentance	one (MIBK)	2.			6.6
Acetone		1.		J 1.4	6.6
Benzene			45 J		1.3
Bromoform		0,		J 0.17	1.3
Bromomethane		0.			1.3
Carbon disulfide		0.			1.3
arbon tetrachlorid	e	0.	57 L	J 0.57	1.3
chlorobenzene		0.	18 L	J 0.18	1.3
Chlorobromometha		0.:	22 L	0.22	1.3
chlorodibromomet	nane	0.1	20 L	0.20	1.3
Chloroethane		0.			1.3
Chloroform		0.3	28 L	0.28	1.3
chloromethane		0.			1.3
is-1,2-Dichloroeth		0.3		0.29	1.3
is-1,3-Dichloropro	pene	0.:	20 L	0.20	1.3
cyclohexane		0.0	51 U		1.3
Dichlorobromometh		0.4			1.3
ichlorodifluorome	hane	0.4		0.42	1.3
thylbenzene		0.3			1.3
thylene Dibromide	)	0.1	16 U		1.3
opropylbenzene		0.3			1.3
lethyl acetate		1.3			6.6
lethyl tert-butyl eth	ner	0.2			1.3
lethylcyclohexane		0.6			1.3
lethylene Chloride		0.4			1.3
-Xylene & p-Xyler		0.1			1.3
-Xylene		0.2			1.3
		0.1		0.2 ,	1.0

#### Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

## Client Sample ID: SB-304-S-21.5-22.0

Lab Sample ID: Client Matrix:	460-104781-2 Solid	% Moisture	25.2			npled: 11/17/2015 1040 eived: 11/17/2015 1630
	8260	C Volatile Organi	c Compounds t	oy GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1602 11/18/2015 1343	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument Lab File ID Initial Weig Final Weigl	: ht/Volume:	CVOAMS4 D17016.D 5.06 g 5 mL
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qu	alifier M	DL	RL
Styrene		0.20	U	0.	20	1.3
Tetrachloroethene		0.37	U	0.3	37	1.3
Toluene		0.25	U	0.:	25	1.3
trans-1,2-Dichloroe	ethene	0.52	U	0.	52	1.3
trans-1,3-Dichlorop	propene	0.13	U	0.	13	1.3
Trichloroethene		0.34	U	0.3	34	1.3
Trichlorofluoromet	hane	0.45	U	0.4	45	1.3
Vinyl chloride		0.52	U	0.:	52	1.3
Surrogate		%Rec	Qu	alifier	Acceptan	ce Limits
1,2-Dichloroethane	e-d4 (Surr)	106			78 - 135	
4-Bromofluorobenz	zene	95			67 - 126	
Dibromofluorometh	nane (Surr)	105			61 - 149	
Toluene-d8 (Surr)		92			73 - 121	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-2 Solid	% Moisture: 25.2		Date Sampled: 11/17/2015 104 Date Received: 11/17/2015 163		
	826	0C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1602 11/18/2015 1343	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17016.D 5.06 g 5 mL	
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0			
Cas Number	Analyte Tentatively Identified Co	mpound	RT	Est. Result (ug/ None	Kg) Qualifier	

#### Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-3 Solid	% Moisture	e: 20.8		ampled: 11/17/2015 12 eceived: 11/17/2015 10
	82600	Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date:	8260C 5035 1.0 11/27/2015 1627	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	
Prep Date:	11/18/2015 1344				
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qua	lifier MDL	RL
1,1,1,2-Tetrachloro	ethane	0.54	U	0.54	1.3
1,1,1-Trichloroetha	ne	0.50	U	0.50	1.3
1,1,2,2-Tetrachlord		0.22	U	0.22	1.3
1,1,2-Trichloro-1,2		0.58	U	0.58	1.3
1,1,2-Trichloroetha		0.37	U	0.37	1.3
1,1-Dichloroethane		0.45	U J	0.45	1.3
1,1-Dichloroethene		0.54	Ŭ	0.54	1.3
1,2,3-Trichloroben		0.14	Ŭ	0.14	1.3
1,2,4-Trichloroben		0.42	Ŭ	0.42	1.3
1,2-Dibromo-3-Chl		0.62	Ŭ J	0.62	1.3
1,2-Dichlorobenzei		0.18	Ŭ	0.18	1.3
1,2-Dichloroethane		0.14	Ŭ	0.14	1.3
2-Dichloropropar		0.22	Ŭ	0.22	1.3
1,3-Dichlorobenzei		0.16	Ŭ	0.16	1.3
1,4-Dichlorobenzer		0.17	Ŭ	0.17	1.3
1,4-Dioxane		8.4	U)	8.4	26
2-Butanone (MEK)		1.0	υj	1.0	6.6
2-Hexanone		1.2	U J	1.2	6.6
2-Methyl-2-propan	al	4.6	υ 1	4.6	13
-Methyl-2-propan		2.9	U	2.9	6.6
Acetone		9.4	U	1.4	6.6
Benzene		1.7		0.26	1.3
Bromoform		0.17	U	0.17	1.3
Bromomethane		0.42	Ŭ	0.42	1.3
Carbon disulfide		0.56	U	0.42	1.3
Carbon tetrachloric	0	0.56	Ŭ	0.56	1.3
Chlorobenzene	c	0.18	U	0.18	1.3
Chlorobromometha	200	0.22	Ŭ	0.18	1.3
Chlorodibromomet		0.20	U	0.20	1.3
Chloroethane	lanc	0.46	Ŭ	0.46	1.3
Chloroform		0.28	Ŭ	0.28	1.3
Chloromethane		0.50	Ŭ	0.50	1.3
is-1,2-Dichloroeth	ana	0.29	Ŭ	0.29	1.3
is-1,3-Dichloropro		0.20	Ŭ	0.20	1.3
Cyclohexane	pene	0.60	U	0.60	1.3
Dichlorobromometh	ane	0.50	U	0.50	1.3
Dichlorodifluorome		0.42	U	0.42	1.3
Ethylbenzene	indiro.	0.42	U	0.42	1.3
thylene Dibromide		0.24	U	0.24	1.3
sopropylbenzene		0.22	Ŭ	0.16	1.3
Aethyl acetate		1.2	U	1.2	6.6
lethyl tert-butyl eth	)er	0.22	U	0.22	1.3
Aethylcyclohexane		0.66	U	0.66	
lethylene Chloride		0.42	U	0.42	1.3
		0.42		0.42	1.3
n-Xylene & p-Xylei -Xylene		0.14	UU	0.14	1.3
-Aylerie		0.21	U	0.21	1.3

## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-3 Solid	460-104781-3 Solid % Moisture: 20.8			mpled: 11/17/2015 1245 ceived: 11/17/2015 1630
	82600	C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1627 11/18/2015 1344	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17017.D 4.81 g 5 mL
Analyte	DryWt Corrected: 1	Result (u	a/Ka) Qua	lifier MDL	RL
Styrene Tetrachloroethene Toluene		0.20 0.37 0.25	U U U U	0.20 0.37 0.25	1.3 1.3 1.3
trans-1,2-Dichloroe trans-1,3-Dichlorop		0.51 0.13	U U	0.23 0.51 0.13	1.3 1.3 1.3
Trichloroethene Trichlorofluorometl	nane	0.34 0.45	U U	0.34 0.45	1.3 1.3
Vinyl chloride		0.51	U	0.51	1.3
Surrogate 1,2-Dichloroethane		%Rec 107	Qua	lifier Acceptar 78 - 135	ice Limits
4-Bromofluorobenz Dibromofluorometh Toluene-d8 (Surr)		97 109 95		67 - 126 61 - 149 73 - 121	

Client: ARCADIS U.S. Inc

Client Sample ID Lab Sample ID: Client Matrix:	: SB-306-S-7.5-8.0 460-104781-3 Solid	% Moistur	e: 20.8		mpled: 11/17/2015 1245 ceived: 11/17/2015 1630
	82	260C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1627 11/18/2015 1344	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17017.D 4.81 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified C	ompound	RT	Est. Result (ug/ None	/Kg) Qualifier

#### Client: ARCADIS U.S. Inc

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-4 Solid	% Moisture	e: 21.3		mpled: 11/17/2015 ceived: 11/17/2015
	82600	Volatile Organi	c Compounds b	y GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1651 11/18/2015 1345	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	
Analyte	DryWt Corrected: \	r Result (u	g/Kg) Qua	lifier MDL	RL
1,1,1,2-Tetrachlord	the second se	0.50	U	0.50	1.2
1,1,1-Trichloroetha		0.47	U	0.30	1.2
1,1,2,2-Tetrachlor		0.21	U	0.21	1.2
1,1,2-Trichloro-1,2		0.54	U	0.54	1.2
1,1,2-Trichloroetha		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-Trichloroben		0.14	U	0.14	1.2
1,2,4-Trichloroben		0.39	U	0.39	1.2
1,2-Dibromo-3-Chl		0.58	n 7	0.58	1.2
1,2-Dichlorobenze		0.17	U	0.17	1.2
1,2-Dichloroethane		0.14	U	0.14	1.2
1,2-Dichloropropar		0.21	U	0.21	1.2
1,3-Dichlorobenze		0.15	U	0.15	1.2
1,4-Dichlorobenze	ne	0.16	U	0.16	1.2
1,4-Dioxane		7.9	U	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-propan		4.3	n 7	4.3	12
4-Methyl-2-pentan	one (MIBK)	2.7	U	2.7	6.1
Acetone		1.3	U	1.3	6.1
Benzene		57	ð	0.25	1.2
Bromoform		0.16		0.16	1.2
Bromomethane		0.39	U	0.39	1.2
Carbon disulfide		0.53	U	0.53	1.2
Carbon tetrachloric	ie	0.53	U	0.53	1.2
Chlorobenzene		0.17	U	0.17	1.2
Chlorobromometha		0.21	U	0.21	1.2
Chlorodibromomet	nane	0.18	U	0.18	1.2
Chloroethane		0.43	U	0.43	1.2
Chloroform		0.26	U	0.26	1.2
Chloromethane	2021	0.47	U	0.47	1.2
cis-1,2-Dichloroeth		0.27	U	0.27	1.2
cis-1,3-Dichloropro	pene	0.18	U	0.18	1.2
		0.57	U	0.57	1.2
Dichlorobromomet		0.47	U	0.47	1.2
Dichlorodifluorome	thane	0.39	U	0.39	1.2
Ethylbenzene		0.22	U	0.22	1.2
Ethylene Dibromide	3	0.15	U	0.15	1.2
sopropylbenzene		0.21	U	0.21	1.2
Methyl acetate		1.1	U	1.1	6.1
Methyl tert-butyl et		0.21	U	0.21	1.2
Methylcyclohexane		0.61	U	0.61	1.2
Methylene Chloride		0.39	U	0.39	1.2
n-Xylene & p-Xyle	ne	0.14	U	0.14	1.2
o-Xylene		0.20	U	0.20	1.2

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#### Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

## Client Sample ID: SB-306-S-18.5-19.0

Lab Sample ID: Client Matrix:	460-104781-4 Solid	% Moisture	e: 21.3		mpled: 11/17/2015 1300 ceived: 11/17/2015 1630
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1651 11/18/2015 1345	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17018.D 5.17 g 5 mL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Quali	fier 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
rans-1,2-Dichloroe	ethene	0.48	U	0.48	1.2
rans-1,3-Dichlorop	propene	0.12	U ]	0.12	1.2
Frichloroethene		0.32	U	0.32	1.2
Trichlorofluoromet	nane	0.42	U	0.42	1.2
Vinyl chloride		0.48	U	0.48	1.2
Surrogate		%Rec	Quali	fier Acceptar	ice Limits
1,2-Dichloroethane	-d4 (Surr)	109		78 - 135	
1-Bromofluorobenz	tene	96		67 - 126	
Dibromofluorometh	nane (Surr)	107		61 - 149	
Toluene-d8 (Surr)	200 N 10	94		73 - 121	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-4 Solid	% Moistur	e: 21.3		npled: 11/17/2015 1300 ceived: 11/17/2015 1630
	826	0C Volatile Organi	ic Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1651 11/18/2015 1345	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17018.D 5.17 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified Cor	mpound	RT	Est. Result (ug/ None	Kg) Qualifier

## Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-5 Solid	% Moisture	ə: 34.9		mpled: 11/17/20 eceived: 11/17/20	
	8260	C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1716 11/18/2015 1346	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:		
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Quali	fier MDL	RL	
1,1,1,2-Tetrachlord	bethane	0.57	U	0.57	1.4	
1,1,1-Trichloroetha		0.53	Ŭ	0.53	1.4	
1,1,2,2-Tetrachlord		0.24	Ŭ	0.24	1.4	
1,1,2-Trichloro-1,2		0.61	U	0.61	1.4	
1,1,2-Trichloroetha		0.39	U J	0.39	1.4	
1,1-Dichloroethane		0.33	U	0.39		
,1-Dichloroethene		0.57	U	0.47	1.4 1.4	
,2,3-Trichloroben		0.15	Ŭ	0.15		
,2,4-Trichloroben		0.45	U		1.4	
,2-Dibromo-3-Chl		0.66	Ŭ 🕽	0.45 0.66	1.4	
,2-Dichlorobenzer		0.20	U A	0.00	1.4	
,2-Dichloroethane		0.15	U	0.15	1.4	
,2-Dichloropropan		0.24	U	0.15	1.4 1.4	
,3-Dichlorobenzer		0.17	Ŭ	0.24	1.4	
,4-Dichlorobenzer		0.18	U	0.18	1.4	
,4-Dioxane		8.9	Ŭ J	8.9	28	
-Butanone (MEK)		1.1	υj	1.1	7.0	
-Hexanone		1.3	Ŭ	1.3	7.0	
-Methyl-2-propand		4.9	Ŭ)	4.9	14	
-Methyl-2-pentanc		3.1	ŭ	3.1	7.0	
cetone		5.7	J	1.5	7.0	
lenzene		4.5	0	0.28	1.4	
romoform		0.18	U	0.18	1.4	
romomethane		0.45	Ŭ	0.45	1.4	
arbon disulfide		1.1	J	0.60	1.4	
arbon tetrachlorid	e	0.60	Ŭ	0.60	1.4	
hlorobenzene		0.20	Ŭ	0.20	1.4	
hlorobromometha	ne	0.24	Ŭ	0.24	1.4	
hlorodibromometh		0.21	Ŭ	0.21	1.4	
hloroethane		0.49	Ŭ	0.49	1.4	
hloroform		0.29	Ŭ	0.29	1.4	
hloromethane		0.53	Ŭ	0.53	1.4	
s-1,2-Dichloroethe	ene	0.31	Ŭ	0.31	1.4	
s-1,3-Dichloroprop	bene	0.21	Ŭ	0.21	1.4	
yclohexane		0.64	Ŭ	0.64	1.4	
ichlorobromometh		0.53	U	0.53	1.4	
ichlorodifluoromet	hane	0.45	Ŭ	0.45	1.4	
thylbenzene		0.25	U	0.25	1.4	
thylene Dibromide		0.17	U	0.17	1.4	
opropylbenzene		3.1		0.24	1.4	
ethyl acetate		1.3	U	1.3	7.0	
ethyl tert-butyl eth	er	0.24	U	0.24	1.4	
ethylcyclohexane		0.70	U	0.70	1.4	
ethylene Chloride		0.45	Ŭ	0.45	1.4	
-Xylene & p-Xylen	e	0.15	Ŭ	0.15	1.4	
Xylene		0.22	U	0.22	1.4	

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## Analytical Data

Client Sample ID: Lab Sample ID: Client Matrix:	: SB-307-S-8.5-9.0 460-104781-5 Solid	% Moistur	e: 34.9		mpled: 11/17/2015 1510 ceived: 11/17/2015 1630
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1716 11/18/2015 1346	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17019,D 5.50 g 5 mL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qual	ifier MDL	RL
Styrene Tetrachloroethene Toluene trans-1,2-Dichloroe trans-1,3-Dichlorop Trichloroethene Trichlorofluorometh Vinyl chloride	ethene propene	0.21 0.39 0.80 0.54 0.14 0.36 0.47 0.54	U U U U U U U U U U	0.21 0.39 0.27 0.54 0.14 0.36 0.47 0.54	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4
Surrogate 1,2-Dichloroethane 4-Bromofluorobenz Dibromofluorometh Foluene-d8 (Surr)	ene	%Rec 109 100 128 104	Quali	fier Acceptan 78 - 135 67 - 126 61 - 149 73 - 121	ce Limits

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-5 Solid	% Moistur	e: 34.9		npled: 11/17 ceived: 11/17	
	820	SOC Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1716 11/18/2015 1346	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17019.D 5.50 g 5 mL	
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10			
Cas Number	Analyte		RT	Est. Result (ug/	Ka) O	alifier
4516-69-2	Cyclopentane, 1,1,3-trim Unknown Unknown Unknown Unknown Unknown Unknown Unknown	iethyl-	6.82 7.68 7.81 9.05 9.73 9.92 10.41	340 270 270 230 290 160 290	1 L   L   L   L   L   L   L	2
000152-47-3	trans-Decalin, 2-methyl-		11.30 11.78	320 180	1	-
7301-23-4	Undecane, 2,6-dimethyl-		12.29	190	N L N L	

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 Date Sampled: 11/17/2015 1515 **Client Matrix:** Solid % Moisture: 19.6 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 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 U 1,1,2-Trichloro-1,2,2-trifluoroethane 0.47 0.47 1.1 0.30 1,1,2-Trichloroethane 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 0.50 U 1,2-Dibromo-3-Chloropropane 0.50 1.1 U 1,2-Dichlorobenzene 0.15 0.15 1.1 U 1,2-Dichloroethane 0.12 0.12 1.1 U 1,2-Dichloropropane 0.18 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 U 2-Butanone (MEK) 0.82 0.82 5.3 U 1.0 2-Hexanone 1.0 5.3 U 1 2-Methyl-2-propanol 3.7 3.7 11 4-Methyl-2-pentanone (MIBK) 2.4 U 2.4 5.3 2 Acetone 1.1 U 1.1 5.3 5.1 Benzene 0.21 1.1 0.14 U Bromoform 0.14 1.1 0.34 Bromomethane U 0.34 1.1 Carbon disulfide 0.51 0.46 J 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 U 0.16 0.16 1.1 0.49 U 0.49 Cyclohexane 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 U Ethylene Dibromide 0.13 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 U Methylcyclohexane 0.53 0.53 1.1 Methylene Chloride 0.34 U 0.34 1.1 0.12 m-Xylene & p-Xylene U 0.12 1.1 o-Xylene 0.17 U 0.17 1.1

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## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-6 Solid	% Moistur	e: 19.6			mpled: 11/17/2015 1515 ceived: 11/17/2015 1630
	82600	C Volatile Organi	c Compounds	s by G	C/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/28/2015 0336 11/18/2015 1348	Analysis Batch: Prep Batch:	460-337734 460-336137		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17041.D 5.82 g 5 mL
Analyte	DryWt Corrected: \	r Result (u	a/Ka) (	Qualifie	MDL	RL
Styrene		0.16	J. J.	J	0.16	11
Tetrachloroethene		0.30		J	0.30	1.1
Toluene		0.20	L	1-1	0.20	1.1
rans-1,2-Dichloroe	ethene	0.42	L	_	0.42	1.1
rans-1,3-Dichlorop	propene	0.11	L	J	0.11	1.1
Trichloroethene		0.28	L	J	0.28	1.1
Trichlorofluoromet	hane	0.36	L	ر ا	0.36	1.1
vinyl chloride		0.42	ι	17	0.42	1.1
Surrogate		%Rec	G	Qualifier	Acceptan	ice Limits
1,2-Dichloroethane	e-d4 (Surr)	88			78 - 135	23 12 YOURS
4-Bromofluorobenz	- on o	99			67 - 126	
Dibromofluorometh	nane (Surr)	89			61 - 149	
Foluene-d8 (Surr)		101			73 - 121	

#### Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-6 Solid	% Moisture	e: 19.6		mpled: 11/17/2015 1515 ceived: 11/17/2015 1630
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/28/2015 0336 11/18/2015 1348	Analysis Batch: Prep Batch:	460-337734 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17041.D 5.82 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified Co	mpound	RT	Est. Result (ug/ None	/Kg) Qualifier

DUP-2-S

**Client Sample ID:** 

## Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moisture:	18.3		npled: 11/17/2015 08 ceived: 11/17/2015 16
	826	0C Volatile Organic C	ompounds by G	C/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/27/2015 1805 11/18/2015 1348		60-337603 60-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17021.D 6.20 g 5 mL
Analyte		Y Development			
of the local state of the second state of the	DryWt Corrected:				RL
1,1,1,2-Tetrachloro		0.40	U	0.40	0.99
1,1,1-Trichloroetha		0.38	U	0.38	0.99
1,1,2,2-Tetrachloro		0.17	U	0.17	0.99
1,1,2-Trichloro-1,2,		0.43	U	0.43	0.99
1,1,2-Trichloroetha	he	0.28	U )	0.28	0.99
I,1-Dichloroethane		0.34	U	0.34	0.99
		0.40	U	0.40	0.99
1,2,3-Trichlorobenz		0.11	U	0.11	0.99
,2,4-Trichlorobenz ,2-Dibromo-3-Chlo		0.32	U U	0.32	0.99
2-Dichlorobenzen		0.46		0.46	0.99
,2-Dichloroethane	C	0.14 0.11	U	0.14	0.99
1,2-Dichloropropane		0.17	UUU	0.11	0.99
,3-Dichlorobenzen		0.12	U	0.17	0.99
,4-Dichlorobenzen		0.12	U	0.12	0.99
,4-Dioxane	6	6.3	υı	0.13 6.3	0.99
-Butanone (MEK)		0.76	υj	0.76	20 4.9
-Hexanone		0.93	U,	0.93	4.9
-Methyl-2-propand	1	3.4	ŭ 🖌	3.4	9.9
-Methyl-2-pentano		2.2	Ŭ J	2.2	4.9
cetone		6.0	0	1.0	4.9
lenzene		12	1	0.20	0.99
Iromoform		0.13	Ŭ	0.13	0.99
romomethane		0.32	U	0.32	0.99
arbon disulfide		0.42	Ū	0.42	0.99
arbon tetrachloride	Э	0.42	U	0.42	0.99
hlorobenzene		0.14	U	0.14	0.99
hlorobromometha	ne	0.17	U	0.17	0.99
hlorodibromometh	ane	0.15	U	0.15	0.99
hloroethane		0.35	U	0.35	0.99
hloroform		0.21	U	0.21	0.99
hloromethane		0.38	U	0.38	0.99
is-1,2-Dichloroethe		0.22	U	0.22	0.99
is-1,3-Dichloroprop	ene	0.15	U	0.15	0.99
yclohexane		0.45	U	0.45	0.99
ichlorobromometh ichlorodifluorometh		0.38	U	0.38	0.99
thylbenzene	lane	0.32	U	0.32	0.99
thylene Dibromide		0.18	U	0.18	0.99
opropylbenzene		0.12 0.17	U	0.12	0.99
lethyl acetate		0.89	U	0.17	0.99
ethyl tert-butyl eth	er	0.89	UU	0.89	4.9
ethylcyclohexane		0.49	U	0.17	0.99
ethylene Chloride		0.49	U	0.49	0.99
-Xylene & p-Xylen	e	0.32	U	0.32 0.11	0.99
mone a projett		0.16	U	0.16	0.99

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## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moisture	e: 18.3			npled: 11/17/2015 0 ceived: 11/17/2015 1
	82600	C Volatile Organi	c Compounds	s by GC	C/MS	
Analysis Method: Prep Method:	8260C 5035	Analysis Batch: Prep Batch:	460-337603 460-336137		nstrument ID: ₋ab File ID:	CVOAMS4 D17021.D
Dilution: Analysis Date:	1.0 11/27/2015 1805				nitial Weight/Volume: Final Weight/Volume:	6.20 g 5 mL
Prep Date:	11/18/2015 1348					
Analyte	DryWt Corrected: Y	Result (up	g/Kg) G	Qualifier	MDL	RL
Styrene		0.15	L	J	0.15	0.99
Tetrachloroethene		0.28	L	J	0.28	0.99
Toluene		0.19	U	J	0.19	0.99
trans-1,2-Dichloroe		0.39	U	J	0.39	0.99
trans-1,3-Dichlorop	ropene	0.099	U		0.099	0.99
Trichloroethene		0.26	U	E.	0.26	0.99
Trichlorofluorometh	ane	0.34	U		0.34	0.99
Vinyl chloride		0.39	U		0.39	0.99
Surrogate		%Rec	Q	ualifier	Acceptan	ce Limits
1,2-Dichloroethane-		103			78 - 135	
4-Bromofluorobenzo		94			67 - 126	
Dibromofluorometha	ane (Surr)	103			61 - 149	
Toluene-d8 (Surr)		82			73 - 121	

Client Sample ID:	DUP-2-S				
Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moisture: 18.3		Date Sampled: 11/17/2015 08 Date Received: 11/17/2015 16	
	8	260C Volatile Organi	c Compounds by	GC/MS	
Prep Method: Dilution: Analysis Date:	8260C 5035 1.0 11/27/2015 1805 11/18/2015 1348	Analysis Batch: Prep Batch:	460-337603 460-336137	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS4 D17021.D 6.20 g 5 mL
Tentatively Identifi	ied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified (	Compound	RT	Est. Result (ug/ None	'Kg) Qualifier

## **Analytical Data**

Job Number: 460-104781-1

#### Client Sample ID: TB-151117

Lab Sample ID:	460-104781-8TB	Date Sampled: 11/17/2015 0000
Client Matrix:	Water	Date Received: 11/17/2015 1630

		260C Volatile Organi			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/21/2015 0122 11/21/2015 0122	Analysis Batch: Prep Batch:	460-336648 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS12 O04425.D 5 mL 5 mL
Analyte		Result (u	g/L) Qua	lifier MDL	RL
1,1,1-Trichloroetha	ane	0.28	U	0.28	1.0
1,1,2,2-Tetrachlore	pethane	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-Trichloroetha	ane	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
,2,3-Trichloroben		0.35	U	0.35	1.0
1,2,4-Trichloroben		0.27	U	0.27	1.0
,2-Dibromo-3-Chl		0.23	U	0.23	1.0
,2-Dichlorobenze		0.22	U	0.22	1.0
1,2-Dichloroethane		0.25	U	0.25	1.0
,2-Dichloropropar		0.18	U	0.18	1.0
,3-Dichlorobenze		0.33	U	0.33	1.0
1,4-Dichlorobenzene		0.33	U	0.33	1.0
,4-Dioxane		8.7	U	8.7	50
-Butanone (MEK)		2.2	U	2.2	5.0
-Hexanone		0.72	U	0.72	5.0
-Methyl-2-pentan	one (MIBK)	0.63	U	0.63	5.0
cetone		1.1	U	1.1	5.0
enzene		0.090	U	0.090	1.0
romoform		0.18	U	0.18	1.0
romomethane		0.18	U	0.18	1.0
arbon disulfide		0.22	U	0.22	1.0
arbon tetrachloric	le	0.33	U	0.33	1.0
hlorobenzene		0.24	U	0.24	1.0
hlorobromometha		0.30	U	0.30	1.0
hlorodibromomet	nane	0.22	U	0.22	1.0
hloroethane		0.37	U ]	0.37	1.0
hloroform		0.22	U	0.22	1.0
hloromethane		0.22	U	0.22	1.0
is-1,2-Dichloroeth		0.26	U	0.26	1.0
is-1,3-Dichloropro	pene	0.16	U	0.16	1.0
yclohexane		0.26	U	0.26	1.0
ichlorobromometh		0.15	U	0.15	1.0
ichlorodifluorome	inane	0.14	U	0.14	1.0
thylbenzene	2	0.30	U	0.30	1.0
thylene Dibromide	9	0.19	U	0.19	1.0
opropylbenzene		0.32	U	0.32	1.0
ethyl acetate		0.58	U	0.58	5.0
ethyl tert-butyl eth		0.13	U	0.13	1.0
ethylcyclohexane		0.22	U	0.22	1.0
lethylene Chloride		0.21	U	0.21	1.0
-Xylene & p-Xyler	ie	0.28	U	0.28	1.0
-Xylene		0.32	U	0.32	1.0
tyrene etrachloroethene		0.17	U	0.17	1.0
auachioroethene		0.12	U	0.12	1.0

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## Analytical Data

Job Number: 460-104781-1

## Client Sample ID: TB-151117

Lab Sample ID:	460-104781-8TB	Date Sampled: 11/17/2015 0000
Client Matrix:	Water	Date Received: 11/17/2015 1630

		8260C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/21/2015 0122 11/21/2015 0122	Analysis Batch: Prep Batch:	460-336648 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	
Analyte		Result (u	g/L) Qual	ifier MDL	RL
Toluene		0.25	U U	0.25	1.0
trans-1,2-Dichloro	ethene	0.18	Ŭ	0.18	1.0
trans-1,3-Dichloro		0.19	Ŭ	0.19	1.0
Trichloroethene		0.22	Ŭ	0.22	1.0
Trichlorofluoromet	hane	0.15	U	0.15	1.0
Vinyl chloride		0.060	U	0.060	1.0
Surrogate		%Rec	Quali	fier Accepta	nce Limits
1,2-Dichloroethane	e-d4 (Surr)	85		70 - 137	ice Linnes
4-Bromofluorobenz	zene	122		70 - 131	
Dibromofluorometh	nane (Surr)	91		72 - 136	
Toluene-d8 (Surr)		93		74 - 120	

Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-8TB Water				npled: 11/17/2015 0000 ceived: 11/17/2015 1630
	9	8260C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/21/2015 0122 11/21/2015 0122	Analysis Batch: Prep Batch:	460-336648 N/A	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS12 O04425.D 5 mL 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified	Compound	RT	Est. Result (ug/ None	L) Qualifier

## Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moisture	: 13.5		ampled: 11/17/2015 1 eceived: 11/17/2015 1
	8270D	Semivolatile Orga	nic Compound	s (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1059 11/24/2015 1435		460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:	
Analyte	DryWt Corrected: Y	Result (ug	/Kg) Qua	lifier MDL	RL
1,1'-Biphenyl		33	U	33	
1,2,4,5-Tetrachlord	henzene	28	Ŭ		380
2,2'-oxybis[1-chlor		16		28	380
2,3,4,6-Tetrachlord	phopalle		U	16	380
2,4,5-Trichlorophe		36	U	36	380
2,4,6-Trichlorophe		38	U	38	380
2,4-Dichloropheno		11	U	11	150
		9.0	U	9.0	150
2,4-Dimethylphenc	01	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
-Methylnaphthale	ne	8.4	U	8.4	380
2-Methylphenol		17	U	17	380
2-Nitroaniline		13	U	13	380
-Nitrophenol		13	U	13	380
3,3'-Dichlorobenzid	line	43	U 7	43	150
-Nitroaniline		11	U	11	380
,6-Dinitro-2-methy		100	U	100	310
-Bromophenyl phe		12	U	12	380
-Chloro-3-methylp	henol	16	U	16	380
-Chloroaniline		9.8	U	9.8	380
-Chlorophenyl phe	enyl ether	11	Ŭ	11	380
-Methylphenol		10	ũ	10	380
-Nitroaniline		14	ŭ	14	380
-Nitrophenol		180	ŭ	180	770
cenaphthene		30	J	9.2	
cenaphthylene		9.8	Ŭ	9.8	380 380
cetophenone		8.3	Ŭ	8.3	380
nthracene		53	J	36	380
trazine		17	Ŭ	17	150
enzaldehyde		29	Ŭ	29	380
enzo[a]anthracene		200	U	32	38
enzo[a]pyrene		200		12	
enzo[b]fluoranther	ne	240	7	12	38
enzo[g,h,i]perylene		150			38
enzo[k]fluoranthen		100	J	22	380
s(2-chloroethoxy)		12		17	38
s(2-chloroethyl)eth	her	9.0	U	12	380
s(2-ethylhexyl) ph	thalate	9.0 190	U	9.0	38
utyl benzyl phthala	to		J	15	380
aprolactam		12	U	12	380
arbazole		27	U	27	380
hrysene		9.5	U	9.5	380
		210	J	10	380
benz(a,h)anthrace		50		20	38

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## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moistur	e: 13.5			d: 11/17/2015 103 ed: 11/17/2015 163
	8270D	Semivolatile Org	anic Compour	nds (GC/MS)		
Analysis Method:	8270D	Analysis Batch:	460-337327	Instrument II	D: CB	NAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x88	871.D
Dilution:	1.0			Initial Weight	Volume: 15.	.0227 g
Analysis Date:	11/25/2015 1059			Final Weight	Volume: 1	mL
Prep Date:	11/24/2015 1435			Injection Vol		uL
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Q	ualifier MD	Ĺ	RL
Dibenzofuran		26	J	12		380
Diethyl phthalate		11	Ŭ	11		380
Dimethyl phthalate		11	U	11		380
Di-n-butyl phthalate		11	U	11		380
Di-n-octyl phthalate	9	19	U	19		380
Fluoranthene		400		11		380
Fluorene		16	J	8.3		380
Hexachlorobenzen	e	15	U	15		38
Hexachlorobutadie	ne	11	U	11		77
Hexachlorocyclope	entadiene	24	U	24		380
Hexachloroethane		14	U	14		38
ndeno[1,2,3-cd]py	rene	170		25		38
sophorone		8.2	U	8.2		150
Naphthalene		110	J	9.7		380
Nitrobenzene		12	U	12		38
N-Nitrosodi-n-prop	ylamine	13	U	13		38
N-Nitrosodiphenyla		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	Qu	alifier	Acceptance Li	mits
2,4,6-Tribromopher	nol (Surr)	58			10 - 95	11124
-Fluorobiphenyl		64			27 - 84	
-Fluorophenol (Su		59			21 - 84	
Vitrobenzene-d5 (S	Surr)	67			28 - 92	
Phenol-d5 (Surr)	0.0	61			22 - 88	
erphenyl-d14 (Sur	r)	84			16 - 114	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-1 Solid	% Moistur	e: 13.5				11/17/2015 1030 11/17/2015 1630
	8270	D Semivolatile Org	anic Compour	nds (C	GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1059 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249		Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBN/ x887 15.02 1 m 1 uL	227 g L
Tentatively Identif	fied Compounds	Number TIC's F	ound: 2				
Cas Number	Analyte		R	т	Est. Result (ug/	Ka)	Qualifier
	Unknown Unknown			.52 .62	340 340	57	7 <b>N</b> 7 <b>N</b>

## Analytical Data

Job Number: 460-104781-1

#### Client Sample ID: SB-304-S-21.5-22.0

Lab Sample ID: Client Matrix:	460-104781-2 Solid	% Moisture	25.2		mpled: 11/17/2 ceived: 11/17/2
	827	0D Semivolatile Org	anic 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				the second state of the se
Prep Date:	11/24/2015 1435			Final Weight/Volume:	1 mL
Tep Date.	11/24/2015 1435			Injection Volume:	1 uL
Analyte	DryWt Correcte	d: Y Result (ug		10.000	RL
1,1'-Biphenyl		38	UFT	38	440
1,2,4,5-Tetrachlord	obenzene	33	U	33	440
2,2'-oxybis[1-chlor	opropane]	18	U	18	440
2,3,4,6-Tetrachlord	ophenol	41	U F4		440
2,4,5-Trichlorophe		44	UF4	44	440
2,4,6-Trichlorophe		13	UFT	13	180
2,4-Dichloropheno		10	UF4		180
2,4-Dimethylphend		97	U	97	440
2,4-Dinitrophenol		330	UFT		
2,4-Dinitrotoluene		17	U	17	89
2,6-Dinitrotoluene		23	U	23	89
2-Chloronaphthale	ne	10	U	10	440
-Chlorophenol		10	U	11	
-Methylnaphthale	ne	63	J	9.7	440
-Methylphenol		19	U	9.7 19	440 440
2-Nitroaniline		15	Ŭ		
2-Nitrophenol		15		15 15	440
,3'-Dichlorobenzio	line	49			440
-Nitroaniline		13	07	49	180
,6-Dinitro-2-methy	Inhenol	120	UFA	13	440
-Bromophenyl phe					350
-Chloro-3-methylp		14 19	U	14	440
-Chloroaniline	henor	19	U	19	440
-Chlorophenyl phe	anyl other	13	U	11	440
-Methylphenol	enyrenier	12	U U	13	440
-Nitroaniline		17		12	440
-Nitrophenol			U	17	440
cenaphthene		210	U	210	890
cenaphthylene		150 11	J U	11	440
cetophenone		11	-	11	440
Inthracene		320	J	9.6	440
trazine		20	J	42	440
Benzaldehyde		34		20	180
enzo[a]anthracen	0	610		34	440
enzo[a]pyrene	0	560	=12	37	44
enzo[b]fluoranthe	ne		- 7	13	44
enzo[g,h,i]perylen		690	1	17	44
enzo[k]fluoranther		360	J	25	440
		270	11	19	44
is(2-chloroethoxy) is(2-chloroethyl)et		14	U	14	440
		10	U	10	44
is(2-ethylhexyl) ph		38	J	17	440
utyl benzyl phthala	ale	14	U	14	440
aprolactam		32	U	32	440
arbazole		130	J	11	440
hrysene		660		12	440
benz(a,h)anthrac	ene	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: Client Matrix:	460-104781-2 Solid	% Moistur	e: 25.2		ampled: 11/17/2015 104 eceived: 11/17/2015 163
	8270D	Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0658 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qual	ifier MDL	RL
Dibenzofuran		75	J	13	440
Diethyl phthalate		13	Ŭ	13	440
Dimethyl phthalate		13	Ŭ	13	440
Di-n-butyl phthalate	e	13	Ū	13	440
Di-n-octyl phthalate	e	22	Ŭ,	22	440
Fluoranthene		1300	FT		440
Fluorene		170	JF1		440
Hexachlorobenzen	e	18	U	18	44
Hexachlorobutadie	ne	12	Ũ	12	89
Hexachlorocyclope	entadiene	27	Ŭ	27	440
Hexachloroethane		16	U	16	44
ndeno[1,2,3-cd]py	rene	430		29	44
sophorone		9.5	U	9.5	180
Naphthalene		270	JFT	11	440
Vitrobenzene		14	U	14	44
N-Nitrosodi-n-propy		15	U	15	44
N-Nitrosodiphenyla		40	U-F4		440
Pentachlorophenol		53	UFT		350
Phenanthrene		1400	Ft-J		440
Phenol		14	U	14	440
Pyrene		1400	++	20	440
Surrogate		%Rec	Quali	fier Accepta	nce Limits
2,4,6-Tribromopher	nol (Surr)	57		10 - 95	
2-Fluorobiphenyl		69			
-Fluorophenol (Su		61		21 - 84	
Vitrobenzene-d5 (S	Surr)	70		28 - 92	
Phenol-d5 (Surr)		65		22 - 88	
erphenyl-d14 (Sur	r)	93		16 - 114	

## Client: ARCADIS U.S. Inc

Lab Sample ID: Client Matrix:	460-104781-2 Solid	% Moistur	e: 25.2		1	1/17/2015 104 1/17/2015 163
	827	0D Semivolatile Org	anic Compounds	(GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0658 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAM x8860. 15.052 1 mL 1 uL	D
Tentatively Identi	fied Compounds	Number TIC's F	ound: 2			
Cas Number	Analyte		RT	Est. Result (ug	/Ka)	Qualifier
	Tentatively Identified C	ompound		None		
124-18-5	n-Decane		3.91	13		JN
90-12-0	1-Methylnaphthalene		6.17	61		JN

## Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-3 Solid	% Moistur	e: 20.8		mpled: 11/17/2015 124 ceived: 11/17/2015 163
	82700	) Semivolatile Org	anic Compounds	s (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 2.0 11/25/2015 1737 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337415 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS11 z38945.D 15.0256 g 1 mL 1 uL
Analyte	DryWt Corrected:	V Posult (u	g/Kg) Qual	lifer MDI	Di
1,1'-Biphenyl	Drywit Confected.				RL
	Kanagara (	71	U	71	830
1,2,4,5-Tetrachlord		62	U	62	830
2,2'-oxybis[1-chlore		34	U	34	830
2,3,4,6-Tetrachloro		78	U	78	830
2,4,5-Trichlorophe		83	U	83	830
2,4,6-Trichloropher		24	U	24	340
2,4-Dichlorophenol		20	U	20	340
2,4-Dimethylpheno	1	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-Chloronaphthale	ne	19	U	19	830
2-Chlorophenol		21	U	21	830
2-Methylnaphthalei	ne	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-methy		220	U	220	670
4-Bromophenyl phe		26	U	26	830
4-Chloro-3-methylp	henol	36	U	36	830
4-Chloroaniline		21	U	21	830
4-Chlorophenyl phe	enyl ether	25	U	25	830
1-Methylphenol		38	J	23	830
-Nitroaniline		31	U	31	830
I-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	e	6800		70	83
Benzo[a]pyrene		9100	-)	25	83
Benzo[b]fluoranther		10000		33	83
Benzo[g,h,i]perylen		7500		48	830
enzo[k]fluoranther		3800		36	83
Bis(2-chloroethoxy)		26	U	26	830
Bis(2-chloroethyl)et		20	U	20	83
Bis(2-ethylhexyl) ph		33	U	33	830
Butyl benzyl phthala	ate	26	U	26	830
aprolactam		60	U	60	830
arbazole		410	J	21	830
Chrysene Dibenz(a,h)anthrace		6800		23	830
		2500		43	83

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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 Date Sampled: 11/17/2015 1245 **Client Matrix:** Solid % Moisture: 20.8 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 25 J 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

Lab Sample ID: Client Matrix:	460-104781-3 Solid	% Moistur	e: 20.8		npled: 11/17/2015 12 ceived: 11/17/2015 16
	827	70D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 2.0 11/25/2015 1737 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337415 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS11 z38945.D 15.0256 g 1 mL 1 uL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0		
Cas Number	Analyte Tentatively Identified C	Compound	RT	Est. Result (ug/ None	Kg) Qualifier

#### Analytical Data

Job Number: 460-104781-1

#### **Client Sample ID:** SB-306-S-18.5-19.0 Lab Sample ID: 460-104781-4 Date Sampled: 11/17/2015 1300 Client Matrix: Solid % Moisture: 21.3 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: uL 1 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 υ 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

Carbazole

Chrysene

Dibenz(a,h)anthracene

10

11

22

U

U

U

U

30

10

11

22

420

420

420

42

## Analytical Data

Job Number: 460-104781-1

#### Client Sample ID: SB-306-S-18.5-19.0

Lab Sample ID: Client Matrix:	460-104781-4 Solid	% Moistur	e: 21.3		ampled: 11/17/2015 13 eceived: 11/17/2015 16	
	8270D	Semivolatile Org	anic Compound	s (GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0910 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:		
Analyte	DryWt Corrected:	Y Result (u	g/Kg) Qua	lifier MDL	RL	
Dibenzofuran		13	U	13	420	
Diethyl phthalate		12	U	12	420	
Dimethyl phthalate	Eff. I.	12	U	12	420	
Di-n-butyl phthalate	e	13	U	13	420	
Di-n-octyl phthalate	e	21	U	21	420	
Fluoranthene		22	J	12	420	
luorene		9.1	U	9.1	420	
Hexachlorobenzen	e	17		17	42	
Hexachlorobutadiene		12	U U	12	85	
Hexachlorocyclope	entadiene	26		26	420	
lexachloroethane		15		15	42	
ndeno[1,2,3-cd]py	rene	28	U	28	42	
sophorone		9.0	U	9.0	170	
Naphthalene		120	J	11	420	
Nitrobenzene		13	U	13	42	
-Nitrosodi-n-propy		14	U	14	42	
I-Nitrosodiphenyla		38	U	38	420	
Pentachlorophenol		51	U	51	340	
henanthrene		32	J	11	420	
henol		14	U	14	420	
yrene		21	J	19	420	
Surrogate		%Rec	Qual	ifier Accepta	nce Limits	
4,6-Tribromopher	nol (Surr)	55		10 - 95		
-Fluorobiphenyl		57		27 - 84		
-Fluorophenol (Su		54		21 - 84		
litrobenzene-d5 (S	Surr)	59		28 - 92		
henol-d5 (Surr)		59		22 - 88		
erphenyl-d14 (Sur	T)	76		16 - 114		

## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-4 Solid				Date Sampled: 11/17/2015 1 Date Received: 11/17/2015 1		
	82700	O Semivolatile Org	anic Compounds	(GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0910 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS5 x8866.D 15.0241 g 1 mL 1 uL		
entatively Identi	fied Compounds	Number TIC's F	ound: 9				
Cas Number	Analyte		RT	Est. Result (ug/	Kg) Qualifier		
26-73-8	Benzene, 1,2,3-trimethyl-		3.90	520	J N		
27-84-4	Benzene, 1-methyl-2-(1-n	nethylethyl)-	4.14	410	JN		
96-11-7	Indane		4.24	1900	JN		
5-13-6	Indene		4.32	780	JN		
	Unknown		9.17	350	JN		
0544-50-0	Unknown		9.43	620	JN		
2624-67-2	Cyclic octaatomic sulfur	0.1.1	9.52	500	JN		
83-65-8	10,18-Bisnorabieta-8,11,1		9.62	5100	JN		
00-00-0	Phenanthrene, 1-methyl-7	-(1-methylethyl)	10.29	2800	JN		

#### 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 Date Sampled: 11/17/2015 1510 **Client Matrix:** Solid % Moisture: 34.9 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 Lab File ID: Prep Batch: 460-337249 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 Analyte DryWt Corrected: Y Result (ug/Kg) Qualifier MDL RL 1,1'-Biphenyl 84 43 J 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 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 υ 23 200 Benzaldehyde 39 U 39 510 Benzo[a]anthracene 110 42 51 -) Benzo[a]pyrene 110 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

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## Analytical Data

Lab Sample ID: Client Matrix:	460-104781-5 Solid	% Moistur	e: 34.9		Sampled: 11/17/2015 15 Received: 11/17/2015 16
	827	70D Semivolatile Org	ganic Compoun	ds (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/Volum	e: 15.0228 g
Analysis Date:	11/25/2015 1143			Final Weight/Volume	
Prep Date:	11/24/2015 1435			Injection Volume:	1 uL
Analyte	DryWt Correct	ed: Y Result (u	ig/Kg) Qu	alifier 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	е	26	U	26	510
Fluoranthene		200	J	15	510
Fluorene		36		11	510
Hexachlorobenzen	e	21	υ	21	51
Hexachlorobutadie		14	U	14	100
Hexachlorocyclope	entadiene	32	U	32	510
Hexachloroethane		19	U	19	51
Indeno[1,2,3-cd]py	rene	160		34	51
Isophorone		11	U	11	200
Naphthalene		1300		13	510
Nitrobenzene		16	U	16	51
N-Nitrosodi-n-prop		17	U	17	51
N-Nitrosodiphenyla		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	Qua	alifier Accept	ance Limits
2,4,6-Tribromopher	nol (Surr)	46		10 - 95	
2-Fluorobiphenyl		55		27 - 84	
2-Fluorophenol (Su		51		21 - 84	
Nitrobenzene-d5 (S	iurr)	53		28 - 92	
Phenol-d5 (Surr)		50		22 - 88	

## Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-5 Solid	% Moistur	e: 34.9		npled: 11/17/2015 15 ceived: 11/17/2015 16
9	8270	D Semivolatile Org	anic 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 Identi	fied Compounds	Number TIC's F	ound: 20		
Cas Number	Analyte		RT	Est. Result (ug/	Kg) Qualifier
	Unknown		3.62	1200	لم ل
611-14-3	Benzene, 1-ethyl-2-me	nyl-	3.64	2100	JN
	Unknown		3.70	1100	JN
108-67-8	Benzene, 1,3,5-trimethy	I-	3.90	2300	JN
526-73-8	Benzene, 1,2,3-trimethy	I-	4.13	1000	JN
	Unknown		4.22	1500	JN
	Unknown		4.25	1400	JN
135-01-3	Benzene, 1,2-diethyl-		4.32	1100	JN
	Unknown		4.39	3800	JN
193-02-7	Naphthalene, decahydro	o-, trans-	4.46	1500	JN
	Unknown		4.72	1100	JN
504-20-1	2,5-Heptadien-4-one, 2,0		4.77	1200	JN
1000152-47-3	trans-Decalin, 2-methyl-		4.88	1400	JN
	Unknown		4.99	1300	JN
95-93-2	Benzene, 1,2,4,5-tetram	ethyl-	5.10	1500	JN
54411-12-0	Benzene, (2-chloro-2-bu	tenyl)-	5.41	1200	JN
	Unknown		5.46	1200	JN
	Unknown		5.82	1300	JN
0-12-0	Naphthalene, 1-methyl-		6.17	1000	JN
92-65-4	1,2:4,5-Dibenzopyrene		11.93	4000	JN

## Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

#### Client Sample ID: SB-307-S-15.0-15.5

Lab Sample ID: Client Matrix:	460-104781-6 Solid	% Moistur	e: 19.6		mpled: 11/17/2015 15 ceived: 11/17/2015 16
7.15	827	0D Semivolatile Org	anic 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
		and the second	1		
nalyte	DryWt Correcte				RL
,1'-Biphenyl		35	U	35	410
,2,4,5-Tetrachlord		30	U	30	410
2,2'-oxybis[1-chlore		17	U	17	410
,3,4,6-Tetrachloro		39	U	39	410
4,5-Trichloropher	nol	41	U	41	410
2,4,6-Trichloropher		12	U	12	160
4-Dichlorophenol		9.7	U	9.7	160
4-Dimethylpheno		90	Ŭ	90	410
4-Dinitrophenol		310	Ŭ	310	330
4-Dinitrotoluene		16	Ŭ	16	83
6-Dinitrotoluene		22	Ŭ	22	
-Chloronaphthale	ne	9.3			83
-Chlorophenol	ne -		U	9.3	410
		10	U	10	410
-Methylnaphthale	ne	9.0	U	9.0	410
-Methylphenol		18	U	18	410
-Nitroaniline		13	U	13	410
-Nitrophenol		14	U	14	410
,3'-Dichlorobenzid	line	46	U	46	160
-Nitroaniline		12	U	12	410
,6-Dinitro-2-methy	Iphenol	110	U	110	330
-Bromophenyl phe	enyl ether	13	U	13	410
-Chloro-3-methylp	henol	18	U	18	410
-Chloroaniline		11	Ŭ	11	410
-Chlorophenyl phe	envl ether	12	Ŭ	12	410
-Methylphenol		11	Ŭ	11	410
-Nitroaniline		15	Ŭ	15	
-Nitrophenol		200			410
cenaphthene			U	200	830
		9.9	U	9.9	410
cenaphthylene		11	U	11	410
cetophenone		8.9	U	8.9	410
nthracene		39	U	39	410
trazine		18	U	18	160
enzaldehyde		31	U	31	410
enzo[a]anthracene	e	34	U	34	41
enzo[a]pyrene		21	📥 ل	12	41
enzo[b]fluoranther		24	J	16	41
enzo[g,h,i]perylen	e	24	U	24	410
enzo[k]fluoranther		18	Ŭ	18	41
s(2-chloroethoxy)		13	Ŭ	13	410
s(2-chloroethyl)et		9.7	Ŭ	9.7	410
s(2-ethylhexyl) ph		290	J	16	410
utyl benzyl phthala		13	Ű	13	
aprolactam		29			410
arbazole			U	29	410
hrysene		10	U	10	410
ibenz(a,h)anthrace		17	J	11	410
CHUZIA DISPINISCO	ene	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 Date Sampled: 11/17/2015 1515 Client Matrix: Solid % Moisture: 19.6 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 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 19 J 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 Lab Sample ID: Client Matrix:	SB-307-S-15.0-15.5 460-104781-6 Solid	% Moistur	e: 19.6			1/17/2015 1515 1/17/2015 1630
	8270	D Semivolatile Org	anic Compounds	(GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0931 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAM x8867.1 15.055 1 mL 1 uL	C
Tentatively Identi	fied Compounds	Number TIC's F	ound: 0			
Cas Number	Analyte Tentatively Identified Cor	mpound	RT	Est. Result (ug/ None	Kg)	Qualifier

## Analytical Data

Job Number: 460-104781-1

Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moistu	ıre: 18.3		ampled: 11/17/2015 08 acceived: 11/17/2015 16
	8270	D Semivolatile O	ganic Compound	s (GC/MS)	
Analysis Method:	8270D	Analysis Batch		Instrument ID:	CBNAMS5
Prep Method:	3546	Prep Batch:	460-337249	Lab File ID:	x8868.D
Dilution:	1.0	e top batom	100 001210	Initial Weight/Volume	
Analysis Date:	11/25/2015 0953				
Prep Date:	11/24/2015 1435			Final Weight/Volume:	
Top Date.	11/24/2015 1455			Injection Volume:	1 uL
Analyte	DryWt Corrected	d: Y Result (	ug/Kg) Qua	lifier MDL	RL
1,1'-Biphenyl		34	U	34	400
1,2,4,5-Tetrachlord	obenzene	30	Ũ	30	400
2,2'-oxybis[1-chlor		17	Ŭ	17	400
2,3,4,6-Tetrachlord		38	Ŭ	38	400
2,4,5-Trichlorophe		40	U	40	400
2,4,6-Trichlorophe		11	Ŭ	40	
2,4-Dichloropheno		9.5	U	9.5	160
2,4-Dimethylphenc		89	U	9.5 89	160
2,4-Dinitrophenol		310	U		400
2,4-Dinitrotoluene		16		310	320
2,6-Dinitrotoluene		21	U	16	82
2-Chloronaphthale	20		U	21	82
2-Chlorophenol		9.2	U	9.2	400
2-Methylnaphthale		10	U	10	400
2-Methylphenol	ne	8.9	U	8.9	400
2-Nitroaniline		18	U	18	400
		13	U	13	400
2-Nitrophenol 3,3'-Dichlorobenzic	the e	14	U	14	400
3-Nitroaniline	line	45	U)	45	160
	debe evel	12	U	12	400
6-Dinitro-2-methy		110	U	110	320
-Bromophenyl phe		13	U	13	400
-Chloro-3-methylp	nenol	17	U	17	400
-Chloroaniline		10	U	10	400
-Chlorophenyl phe	enyl ether	12	U	12	400
-Methylphenol		11	U	11	400
-Nitroaniline		15	U	15	400
-Nitrophenol		190	U	190	820
cenaphthene		9.8	U	9.8	400
cenaphthylene		10	U	10	400
cetophenone		8.8	U	8.8	400
nthracene		38	U	38	400
trazine		18	U	18	160
enzaldehyde		31	U	31	400
enzo[a]anthracene	9	34	U	34	40
enzo[a]pyrene		12	U**	12	40
enzo[b]fluoranther		16	U	16	40
enzo[g,h,i]perylen		23	U	23	400
enzo[k]fluoranther		18	U	18	40
is(2-chloroethoxy)		13	U	13	400
is(2-chloroethyl)et		9.5	U	9.5	40
is(2-ethylhexyl) ph		77	J	16	400
utyl benzyl phthala	ate	12	U	12	400
aprolactam		29	Ŭ	29	400
arbazole		10	ŭ	10	400
hrysene		11	Ŭ	10	400
ibenz(a,h)anthrace	ene	21	ŭ	21	400

Dibenz(a,h)anthracene

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U

21

40

21

## Analytical Data

Job Number: 460-104781-1

#### Client Sample ID: DUP-2-S

Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moisture	e: 18.3		ampled: 11/17/2015 0 eceived: 11/17/2015 1
	827	0D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0953 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:	0
Analyte	DryWt Correcte	ed: Y Result (u	g/Kg) Qual	ifier MDL	RL
Dibenzofuran		12	U	12	400
Diethyl phthalate		11	Ŭ	12	400
Dimethyl phthalate		12	Ŭ	12	400
Di-n-butyl phthalate		12	Ŭ	12	400
Di-n-octyl phthalate		21	Ŭ	21	400
Fluoranthene		12	Ŭ	12	400
luorene		8.8	U	8.8	400
Hexachlorobenzen	e	16	U	16	40
-lexachlorobutadie	ne	11	Ŭ	11	82
lexachlorocyclope	entadiene	25	U	25	400
lexachloroethane		15	U	15	40
ndeno[1,2,3-cd]py	rene	27	U	27	40
sophorone		8.7	U	8.7	160
Naphthalene		33	J	10	400
Nitrobenzene		13	U	13	40
Nitrosodi-n-prop		14	U	14	40
N-Nitrosodiphenyla		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	Quali	fier Accepta	nce Limits
4,6-Tribromopher	nol (Surr)	62	1	10 - 95	
-Fluorobiphenyl		69		27 - 84	
-Fluorophenol (Su		65		21 - 84	
litrobenzene-d5 (S	Surr)	73		28 - 92	
henol-d5 (Surr)		68		22 - 88	
erphenyl-d14 (Sur	r)	94		16 - 114	

Client: ARCADIS U.S. Inc

## Job Number: 460-104781-1

Client Sample ID:	DUP-2-S					
Lab Sample ID: Client Matrix:	460-104781-7 Solid	% Moistur	e: 18,3			/17/2015 0800 /17/2015 1630
	82	270D Semivolatile Org	anic Compounds	GC/MS)		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 0953 11/24/2015 1435	Analysis Batch: Prep Batch:	460-337327 460-337249	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAM x8868.D 15.0467 1 mL 1 uL	
Tentatively Identif	ied Compounds	Number TIC's F	ound: 0			
Cas Number	Analyte Tentatively Identified	Compound	RT	Est. Result (ug/ None	Kg)	Qualifier

THE LEADER IN ENVIRONMENTAL TESTING	CHAIN OF CUSTODY / ANALYSIS REQUEST	CUST	VDV/	ANAI	VCIC DE	- CLIC			
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arie ( Tor report and invoice )	Samplers	lers Name (Printed) Larter kunrg	Printed)	ar	Site	Site/Project Identification		1	
	#. .0.4	BODH	7000-0004H008	2000	Stat Rec	State (Location of site): NJ:	NY: V Other:		
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				-	<b>6</b>	460-104781 Chain of Custody			
6 = Other, 7 = Other,	a s = NaOH		Soil: Water:		+				
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Imagine the result

Consolidated Edison Company of New York, Inc.

Bayview - West 18<sup>th</sup> 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 18<sup>th</sup> 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:

				Sample	Parent		ŀ	Analys	is	
SDG	Sample ID	Lab ID	Matrix	Collection Date	Sample	voc	svoc	РСВ	MET	MISC
	SB-300-S-16.5-17.0	460-104826-1	Soil	11/18/2015		Х	Х			
	SB-301-S-18.5-19.0	460-104826-2	Soil	11/18/2015		Х	Х			
460 104826 1	SB-300-S-5.0-6.0	460-104826-3	Soil	11/18/2015		Х	Х			
460-104826-1	SB-301-S-6.0-7.0	460-104826-4	Soil	11/18/2015		Х	Х			
	SB-301-S-17.5-18.0	460-104826-5	Soil	11/18/2015		Х	Х			
	TB-151118	460-104826-6	Water	11/18/2015		Х				

## ANALYTICAL DATA PACKAGE DOCUMENTATION

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

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

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		1,4-Dioxane	15.3%
SB-301-S-18.5-19.0	ICV %RSD	2-Butanone (MEK)	15.1%
SB-300-S-5.0-6.0		Dichlorodifluoromethane	17.7%
SB-301-S-6.0-7.0 SB-301-S-17.5-18.0		m-Xylene & p-Xylene	18.5%
	CCV %D	Chloroethane	23.5%
	ICV %RSD	Acetone	15.5%
TB-151118		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
	RRF <0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing	RRF <0.01 <sup>1</sup>	Non-detect	R
Calibration	RRF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF >0.05 01 RRF >0.01	Detect	NO ACTION
Initial Calibration	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%D >20% and <90% (increase in	Non-detect	No Action
	sensitivity)	Detect	J
Continuing Colibration	%D >20% and <90% (decrease in	Non-detect	UJ
Continuing Calibration	sensitivity)	Detect	J
	9/ D > 009/	Non-detect	R
	%D >90%	Detect	J

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

VOCs: SW-846 8260C	Repo	orted	Perfori Accep		Not Required
	No	Yes	No	Yes	Roquiou
GAS CHROMATOGRAPHY/MASS SPECTROM	METRY (GC/	MS)			
<ul> <li>Reporting limits adjusted to reflect sample dilutions</li> </ul>		Х		Х	
%RSD Relative standard deviation					

Percent recovery Relative percent difference Percent difference

%R RPD %D

## 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
311-040 82700	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		3,3'-Dichlorobenzidine	15.4%
SB-300-S-5.0-6.0	ICV %RSD	4,6-Dinitro-2-methylphenol	15.2%
SB-301-S-6.0-7.0 SB-301-S-17.5-18.0		Hexachlorocyclopentadiene	17.0%
30-301-3-17.3-10.0	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
	RRF <0.05	Non-detect	R
	RRF <0.05	Detect	J
Initial and Continuing Calibration	RRF <0.01 <sup>1</sup>	Non-detect	R
	RRF <0.01	Detect	J
	RRF >0.05 or RRF >0.01 <sup>1</sup>	Non-detect	No Action
	RRF 20.03 01 RRF 20.01	Detect	NO ACION
	%RSD > 15% or a correlation	Non-detect	UJ
Initial Calibration	coefficient <0.99	Detect	J
	%RSD >90%	Non-detect	R
	%K3D >90 %	Detect	J
	%D >20% (increase in sensitivity)	Non-detect	No Action
	%D >20% (Increase in sensitivity)	Detect	J
Continuing Colibration	% D > 20% (decrease in consitivity)	Non-detect	UJ
Continuing Calibration	%D >20% (decrease in sensitivity)	Detect	J
	%D >90% (increase/decrease in	Non-detect	R
	sensitivity)	Detect	J

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

%R RPD

Percent recovery Relative percent difference Percent difference

%D

## SAMPLE COMPLIANCE REPORT

## SAMPLE COMPLIANCE REPORT

Sample					Compliancy <sup>1</sup>			y <sup>1</sup>		Noncompliance
Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	voc	SVOC	РСВ	MET	MISC	
	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
460-104826-1	11/18/2015	SW-846	SB-300-S-5.0-6.0	Soil	No	No				VOC – ICAL %RSD SVOC – ICAL %RSD
400-104620-1	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:

Juplic Human

DATE: January 7, 2016

PEER REVIEW: Dennis Capria

DATE: January 11, 2016

## CHAIN OF CUSTODY/ CORRECTED SAMPLE ANALYSIS DATA SHEETS

## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-1 Solid	% Moisture	20.2		mpled: 11/18/2015 ceived: 11/18/2015					
8260C Volatile Organic Compounds by GC/MS										
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1346 11/18/2015 1922	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47499.D 5.23 g 5 mL					
Analyte	DryWt Corrected: '	Y Result (ug	g/Kg) Qualifi	er MDL	RL					
1,1,1,2-Tetrachlord		0.49	U	0.49	1.2					
1,1,1-Trichloroetha		0.46	Ŭ	0.46	1.2					
1,1,2,2-Tetrachloro		0.20	Ŭ	0.20	1.2					
1,1,2-Trichloro-1,2		0.53	Ŭ	0.53	1.2					
1,1,2-Trichloroetha		0.34	Ŭ	0.34	1.2					
1,1-Dichloroethane		0.41	U	0.41	1.2					
1,1-Dichloroethene		0.41	U	0.49	1.2					
1,2,3-Trichloroben		0.49	U	0.13	1.2					
1,2,4-Trichlorobenz		0.38	U	0.13	1.2					
1,2-Dibromo-3-Chl		0.56	U	0.56	1.2					
1,2-Dichlorobenzer		0.56	U	0.56	1.2					
1,2-Dichloroethane		0.13	U	0.17						
1,2-Dichloropropar		0.20	U	0.13	1.2					
1,3-Dichlorobenzer		0.14	U	0.14	1.2					
1,4-Dichlorobenzer		0.14	U.		1.2					
1,4-Dioxane		7.7	U \	0.16 7.7	1.2 24					
2-Butanone (MEK)		0.92		0.92						
2-Hexanone		1.1	01	1.1	6.0					
2-Methyl-2-propand		4.2	U	4.2	6.0					
-Methyl-2-pentanc		2.7	U	2.7	12					
Acetone		1.3	Ŭ	1.3	6.0					
Benzene		0.31	J	0.24	6.0					
Bromoform		0.16	U	0.16	1.2 1.2					
Bromomethane		0.38	U	0.38	1.2					
Carbon disulfide		0.52	U	0.52	1.2					
Carbon tetrachlorid	e	0.52	U	0.52	1.2					
Chlorobenzene		0.32	U	0.52	1.2					
Chlorobromometha	ne	0.20	Ŭ	0.20	1.2					
Chlorodibromometh		0.18	Ŭ	0.18	1.2					
Chloroethane		0.42	Ŭ	0.42	1.2					
Chloroform		0.25	Ŭ	0.25	1.2					
Chloromethane		0.46	Ŭ	0.46	1.2					
is-1,2-Dichloroethe	ene	0.26	Ŭ	0.26	1.2					
sis-1,3-Dichloropro		0.18	Ŭ	0.18	1.2					
Cyclohexane		0.82	J	0.55	1.2					
Dichlorobromometh	ane	0.46	Ŭ.	0.46	1.2					
ichlorodifluoromet	hane	0.38	Ū 🖌	0.38	1.2					
thylbenzene		0.22	U	0.22	1.2					
thylene Dibromide	60	0.14	Ū	0.14	1.2					
sopropylbenzene		0.20	Ŭ	0.20	1,2					
lethyl acetate		1.1	U	1.1	6.0					
lethyl tert-butyl eth	er	0.20	Ũ	0.20	1.2					
Aethylcyclohexane		5.0		0.60	1.2					
Aethylene Chloride		0.38	U	0.38	1.2					
n-Xylene & p-Xyler		0.13	Ŭ 🕽	0.13	1.2					

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## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-1 Solid	% Moisture	e: 20.2		mpled: 11/18/2015 10 ceived: 11/18/2015 16
	820	60C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1346 11/18/2015 1922	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47499.D 5.23 g 5 mL
Analyte	DryWt Corrected	d: Y Result (u	a/Ka) Qual	ifier MDL	PI
Styrene	DIYWI CONECIEC	0.18	g/kg) Quai U	0.18	RL 1.2
Tetrachloroethene		0.18	U	0.34	1.2
Toluene		0.23	Ŭ	0.23	1.2
trans-1,2-Dichloroe	ethene	0.47	Ŭ	0.47	1.2
trans-1,3-Dichlorop		0.12	Ŭ	0.12	1.2
Trichloroethene	and a start	0.31	Ū	0.31	1.2
Trichlorofluorometh	nane	0.41	U	0.41	1.2
Vinyl chloride		0.47	U	0.47	1.2
Surrogate		%Rec	Qual	ifier Acceptar	nce Limits
1,2-Dichloroethane		123		78 - 135	
4-Bromofluorobenz		103		67 - 126	
Dibromofluorometh	nane (Surr)	111		61 - 149	
Toluene-d8 (Surr)		107		73 - 121	

## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-1 Solid	% Moistur	e: 20.2			11/18/2015 10 11/18/2015 16
	826	0C Volatile Organi	ic Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1346 11/18/2015 1922	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	K474	
Tentatively Identi	fied Compounds	Number TIC's F	ound: 8			
Tentatively Identi Cas Number	fied Compounds Analyte	Number TIC's F	ound: 8 RT	Est. Result (u	a/Ka)	Qualifier
				Est. Result (u 11	g/Kg)	Qualifier
Cas Number	Analyte		RT	11	g/Kg)	JN
Cas Number 638-04-0 91-57-6	Analyte Cyclohexane, 1,3-dimeth		RT 7.04	11 6.1	g/Kg)	J N J N
Cas Number 638-04-0 91-57-6 90-12-0	Analyte Cyclohexane, 1,3-dimeth Naphthalene, 2-methyl-	yl-, cis-	RT 7.04 13.29	11 6.1 32	g/Kg)	JN JN JN
Cas Number 638-04-0	Analyte Cyclohexane, 1,3-dimeth Naphthalene, 2-methyl- Naphthalene, 1-methyl-	yl-, cis-	RT 7.04 13.29 13.46	11 6.1 32 11	g/Kg)	J N J N J N J N
Cas Number 638-04-0 91-57-6 90-12-0 571-61-9	Analyte Cyclohexane, 1,3-dimeth Naphthalene, 2-methyl- Naphthalene, 1-methyl- Naphthalene, 1,5-dimethy	yl-, cis- yl- yl-	RT 7.04 13.29 13.46 14.28	11 6.1 32 11 17	g/Kg)	N N N N U N U U
Cas Number 638-04-0 91-57-6 90-12-0 571-61-9 581-42-0	Analyte Cyclohexane, 1,3-dimeth Naphthalene, 2-methyl- Naphthalene, 1-methyl- Naphthalene, 1,5-dimethy Naphthalene, 2,6-dimethy	yl-, cis- yl- yl- /l-	RT 7.04 13.29 13.46 14.28 14.46	11 6.1 32 11 17 9.1	g/Kg)	J N J N J N J N

## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-2 Solid	% Moisture	e: 30.2		impled: 11/18/2015 11 eceived: 11/18/2015 16						
8260C Volatile Organic Compounds by GC/MS											
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	lethod: 5035 Prep Batch: 460-33618 n: 1.0 is Date: 11/30/2015 1412		460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	CVOAMS9 K47500.D 4.82 g 5 mL						
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qua	lifier MDL	RL						
1,1,1,2-Tetrachloro		0.61	U	0.61	1.5						
1,1,1-Trichloroetha		0.56	Ŭ	0.56	1.5						
1,1,2,2-Tetrachloro		0.25	Ŭ	0.25	1.5						
1,1,2-Trichloro-1,2		0.65	Ŭ	0.65	1.5						
1,1,2-Trichloroetha		0.42	U	0.42							
1,1-Dichloroethane		0.42	U		1.5						
1,1-Dichloroethene		0.61	U	0.51	1.5						
1,2,3-Trichloroben				0.61	1.5						
1,2,4-Trichloroben:		0.16	U	0.16	1.5						
		0.48	U	0.48	1.5						
1,2-Dibromo-3-Chl 1,2-Dichlorobenze		0.70	U	0.70	1.5						
		0.21	U	0.21	1.5						
1,2-Dichloroethane		0.16	U	0.16	1.5						
1,2-Dichloropropar		0.25	U	0.25	1.5						
1,3-Dichlorobenzei		0.18	U	0.18	1.5						
1,4-Dichlorobenzer	le	0.19 U		0.19	1.5						
1,4-Dioxane		9.5	U	9.5	30						
2-Butanone (MEK)		1.1	U	1.1	7.4						
2-Hexanone	1	1.4	U	1.4	7.4						
2-Methyl-2-propan		5.2	U	5.2	15						
4-Methyl-2-pentance	one (MIBK)	3.3	U	3.3	7.4						
Acetone		1.6	U	1.6	7.4						
Benzene		210	0.6	0.30	1.5						
Bromoform		0.19	U	0.19	1.5						
Bromomethane		0.48	U	0.48	1.5						
Carbon disulfide	2-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	0.64	U	0.64	1.5						
Carbon tetrachlorid	e	0.64	U	0.64	1.5						
Chlorobenzene		0.21	U	0.21	1.5						
Chlorobromometha		0.25	U	0.25	1.5						
Chlorodibromomet	nane	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						
is-1,2-Dichloroeth		0.33	U	0.33	1.5						
is-1,3-Dichloropro	pene	0.22	U	0.22	1.5						
Cyclohexane		4.6	34	0.68	1.5						
Dichlorobromometh		0.56	U C	0.56	1.5						
Dichlorodifluorome	nane	0.48	U 🕽	0.48	1.5						
thylbenzene		14		0.27	1.5						
thylene Dibromide		0.18	U	0.18	1.5						
sopropylbenzene		6.3		0.25	1.5						
lethyl acetate		1.3	U	1.3	7.4						
Nethyl tert-butyl eth		0.25	U	0.25	1.5						
lethylcyclohexane		23		0.74	1.5						
lethylene Chloride		0.48	U	0.48	1.5						
		22		0.40	4 5						
n-Xylene & p-Xyler -Xylene	ie	22 45	7	0.16 0.24	1.5 1.5						

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## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-2 Solid	% Moisture	ə: 30.2		npled: 11/18/2015 1155 ceived: 11/18/2015 1650
	82600	Volatile Organi	c Compounds by C	SC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1412 11/18/2015 1923	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47500.D 4.82 g 5 mL
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qualifi	er 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-Dichloroe		0.58	U	0.58	1.5
trans-1,3-Dichlorop	propene	0.15	U	0.15	1.5
Trichloroethene		0.39	U	0.39	1.5
Trichlorofluorometh	ane	0.51	U	0.51	1.5
Vinyl chloride		0.58	U	0.58	1.5
Surrogate		%Rec	Qualifi	er Acceptan	ce Limits
1,2-Dichloroethane	-d4 (Surr)	124		78 - 135	
4-Bromofluorobenz	ene	101		67 - 126	
Dibromofluorometh	ane (Surr)	108		61 - 149	
Toluene-d8 (Surr)		104		73 - 121	

## Analytical Data

Job Number: 460-104826-1

Client Sample ID Lab Sample ID: Client Matrix:	: SB-301-S-18.5-19.0 460-104826-2 Solid	% Moisture	e: 30.2		npled: 11/18/2015 115 ceived: 11/18/2015 165
	826	0C Volatile Organi	c Compounds by (	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1412 11/18/2015 1923	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47500.D 4.82 g 5 mL
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10		
Cas Number	Analyte		RT	Est. Result (ug/	(Kg) Qualifier
638-04-0	Cyclohexane, 1,3-dimeth	iyl-, cis-	7.04	14	JN
108-67-8	Benzene, 1,3,5-trimethyl		10.50	21	JN
95-63-6	Benzene, 1,2,4-trimethyl		10.78	16	JN
99-87-6	Benzene, 1-methyl-4-(1-methylethyl)-		10.95	22	JN
496-11-7	Indane		11.20	25	JN
4218-48-8	Benzene, 1-ethyl-4-(1-methylethyl)-		11.54	27	JN
91-20-3	Naphthalene		12.46	31	JN
90-12-0	Naphthalene, 1-methyl-		13.46	38	JN
2027-17-0	Naphthalene, 2-(1-methy	lethyl)-	14.76	17	JN
33-32-9	Acenaphthene		15.40	16	JN

## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-3 Solid	% Moisture	e: 9.7		Date Sampled: 11/18/2015 1225 Date Received: 11/18/2015 1650		
	82600	Volatile Organi	c Compounds by	y GC/MS			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1437 11/18/2015 1924	Analysis Batch: 460-3379 Prep Batch: 460-33618		Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	CVOAMS9 K47501.D 5.66 g 5 mL		
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Qua	lifier MDL	RL		
1,1,1,2-Tetrachlord		0.40	U	0.40	0.98		
1,1,1-Trichloroetha		0.37	Ŭ	0.37	0.98		
1,1,2,2-Tetrachlord		0.17	Ŭ	0.17	0.98		
1,1,2-Trichloro-1,2		0.43	Ŭ	0.43	0.98		
1,1,2-Trichloroetha		0.27	Ŭ				
1,1-Dichloroethane			U	0.27	0.98		
		0.33	U	0.33	0.98		
1,1-Dichloroethene 1,2,3-Trichloroben:		0.40		0.40	0.98		
		0.11	U	0.11	0.98		
1,2,4-Trichlorobenz		0.31	U	0.31	0.98		
1,2-Dibromo-3-Chloropropane		0.46	U		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	υJ	6.3	20		
2-Butanone (MEK)		0.75	U ]	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	Ŭ	0.15	0.98		
Cyclohexane		0.45	Ŭ	0.45	0.98		
Dichlorobromomethane		0.37	Ŭ	0.37	0.98		
Dichlorodifluoromethane		0.31	U)	0.31	0.98		
Ethylbenzene		0.18	Ŭ 1	0.18	0.98		
Ethylene Dibromide		0.12	Ŭ	0.12	0.98		
Isopropylbenzene		0.17	Ŭ	0.17	0.98		
Methyl acetate		0.88	Ŭ	0.88	4.9		
Methyl tert-butyl ether		0.17	Ŭ	0.17	0.98		
		0.49	U	0.49	0.98		
/ethvicvclohevane							
Methylcyclohexane		0.31		0.24	0.00		
Methylene Chloride		0.31	U	0.31	0.98		
		0.31 0.37 0.17	J U	0.31 0.11 0.16	0.98 0.98 0.98		

TestAmerica Edison

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## Analytical Data

Job Number: 460-104826-1

ab Sample ID: 460-104826-3 lient Matrix: Solid % Moisture				Sampled: 11/18/2015 1225 Received: 11/18/2015 1650		
35.5	826	0C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1437 11/18/2015 1924	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47501.D 5.66 g 5 mL	
Analyte	DryWt Corrected	: Y Result (u	g/Kg) Qua	lifier 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	
/inyl chloride		0.38	U	0.38	0.98	
Surrogate		%Rec	Qual	ifier Acceptar	ice Limits	
1,2-Dichloroethane-d4 (Surr)		118		78 - 135		
4-Bromofluorobenzene		100	100 67		7 - 126	
Dibromofluorometh	ane (Surr)	107				
Toluene-d8 (Surr)		104	104 73 - 121			

)

Analytical Data

Client: ARCADIS U.S. Inc

SB-300-S-5.0-6.0

460-104826-3

**Client Sample ID:** 

Lab Sample ID:

	Job Number:	460-104826-1
	Date Sampled:	11/18/2015 1225

Client Matrix: Solid % Moisture: 9.7 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

# Analytical Data

Job Number: 460-104826-1

Lab Sample ID: 460-104826-4 Client Matrix: Solid		% Moisture: 20.5			Date Sampled: 11/18/2015 12 Date Received: 11/18/2015 16		
	82600	Volatile Organi	c Compounds by	GC/MS			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1504 11/18/2015 1924	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:			
Analyte	DryWt Corrected: Y	Result (u	g/Kg) Quali	fier MDL	RL		
1,1,1,2-Tetrachlord	bethane	0.51	U	0.51	1.2		
1,1,1-Trichloroetha		0.47	Ŭ	0.47	1.2		
1,1,2,2-Tetrachlord		0.21	Ŭ	0.21	1.2		
1,1,2-Trichloro-1,2		0.55	Ŭ	0.55	1.2		
1,1,2-Trichloroetha		0.35	U	0.35	1.2		
1,1-Dichloroethane		0.42	U	0.42	1.2		
1,1-Dichloroethene		0.51	U	0.42	1.2		
1,2,3-Trichloroben		0.14	Ŭ	0.14	1.2		
1,2,4-Trichloroben		0.14	U	0.40			
1,2-Dibromo-3-Chl		0.59	U	2 C 3 C 3	1.2		
1,2-Dichlorobenzei		0.17	Ŭ	0.59 0.17	1.2		
1,2-Dichloroethane		0.14	U	0.14	1.2 1.2		
1,2-Dichloropropar		0.21	Ŭ	0.14			
1,3-Dichlorobenzei		0.15	Ŭ		1.2		
1,4-Dichlorobenzene		0.16	U	0.15	1.2		
1,4-Dioxane	le	8.0	U)	0.16	1.2		
2-Butanone (MEK)		5.7		8.0	25		
2-Hexanone		1.2	U L	0.96 1.2	6.2		
2-Methyl-2-propan		4.3	U	4.3	6.2		
4-Methyl-2-pentance		2.8	U	2.8	12		
Acetone		2.0	U	1.3	6.2		
Benzene			1		6.2		
Bromoform		0.62	J	0.25	1.2		
Bromomethane		0.16 0.40	U	0.16	1.2		
Carbon disulfide		0.54	UU	0.40	1.2		
Carbon tetrachlorid		0.54		0.54	1.2		
Chlorobenzene		0.17	UU	0.54	1.2		
Chlorobromometha	100	0.21	U U	0.17	1.2		
Chlorodibromometi		0.19	Ű	0.21	1.2		
Chloroethane	lanc	0.44	U	0.19 0.44	1.2		
Chloroform		0.26	U	0.26	1.2		
Chloromethane		0.47	U	0.28	1.2		
is-1,2-Dichloroeth	202	0.27	U	0.47	1.2		
is-1,3-Dichloropro		0.19	U	0.19	1.2		
Cyclohexane	pene	0.57	U	0.19	1.2		
Dichlorobromometh	ane	0.47	U,		1.2		
Dichlorodifluoromet		0.40		0.47	1.2		
thylbenzene	linarie	0.22	U J	0.40	1.2		
thylene Dibromide	2	0.15	U	0.22 0.15	1.2		
sopropylbenzene		0.13	J		1.2		
Aethyl acetate		1.1	U	0.21 1.1	1.2		
lethyl tert-butyl eth	)er	0.21	U		6.2		
lethylcyclohexane		0.62	U	0.21	1.2		
Aethylene Chloride				0.62	1.2		
		0.40	U	0.40	1.2		
n-Xylene & p-Xyler -Xylene		0.14	07	0.14	1.2		
- A yielle		0.20	U	0.20	1.2		

### Analytical Data

Lab Sample ID: Client Matrix:	460-104826-4 Solid	% Moisture	e: 20.5			npled: 11/18/2015 1255 ceived: 11/18/2015 1650
	8260	C Volatile Organi	c Compounds I	by GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1504 11/18/2015 1924	Analysis Batch: Prep Batch:	460-337914 460-336188			CVOAMS9 K47502.D 5.05 g 5 mL
Analyte	DryWt Corrected:	Y Result (u	a/Ka) Qu	alifier	MDL	RL
Styrene		0.19	U	funder.	0.19	1.2
Tetrachloroethene		0.35	Ũ		0.35	1.2
Toluene		0.24	Ū		0.24	1.2
trans-1,2-Dichloroe	ethene	0.49	U	- 13	0.49	1.2
trans-1,3-Dichlorop	propene	0.12	U	6	0.12	1.2
Trichloroethene		0.32	U	0	0.32	1.2
Trichlorofluorometh	nane	0.42	U		0.42	1.2
Vinyl chloride		0.49	U	3	0.49	1.2
Surrogate		%Rec	Qu	alifier	Acceptan	ce Limits
1,2-Dichloroethane	-d4 (Surr)	119			78 - 135	
4-Bromofluorobenz		102			67 - 126	
Dibromofluorometh	ane (Surr)	108			61 - 149	
Foluene-d8 (Surr)		105			73 - 121	

# Analytical Data

Lab Sample ID: Client Matrix:	460-104826-4 Solid	% Moistur	e: 20.5	Date Sampled: 11/18/2015 1 Date Received: 11/18/2015 1		
	820	60C Volatile Organi	c Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1504 11/18/2015 1924	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47502.D 5.05 g 5 mL	
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10			
Cas Number	Analyte		RT	Est. Result (ug/		
54676-39-0	Unknown Cyclohexane, 2-butyl-1,1 Unknown Unknown Unknown Unknown	I,3-trimethyl-	11.75 12.30 12.41 12.55 12.68 13.34	79 85 90 85 91		
0655-44-3	Unknown Decahydro-4,4,8,9,10-pe Unknown Unknown	ntamethylnaphthal	13.34 13.49 13.57 14.13 14.23	92 78 76 120 89	Ч U V U U U U U U	

### Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-5 Solid	% Moisture	e: 31.2		mpled: 11/18/2015 12: ceived: 11/18/2015 16:
	and the second sec		c Compounds by		
Analysis Method:	8260C				
		Analysis Batch:	460-337914	Instrument ID:	CVOAMS9
Prep Method:	5035	Prep Batch:	460-336188	Lab File ID:	K47503.D
Dilution:	1.0			Initial Weight/Volume:	4.53 g
Analysis Date:	11/30/2015 1529			Final Weight/Volume:	5 mL
Prep Date:	11/18/2015 1925				
Analyte	DryWt Corrected: \	Y Result (u	g/Kg) Quali	ifier MDL	RL
1,1,1,2-Tetrachlord	and the second	0.66	U	0.66	1.6
1,1,1-Trichloroetha		0.61	Ŭ	0.61	1.6
1,1,2,2-Tetrachlord		0.27	Ŭ	0.27	
1,1,2-Trichloro-1,2					1.6
		0.71	U	0.71	1.6
1,1,2-Trichloroetha		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-Trichloroben		0.18	U	0.18	1.6
1,2,4-Trichloroben		0.51	U	0.51	1.6
1,2-Dibromo-3-Chl	oropropane	0.75	U	0.75	1.6
1,2-Dichlorobenze	ne	0.22	U	0.22	1.6
1,2-Dichloroethane	9	0.18	U	0.18	1.6
,2-Dichloropropar	ne	0.27	U	0.27	1.6
,3-Dichlorobenzer		0.19	Ŭ	0.19	1.6
,4-Dichlorobenzei		0.21	Ŭ	0.21	1.6
,4-Dioxane		10	Ŭ)	10	32
2-Butanone (MEK)		8.3		1.2	
2-Hexanone			J		8.0
		1.5		1.5	8.0
2-Methyl-2-propan		5.6	U	5.6	16
-Methyl-2-pentand	one (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 tetrachloric	le	0.69	U	0.69	1.6
chlorobenzene		0.22	U	0.22	1.6
chlorobromometha	ane	0.27	U	0.27	1.6
chlorodibromomet	hane	0.24	U	0.24	1.6
chloroethane		0.56	U	0.56	1.6
hloroform		0.34	U	0.34	1.6
hloromethane		0.61	Ŭ	0.61	1.6
is-1,2-Dichloroeth	ene	0.35	Ŭ	0.35	1.6
is-1,3-Dichloropro		0.24	Ŭ	0.24	1.6
cyclohexane		2.4	0	0.74	1.6
lichlorobromometh	ane	0.61	U.	0.74	
ichlorodifluoromet		0.51			1.6
thylbenzene		2.5	U 7	0.51	1.6
				0.29	1.6
thylene Dibromide	5	0.19	U	0.19	1.6
sopropylbenzene		2.5		0.27	1.6
lethyl acetate		1.4	U	1.4	8.0
lethyl tert-butyl eth		0.27	U	0.27	1.6
lethylcyclohexane		10		0.80	1.6
lethylene Chloride		0.51	U	0.51	1.6
n-Xylene & p-Xyler	ne	5.1	7	0.18	1.6
-Xylene		16	-	0.26	1.6

Client Sample ID: SB-301-S-17 5-18 0

## Analytical Data

Lab Sample ID: Client Matrix:	460-104826-5 Solid	% Moistur	e: 31.2		mpled: 11/18/2015 1235 ceived: 11/18/2015 1650
	826	0C Volatile Organi	c Compounds by	GC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1529 11/18/2015 1925	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOAMS9 K47503.D 4.53 g 5 mL
Analyte	DryWt Corrected	Y Result (u	g/Kg) Qua	lifier MDL	RL
styrene		0.60	J	0.24	1.6
etrachloroethene		0.45	Ū	0.45	1.6
oluene		0.48	J	0.30	1.6
ans-1,2-Dichloroe		0.63	U	0.63	1.6
ans-1,3-Dichlorop	propene	0.16	U	0.16	1.6
richloroethene		0.42	U	0.42	1.6
richlorofluorometh	nane	0.55	U	0.55	1.6
nyl chloride		0.63	U	0.63	1.6
urrogate		%Rec	Qual	ifier Acceptan	ce Limits
2-Dichloroethane	-d4 (Surr)	121	area.	78 - 135	
Bromofluorobenz		102		67 - 126	
ibromofluorometh	ane (Surr)	110		61 - 149	
oluene-d8 (Surr)		105		73 - 121	

### Analytical Data

Lab Sample ID: Client Matrix:	460-104826-5 Solid	% Moistur	Date Sampled: 11/18/2015 12 Date Received: 11/18/2015 16			
	826	0C Volatile Organi	ic Compounds by	GC/MS		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5035 1.0 11/30/2015 1529 11/18/2015 1925	Analysis Batch: Prep Batch:	460-337914 460-336188	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	CVOA K4750 4.53 5 mL	)3.D g
Tentatively Identi	fied Compounds	Number TIC's F	ound: 10			
Cas Number	Analyte		RT		2.5	
526-73-8	Benzene, 1,2,3-trimethyl-		10.50	Est. Result (ug/ 12	Kg)	Qualifier
4218-48-8	Benzene, 1-ethyl-4-(1-me		11.54	15		JN
91-20-3	Naphthalene	- 1	12.46	10		JN
				1 Aug		JN
	Naphthalene, 1-methyl-		13.46	21		LN
	Naphthalene, 1-methyl- Unknown		13.46 13.87	21 8.5		JN
90-12-0	Naphthalene, 1-methyl- Unknown Unknown		12.12	21 8.5 11		JN
	Naphthalene, 1-methyl- Unknown Unknown Naphthalene, 1,3-dimethy	1-	13.87	8.5		JN
90-12-0	Naphthalene, 1-methyl- Unknown Unknown Naphthalene, 1,3-dimethy Unknown		13.87 14.13	8.5 11		ли ЛИ ЛИ
90-12-0	Naphthalene, 1-methyl- Unknown Unknown Naphthalene, 1,3-dimethy		13.87 14.13 14.45	8.5 11 19		JN

Client Sample ID: TB-151118

### Analytical Data

Job Number: 460-104826-1

8: 0C 0C 1/2015 0054 1/2015 0054 ne uoroethane	260C Volatile Organic Analysis Batch: Prep Batch: Prep Batch: 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 0.33 8.7	460-336648 N/A	y GC/MS Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: lifier MDL 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	CVOAMS12 O04424.D 5 mL 5 mL RL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
0C 0C 1/2015 0054 1/2015 0054	Analysis Batch: Prep Batch: Result (ug 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 0.33 8.7	460-336648 N/A U U U U U U U U U U U U U U U U U U U	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	O04424.D 5 mL 5 mL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
0C 1/2015 0054 1/2015 0054 ne uoroethane	Prep Batch: Result (ug 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 0.33 8.7	N/A U U U U U U U U U U U U U U U U U U U	Lab File ID: Initial Weight/Volume Final Weight/Volume: 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	O04424.D 5 mL 5 mL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
1/2015 0054 1/2015 0054 ne uoroethane	Result (ug 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 0.33 8.7	//L) Qua U U U U U U U U U U U U U U U U U U U	Initial Weight/Volume Final Weight/Volume: lifier MDL 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	E 5 mL 5 mL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
1/2015 0054 ne uoroethane	0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		Final Weight/Volume: lifier MDL 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	RL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
1/2015 0054 ne uoroethane	0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		Final Weight/Volume: lifier MDL 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	RL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
ne uoroethane	0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		lifier MDL 0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	RL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
uoroethane	0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
uoroethane	0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.28 0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
uoroethane	0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.19 0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
	0.34 0.080 0.24 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.34 0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
opane	0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.080 0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
opane	0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.24 0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0 1.0
opane	0.34 0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7		0.34 0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0 1.0
opane	0.35 0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7	ບ ບ ບ ບ ບ ບ	0.35 0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0 1.0
opane	0.27 0.23 0.22 0.25 0.18 0.33 0.33 8.7	U U U U U U	0.27 0.23 0.22 0.25 0.18	1.0 1.0 1.0 1.0
opane	0.23 0.22 0.25 0.18 0.33 0.33 8.7	U U U U U	0.23 0.22 0.25 0.18	1.0 1.0 1.0
	0.22 0.25 0.18 0.33 0.33 8.7	บ บ บ บ	0.22 0.25 0.18	1.0 1.0
	0.25 0.18 0.33 0.33 8.7	บ บ บ	0.25 0.18	1.0
	0.18 0.33 0.33 8.7	U U	0.18	
	0.33 0.33 8.7	U		10
	0.33 8.7		0.00	
	8.7	U	0.33	1.0
			0.33	1.0
	2.2	U	8.7	50
	0.72	U	2.2	5.0
IBK)	0.63	U	0.72	5.0
	1.1	U	0.63	5.0
	0.090	U )	1.1	5.0
	0.18	U	0.090	1.0
	0.18	U	0.18	1.0
	0.22	U	0.18	1.0
	0.33	U	0.22	1.0
	0.33	U	0.33	1.0
	0.30	U	0.24	1.0
	0.22	U	0.30	1.0
	0.22	U	0.22	1.0
		L U	0.37	1.0
	0.22	U	0.22	1.0
	0.22 0.26	U	0.22	1.0
	0.26	U	0.26	1.0
	0.26	U	0.16	1.0
		U	0.26	1.0
				1.0
				1.0
				1.0
				1.0
				1.0
			0.58	5.0
				1.0
			0.22	1.0
			0.21	1.0
			0.28	1.0
			0.32	1.0
			0.17	1.0
	0.12	U	0.12	1.0
		0.15 0.14 0.30 0.19 0.32 0.58 0.13 0.22 0.21 0.28 0.32 0.17 0.12	0.14 U 0.30 U 0.19 U 0.32 U 0.58 U 0.13 U 0.22 U 0.21 U 0.28 U 0.32 U 0.28 U 0.32 U 0.32 U	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

# Analytical Data

Analysis Method	82600	8260C Volatile Organic Compounds by GC/MS	
Lab Sample ID: Client Matrix:	460-104826-6 Water		Date Sampled: 11/18/2015 0000 Date Received: 11/18/2015 1650
Client Sample ID:	TB-151118		

		toratio organi	c compc	ounds by G	IC/MS	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C 5030C 1.0 11/21/2015 0054 11/21/2015 0054	Analysis Batch: Prep Batch:	460-336 N/A	6648	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	
Analyte Toluene trans-1,2-Dichloroe trans-1,3-Dichlorop Trichloroethene Trichlorofluorometh Vinyl chloride Surrogate 1,2-Dichloroethane- 4-Bromofluorobenze Dibromofluorometha Toluene-d8 (Surr)	oropene nane -d4 (Surr) ene	Result (ug 0.25 0.18 0.19 0.22 0.15 0.060 %Rec 83 118 88 90	g/L)	Qualifie U U U U U Qualifier	0.25 0.18 0.19 0.22 0.15 0.060	RL 1.0 1.0 1.0 1.0 1.0 1.0 Ce Limits

#### Analytical Data

Job Number: 460-104826-1

#### Client Sample ID: SB-300-S-16.5-17.0

Lab Sample ID: Client Matrix:	460-104826-1 Solid	% Moistur	re: 20.2		mpled: 11/18/2015 1 eceived: 11/18/2015 1
1.1.1.1	827	0D Semivolatile Org	ganic Compounds	s (GC/MS)	
Analysis Method:	8270D	Analysis Batch:	460-337415	Instrument ID:	CBNAMS11
Prep Method:	3546	Prep Batch:	460-337251	Lab File ID:	z38942.D
Dilution:	20			Initial Weight/Volume:	
Analysis Date:	11/25/2015 1627	Run Type:	DL	Final Weight/Volume:	1 mL
Prep Date:	11/24/2015 1442			Injection Volume:	1 uL
Analyte	DryWt Correcte	ed: Y Result (u	g/Kg) Qual	ifier MDL	D'
1,1'-Biphenyl		1000	J D		RL
2,4,5-Tetrachlord	benzene	610	U		8200
2,2'-oxybis[1-chlore	propanel	340	U	610	8200
2,3,4,6-Tetrachloro	phenol	780		340	8200
4,5-Trichloropher	nol	820	U	780	8200
2,4,6-Trichloropher			U	820	8200
2,4-Dichlorophenol		230	U	230	3300
4-Dimethylpheno		190	U	190	3300
2,4-Dinitrophenol		1800	U	1800	8200
4-Dinitrotoluene		6200	U	6200	6600
		330	U	330	1700
6-Dinitrotoluene		440	U	440	1700
-Chloronaphthaler	16	190	U	190	8200
-Chlorophenol		210	U	210	8200
-Methylnaphthaler	ie	4800	JĐ	180	8200
-Methylphenol		360	U	360	8200
-Nitroaniline		270	U	270	8200
-Nitrophenol		280	U	280	8200
3'-Dichlorobenzid	ne	920	U	920	3300
-Nitroaniline		240	U	240	8200
,6-Dinitro-2-methy		2200	U	2200	6600
-Bromophenyl phe		260	U	260	8200
-Chloro-3-methylp	nenol	350	U	350	8200
-Chloroaniline		210	Ŭ	210	8200
-Chlorophenyl phe	nyl ether	250	Ŭ	250	8200
-Methylphenol		220	Ŭ	220	
Nitroaniline		310	Ŭ	310	8200
Nitrophenol		4000	Ŭ	4000	8200
cenaphthene		15000	Đ	200	17000
cenaphthylene		210	Ŭ	200	8200
cetophenone		180	Ŭ		8200
nthracene		40000	Đ	180 780	8200
trazine		370	U		8200
enzaldehyde		630	Ŭ	370	3300
enzo[a]anthracene		38000	Đ	630	8200
enzo[a]pyrene		30000	Ð	690	820
enzo[b]fluoranthen	e	39000		250	820
enzo[g,h,i]perylene		17000	D	320	820
enzo[k]fluoranthen		13000	Ð	470	8200
s(2-chloroethoxy)r			Ð	360	820
s(2-chloroethyl)eth	er	260	U	260	8200
s(2-ethylhexyl) pht	halato	190	U	190	820
ityl benzyl phthala	indiale	320	U	320	8200
aprolactam		250	U	250	8200
arbazole		590	U	590	8200
		10000	D	200	8200
nrysene benz(a,h)anthrace	16 - C	40000	-D-	220	8200
DEUZIA DISPITINGOO	10	4700	Đ	430	820

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#### Analytical Data

Job Number: 460-104826-1

#### Client Sample ID: SB-300-S-16.5-17.0

Lab Sample ID: Client Matrix:	460-10482 Solid	26-1	% Moistur	e: 20.2	2		mpled: 11/18/2015 100 ceived: 11/18/2015 165
		8270D	Semivolatile Org	janic Co	mpounds (	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 20 11/25/2015 1 11/24/2015 1		Analysis Batch: Prep Batch: Run Type:	460-33 460-33 DL		Instrument ID; Lab File ID; Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS11 z38942.D 15.0551 g 1 mL 1 uL
Analyte	DryV	Vt Corrected: Y	Result (u	a/Ka)	Qualifie	er MDL	RL
Dibenzofuran			14000	9/1/9/	Đ	10000	
Diethyl phthalate			230		U	250 230	8200
Dimethyl phthalate			240		Ŭ	230	8200
Di-n-butyl phthalate	Э		250		U		8200
Di-n-octyl phthalate			420		Ŭ	250	8200
luoranthene			92000		Đ	420	8200
luorene			20000		Đ	240	8200
lexachlorobenzen	e		330		U	180	8200
-lexachlorobutadie			230		U	330	820
Hexachlorocyclope			510		U	230	1700
lexachloroethane			300			510	8200
ndeno[1,2,3-cd]pyr	ene		18000		U	300	820
sophorone			18000		Ð	550	820
laphthalene			4900		U	180	3300
litrobenzene			260		JÐ	210	8200
I-Nitrosodi-n-propy	lamine		280		U	260	820
I-Nitrosodiphenylar	mine		750		U	280	820
entachlorophenol			1000		U	750	8200
henanthrene					U	1000	6600
henol			140000 270		Ð	220	8200
yrene					U	270	8200
,			96000		Đ	370	8200
urrogate			%Rec		Qualifier	Acceptanc	æ Limits
4,6-Tribromophen	ol (Surr)		39		D	10 - 95	
Fluorobiphenyl			53		D	27 - 84	
Fluorophenol (Sur	r)		51		D	21 - 84	
itrobenzene-d5 (Si	urr)		54		D	28 - 92	
henol-d5 (Surr)			53		D	22 - 88	
erphenyl-d14 (Surr	)		77		D	16 - 114	

Client Sample ID: SB-301-S-18.5-19.0

#### **Analytical Data**

Lab Sample ID: Client Matrix:	460-104826-2 Solid	% Moist	ure: 30.2		ampled: 11/18/2015 11 eceived: 11/18/2015 16
		8270D Semivolatile C	rganic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1010 11/24/2015 1442	Analysis Batcl Prep Batch:	2 460-337329 460-337251	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	
Analyte	DryWt Co	prrected: Y Result	(ug/Kg) Qual	ifier MDL	Di
1,1'-Biphenyl		45	J		RL
1,2,4,5-Tetrachloro	benzene	35	U	40	470
2,2'-oxybis[1-chlord		19		35	470
2,3,4,6-Tetrachloro	phenol	44	U	19	470
2,4,5-Trichloropher	ol		U	44	470
2,4,6-Trichloropher		47	U	47	470
2,4-Dichlorophenol		13	U	13	190
4-Dimethylphenol		11	U	11	190
		100	U	100	470
4-Dinitrophenol		360	U	360	380
4-Dinitrotoluene		19	U	19	96
6-Dinitrotoluene		25	U	25	96
-Chloronaphthaler	e	11	U	11	470
-Chlorophenol		12	U	12	470
-Methylnaphthalen	e	280	J	10	470
-Methylphenol		21	U	21	470
-Nitroaniline		16	Ŭ	16	470
-Nitrophenol		16	Ŭ	16	
3'-Dichlorobenzidi	ne	53	Ŭ J	53	470
-Nitroaniline		14	Ű	14	190
6-Dinitro-2-methyl	phenol	130	ŭ 🔰		470
Bromophenyl pher		15	U J	130	380
-Chloro-3-methylph	nenol	20	Ŭ	15	470
Chloroaniline		12		20	470
Chlorophenyl pher	nvl ether	14	U	12	470
Methylphenol		13	U	14	470
Nitroaniline		18	U	13	470
Nitrophenol			U	18	470
cenaphthene		230	U	230	960
cenaphthylene		210	J	11	470
cetophenone		12	U	12	470
nthracene		10	U	10	470
razine		320	J	45	470
enzaldehyde		21	U	21	190
enzo[a]anthracene		36	U	36	470
		250		39	47
enzo[a]pyrene enzo[b]fluoranthene		270		14	47
	9	280		18	47
enzo[g,h,i]perylene		170	J	27	470
enzo[k]fluoranthene		110		21	47
s(2-chloroethoxy)m		15	U	15	470
s(2-chloroethyl)eth		11	U	11	47
s(2-ethylhexyl) phth	nalate	18	U	18	470
tyl benzyl phthalat	e	15	U	15	470
prolactam		34	Ŭ	34	470
rbazole		47	J	12	470
rysene		270	J	13	470
penz(a,h)anthracer				10	64 / 1 /

### Analytical Data

Job Number: 460-104826-1

# Client Sample ID: SB-301-S-18.5-19.0

Lab Sample ID: Client Matrix:	460-104826-2 Solid	% Moistur	e: 30.2	Date S Date R	ampled: 11/18/2015 11 leceived: 11/18/2015 16
	8270	DD Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1010 11/24/2015 1442	Analysis Batch: Prep Batch:	460-337329 460-337251	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume Injection Volume:	CBNAMS12 L128332.D a: 15.0334 g : 1 mL 1 uL
Analyte	DryWt Corrected	d: Y Result (ug	g/Kg) Quali	fier MDL	D
Dibenzofuran		14	U U		RL
Diethyl phthalate		13	Ŭ	14 13	470
imethyl phthalate		14	Ű	13	470
)i-n-butyl phthalate	9	14	Ŭ	14	470
i-n-octyl phthalate	9	24	Ŭ	24	470
luoranthene		410	J	24 14	470
luorene		200	J	14	470
exachlorobenzen		19	Ŭ	19	470
exachlorobutadie		13	ŭ	13	47
exachlorocyclope	ntadiene	29	ŭ	29	96
exachloroethane		17	Ŭ	17	470
ideno[1,2,3-cd]pyr	ene	180	0	31	47
ophorone		10	U	10	47
aphthalene		510	U	12	190
itrobenzene		15	U	12	470
-Nitrosodi-n-propy	lamine	16	Ŭ	16	47 47
Nitrosodiphenylar	mine	43	Ŭ	43	
entachlorophenol		57	Ŭ	57	470 380
nenanthrene		2200		13	470
nenol		15	U	15	470
rene		500		21	470
irrogate		%Rec	Qualifie	er Acceptan	uco Limite
4,6-Tribromophene	ol (Surr)	51	Sadime	10 - 95	ice Limits
Fluorobiphenyl		55		27 - 84	
-luorophenol (Sur	r)	51		27 - 84 21 - 84	
robenzene-d5 (Su	ırr)	55			
enol-d5 (Surr)		53		28 - 92	
rphenyl-d14 (Surr	)	60		22 - 88 16 - 114	

### Analytical Data

Job Number: 460-104826-1

#### Client Sample ID: SB-300-S-5.0-6.0

Lab Sample ID: Client Matrix:	460-104826-3 Solid	% Moistur	e: 9.7		mpled: 11/18/2015 122 ceived: 11/18/2015 165
	82700	) Semivolatile Org	anic 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 (u	g/Kg) Qual	ifier MDL	RL
1,1'-Biphenyl		31	U U	31	360
1,2,4,5-Tetrachloro	benzene	27	Ŭ	27	360
2,2'-oxybis[1-chloro		15	Ŭ	15	360
2,3,4,6-Tetrachloro		34	Ŭ	34	360
2,4,5-Trichlorophen		36	Ű	36	360
2,4,6-Trichlorophen		10	Ŭ	10	150
2,4-Dichlorophenol		8.6	Ŭ	8.6	150
2,4-Dimethylphenol		80	U	80	360
2,4-Dinitrophenol		280	Ŭ	280	
2,4-Dinitrotoluene		14	Ŭ	14	290 74
2,6-Dinitrotoluene		19	U	19	74
2-Chloronaphthalen	e	8.3	Ŭ	8.3	360
2-Chlorophenol		9.3	Ŭ	9.3	360
2-Methylnaphthalen	e	97	J	8.1	360
2-Methylphenol		16	Ŭ	16	360
2-Nitroaniline		12	U	12	360
2-Nitrophenol		12	Ŭ	12	360
3,3'-Dichlorobenzidi	ne	41	Ŭ)	41	150
3-Nitroaniline		11	Ŭ	11	360
4,6-Dinitro-2-methyl	phenol	98	U \	98	290
-Bromophenyl phe		12	ũ 🎴	12	360
-Chloro-3-methylph		16	Ŭ	16	360
-Chloroaniline		9.4	U	9.4	360
-Chlorophenyl phe	nyl ether	11	U	11	360
-Methylphenol		10	U	10	360
-Nitroaniline		14	U	14	360
-Nitrophenol		180	U	180	740
Acenaphthene		68	J	8.8	360
Acenaphthylene		45	J	9.4	360
cetophenone		8.0	U	8.0	360
Anthracene		200	J	35	360
trazine		16	U	16	150
Benzaldehyde		28	U	28	360
enzo[a]anthracene		680		31	36
Benzo[a]pyrene		790		11	36
enzo[b]fluoranthen		880		14	36
enzo[g,h,i]perylene		460		21	360
enzo[k]fluoranthen		370		16	36
is(2-chloroethoxy)r		11	U	11	360
is(2-chloroethyl)eth		8.6	U	8.6	36
is(2-ethylhexyl) pht		1300		14	360
utyl benzyl phthala	te	450	- 62 -	11	360
aprolactam		26	U	26	360
arbazole		56	J	9.1	360
hrysene		710		10	360
libenz(a,h)anthrace		170		19	36

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### Analytical Data

Lab Sample ID: Client Matrix:	460-104826-3 Solid	% Moistur	e: 9.7			mpled: 11/18/2015 122 ceived: 11/18/2015 165
1	827	0D Semivolatile Org	anic Co	mpounds (	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1035 11/24/2015 1442	Analysis Batch: Prep Batch:	460-33 460-33	7251	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128333.D 15.0231 g 1 mL 1 uL
Analyte	DryWt Correcte	d: Y Result (u	g/Kg)	Qualifie	er MDL	RL
Dibenzofuran		55	0.07	J	11	360
Diethyl phthalate		10		Ŭ	10	360
Dimethyl phthalate		11		Ŭ	11	360
Di-n-butyl phthalat		11		Ŭ	11	360
Di-n-octyl phthalat	e	19		Ŭ	19	360
Fluoranthene		1100		0	11	360
Fluorene		83		J	8.0	360
-lexachlorobenzer	e	15		Ŭ	15	36
-lexachlorobutadie	ne	10		U	10	74
lexachlorocyclope	entadiene	23		ŭι	23	360
lexachloroethane		13		Ŭ	13	36
ndeno[1,2,3-cd]py	rene	540		U.	24	36
sophorone		7.9		U	7.9	150
laphthalene		290		J	9.3	360
litrobenzene		12		ŭ	12	36
I-Nitrosodi-n-prop	ylamine	12		Ŭ	12	36
I-Nitrosodiphenyla	imine	33		Ŭ	33	360
entachlorophenol		44		Ŭ	44	290
henanthrene		620		U	9.7	
henol		12		U	12	360
lyrene		1000		U	12	360 360
urrogate		%Rec		Qualifier	Acceptanc	e Limits
4,6-Tribromopher	nol (Surr)	46			10 - 95	
-Fluorobiphenyl		59			27 - 84	
-Fluorophenol (Su		54			21 - 84	
itrobenzene-d5 (S		63			28 - 92	
henol-d5 (Surr)		56			20 - 92 22 - 88	
erphenyl-d14 (Sur	r)	64			16 - 114	

## Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-4 Solid	% Moisture	e: 20.5		ampled: 11/18/2015 aceived: 11/18/2015
	8270D	Semivolatile Org	anic Compound	Is (GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1100 11/24/2015 1442	Analysis Batch: Prep Batch:	460-337329 460-337251	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume: Injection Volume:	
Analyte	DryWt Corrected: Y	Result (ug	g/Kg) Qua	alifier MDL	RL
1,1'-Biphenyl		40	J	35	410
1,2,4,5-Tetrachlord	obenzene	31	Ŭ	31	410
2,2'-oxybis[1-chlor		17	U	17	
2,3,4,6-Tetrachlord		39	U		410
2,4,5-Trichlorophe		41	U	39	410
2,4,6-Trichlorophe		12		41	410
2,4-Dichloropheno		9.8	U	12	170
2,4-Dimethylphenc		9.8 91	U	9.8	170
2,4-Dinitrophenol		310	U	91	410
2,4-Dinitrotoluene			U	310	330
2,6-Dinitrotoluene		16 22	U -	16	84
2-Chloronaphthale			U	22	84
2-Chlorophenol		9.4	U	9.4	410
2-Methylnaphthale	20	11	U	11	410
2-Methylphenol		220	J	9.2	410
2-Nitroaniline		18	U	18	410
2-Nitrophenol		14	U	14	410
3,3'-Dichlorobenzid	ine	14	U .	14	410
-Nitroaniline	me	46	U	46	170
	10.00.001	12	U	12	410
6-Dinitro-2-methy		110	U	110	330
-Bromophenyl phe	enylether	13	U	13	410
-Chloro-3-methylp	henol	18	U	18	410
-Chloroaniline		11	U	11	410
-Chlorophenyl phe	enyl ether	12	U	12	410
-Methylphenol		12	J	11	410
-Nitroaniline		16	U	16	410
-Nitrophenol		200	U	200	840
cenaphthene		130	J	10	410
cenaphthylene		49	J	11	410
cetophenone		9.0	U	9.0	410
nthracene		270	J	39	410
trazine		18	U	18	170
enzaldehyde		32	U	32	410
enzo[a]anthracene		500		35	41
enzo[a]pyrene		600		13	41
enzo[b]fluoranther		600		16	41
enzo[g,h,i]perylene		330	L	24	410
enzo[k]fluoranthen		260		18	41
s(2-chloroethoxy)r		13	U	13	410
s(2-chloroethyl)eth		9.8	U	9.8	41
s(2-ethylhexyl) ph		100	J	16	410
utyl benzyl phthala	te	13	U	13	410
aprolactam		30	Ŭ	30	410
arbazole		43	Ĵ	10	410
hrysene		540		11	410
benz(a,h)anthrace	ne	130		22	410

### Analytical Data

Lab Sample ID: Client Matrix:	460-104826-4 Solid	% Moistur	e: 20.5		ampled: 11/18/2015 12 eceived: 11/18/2015 16
1.000	827	0D Semivolatile Org	anic Compounds	(GC/MS)	
Analysis Method:	8270D	Analysis Batch:	460-337329	Instrument ID:	CBNAMS12
Prep Method:	3546	Prep Batch:	460-337251	Lab File ID:	L128334.D
Dilution:	1.0			Initial Weight/Volume	
Analysis Date:	11/25/2015 1100			Final Weight/Volume:	
Prep Date:	11/24/2015 1442				
				Injection Volume:	1 uL
Analyte	DryWt Correcte	d: Y Result (u	g/Kg) Qual	ifier MDL	RL
Dibenzofuran		70	J	13	410
Diethyl phthalate		12	Ŭ	12	410
Dimethyl phthalate		12	Ũ	12	410
Di-n-butyl phthalate		12	Ŭ	12	410
Di-n-octyl phthalate	9	21	Ŭ	21	410
luoranthene		700		12	410
luorene		100	J	9.0	410
lexachlorobenzen		17	Ŭ	17	410
-lexachlorobutadie	ne	12	Ŭ	12	84
lexachlorocyclope	ntadiene	26	υN	26	410
lexachloroethane		15	Ŭ	15	410
ndeno[1,2,3-cd]pyr	ene	380		28	41
sophorone		8.9	Û	8.9	170
laphthalene		400	J	11	410
litrobenzene		13	Ŭ	13	410
I-Nitrosodi-n-propy	lamine	14	Ŭ	14	41
I-Nitrosodiphenyla	mine	38	Ŭ	38	410
entachlorophenol		50	Ŭ	50	330
henanthrene		610		11	410
henol		14	U	14	410
yrene		780		19	410
urrogate		%Rec	Qualif	ier Acceptan	ce Limite
4,6-Tribromophen	ol (Surr)	50		10 - 95	
-Fluorobiphenyl		62		27 - 84	
Fluorophenol (Sur		58		21 - 84	
itrobenzene-d5 (S		64		28 - 92	
henol-d5 (Surr)		59		20 - 92 22 - 88	
erphenyl-d14 (Sur	.)	64		16 - 114	

### Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-5 Solid	% Moisture	31.2	Date Sa Date Re	mpled: 11/18/2015 123 ceived: 11/18/2015 165
	82700	O Semivolatile Orga	anic Compounds	(GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1126 11/24/2015 1442	Analysis Batch: Prep Batch:	460-337329 460-337251	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128335.D 15.0448 g 1 mL 1 uL
Analyte	DryWt Corrected:	Y Result (ug			
1,1'-Biphenyl	- y in concolou.	54		ACCESS OF A	RL
1,2,4,5-Tetrachloro	henzene		J	41	480
2,2'-oxybis[1-chloro	propanel	36	U	36	480
2,3,4,6-Tetrachloro	phenol	20	U	20	480
2,4,5-Trichlorophen		45	U	45	480
2,4,6-Trichlorophen		48	U	48	480
4-Dichlorophenol		14	U	14	190
4-Dimethylphenol		11	U	11	190
4-Dinitrophenol		110	U	110	480
4-Dinitrotoluene		360	U	360	390
,6-Dinitrotoluene		19	U	19	97
-Chloronaphthalen	8	26	U	26	97
-Chlorophenol	6	11	U	11	480
-Methylnaphthalen	2	12	U	12	480
-Methylphenol	c	200	J	11	480
-Nitroaniline		21	U	21	480
-Nitrophenol		16	U	16	480
3'-Dichlorobenzidi		16	U	16	480
Nitroaniline		53	υJ	53	190
6-Dinitro-2-methyl	henol	14	U	14	480
Bromophenyl pher	vl ether	130	U )	130	390
Chloro-3-methylph	enol	15	U	15	480
Chloroaniline		21	U	21	480
Chlorophenyl pher	vl ether	12	U	12	480
Methylphenol	i suici	14	U	14	480
Nitroaniline		19	J	13	480
Nitrophenol		18 230	U	18	480
enaphthene		140	U	230	970
enaphthylene		12	J	12	480
etophenone		10	U	12	480
thracene		910	U	10	480
razine		21	11	46	480
enzaldehyde		37	U	21	190
nzo[a]anthracene		1300	U	37	480
nzo[a]pyrene		880		40	48
nzo[b]fluoranthene		930		14	48
nzo[g,h,i]perylene		330	1.1	19	48
nzo[k]fluoranthene		370	1	28	480
(2-chloroethoxy)m	ethane	15	Ú.	21	48
(2-chloroethyl)ethe	er	11	U	15	480
(2-ethylhexyl) phth	alate	19	U	11	48
tyl benzyl phthalate	1	15	Ŭ	19	480
prolactam		34	U	15	480
rbazole		130	J	34	480
rysene		1300	J	12 13	480 480
enz(a,h)anthracen					

## Client Sample ID: SB-301-S-17.5-18.0

# Analytical Data

Job Number: 460-104826-1

Lab Sample ID: Client Matrix:	460-104826-5 Solid	% Moisture:	31.2		mpled: 11/18/2015 123 ceived: 11/18/2015 165
	82700	) Semivolatile Organ	ic Compounds (	GC/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8270D 3546 1.0 11/25/2015 1126 11/24/2015 1442		60-337329 60-337251	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: Injection Volume:	CBNAMS12 L128335.D 15.0448 g 1 mL 1 uL
Analyte	DryWt Corrected:	Y Result (ug/K	g) Qualifie	er MDL	DI
Dibenzofuran		110	J	14	RL
Diethyl phthalate		14	Ŭ	14	480
Dimethyl phthalate		14	Ŭ	14	480
Di-n-butyl phthalate		14	Ŭ	14	480
Di-n-octyl phthalate	9	24	Ŭ	24	480 480
luoranthene		2100		14	480
luorene		270	J	10	480
lexachlorobenzen		19	U	19	480
lexachlorobutadier		13	U.	13	97
lexachlorocyclope	ntadiene	30	υj	30	480
lexachloroethane		18	ບ້	18	48
ndeno[1,2,3-cd]pyr	ene	410		32	48
sophorone		10	U	10	190
laphthalene litrobenzene		390	J	12	480
I-Nitrosodi-n-propy	la meteria	15	U	15	48
I-Nitrosodiphenylar	lamine	16	U	16	48
entachlorophenol	nine	43	U	43	480
henanthrene		58	U	58	390
henol		2800		13	480
yrene		16	U	16	480
,		2300		22	480
urrogate		%Rec	Qualifier	Acceptanc	o Limite
4,6-Tribromophene	ol (Surr)	40	accounter	10 - 95	e Linnis
Fluorobiphenyl		56		10 - 95 27 - 84	
Fluorophenol (Sur	r)	52		27 - 84 21 - 84	
trobenzene-d5 (SL	ırr)	59		28 - 92	
nenol-d5 (Surr)		53		20 - 92 22 - 88	
erphenyl-d14 (Surr	)	61		16 - 114	

### Client Sample ID: SB-301-S-17.5-18.0

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